

The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 4 Offshore Scheme

Chapter 10 Other Sea Users

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4.10 Other Sea Users

4.10.1 Introduction

- 4.10.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents information about the preliminary environmental assessment of the likely significant effects on other sea users (all users not subject to assessment is separate chapters) identified to date, which could result from the Proposed Project (as described in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**).
- 4.10.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, baseline conditions, mitigation measures and the preliminary residual significant effects on other sea users that could result from the Proposed Project.
- 4.10.1.3 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**.
- 4.10.1.4 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;**
 - **Volume 1, Part 2, Chapter 11, Socio-economics Recreation and Tourism;**
 - **Volume 1, Part 3, Chapter 11, Socio-economics Recreation and Tourism;**
 - **Volume 1, Part 4, Chapter 1, Evolution of the Offshore Scheme;**
 - **Volume 1, Part 4, Chapter 8, Shipping and Navigation;** and
 - **Volume 1, Part 4, Chapter 9, Commercial Fisheries.**
- 4.10.1.5 This chapter is supported by the following figures:
- **Volume 3, Figure 4.10.1 Other Sea Users Study Area;**
 - **Volume 3, Figure 4.10.2 Marine Recreational Users in the Study Area; and (Landfalls)**
 - **Volume 3, Figure 4.10.3 Offshore Infrastructure in the Study Area.**
- 4.10.1.6 This chapter is supported by the following appendices:
- **Volume 2, Appendix 1.4.A Outline Code of Construction Practice;** and
 - **Volume 2, Appendix 1.4.F Outline Schedule of Environmental Commitments and Mitigation Measures.**

4.10.2 Regulatory and Planning Context

- 4.10.2.1 This section sets out the legislation and planning policy that is relevant to the preliminary assessment of effects on other sea users. A full review of compliance with relevant national and local planning policy will be provided within the Planning Statement that will be submitted as part of the application for Development Consent.
- 4.10.2.2 Policy generally seeks to minimise effects from development on other sea users and to avoid significant adverse effects. This applies to the construction, operation, maintenance and decommissioning of the Proposed Project.

Legislation

Marine and Coastal Access Act 2009

- 4.10.2.3 The Marine and Coastal Access Act 2009 (Ref 10.1) provides the legal mechanism to help ensure clean, healthy, safe, and productive and biologically diverse oceans and seas.

National Policy

National Policy Statements

- 4.10.2.4 National Policy Statements (NPSs) (2011) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project will be considered. A review of the NPS was announced in the 2020 Energy white paper: Powering our net zero future. This review was to ensure the NPSs were brought up to date to reflect the policies set out in the white paper. The below information reflects these updates currently under consultation. Table 4.10.1, Table 4.10.2 and Table 4.10.3 below provides details of the elements of NPS (EN-1) Overarching National Policy Statement for Energy (Ref 10.2), NPS for Renewable Energy Infrastructure (EN-3) (Ref 10.3) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 10.4) that are relevant to this chapter, and how and where they are covered in the PEIR or will be covered within the Environmental Statement (ES).

Table 4.10.1: NPS EN-1 requirements relevant to other sea users (Update for consultation 2023).

NPS EN-1 section	Where this is covered in the PEIR
4.4.7 (part) “... <i>Applicants should consult the Marine Management Organisation (MMO) on nationally significant projects which would affect, or would be likely to affect, any relevant marine areas as defined in the Planning Act 2008 (as amended by s.23 of the Marine and Coastal Access Act 2009)</i> ”.	Section 4.10.3 summarises the scoping opinion and consultation received regarding other sea users. Further detail on the Sea Link scoping opinion can also be found in Volume 1, Part 1, Chapter 6, Scoping Opinion and Consultation . As per section 4.10.8, crossing agreements will be agreed with

NPS EN-1 section	Where this is covered in the PEIR
4.4.8... <i>“Applicants for a development consent order must take account of any relevant Marine Plans and are expected to complete a Marine Plan assessment as part of their project development, using this information to support an application for development consent”</i>	aggregate extraction, cable and pipeline owners where required. Relevant Marine Plans are identified in Table 4.10.4 and considered in section 4.10.9 Preliminary Assessment of Effects.
5.4.10 (part) <i>“...Where the proposed development may affect the performance of civil or military aviation, meteorological radars and/or other defence assets an assessment of potential effects should be set out in the ES”</i> .	Military practice and exercise areas are identified within section 4.10.7. Preliminary effects to military practice and exercise areas are considered in section 4.10.9.

Table 4.10.2: NPS EN-3 requirements relevant to other sea users (Update for consultation 2023).

NPS EN-3 section	Where this is covered in the PEIR
3.5.2... <i>“Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage.”</i>	The baseline for other sea users is described in section 4.10.7 with preliminary assessment of effects presented in section 4.10.9. The evolution of the Proposed Project is described in further detail in Volume 1, Part 4, Chapter 1, Evolution of the Project in Marine Waters.
3.6.2... <i>“Where flexibility is sought in the consent as a result, applicants should, to the best of their knowledge, assess the likely worst-case environmental, social and economic effects of the proposed development to ensure that the impacts of the project as it may be constructed have been properly assessed”</i> .	The preliminary assessment of effects has considered a worst case effect on other sea users based on current project design information.

Table 4.10.3: NPS EN-5 requirements relevant to other sea users (Update for consultation 2023).

NPS EN-5 section	Where this is covered in the PEIR
2.13.15 “...The sensitivities of many coastal locations and of the marine environment as well as the potential environmental, community and other impacts in neighbouring onshore areas must be considered in the identification onshore connection points.”	<p>The sensitivities of coastal communities have been identified in section 4.10.7 Marine Tourism and Recreation.</p> <p>Mitigation has been identified in section 4.10.8.</p> <p>Preliminary effects to marine tourism and recreation including recreational boating and fishing have been assessed in section 4.10.9.</p>

National Planning Policy Framework

- 4.10.2.5 The National Planning Policy Framework (NPPF) (Ref 10.5) has the potential to be considered important and relevant to the Secretary of State (SoS) consideration of the Proposed Project. There are no specific elements of the NPPF that are relevant to this chapter.

Marine Planning Policy

- 4.10.2.6 The following marine plans are considered relevant to a study of other sea users and has informed the assessment of preliminary effects in this chapter are as follows:
- The UK Marine Policy Statement (MPS) was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made (Ref 10.6);
 - East Inshore and East Offshore Marine Plan (Ref 10.7); and
 - South East Inshore Marine Plan (Ref 10.8).

Table 4.10.4: Marine Planning Policies relevant to other sea users.

Marine Plan	Where this is covered in the PEIR
The UK MPS	<p>Section 4.10.7 describes the following activities present in the Study Area outlined in the UK MPS:</p> <ul style="list-style-type: none"> • Defence and National Security; • Energy production and infrastructure development; • Marine aggregates;

Marine Plan	Where this is covered in the PEIR
	<ul style="list-style-type: none"> ● Marine dredging and disposal; ● Subsea cables; ● Aquaculture; and ● Tourism and recreation. <p>A preliminary assessment of effects on the above other sea user activities are presented in section 4.10.9.</p>
East Inshore and East Offshore Marine Plan	<p>Other sea user activities located within the East Inshore and East Offshore Marine Plan areas are presented in section 4.10.7.</p> <p>A preliminary assessment of effects on other sea user activities identified within East Inshore and East Offshore Marine Plan areas are presented in section 4.10.9.</p>
South East Inshore Marine Plan	<p>Other sea user activities located within the South East Inshore Marine Plan area is presented in section 4.10.7.</p> <p>A preliminary assessment of effects on other sea user activities identified within South East Inshore Marine Plan area is presented in section 4.10.9.</p>

Local Planning Policy

- 4.10.2.7 The intertidal area of the Offshore Scheme lies within the jurisdiction of Suffolk County Council, East Suffolk Council, Suffolk Coastal Local Plan, Kent County Council and within the boundary of Thanet District Council Local Plan and Dover District Local Plan.
- 4.10.2.8 There are no additional Local Plan policies that are considered to be relevant to other sea users for the Offshore Scheme.

Guidance

- 4.10.2.9 Additional guidance documents relevant to other sea user matters are as follows:
- International Cable Protection Committee (ICPC) Recommendation No.2. Cable Routing and Reporting Criteria (Ref 10.9);
 - International Cable Protection Committee (ICPC Recommendation No.3. Cable and Oil Pipeline/ Power Cables Crossing Criteria (Ref 10.10);
 - International Cable Protection Committee (ICPC Recommendation No.13. The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters (Ref 10.11);
 - Energy Installations and Submarine Cable Infrastructure in National Waters (Ref 10.12);

- The European Subsea Cable Association (ESCA) guideline No.6. 'The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters' (Ref 10.13);
- The European Subsea Cable Association (ESCA guideline No.19. Marine aggregate Extraction Proximity Guidelines (Ref 10.14); and
- Guidance on assessing the socio-economic impacts of offshore windfarms (OWFs), produced by Oxford Brookes and Vattenfall (Ref 10.15).

4.10.3 Scoping Opinion and Consultation

Scoping

4.10.3.1 A Scoping Report (Ref 10.16) for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 and a Scoping Opinion (Ref 10.17) adopted by PINS, on behalf of the SoS, was received on 1 December 2022. Table 4.10.5 sets out the Inspectorate's comments raised in the Scoping Opinion and how these have been addressed in this PEIR or will be addressed within the ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate.

Table 4.10.5: Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
5.7.3	<p>While the Scoping Report identifies potential impacts from the Proposed Development in broad terms, the advice from the Maritime and Coastguard Agency (MCA) identifies additional specific impacts which should be covered in assessments:</p> <ul style="list-style-type: none"> • impacts on navigational safety; • visual intrusion and noise; • impacts on risk management and emergency responses including search and rescue; • risk to drifting recreational craft in poor weather or tidal conditions; and • displacement of small craft into the routes of larger commercial vessels. <p>These impacts should be assessed in the ES unless otherwise agreed with the MCA, in which case evidence of such agreement must be provided in the ES.</p>	<p>Impacts from visual intrusion and noise on recreational boating and fishing have been included in section 4.10.9.</p> <p>All remaining impacts are discussed further in Volume 1, Part 4, Chapter 8, Shipping and Navigation.</p>
5.9.1	No matters have been proposed to be scoped out of the assessment.	Noted.
5.9.2	The Scoping Report states that the study area will consist of a 10km buffer	As stated in section 4.10.6, this 10 km Study Area is

ID	Inspectorate's comments	Response
	around the offshore scoping boundary. The study area is stated to be defined by the extent of the potentially affected other sea users but does not explain how this relates to the zone of influence (Zol) of the Proposed Development. The ES should clearly justify why the extent of the study area reflects the Zol of the Proposed Development.	considered a worst-case scenario and is inclusive of the maximum Zol of the Proposed Project and is based on similar Study Areas utilised by other subsea cable projects.
5.9.3	The Scoping Report states that the baseline data will refer to the MMO recreation activity maps if these are published before the completion of the ES. Desk studies would be used in the event that the MMO maps are not published. The ES should explain the source of the relevant information (if the MMO maps have not been published) and if possible, demonstrate agreement with relevant stakeholders on the adequacy of the data.	The MMO recreation activity maps are now available and are referenced within the baseline as required. A detailed list of data sources used in this chapter is presented in section 4.10.4.
5.9.4	The Scoping Report identifies the data sources that would be used to inform the baseline and describes the criteria that may be used to determine the sensitivity of receptors and the magnitude of impacts. However, it is not clear from the Scoping Report what methods would be used to carry out the assessment and whether the assessments would be qualitative or quantitative. The methodologies used must be described and their use justified with reference to appropriate guidance and/or agreement with relevant stakeholders.	Section 4.10.4 outlines our approach and methodology to this chapter in addition to that detailed in Volume 1, Part 1, Chapter 5, PEIR Approach. And Methodology.
5.9.5	The Scoping Report identifies various users of the area potentially affected by the Proposed Development but does not include any reference to any defence interests such as Practice and Exercise Areas. The ES should either include an assessment of impacts on these interests or a justification as to why such an assessment is not required. The Applicant's attention is drawn to the comments from the	Section 4.10.7 presents the baseline conditions of military practice and exercise areas in the Study Area. Section 4.10.9 presents the preliminary assessment of effects for military practice and exercise areas in the Study Area.

ID	Inspectorate's comments	Response
	Ministry of Defence in Appendix 2 of this Opinion.	

Consultation and Project Engagement

- 4.10.3.2 No further consultation with stakeholders was required post Scoping Opinion for other sea users. Engagement with known developments in proximity of the Offshore Scheme, including those requiring crossing agreements or proximity agreements, is being undertaken by the project team during the design stage and will continue as required.

4.10.4 Approach and Methodology

- 4.10.4.1 **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** sets out the overarching approach that has been used in developing the preliminary environmental information. This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors, and magnitude of effects, and sets out the significance criteria that have been used for the preliminary other sea users assessment.

Baseline Data Gathering and Forecasting Methods

Data sources

- 4.10.4.2 To determine the baseline conditions within the study area the following key data sources have been reviewed:
- The Crown Estate Asset Maps: including offshore windfarms, wind export cable agreements, carbon capture and storage sites, and marine aggregate digital data;
 - North Sea Transmission Authority (NSTA): Digital data for oil and gas infrastructure and blocks;
 - Marine Management Organisation (MMO) Public Register for marine licences and MMO Evidence Projects;
 - MMO 'Explore Marine Plans' data portal, including spatial data for marine aggregates, aquaculture, dredging and disposal sites, and recreational areas;
 - MMO Mapping recreational sea anglers in English waters;
 - UK Hydrographic Office: Military Practice and Exercise Areas;
 - Environment Agency: bathing waters in England;
 - The Kingfisher Information Service – Offshore Renewable Cable (KIS-ORCA): Marine cables digital data;
 - Marine sports websites (Professional Association of Diving Instructors (PADI), Magic Seaweed; Finstrokes);
 - Automatic Identification System (AIS) vessel traffic data; and

- Royal Yachting Association (RYA) UK Coastal Atlas of Recreational Boating.

Assessment Criteria

4.10.4.3 **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** sets out the overarching approach that has been used in developing the preliminary environmental information. The assessments carried out for this chapter are qualitative and considers the best practice guidance outlined in section 4.10.2.

Sensitivity

4.10.4.4 The sensitivity of a receptor for other sea users is characterised by its vulnerability to change and its ability to recover. The value of a receptor or feature reflects its overall importance and the value placed on it by society; this may be guided by its level of statutory or policy protection or else a value may be attributed through consultation and the application of professional judgement.

4.10.4.5 Examples of definitions for differing levels of sensitivity of other sea user receptors are provided below in Table 4.10.6

Table 4.10.6: Definitions of value/ sensitivity for other sea users

Very High	Very high value activity or an activity that is key to the operation of an asset of international or national economic importance. No redundancy available in event of impact. Asset very sensitive to the impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity or a nationally important aggregates area where the extraction company has no access to areas of equal quality aggregates.
High	High value activity or an activity that is key to the operator of an asset of international or national economic importance. Very little redundancy available in event of impact. Asset sensitive to the impact. For example, an activity that is key to the operation of a gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity or nationally important aggregates area where extraction company has very limited access to areas of equal quality aggregates.
Medium	Medium value activity. Impact to asset would significantly reduce operators' activities but not result in complete failure to continue operations. Limited redundancy available. Asset regionally important. Asset has limited tolerance of impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting a specific region, where asset owners have some potential for redundancy planning. Aggregate areas where extraction company has some access to equal quality aggregate.
Low	Low value activity. Impact to asset would have limited implications on operator/public either due to the availability

	of redundancy or limited pathway for impact. Asset has some tolerance of impact. For example, electrical or telecommunication cable with ability to undertake redundancy planning to limit impact. Aggregate area where extraction company has access to large area of equal quality aggregate.
Negligible	Low value activity where there would be a barely perceptible impact on the operator's activities as a result of the impact. Asset tolerant of impact. Limited impact to asset owners or local community in case of damage or failure.

Magnitude

- 4.10.4.6 The magnitude of impact will be considered in terms of the spatial extent, duration and timing of the impact in question. The magnitude levels and definitions for other sea users are provided in Table 4.10.7.

Table 4.10.7: Example definitions of the magnitude levels for other sea users

Large	Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to continuation of activity. For example, accidental damage to asset resulting in permanent or long-term inoperability or complete loss of access to economically important asset.
Medium	Considerable, permanent / irreversible changes, over the majority of the receptor, and / or discernible alteration to activity. For example, damage to an asset that results in either short term, complete inoperability or long term reduced functionality. Partial loss of access to economically important asset, or short-term complete loss of access
Small	Discernible, temporary change, to the receptor, and/or limited but discernible alteration activity. Accidental damage to asset resulting in short term reduction of functionality but not complete loss of function. Short term disruption to access of asset.
Negligible	A change that, whilst discernible, will only endure for part of the project's duration, or a barely discernible change lasting for any length of time, or a change affecting only a small area of the receptor and/or only a slight alteration to the activity.

Significance of effects

- 4.10.4.7 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, the general approach taken to determining the significance of effect in this preliminary assessment is only to state whether effects are likely or unlikely to be significant, rather than assigning significance levels.

Assumptions and Limitations

- 4.10.4.8 Baseline conditions have primarily been established through a desktop review of a range of official governmental data portals, except for baseline information on recreational boating activities, which relies on traffic data for recreational boats, a limited number of studies and surveys, and information available on non-governmental websites.
- 4.10.4.9 It is noted that recreational activities are highly seasonal and dependant on certain weather conditions. Furthermore, due to the COVID-19 pandemic, contemporaneous data on recreation may under-predict the extent of activity in 'normal' periods (i.e., false-lows); the PEIR is cognisant of this risk and has endeavoured to mitigate it through longer-term reviews of historical trends.
- 4.10.4.10 The RYA UK Coastal Atlas of Recreational Boating provides a Geographical Information System (GIS) dataset of recreational boating activity around the UK. The dataset provides spatial data that indicate the location of RYA clubhouses, training centres and marinas, general boating areas, and Automatic Identification System (AIS) recreational intensity (Ref 10.18). It has been recognised that recreational fishing and pleasure boats under 15 m in length are likely to be underestimated in the data because they may not be fitted with AIS. This is further discussed in **Volume 1, Part 4, Chapter 8, Shipping and Navigation**.
- 4.10.4.11 Baseline conditions described in this chapter rely on the data sources used, and inconsistencies or inaccuracies may exist. No site-specific surveys for other sea users have been undertaken to inform this PEIR.

4.10.5 Basis of Assessment

- 4.10.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the preliminary assessment to changes in the construction commencement year.
- 4.10.5.2 Details of the available flexibility and assessment scenarios are presented in **Volume 1, Part 1, Chapter 4 Proposed Project Description** and **Part 1, Chapter 5 PEIR Approach and Methodology**.

Flexibility Assumptions

- 4.10.5.3 The main preliminary assessments have been undertaken based on the description of the Proposed Project provided in **Volume 1, Part 1 Chapter 4 Description of the Proposed Project**. To take account of the flexibility allowed in the Proposed Project, consideration has been given to the potential for preliminary effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or draft order Limits.
- 4.10.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 4.10.8 below.

Table 4.10.8: Flexibility assumptions

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
Lateral LoD marine HVDC cable	The extent of the draft Order Limits for the Proposed Project (Offshore Scheme Boundary).	The worst-case scenario assessed for the Offshore Scheme is one bundled HVDC (x2) and one fibre optic cable in once trench. This bundled scenario maybe placed anywhere within the Offshore Scheme Boundary.

Coordination Including Co-Location

- 4.10.5.5 The Proposed Project includes an option for co-location with National Grid Ventures proposed Nautilus and LionLink interconnector projects as explained in **Volume 1, Part 1, Chapter 5 PEIR Approach and Methodology**.
- 4.10.5.6 Table 4.10.9 details where the option of co-location is relevant to the preliminary other sea users assessment and how this option has been assessed and reported in section 4.10.9, preliminary assessment of effects.

Table 4.10.9: Consideration of co-location

Element of coordination	How it has been considered within the preliminary assessment
Suffolk landfall	Sea Link Only Four ducts (one per cable and one spare). Sea Link (with co-location) Up to ten ducts.

Sensitivity Test

- 4.10.5.7 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given to whether the preliminary effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference this is reported in section 4.10.9, preliminary assessment of effects.

4.10.6 Study Area

- 4.10.6.1 For the purpose of baseline characterisation, an area of 10 km width either side of the Offshore Scheme boundary defines the Study Area (**Figure 4.10.1 Other Sea Users Study Area**). As the exact cable route is yet to be determined within the draft Order Limits, the study area is defined by the worst-case extent of potentially affected other sea users who may be directly or indirectly impacted by the Offshore Scheme and is inclusive of the maximum Zol for the Offshore Scheme of the Proposed Project.

4.10.7 Baseline Conditions

- 4.10.7.1 Where consideration has been given to offshore infrastructure, this chapter includes both existing and planned offshore infrastructure where there is a reasonable volume of information about such infrastructure to enable assessment.
- 4.10.7.2 The Offshore Scheme falls within the UK marine areas covered by the East and South East Inshore Marine Plans. One of the aims of marine planning is to help ensure coexistence between a wide range of sea users whilst supporting sustainable development.
- 4.10.7.3 This baseline characterisation provides an overview of other sea users activities within the study area, including (but not necessarily limited to): recreational activities; marine tourism; Oil and Gas operations; renewable energy development (i.e., offshore wind, tidal and wave deployment); marine mineral and aggregate extraction; dredging and disposal sites/activities; military practice areas; marine cables; and aquaculture.
- 4.10.7.4 Socioeconomic conditions, employment opportunities etc are considered within the Onshore Scheme PEIR chapters.

Marine Tourism and Recreation

- 4.10.7.5 The coastal-marine environment supports numerous tourism and recreation activities. Tourism is a general term that encompasses any time spent away from home to pursue leisure or relaxation activities, while recreation refers to leisure activities undertaken for enjoyment by local residents in their free time, near where they live. For the purpose of this PEIR, 'marine recreation' encompasses receptors and activities that are primarily associated with the marine environment below Mean High Water Springs (MHWS), including recreational boating, recreational fishing, and recreational users of the sea (e.g., surfers, scuba diving).
- 4.10.7.6 The MMO data portal compiles several data sources that provide an overview of leisure and recreational activities around the English coast (Ref 10.19) including sea and shoreline angling, recreational boating clubs and areas, windsurfing, and scuba diving.
- 4.10.7.7 The RYA UK Coastal Atlas of Recreational Boating provides a Geographical Information System (GIS) dataset of recreational boating activity around the UK. The dataset provides spatial data which indicates location of RYA clubhouses, training centres and marinas, general boating areas, and Automatic Identification System (AIS) recreational intensity (Ref 10.18).
- 4.10.7.8 The East Inshore Marine Plan and South East Inshore Marine Plan recognise and emphasise the estimated economic contribution of recreational boating to the national and local economy as well as the indirect benefits for coastal towns.

- 4.10.7.9 The Three-year Report on the East Inshore and South East Inshore Marine Plans 2017 - 2020 reports that the number of coastal tourism and marine recreation businesses in these regions have increased. However, the number of people these sectors employ varies. For example, for the period between 2015 and 2018 the number of employees peaked at 54,180 in 2016 but by 2018 was 12% lower. The reason for this, however, is not given.
- 4.10.7.10 **Figure 4.10.2 Marine Recreational Users in the Study Area (Landfalls)** presents the marine recreational users in the Study Area.

Recreational boating

- 4.10.7.11 Many RYA clubs and training centres have been identified along the south east coast of England. Within the Study Area, several RYA clubs are located in coastal areas around Margate and Ramsgate, and Orford Ness. The Royal Harbour Marina is also located in Ramsgate, with Highway Marine and Sandwich Marina located further inland of the Kent landfall.
- 4.10.7.12 AIS data of recreational boating traffic displays high density of recreational craft through the Study Area. High density recreational traffic is particularly focused in nearshore coastal waters around Margate and Ramsgate, and waters along the coast of Aldeburgh. Recreational density is also concentrated in navigation channels passing through the Study Area towards the major estuaries located nearby, including the Thames Estuary and Harwich Harbour into the rivers Orwell and Stour (Ref 10.18).
- 4.10.7.13 The Offshore Scheme boundary also crosses through two General Boating Areas, which mainly relate to club training and racing areas, on the approach to both the Suffolk and Kent landfalls.

Recreational fishing

- 4.10.7.14 Sea fishing is a popular recreational activity, which occurs from many different platforms including from shore, kayak, personal boat, and charter vessels. In the UK, recreational sea fishing is usually synonymous with angling. Angling pertains to fishing with lines, and within the UK, angling is almost entirely by line with rod and reel (Ref 10.19). Recreational sea fishing from the shoreline and by charter vessel occurs year-round; typically, fishing intensity changes throughout the seasons based on weather and sea conditions, local behaviour of target species, and tourism patterns. The MMO found that in terms of overall number of trips, there was a maximum in summer and a minimum in winter (summer, 61%; winter, 39%) (Ref 10.20). Based on the MMO data portal, the majority of the Offshore Scheme is covered by low to medium intensity recreational fishing (Ref 10.19).
- 4.10.7.15 Recreational fishing boat operators such as Ramsgate Fishing Charters and Kent Sea Fishing Trips are known to operate out of Ramsgate and are thought to run all year round and offer seabass *Dicentrarchus labrax*, Atlantic cod *Gadus morhu*, skate *Rajidae sp.* and European plaice *Pleuronectes platessa* fishing.

Other recreational activities

- 4.10.7.16 Other recreational activities in the marine environment may take place sporadically along the south east coast of England.
- 4.10.7.17 Due to the sporadic and largely unregulated nature of recreational activities, it is difficult to predict the exact nature and extent of each receptor. On this basis, a selection of

notable examples is included below – this is intended to provide a high-level characterisation and is not intended to be an exhaustive list:

- **Scuba diving:** There were no PADI scuba diving sites located within the study area (Ref 10.21). The BSAC (British Sub-Aqua Club) Canterbury Sub Aqua Club which dives off Goodwin Sands, is located just inside the Study Area (Ref 10.22; Ref 10.21). Other dive clubs include Medway Sub Aqua Club, North West Kent BSAC, Southend on Sea Sub Aqua Club, Swale Divers, and Thanet Sub Aqua Club running diver trips around the Kent coast. Walpole tidal pool located on the Margate coast is often used for diving and snorkelling. The BSAC Lowestoft Sub Aqua Club also dive along the east coast (Ref 10.22) but is located outside the Study Area.
- **Surfing and paddleboarding:** There are six surfing and potential paddle boarding beaches located close to the Kent landfall: these are Herne Bay, Main Sands (Margate and Ramsgate), Joss Bay, Broadstairs – Viking Bay, Ramsgate Main Beach, Westcliff Promenade and Sandwich Bay (Ref 10. 23). No surfing or paddleboarding beaches are located within proximity to the Suffolk Landfall.
- **Bathing waters:** There have been 17 bathing waters identified in the study area: Herne Bay Central, Herne Bay, Minnis Bay (Birchington), West Bay (Westgate), St Mildred's Bay (Westgate), Westbrook Bay (Margate), Margate The Bay, Margate Fulsam Rock, Walpole Bay (Margate), Botany Bay (Broadstairs), Joss Bay (Broadstairs), Broadstairs (Stone Bay), Broadstairs (Viking Bay), Ramsgate Bay, Ramsgate Western Undercliffe, Sandwich Bay, and Deal Castle (Ref 10.24). No bathing waters are located within proximity to the Suffolk Landfall.

Offshore Infrastructure

4.10.7.18 In addition to marine tourism and recreation sea users, the following potential other users of the sea have been reviewed within the Study Area. (**Figure 4.10.3 Offshore Infrastructure in the Study Area presents the offshore infrastructure**).

Oil and gas operations

4.10.7.19 There are no oil and gas operations located within the Study Area (Ref 10.25). There have also been no oil and gas licence blocks identified within the Study Area. Preliminary effects on oil and gas operations are therefore not considered further in this assessment.

Carbon capture and storage

4.10.7.20 There are no carbon capture and storage infrastructure located within the Study Area and no plans for future facilities were found. Based on current information it is not expected that the Offshore Scheme boundary will cross future carbon capture and storage infrastructure. Preliminary effects to carbon capture and storage are therefore not considered further in this assessment.

Offshore wind and tidal projects

4.10.7.21 There are several offshore windfarms, with export cables, located in the Study Area. Those that are active and in operation include:

- London Array offshore windfarm, covers an area of 122.5 km², lying 1.18 km to the west of the Offshore Scheme boundary. This also includes the Blue

Transmission London Array export cable, approximately 8.34 km from the Offshore Scheme boundary. This windfarm export cable does not cross the Offshore Scheme boundary.

- Thanet offshore windfarm, covers an area of 35 km² and sits approximately 0.62 km from the Offshore Scheme boundary. This also includes the Thanet Offshore Transmission Owner (OFTO) export cable which intersects the Offshore Scheme on approach to the Kent Landfall.
- Greater Gabbard offshore windfarm located 6.35 km east from Offshore Scheme, which consists of two sites covering a total area of 146 km². This windfarm export cable does not cross the Offshore Scheme.

4.10.7.22 There are also several offshore windfarms located in and/or intersecting the study area which are either in the pre-planning application stage, consented or under construction. These include:

- East Anglia Two Offshore Windfarm which is consented, covering an area of 255.6 km². The East Anglia Two Transmission Asset export cable agreement is also consented and is located approximately 0.5 km to the north east of Offshore Scheme boundary. This export cable agreement also forms part of the EA1N Transmission Asset export cable agreement to a site that falls outside of the study area.
- East Anglia One Transmission Asset export cable agreement, which intersects the Offshore Scheme. This agreement is currently under construction.
- East Anglia Three Transmission Asset export cable agreement, which intersects the Offshore Scheme. This agreement is consented, but construction has not started.
- North Falls Offshore wind site extension agreement which borders the Greater Gabbard wind site agreement to the west and is located 3.5 km from the Offshore Scheme. This is in the pre-planning application stage and is expected to cover 150.06 km². The proposed export cable route intersects with the Offshore Scheme boundary.
- Five Estuaries wind site extension agreement which borders the Galloper wind site to the east. This is also in the pre-planning application stage and is expected to cover an area of 148.7km². The proposed export cable route intersects with the Offshore Scheme boundary.

Mineral and aggregate extraction

4.10.7.23 The Crown Estate classifies aggregate areas as either, option areas, application areas, or production agreement areas. Option areas are those areas where the aggregate company has the right to apply for a licence and take exploratory samples to see if they want to apply for a licence. Application areas are those areas where the aggregate company has applied for or is in the process of applying for a licence. Production agreement areas are those areas where the aggregate company has a licence to extract aggregates. Within the licenced area an active dredge zone may be defined which is the area available to be dredged at any one time. While under normal circumstances this is defined by the limits of the licence, zoning schemes (introduced either as licence conditions or as voluntary initiatives by licensees) can significantly reduce this area. This means that while an area may have been approved for extraction as a licence area, some or all of the area may never be actively dredged.

4.10.7.24 There are a number of mineral and aggregate extraction areas located within the Study Area. Although these areas do not overlap with the Offshore Scheme, three are located within 1 km (see Table 4.10.10).

Table 4.10.10: Mineral and aggregate extraction locations within the Study Area.

Company	Name	Type	Distance
Hanson Aggregates Marine Ltd	Outer OTE (528/2)	Aggregate exploration and option area	<1 km
Tarmac Marine Ltd	Longsand (509/1-3)	Aggregate production agreement area	8 km
Britania Aggregates Ltd	Longsand (508)	Aggregate production agreement area	1.2 km
CEMEX UK Marine Ltd	Longsand (510/1-2)	Aggregate production agreement area	<1 km
Dover Harbour Board	Goodwin sands	Aggregate production agreement area	9 km
CEMEX UK Marine Ltd	Shipwash (507/1-6)	Aggregate production agreement area	<1 km

Dredging and disposal sites

4.10.7.25 Dredging represents an essential activity in ensuring efficient functioning of ports, harbours, and marinas. Maintenance dredging ensures continued navigational access to ports and harbours, while capital dredging enables new activities to proceed by creating new, deeper, and wider channels, and berths. Dredged material comprising marine sediment (mainly sand, silt, and clays) dredged from dock sites and navigation channels may be disposed at sea.

4.10.7.26 Several navigational dredging sites have been identified in the Study Area, including Harwich Haven navigation channel, Pegwell Bay, North West Shipwash dredging site, the London Gateway Port navigation channel, the Inner Gabbard dredging area, Greater Gabbard dredging area and Project 8 Windserver dredging area (Ref 10.19).

4.10.7.27 Several licensed disposal sites have also been identified in the study area, including the Inner Gabbard (1.2 km from the Offshore Scheme), Inner Gabbard East disposal site (5.1 km from the Offshore Scheme), EA One Route EC-3 disposal area (0.6 km from the Offshore Scheme) and Harwich Haven disposal site (<0.1 km from the Offshore Scheme). A number of closed and disused disposal sites have also been identified within the Study Area (Ref 10.19).

Military practice and exercise areas

4.10.7.28 Five military practice areas, specifically Navy Practice and Exercise Areas (PEXAs) for surface fleet, have been identified in the Study Area; Outer Gabbard, Gunfleet, Kentish Knock, X5122 and X5123. Only one of these zones (Kentish Knock) intersects the Offshore Scheme, covering an area of approximately 0.2 km².

4.10.7.29 A historical munitions disposal site (East Swin) has also been identified as present in the Study Area. This site is a disused designated explosives dumping ground located

in the eastern part of the Gunfleet (X5118) PEXA and over 5 km from the Offshore Scheme boundary.

- 4.10.7.30 As outlined in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**, the unexploded ordnance (UXO) risk was assessed as High and Medium risk throughout the Offshore Scheme.

Pipeline and cable crossing

- 4.10.7.31 The Offshore Scheme will cross a number of active, planned and out of service cables. Active cables include Nemo link and BritNed submarine power cables, Thanet Offshore Windfarm export cable, East Anglia One export cable and a number of subsea telecommunications cables. Another cable that crosses the Offshore Scheme and is currently under construction is the Neuconnect interconnector. In addition, a number of proposed projects will likely involve a crossing with the Offshore Scheme including Gridlink power cable and the export cables of the proposed East Anglia Three Offshore windfarms and North Falls and Five Estuaries offshore windfarms, as well as a number of proposed, in-service and out of service subsea telecommunications cables.
- 4.10.7.32 A list of current in-service and planned cables based on the current Cable Burial Risk Assessment for the Proposed Project (Ref 10.26) is presented in Table 4.10.11, along with approximate crossing locations where available.
- 4.10.7.33 No existing or known planned pipelines are present across the Offshore Scheme.

Table 4.10.11: Potential cable crossings within the Study Area.

Crossed System	Type	Easting	Northing
In-Service Assets			
Pan European Crossing (PEC)	Fibre optic cable	398569.3961	5690372.027
Tangerine	Fibre optic cable	397342.3731	5688764.014
Farland (North)	Fibre optic cable	408940.8781	5774914.392
BT North Sea Mercator	Fibre optic cable	399882.2104	5703766.93
Thanet Wind Farm Export Cable	Power cable	396994.6818	5687825.789
East Anglia One Export Cable	Power cable	408473.8399	5769937.727
BritNed	Power cable	399839.3704	5707086.475
NEMO (GB-Belgium Interconnector)	Power cable	393179.3566	5685122.909
East Anglia One Export Cable	Power cable	408461.4251	5769450.261
Thanet Wind Farm Export Cable	Power cable	396990.2423	5687882.089
Planned / Under Construction			
East Anglia Three	HVAC	Unknown	Unknown

Crossed System	Type	Easting	Northing
NeuConnect Interconnector	HVDC	Unknown	Unknown
Five Estuary Export Cables	HVAC	Unknown	Unknown
North Falls Export Cables	HVAC	Unknown	Unknown
GridLink	HVDC	Unknown	Unknown
ExA Infrastructure	Fibre optic / Telecoms	Unknown	Unknown
Mercator	Fibre optic / Telecoms	Unknown	Unknown
Kemsley (East Kent) – Zeebrugge (Belgium)	HVDC	Unknown	Unknown
East Anglia Connection Hub – Niederlangen, (Germany)	HVDC	Unknown	Unknown

Aquaculture

- 4.10.7.34 The Study Area is intersected by the Outer Thames shellfish waters (Ref 10.27). The East Inshore Marine Plan and South East Inshore Marine Plan recognise aquaculture as a key area for development through its potential to contribute to the sustainability and security of the UK food supply which, in turn, may encourage growth in small and medium enterprises supporting the industry.
- 4.10.7.35 A study published in 2019 (Ref 10.28) identified areas of aquaculture potential in English waters and defined strategic areas of sustainable aquaculture production, many of which are crossed by the Study Area, and which may provide a future potential source of employment in deprived or peripheral areas, or those with a limited numbers of alternative employment options. It is seen as an industry where development could occur particularly at local levels (Ref 10.29). In this context, the plan defines strategic areas of sustainable aquaculture production, many of which will be intersected by the Study Area.

Future Baseline

- 4.10.7.36 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires that “*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*” is included.
- 4.10.7.37 All sectors of the UK economy will be affected by the UK’s 2050 Net Zero target. North Sea industries have traditionally emitted high amounts of greenhouse gases, including from oil and gas production and from the industrial clusters along the North Sea coastline. As UK carbon emissions continue to fall, these industries must also decarbonise. New North Sea industries are expected to flourish under Net Zero, including offshore wind, carbon capture, utilisation, and Storage (CCUS), hydrogen, electricity interconnectors and low-carbon manufacturing (Ref 10.30).

- 4.10.7.38 UK offshore wind is expected to double in capacity by 2025 and to quadruple by 2030, in line with the governments 2019 Manifesto commitment to 40 GW (recently updated to 50GW as per 2022 British energy security strategy) of offshore wind installed by 2030. The majority of this growth is expected to be in the North Sea. By 2050, the North Sea could be home to up to 100 GW of offshore wind, a fifteenfold increase compared to today's capacity, and offshore wind could generate half of the UK's electricity (Ref 10.30).
- 4.10.7.39 Bioenergy with Carbon Capture and Storage (BECCS) is expected to play a growing role in the UK's Net Zero economy, providing 'negative emissions' to offset remaining greenhouse gas emissions in harder to decarbonise sectors such as aviation and industry (Ref 10.30).
- 4.10.7.40 The North Sea will be critical in the production of low-carbon hydrogen, due to the availability of low-carbon electricity to produce green hydrogen and the availability of natural gas and CCS required to produce blue hydrogen.
- 4.10.7.41 The North Sea oil and gas industry will be smaller in 2050 than it is today, with production possibly only one-third of current levels (Ref 10.30).

4.10.8 Mitigation

- 4.10.8.1 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, mitigation measures typically fall into one of the three categories: embedded measures; control and management measures; and mitigation measures.

Embedded Measures

- 4.10.8.2 Embedded measures have been integral in reducing the effects of the Proposed Project on other sea users. Measures that that have been incorporated are:
- Sensitive routing and siting of infrastructure and temporary works;
 - Commitments made within **Volume 2, Appendix 1.4.F Outline Schedule of Environmental Commitments and Mitigation Measures**.

Control and Management Measures

- 4.10.8.3 The following measures have been included within **Volume 2, Appendix 1.4.A Outline Code of Construction Practice** relevant to the control and management of impacts that could affect other sea users' receptors:
- OSU01 - crossing and/or proximity agreements will be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.
 - OSU02 - timely and efficient communication will be given to sea users in the area via Notices to Mariners (NtM), Kingfisher Bulletins, Navigational Telex (NAVTEX), and Navigational Areas (NAVAREA) warnings.

Mitigation Measures

- 4.10.8.4 Mitigation measures are additional topic and site-specific measures that have been applied to mitigate or offset any likely significant effects. No additional mitigation measures are required for other sea users for the Proposed Project.

4.10.9 Preliminary Assessment of Effects

- 4.10.9.1 The preliminary assessment of the effects of the Offshore Scheme described in this section considers the embedded, control and management and mitigation measures described in section 4.10.8.
- 4.10.9.2 For the sensitivity test outlined in section 4.10.5, preliminary effects reported would not be any different if the works were to commence in any year up to year five.
- 4.10.9.3 The preliminary assessment of the effects of the Offshore Scheme on other sea users is presented in Table 4.10.12.
- 4.10.9.4 The preliminary effects reported below are the same for the Proposed Project on its own, and the Proposed Project with co-location.

Table 4.10.12: Preliminary assessment of effects on other sea users.

	Preliminary assessment
Receptor	Recreational boating Recreational fishing
Potential Impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of recreational boating to the physical presence of vessels is negligible. The preliminary sensitivity of recreational fishing to the physical presence of vessels is low.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels on recreational boating is considered small. The preliminary magnitude of the physical presence of vessels on recreational fishing is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on recreational boating from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant . The preliminary likely significance of effect on recreational fishing from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. Additional presence of project vessels could interfere with and provide obstacles in an area which is already characterised with high density vessel traffic. Although works during construction, maintenance and decommissioning may temporarily disrupt activities at both landfalls and nearshore for the short term, sailors will be able to use other areas in close proximity.

Preliminary assessment

Communications with other vessels in the area will be maintained throughout construction, maintenance and decommissioning, and the works will be notified under Notices to Mariners.

Recreational boaters will also be advised to the timing and location of works in the nearshore / inter-tidal area.

There is a potential for boaters to temporarily lose access to certain fishing areas they would normally travel through for recreational purposes during construction, maintenance, and decommissioning. However, they would be able to use other areas in close proximity.

Angling clubs and sea fishing boat operators will be sent Notice(s) to Mariners via the local harbours.

Shore based recreational anglers will also be advised to the timing and location of works.

There is risk of project vessels colliding with recreational vessels. This is considered further in **Volume 1, Part 4, Chapter 8, Shipping and Navigation**.

Receptor	Recreational boating Recreational fishing
Potential impact	Visual intrusion and noise
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of recreational boating to the visual intrusion and noise is negligible. The preliminary sensitivity of recreational fishing to visual intrusion and noise is negligible.
Preliminary magnitude	The preliminary magnitude of visual intrusion and noise on recreational boating is considered small. The preliminary magnitude of visual intrusion and noise on recreational fishing is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on recreational boating from visual intrusion and noise during installation, maintenance and decommissioning is Not Significant .

Preliminary assessment	
	The preliminary likely significance of effect on recreational fishing from visual intrusion and noise during installation, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>It is not considered likely that visual intrusion and noise will deter recreational boating and fishing. Any visual intrusion and noise from the Proposed Project from vessels will be temporary and short term. Sailors will be able to use other areas in close proximity.</p> <p>Communications with other vessels in the area will be maintained throughout construction, maintenance and decommissioning, and the works will be notified under Notices to Mariners.</p> <p>Recreational boaters will also be advised to the timing and location of works.</p>
Receptor	Other recreational activities
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	<p>Marine cable installation: 0 km to 7 km per day</p> <p>Landfalls: Approximately 1 year</p>
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of other recreational activities to the physical presence of vessels is low.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on other recreational activities from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>It is assumed that beaches outside any temporary exclusion zones will stay open to the public during construction, maintenance, and decommissioning.</p> <p>Some recreational activities utilising small boats to access shallow waters shoreward of the construction activities have the potential to be temporarily negatively affected, such as scuba diving.</p>

Preliminary assessment	
	Swimmers, surfers, and paddle boarders may still be able to undertake activities close to shore but may be limited in their access to areas within any temporary exclusion zones. Appropriate notification will be put in place to advise beachgoers and those using areas for recreation.
Receptor	Recreational boating Recreational fishing
Potential Impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Volume 1, Part 1, Chapter 4, Description of the Proposed Project	
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of recreational boating to the pre-clearance and pre-sweeping of seabed is negligible. The preliminary sensitivity of recreational fishing to the pre-clearance and pre-sweeping of seabed is low.
Preliminary magnitude	The preliminary magnitude of the pre-clearance and pre-sweeping of seabed on recreational boating is considered small. The preliminary magnitude of the pre-clearance and pre-sweeping of seabed on recreational fishing is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on recreational boating from the pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant . The preliminary likely significance of effect on recreational fishing from the pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. The clearance and sweeping of the seabed in preparation for cable laying/removal will require the presence of specialist equipment, which may interfere with the operation of other sea users.

Preliminary assessment

The maximum swathe for pre-clearance and pre-sweeping activities is 40 m. Although works during construction and decommissioning may temporarily disrupt activities at both landfalls and nearshore for the short term, sailors will be able to use other areas in close proximity.

Communications with other vessels in the area will be maintained throughout construction, maintenance and decommissioning, and the works will be notified under Notices to Mariners.

There is a potential for boaters to temporarily lose access to certain fishing areas they would normally travel through for recreational purposes during construction, maintenance, and decommissioning. However, anglers would be able to use other areas in close proximity. Angling clubs and sea fishing boat operators will be sent Notice(s) to Mariners.

Receptor

Recreational boating
Recreational fishing

Potential impact

Installation/removal of infrastructure

Proposed Project phase

Construction, Maintenance, and Decommissioning

Duration

Marine cable installation: 0 km to 7 km per day
Landfalls: Approximately 1 year

Volume 1, Part 1, Chapter 4, Description of the Proposed Project

Mitigation

OSU02

Preliminary sensitivity

The preliminary sensitivity of recreational boating to the installation/removal of infrastructure is negligible.
The preliminary sensitivity of recreational fishing to the installation/removal of infrastructure is low.

Preliminary magnitude

The preliminary magnitude of the installation/removal of infrastructure on recreational boating is considered small.
The preliminary magnitude of the installation/removal of infrastructure on recreational fishing is considered small.

Preliminary likely significance of effect

The preliminary likely significance of effect on recreational boating from the installation/removal of infrastructure is **Not Significant**.

Preliminary assessment	
	The preliminary likely significance of effect on recreational fishing from the installation/removal of infrastructure is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>The installation of infrastructure could interfere/displace other sea users. During construction, the preference is for the HVDC cable to be buried as far as possible. The minimum depth of lowering to the top of the cable is 0.5 m, with the target depth of lowering for the Proposed Project being 1.5 m to 2.5 m depending on seabed conditions.</p> <p>Where burial cannot be achieved, external cable protection may be required where the soil or rock conditions are too hard to achieve effective burial, or third-party assets cross the route. Up to approximately 13.207 km of planned post lay rock berm and areas of potential remedial rock berm is anticipated to be required for the protection of the bundled cables.</p> <p>Although works during construction and decommissioning may temporarily disrupt activities at both landfalls and nearshore for the short term, sailors will be able to use other areas in close proximity.</p> <p>Communications with other vessels in the area will be maintained throughout construction, maintenance and decommissioning, and the works will be notified under Notice(s) to Mariners.</p>
Receptor	Offshore wind and tidal operations
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	<p>Marine cable installation: 0 km to 7 km per day</p> <p>Landfalls: Approximately 1 year</p>
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of offshore wind and tidal operations to the physical presence of vessels is low.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is small.

Preliminary assessment	
Preliminary likely significance of effect	The preliminary likely significance of effect on offshore wind and tidal operations from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Should vessels associated with the Offshore Scheme be working in the same areas as other vessels working on existing assets, or those under installation, for assets associated with offshore wind farms, a proximity agreement would be agreed with the asset owner to ensure that simultaneous operations (SIMOPS) could be undertaken to manage risks between vessels and activities.</p> <p>Proximity agreements will be required in order to manage risks including a necessary mitigation and controls including the application of exclusion zones. Any direct impacts will be spatially limited and of short-term duration.</p> <p>Ongoing collaboration would be informed by appropriate industry guidance (section 4.10.2). Any impacts will be of local extent, short-term duration, and are reversible, representing only a very slight change from baseline conditions.</p> <p>There is risk of project vessels colliding with third-party vessels. This is considered further in Volume 1, Part 4, Chapter 8, Shipping and Navigation.</p>
Receptor	Offshore wind and tidal operations
Potential impact	Occupancy of seabed – below seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of offshore wind and tidal operations to the occupancy below the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy below the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on offshore wind and tidal operations from occupancy below the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction.

Preliminary assessment

The cable will occupy an area of the seabed, which may disrupt the placement of future offshore windfarm infrastructure and activities.

The preference is for the HVDC cable to be buried as far as possible. The minimum depth of lowering to the top of the cable is 0.5 m, with the target depth of lowering for the Proposed Project being 1.0 m to 2.5 m.

Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).

The Offshore Scheme boundary intersect or pass within close proximity a number of existing, pre-planning application stage, consented or under construction offshore windfarm export cables (section 4.10.6). However, the Proposed Project will only restrict development in a relatively narrow corridor of seabed.

Receptor	Offshore wind and tidal operations
Potential impact	Occupancy of seabed – above seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU01
Preliminary sensitivity	The preliminary sensitivity of offshore wind and tidal operations to the occupancy above the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy above the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on offshore wind and tidal operations from occupancy above the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. Where burial cannot be achieved, external cable protection may be required where the soil or rock conditions are too hard to achieve effective burial, or third-party assets cross the route. Up to approximately 13.207 km of planned post lay rock berm and areas of potential remedial rock berm is anticipated to be required for the protection of the bundled cables.

Preliminary assessment

Cable protection measures will occupy an area of the seabed, which may disrupt the placement of future offshore windfarm infrastructure and activities.

Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).

Crossing agreements will be agreed with asset owners. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable owners.

The Offshore Scheme intersect or pass within close proximity a number of existing pre-planning application stage, consented or under construction offshore windfarm export cables (section 4.10.6). However, the Proposed Project will only restrict development in a relatively narrow corridor of seabed.

Receptor	Offshore wind and tidal operations
Potential impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
	Volume 1, Part 1, Chapter 4, Description of the Proposed Project
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of offshore wind and tidal operations to the pre-clearance and pre-sweeping of seabed is low.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on offshore wind and tidal operations from pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. The clearance and sweeping of the seabed in preparation for cable laying/removal will require the presence of specialist equipment, which may interfere with the operation of windfarms. The maximum swathe for pre-clearance and pre-sweeping activities is 40 m.

Preliminary assessment

Temporary increases to suspended sediment concentration could potentially result in increased sediment deposition on assets. This could lead to cable over-burial, which can compromise the power carrying capacity of the cable and potentially lead to damage due to overheating.

Should the potential for works associated with the Offshore Scheme coincide with other vessels working on existing assets, or those under installation, for assets associated with offshore wind farms be identified, a proximity agreement would be agreed with the asset owner to ensure that simultaneous operations (SIMOPS) could be undertaken to manage risks between vessels and activities.

Proximity agreements will be required in order to manage risks including a necessary mitigation and controls including the application of exclusion zones.

Any impacts from suspended sediment will be spatially limited, of short-term duration, intermittent, and reversible. Only a slight change from baseline conditions is expected.

A detailed UXO survey; including use of multiple gradiometers, remote underwater vehicle inspections combined with high resolution multi-beam echosounder, is planned to be carried out to better detect and define potential UXOs and to enable rerouting away from targets throughout the route. Micro-routeing around isolated targets will be undertaken, with a closest point of approach to the target identified, based on the eventual installation methodology.

Whilst avoidance will be the preferred approach, if UXO clearance is necessary, the activity will be undertaken in accordance with approved industry practices for removal and disposal / waste management of ordnance. This may include detonating UXO in place or lifting and relocating to a designated storage or demolition area, for safe disposal.

Ongoing collaboration would be informed by appropriate industry guidance.

Receptor	Offshore wind and tidal operations
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02

Preliminary assessment	
Preliminary sensitivity	The preliminary sensitivity of offshore wind and tidal operations to the installation/removal of infrastructure is high.
Preliminary magnitude	The preliminary magnitude of the installation/removal of infrastructure is considered small.
Preliminary likely significance of effect	<p>The risk of damage to windfarm asset occurring from the installation/removal of infrastructure is considered unlikely with the appropriate embedded mitigation and control and management measures in place to reduce risk to windfarm assets as much as reasonably practical.</p> <p>The preliminary likely significance of effect on offshore wind and tidal operations from the installation/removal of infrastructure is therefore Not Significant.</p>
Confidence in prediction	<p>A moderate confidence has been given to this prediction.</p> <p>The installation of infrastructure could interfere/displace windfarm operations.</p> <p>Crossing infrastructure will be required where the cable crosses existing offshore windfarm infrastructure or those which are planned where construction coincides with the Offshore Scheme.</p> <p>Crossing agreements will be agreed with asset owners. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable owners.</p> <p>Proximity agreements will be required in order to manage risks including a necessary mitigation and controls including the application of exclusion zones.</p> <p>Any unplanned interaction causing damage to windfarm infrastructure would potentially compromise the intended purpose of the cable, resulting in major financial consequences for the company.</p> <p>The risk of damage to windfarm asset occurring from the installation/removal of infrastructure is considered unlikely with the appropriate embedded mitigation and control and management measures in place to reduce risk to windfarm assets as much as reasonably practical.</p>
Receptor	
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day

	Preliminary assessment
	Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of mineral and aggregate extraction to the physical presence of vessels is medium.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on offshore mineral and aggregate extraction from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Three mineral and aggregate extraction areas are located within 1 km of the Offshore Scheme. Should these sites be operational at the time of construction there is the potential for increased vessel presence in these areas.</p> <p>Minor vessel routing changes may be required due to increased vessel movements and the presence of any safety zones.</p> <p>Any disturbance from the physical presence of vessels will be temporary, with any restrictions to commercial operations short term and representing only a very slight change from baseline conditions.</p> <p>This will also be minimized through the advanced warning of construction works through timely communications.</p> <p>There is risk of project vessels colliding with third-party vessels. This is considered further in Volume 1, Part 4, Chapter 8, Shipping and Navigation.</p>
Receptor	Mineral and aggregate extraction
Potential impact	Occupancy of seabed – below seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of mineral and aggregate extraction to the occupancy below the seabed is low.

Preliminary assessment	
Preliminary magnitude	The preliminary magnitude of the occupancy below the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on mineral and aggregate extraction from the occupancy below the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. Although three mineral and aggregate extraction areas are located within 1 km of the Offshore Scheme boundary, they do not overlap. No future site agreements have been identified along the cable route during this assessment.
Receptor	Mineral and aggregate extraction
Potential impact	Occupancy of seabed – above seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of mineral and aggregate extraction to the occupancy above the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy above the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on mineral and aggregate extraction from the occupancy above the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. Although three mineral and aggregate extraction areas are located within 1 km of the Offshore Scheme boundary, they do not overlap. No future site agreements have been identified along the cable route during this assessment.
Receptor	Mineral and aggregate extraction
Potential impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning

Preliminary assessment	
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year Volume 1, Part 1, Chapter 4 Description of the Proposed Project
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of mineral and aggregate extraction to the pre-clearance and pre-sweeping of seabed is low.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on mineral and aggregate extraction from pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. The clearance and sweeping of the seabed in preparation for cable laying/removal will require the presence of specialist equipment, which may interfere with the mineral and aggregate extraction operations. The maximum swathe for pre-clearance and pre-sweeping activities is 40 m. Although three mineral and aggregate extraction areas are located within 1 km of the Offshore Scheme boundary, they do not overlap. All sites are located a minimum distance of 100 m from the Offshore Scheme boundary. Any changes to the seabed composition and bathymetry from construction activities resulting from suspended sediment and associated deposition will be spatially limited and short-term. Only a slight change from baseline conditions is expected.
Receptor	Mineral and aggregate extraction
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year Volume 1, Part 1, Chapter 4, Description of the Proposed Project
Mitigation	OSU02

Preliminary assessment	
Preliminary sensitivity	The preliminary sensitivity of mineral and aggregate extraction areas to the installation/removal of infrastructure is low.
Preliminary magnitude	The preliminary magnitude of the installation/removal of infrastructure is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on mineral and aggregate extraction areas from the installation/removal of infrastructure is therefore Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Three mineral and aggregate extraction areas are located within 1 km of the Offshore Scheme.</p> <p>All sites are located a minimum distance of 100 m from the Offshore Scheme. Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).</p> <p>Crossing and proximity agreements will be agreed with asset owners as required. Proximity agreements are required in order to manage risks including a necessary mitigation and controls including the application of exclusion zones.</p>
Dredging and disposal operations	
Receptor	
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of dredge and disposal operations to the physical presence of vessels is negligible.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is small.

Preliminary assessment	
Preliminary likely significance of effect	The preliminary likely significance of effect on dredge and disposal operations from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>If operations of the Offshore Scheme were to coincide with dredging and disposal activities, impacts could include temporary restrictions to dredging and disposal vessels as they manoeuvre to and from the disposal site.</p> <p>Minor vessel routing changes may be required due to increase vessel movements and the presence of any safety zones.</p> <p>Dredging and disposal site users are considered to have high tolerance for change.</p> <p>Any disturbance from the physical presence of vessels will be temporary, with any restrictions to commercial operations short term and representing only a very slight change from baseline conditions.</p> <p>This will also be minimized through the advanced warning of construction works through timely communications.</p>
Receptor	Dredging and disposal operations
Potential impact	Occupancy of seabed – below seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of dredge and disposal operations to the occupancy below the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy below the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on dredge and disposal operations from the occupancy below the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>The Offshore Scheme has included the sensitive routing and siting of infrastructure and temporary works to avoid such effects.</p>

Preliminary assessment	
Receptor	Dredging and disposal operations
Potential impact	Occupancy of seabed – above seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of dredge and disposal operations to the occupancy above the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy above the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on dredge and disposal operations from the occupancy above the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. The Offshore Scheme has included the sensitive routeing and siting of infrastructure and temporary works to avoid such effects.
Dredging and disposal operations	
Receptor	Dredging and disposal operations
Potential impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Volume 1, Part 1, Chapter 4, Description of the Proposed Project	
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of dredging and disposal operations to the pre-clearance and pre-sweeping of seabed is negligible.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect dredging and disposal operations from pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .

Preliminary assessment	
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>The clearance and sweeping of the seabed in preparation for cable laying/removal will require the presence of specialist equipment, which may interfere with the dredging and disposal operations. The maximum swathe for pre-clearance and pre-sweeping activities is 40 m.</p> <p>If operations of the Offshore Scheme were to coincide with dredging and disposal activities, impacts could include temporary restrictions to dredging and disposal vessels as they manoeuvre to and from the disposal site.</p> <p>Any changes to the seabed composition and bathymetry from construction and decommissioning activities resulting from suspended sediment and associated deposition will be spatially limited and short-term.</p> <p>There is sufficient distance between the Offshore Scheme and disposal sites that any increases in bed levels will be immeasurable in practice.</p>
Receptor	Dredging and disposal operations
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	<p>Marine cable installation: 0 km to 7 km per day</p> <p>Landfalls: Approximately 1 year</p> <p>Volume 1, Part 1, Chapter 4, Description of the Proposed Project</p>
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of dredging and disposal operations to the installation/removal of infrastructure is low.
Preliminary magnitude	The preliminary magnitude of the installation/removal of infrastructure is considered small.
Preliminary likely significance of effect	The preliminary likely significance of effect on dredging and disposal operations from the installation/removal of infrastructure is therefore Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Dredging and disposal site users are considered to have high tolerance for change.</p>

Preliminary assessment	
	<p>If operations of the Offshore Scheme were to coincide with dredging and disposal activities, impacts could include temporary restrictions to dredging and disposal vessels as they manoeuvre to and from the disposal site.</p> <p>Any construction, maintenance, and decommissioning activities will be temporary, with any restrictions to commercial operations short term.</p>
Receptor	Military practice and exercise areas
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of military practice and exercise areas to the physical presence of vessels is low.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on military practice and exercise areas from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Any safety zones around installation vessels have the potential to disrupt planned MOD activities within military practice and exercise areas.</p> <p>Only one military practice and exercise area intersects the Offshore Scheme boundary for 0.2 km².</p> <p>The MOD will be notified prior to any activities taking place in military practice and exercise areas. Given any safety zones around vessels move at the rate of the associated vessels, any disruption will be localised and short term, representing only a slight increase from baseline conditions. Vessels may disrupt activities temporarily, but the tolerance for change is high.</p>
Receptor	Military practice and exercise areas

Preliminary assessment	
Potential impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Volume 1, Part 1, Chapter 4, Description of the Proposed Project	
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of military practice and exercise areas to the pre-clearance and pre-sweeping of seabed is low.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on military practice and exercise areas from pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Any safety zones around installation vessels have the potential to disrupt planned MOD activities within military practice and exercise areas. The maximum swathe for pre-clearance and pre-sweeping activities is 40 m.</p> <p>Only one military practice and exercise area intersects the Offshore Scheme boundary for 0.2 km².</p> <p>A detailed UXO survey; including use of multiple gradiometers, remote underwater vehicle inspections combined with high resolution multi-beam echosounder, is planned to be carried out to better detect and define potential UXOs and to enable rerouting away from targets throughout the route. Micro-routeing around isolated targets will be undertaken, with a closest point of approach to the target identified, based on the eventual installation methodology.</p> <p>Whilst avoidance will be the preferred approach, if UXO clearance is necessary, the activity will be undertaken in accordance with approved industry practices for removal and disposal / waste management of ordnance. This may include detonating UXO in place or lifting and relocating to a designated storage or demolition area, for safe disposal.</p> <p>The MOD will be notified prior to any activities taking place in military practice and exercise areas. Given any safety zones around vessels will move at the rate of the associated</p>

	Preliminary assessment
	vessels, any disruption will be localised and short term. Activities may disrupt activities temporarily, but the tolerance for change is high.
Receptor	Military practice and exercise areas
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
	Volume 1, Part 1, Chapter 4, Description of the Proposed Project
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of military practice and exercise areas to the installation/removal of infrastructure is low.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on military practice and exercise areas to the installation/removal of infrastructure during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>The preference is for the HVDC cable to be buried as far as possible. The minimum depth of lowering to the top of the cable is 0.5 m, with the target depth of lowering for the Proposed Project being 1.5 m to 2.5 m depending on seabed conditions.</p> <p>Where burial cannot be achieved, external cable protection may be required where the soil or rock conditions are too hard to achieve effective burial, or third-party assets cross the route. Up to approximately 13.207 km of planned post lay rock berm and areas of potential remedial rock berm is anticipated to be required for the protection of the bundled cables.</p> <p>Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).</p> <p>The MOD will be notified prior to any activities taking place in military practice and exercise areas. Given any safety zones around vessels will move at the rate of the associated</p>

	Preliminary assessment
	vessels, any disruption will be localised and short term. The installation of infrastructure may disrupt activities temporarily, but the tolerance for change is high.
Receptor	Other subsea cables
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
	Volume 1, Part 1, Chapter 4, Description of the Proposed Project
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of other subsea cables to the installation/removal of infrastructure is high.
Preliminary magnitude	The preliminary magnitude of the installation/removal of infrastructure is considered small.
Preliminary likely significance of effect	The risk of damage to subsea cables occurring from the installation/removal of infrastructure is considered unlikely with the appropriate embedded mitigation and control and management measures in place to reduce risk to subsea cables as much as reasonably practical. The preliminary likely significance of effect on other subsea cables from the installation/removal of infrastructure is therefore Not Significant .
Confidence in prediction	A moderate confidence has been given to this prediction. Crossing infrastructure will be required where the cable crosses existing subsea cable infrastructure or those which are planned where construction coincides with the Offshore Scheme. Crossing agreements will be agreed with asset owners. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable owners. Proximity agreements will be required in order to manage risks including a necessary mitigation and controls including the application of exclusion zones. Any unplanned interaction causing damage to subsea cable infrastructure would potentially compromise the intended purpose of the cable, resulting in major financial consequences for the company.

Preliminary assessment	
	The risk of damage to subsea cables occurring from the installation/removal of infrastructure is considered unlikely with the appropriate embedded mitigation and control and management measures in place to reduce risk to subsea cables as far as reasonably practical.
Receptor	Aquaculture operations
Potential impact	Physical presence of vessels (e.g., cable lay barge and support vessels) interacting with stationary or slow-moving traffic
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	Marine cable installation: 0 km to 7 km per day Landfalls: Approximately 1 year
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of aquaculture operations to the physical presence of vessels is low.
Preliminary magnitude	The preliminary magnitude of the physical presence of vessels is small.
Preliminary likely significance of effect	The preliminary likely significance of effect aquaculture operations from the physical presence of vessels during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction. Any disturbance from the physical presence of vessels will be temporary, with any restrictions to commercial operations short term, representing only a slight increase from baseline conditions. There is risk of project vessels colliding with third-party vessels. This is considered further in Volume 1, Part 4, Chapter 8, Shipping and Navigation .
Receptor	Aquaculture operations
Potential impact	Occupancy of seabed – below seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime

	Preliminary assessment
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of aquaculture operations to the occupancy below the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy below the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on aquaculture operations from the occupancy below the seabed during operation and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>The preference is for the HVDC cable to be buried as far as possible. The minimum depth of lowering to the top of the cable is 0.5 m, with the target depth of lowering for the Proposed Project being 1.5 m to 2.5 m depending on seabed conditions. The Proposed Project will only restrict development in a relatively narrow corridor of seabed.</p> <p>Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).</p> <p>The Study Area is intersected by the Outer Thames shellfish waters; however, the Offshore Scheme boundary does not intersect this shellfish water boundary and is located over 5 km from the water boundary.</p>
Receptor	Aquaculture operations
Potential impact	Occupancy of seabed – above seabed
Proposed Project phase	Operation and Decommissioning
Duration	Project lifetime
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of aquaculture operations to the occupancy above the seabed is low.
Preliminary magnitude	The preliminary magnitude of the occupancy above the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on aquaculture operations from the occupancy above the seabed during operation and decommissioning is Not Significant .

Preliminary assessment	
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Where burial cannot be achieved, external cable protection may be required where the soil or rock conditions are too hard to achieve effective burial, or third-party assets cross the route. Up to approximately 13.207 km of planned post lay rock berm and areas of potential remedial rock berm is anticipated to be required for the protection of the bundled cables.</p> <p>Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).</p> <p>The Study Area is intersected by the Outer Thames shellfish waters; however, the Offshore Scheme boundary does not intersect this shellfish water boundary and is located over 5 km from the water boundary.</p> <p>The Proposed Project will only restrict development in a relatively narrow corridor of seabed.</p>
Receptor	Aquaculture operations
Potential impact	Pre-clearance and pre-sweeping of seabed
Proposed Project phase	Construction and Decommissioning
Duration	<p>Marine cable installation: 0 km to 7 km per day</p> <p>Landfalls: Approximately 1 year</p>
Volume 1, Part 1, Chapter 4, Description of the Proposed Project	
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of aquaculture operations to the pre-clearance and pre-sweeping of seabed is medium.
Preliminary magnitude	The preliminary magnitude of the occupancy above the seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on aquaculture operations from the pre-clearance and pre-sweeping of seabed during construction and decommissioning is Not Significant .
Confidence in prediction	A high confidence has been given to this prediction.

Preliminary assessment	
	<p>The Study Area is intersected by the Outer Thames shellfish waters; however, the Offshore Scheme boundary does not intersect this shellfish water boundary and is located over 5 km from the water boundary.</p> <p>The maximum swathe for pre-clearance and pre-sweeping activities is 40 m.</p> <p>Any changes to the seabed composition and bathymetry from construction and decommissioning activities resulting from suspended sediment and associated deposition will be spatially limited and short-term.</p> <p>There is sufficient distance between the Offshore Scheme and shellfish waters that any increases in bed levels will be immeasurable in practice.</p>
Receptor	Aquaculture operations
Potential impact	Installation/removal of infrastructure
Proposed Project phase	Construction, Maintenance, and Decommissioning
Duration	<p>Marine cable installation: 0 km to 7 km per day</p> <p>Landfalls: Approximately 1 year</p>
Volume 1, Part 1, Chapter 4, Description of the Proposed Project	
Mitigation	OSU02
Preliminary sensitivity	The preliminary sensitivity of aquaculture operations to the installation/removal of infrastructure is low.
Preliminary magnitude	The preliminary magnitude of pre-clearance and pre-sweeping of seabed is small.
Preliminary likely significance of effect	The preliminary likely significance of effect on aquaculture operation to the installation/removal of infrastructure during construction, maintenance and decommissioning is Not Significant .
Confidence in prediction	<p>A high confidence has been given to this prediction.</p> <p>Once installed, a working zone may be required either side of the submarine cables to enable access for cable maintenance and repair operations. According to subsea cable guidance, the working zone is 500m either side of the existing subsea cable, although this may vary depending on the site (Ref 10.12).</p>

Preliminary assessment

The Study Area is intersected by the Outer Thames shellfish waters; however, the Offshore Scheme boundary does not intersect this shellfish water boundary and is located over 5 km from the water boundary.

4.10.10 Transboundary Effects

- 4.10.10.1 A transboundary effect is any significant adverse effect on the environment resulting from human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of another State.
- 4.10.10.2 All works associated with the Proposed Project fall within the UK jurisdiction (12 NM). Given the distance of the Proposed Project from French waters (approximately 25 km), no significant transboundary effects have been identified. Predicted disturbance from the Proposed Project is short term and local and are therefore not anticipated to be sufficient to influence other sea user receptors outside UK waters, and subsequently cause transboundary effects.
- 4.10.10.3 Furthermore, the PEIR has concluded no significant effects for other sea user receptors in UK waters.

4.10.11 Summary

- 4.10.11.1 A number of other sea users are present within the Proposed Project Study Area with offshore windfarms and corresponding export cables dominating offshore infrastructure. There is the potential for increased use by other sea users within the Study Area in the near future, including consented offshore wind sites.
- 4.10.11.2 Following the inclusion of embedded mitigation and control and management measures, the preliminary assessment has not identified any likely significant effects on other sea user receptors within the Study Area from the Proposed Project.

4.10.12 References

Ref 10.1: Marine and Coastal Access Act 2009 [online]. Available at: <https://www.legislation.gov.uk/ukpga/2009/23/contents> [Accessed 05 April 2023].

Ref 10.2: Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). Updated for consultation 2023 [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 05 April 2023].

Ref 10.3: Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy Infrastructure (EN-3). Updated for consultation 2023 [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147382/NPS_EN-3.pdf [Accessed 15 June 2023].

Ref 10.4: Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). Updated for consultation 2023 [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 05 April 2023].

Ref 10.5: Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 05 April 2023].

Ref 10.6: Department of Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 05 April 2023].

Ref 10.7: Department for Environment, Food and Rural affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf [Accessed 05 April 2023].

Ref 10.8: Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf [Accessed 05 April 2023].

Ref 10.9: ICPC (2015). International Cable Protection Committee (ICPC) Recommendation No.2. Cable Routing and Reporting Criteria. [online] Available at: <https://www.iscpc.org/publications/recommendations/> [Accessed 05 April 2023].

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