XLINKS' MOROCCO-UK POWER PROJECT

Report to Inform Appropriate Assessment

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APEM

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Glossary

Term	Definition
Terminology Relating to the Proposed Development	
Alverdiscott Substation	The existing National Grid Electricity Transmission substation at Alverdiscott, Devon, which comprises 400 kV and 132 kV electrical substation equipment.
Alverdiscott Substation Connection Development	The development required at the existing Alverdiscott Substation Site, which is envisaged to include development of a new 400 kV substation, and other extension modification works to be carried out by National Grid Electricity Transmission. This does not form part of the Proposed Development, however, it is considered cumulatively within the Environmental Impact Assessment as it is necessary to facilitate connection to the national grid.
Alverdiscott Substation Site	The National Grid Electricity Transmission site within which the Alverdiscott Substation sits.
Applicant	Xlinks 1 Limited.
Converter Site	The Converter Site is proposed to be located to the immediate west of the existing Alverdiscott Substation Site in north Devon. The Converter Site would contain two converter stations (known as Bipole 1 and Bipole 2) and associated infrastructure, buildings and landscaping.
Converter station	Part of an electrical transmission and distribution system. Converter stations convert electricity from Direct Current to Alternating Current, or vice versa.
HVAC Cables	The High Voltage Alternating Current cables which would bring electricity from the converter stations to the new Alverdiscott Substation Connection Development.
HVDC Cables	The High Voltage Direct Current cables which would bring electricity to the UK converter stations from the Moroccan converter stations.
Intertidal area	The area between Mean High Water Springs and Mean Low Water Springs.
Landfall	The proposed area in which the offshore cables make landfall in the United Kingdom (come on shore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area at Cornborough Range, Devon, between Mean Low Water Springs and the transition joint bays inclusive of all construction works, including the offshore and onshore cable routes, and landfall compound(s).
National Electricity System Operator	National Electricity System Operator (NESO) operates the national electricity transmission network across Great Britain. NESO does not distribute electricity to individual premises, but its role in the wholesale market is vital to ensure a reliable, secure and quality supply to all.
Offshore Cable Corridor	The proposed corridor within which the offshore cables are proposed to be located, which is situated within the UK Exclusive Economic Zone.
Offshore Cables	The cables, situated within the UK Exclusive Economic Zone, which would bring electricity from its generation source to the landfall.
Offshore Infrastructure Area	The area within the Proposed Development Order Limits up to Mean Low Water Springs within which the offshore infrastructure is proposed to be located.
Onshore HVAC Cable Corridor	The proposed corridor within which the onshore High Voltage Alternating Current cables will be located.
Onshore HVDC Cable Corridor	The proposed corridor within which the onshore High Voltage Direct Current cables would be located.
Onshore Infrastructure Area	The proposed infrastructure area within the Order Limits landward of Mean High Water Springs. The Onshore Infrastructure Area comprises the transition joint bays, onshore HVDC Cables, converter stations, HVAC Cables, highways improvements, utility diversions and associated temporary and permanent infrastructure including temporary compound areas and permanent accesses.

Term	Definition
Terminology Relating to the Proposed Development	
Proposed Development	The element of Xlinks' Morocco-UK Power Project within the UK. The Proposed Development covers all works required to construct and operate the offshore cables (from the UK Exclusive Economic Zone to Landfall), Landfall, onshore Direct Current and Alternating Current cables, converter stations, and highways improvements.
Order Limits	The area within which all offshore and onshore components of the Proposed Development are proposed to be located, including areas required on a temporary basis during construction (such as construction compounds).
Study area	This is an area which is defined for each environmental topic which includes the Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Survey area	The area within which each survey has been undertaken. This may differ from the study area as a survey area will be based on species or survey-specific guidance on the extent of survey required, which may be limited by, for example, habitat conditions, or be defined in terms of buffer areas around an area of potential impact.
The national grid	The network of power transmission lines which connect substations and power stations across Great Britain to points of demand. The network ensures that electricity can be transmitted across the country to meet power demands.
Utility Diversions	Works required by statutory utility providers to re-route infrastructure around the Proposed Development.
Xlinks Morocco- UK Power Project	The overall scheme from Morocco to the national grid, including all onshore and offshore elements of the transmission network and the generation site in Morocco (referred to as the 'Project').

Acronyms

Acronym	Meaning
AC	Alternating Current
AEoI	Adverse Effects On Integrity
ANCB	Appropriate Nature Conservation Body
CEA	Cumulative Effects Assessment
CBRA	Cable Burial Risk Assessment
CBPs	Chlorination By-Products
CIS	Celtic & Irish Seas (Management Unit, MU)
CLV	Cable Lay Vessel
DC	Direct Current
Defra	Department for Environment, Food & Rural Affairs
EEZ	Exclusive Economic Zone
EU	European Union
GB	Great Britain
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
MCZs	Marine Conservation Zones
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MU	Management Unit
NGET	National Grid Electricity Transmission
NM	Nautical Miles
OCEMP	Offshore Construction Environmental Management Plan
OCSW	Offshore Channel, Celtic Sea & South West England (Management Unit, MU)
OWF	Offshore Wind Farm
PLONOR	Poses Little or No Risk
RIAA	Report to Inform Appropriate Assessment
ROV	Remotely Operated Vehicle
SAC	Special Area of Conservation
SMU	Seal Management Unit
SoS	Secretary of State
SPAs	Special Protection Areas
TJB	Transition Joint Bay
TROs	Total Residual Oxidants
UK	United Kingdom
UXO	Unexploded Ordnance
WTG	Wind Turbine Generator

1 INTRODUCTION

1.1 Project Details

1.1.1 This report presents the results of the Stage 2 assessments, or the Report to Inform Appropriate Assessment (hereafter referred to as the RIAA) which presents the HRA reporting for the UK offshore elements of Xlinks' Morocco-UK Power Project. For ease of reference, the UK elements of the Project are referred to in this report as the 'Proposed Development'. The report accompanies the application to the Planning Inspectorate for development consent for the Proposed Development.

1.1.2 The Proposed Development forms part of the wider Project proposed by Xlinks 1 Limited (the 'Applicant') to develop a sub-sea electricity supply project from Morocco to the UK. The Project includes an electricity generation facility entirely powered by solar and wind energy combined with a battery storage facility. Located in Morocco's renewable energy rich region of Guelmim Oued Noun, the Applicant proposes to install approximately 11.5 Gigawatts peak (GWp) of renewable energy capacity that would cover an approximate area of 1,500 km^2 and connect exclusively to Great Britain (GB) via four HVDC sub-sea cables, with a total offshore route between Morocco and the UK of approximately 4,000 km.

1.1.3 The offshore elements of the Proposed Development in UK waters that are the subject of this assessment will be undertaken within the Offshore Cable Corridor.

1.1.4 The extent of the Offshore Cable Corridor assessed in this RIAA is from the UK exclusive economic zone (EEZ) boundary to the landfall site at Cornborough Range on the north Devon coast. The total length of the Offshore Cable Corridor in UK waters is approximately 370 km.

1.1.5 The Offshore Cable Corridor has a nominal width of 500 m extending up to 1,500 m at some crossing locations (where the cable needs to cross existing power and telecoms cables for example) to provide the cables with sufficient space to cross the existing assets as close to 90 degrees as possible (and thus reduce the footprint of the crossing on the seabed). The Offshore Cable Corridor width is also extended to 1,500 m at the western edge of The Crown Estate's (TCE's) Project Development Area 3 (Offshore Wind Leasing Round 5) to ensure this area can be avoided if necessary.

1.1.6 Route optimisation studies have informed the routing of the marine cable corridor; these studies have included multiple desktop studies and marine investigation surveys. Route optimisation has considered e.g. depth, seabed features, metocean influences, external stakeholders (e.g. seabed leaseholders, fishing activities, shipping etc) and environmental constraints such as marine protected areas including Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Marine Conservation Zones (MCZs).

1.1.7 The width of the Offshore Cable Corridor will allow some flexibility for micro-routing of the cables within it. Flexibility for micro routing within the Offshore Cable Corridor will be retained until cable installation, to:

- allow for the final precise cable route to adapt to the conditions encountered during pre-construction surveys and selection of specific installation methods (noting that extensive seabed characterisation surveys and an Outline Cable Burial Risk Assessment – Volume 1, Appendix 3.4 of the ES - have been undertaken);
- allow potential micro-routing comments from relevant stakeholders to be addressed, including e.g. Historic England inputs via the Archaeological Outline Offshore Written Scheme of Investigation; and
- allow the flexibility to avoid currently unforeseen hazards (such as potential unexploded ordinance (UXO) identified during the pre-cable lay geophysical survey).

1.1.8 The Offshore Cable Corridor to be assessed in this RIAA is shown below in **Figure 1**.

1.1.9 The offshore cables would consist of four 525 kV HVDC marine power cables which would be installed for the majority of the cable route as two bundled pairs (Bipole 1 and Bipole 2). The bundled pairs would be separated into four individual cables a short distance before the landfall HDD entry points, to allow each cable to be pulled onshore through individual HDD ducts.

1.1.10 Each offshore HVDC cable would have a diameter of approximately 175 mm and an approximate weight of 70 kg/m in air. Each cable pair (forming a bipole) would facilitate the transfer of 1.8 GW to the national grid, resulting in a total of 3.6 GW power supply into the UK.

1.1.11 In addition to the four HVDC marine power cables, two fibre optic cables (FOC) would provide a cable monitoring fibre system (Distributed Acoustic Sensing and/or Distributed Temperature Sensing). Each FOC would be approximately 35-40 mm in diameter and laid together with the marine cables within a shared trench (one FOC per cable bundle). FOC repeaters would be required approximately every 70 km along the Offshore Cable Corridor (four to five repeaters per bipole). At each repeater location, there would likely be a spur of FOC installed adjacent to the cables for the installation of the repeaters and ongoing maintenance purposes. The spur of FOC at each repeater location would be equal in length to the water depth at the repeater location.

1.1.12 The FOC spurs and repeaters would be buried to the same depth as the HVDC Cables in accordance with the Outline CBRA (Volume 1, Appendix 3.4of the ES). It is assumed that the FOC spurs would be buried using the same, or less intrusive, methods as the HVDC Cables (lesser trench width required for FOC burial). The FOC repeaters would be buried broadly parallel to the HVDC Cables, within the boundary of the Offshore Cable Corridor taking place soon after the HVDC cable protection works.

1.1.13 At the landfall, the FOCs would be installed alongside an HVDC cable within an HDD duct, i.e. adjacent to one of the power cables within the same HDD duct.

1.2 Purpose of document

1.2.1 Proposed plans or projects that have the potential to affect European designated nature conservation sites (European Sites) require full consideration of the Habitats Regulations Assessment (HRA) process.

1.2.2 The staged process of determining impacts to the sites to which the Habitats Regulations apply is known as Habitats Regulations Assessment (HRA). These stages are Screening (Stage 1), Appropriate Assessment (Stage 2) and where required, Derogation (Stage 3).

1.2.3 This report presents the HRA reporting for the UK offshore elements (the Proposed Development) of the proposed Xlinks' Morocco-UK Power Project. The results of the Stage 1 assessment were presented in a HRA Screening Report (Xlinks 2024). This report updates that HRA Screening Report to account for regulator comments. This report then presents the results of the Stage 2 assessments, or the Report to Inform Appropriate Assessment (hereafter referred to as the RIAA).

1.2.4 In discussions with Natural England, it was agreed that the UK onshore elements of the Proposed Development had little potential to have Likely Significant Effect (LSE) on European Designated Sites, due to the distance and lack of potential impact pathways from the onshore elements of the Proposed Development. This is confirmed within the Discretionary Advice Service notes provided by Natural England on 9 November 2023, which confirms that:

'Natural England's advice is that the proposed cable route is unlikely to have a significant effect on terrestrial European sites and can therefore be screened out from requiring further assessment.'

1.2.5 Therefore, the focus of this RIAA is the offshore elements of the Proposed Development in UK waters.

1.3 Habitats Regulations Assessments

1.3.1 HRA provides the process for the consideration of potential impacts of plans and projects alone or in combination on a particular type of designated conservation site. The requirement follows from the EU Habitats Directive (European Commission, 1992) and, by virtue of Article 8 of that Directive, also the Wild Birds Directive (the Nature Directives) (European Commission, 2009).

1.3.2 The Europe-wide network of nature conservation areas that are the subject of the HRA process was established under the Nature Directives. These areas are known as 'European sites' and collectively, as the 'Natura 2000' network. The wording of Article 6(3) and 6(4) of the Habitats Directive underlies the sequential decision-making tests applied under the HRA process to projects likely to affect European sites.

1.3.3 Following the UK's departure from the European Union (EU) on 31 December 2020 (EU Exit), the UK is no longer an EU Member State. Notwithstanding, the Habitats Regulations (2017) (as amended) continue to provide the legislative backdrop for HRA in the UK through the Conservation of Habitats and species Amendment (EU Exit) Regulations 2019 ('EU Exit Regulations'). The HRA process implemented under the Habitats

Regulations (2017) continues to apply (subject to minor changes) and the UK is bound by HRA judgments handed down by The Court of Justice of the European Union (CJEU) prior to 31 December 2020[1].

1.3.4 Accordingly, the EU Exit Regulations are considered to have no material bearing on the requirement or process for the HRA of the Proposed Development. In accordance with the present position on HRA terminology (Department for Environment, Food and Rural Affairs (Defra), 2021), this report will still refer to 'the Habitats Regulations', 'European sites' and HRA case law[2]. As mentioned above, European sites in the UK are collectively termed the 'National Site Network' and no longer form part of the Natura 2000 network, however, for the purposes of this report they are still referred to as European Sites. The HRA will not refer to any obligations under the Nature Directives but may have regard to European Commission (EC) guidance, so far as it is relevant.

1.3.5 The Habitats Regulations require that an Appropriate Assessment of the implications of any development consent must be made by the relevant competent authority, in this case the Secretary of State (SoS) (as advised by e.g. Natural England and the Joint Nature Conservation Committee (JNCC)), if a project (or plan) is likely to have a significant effect on the conservation objectives of a European Site (defined below), either alone, or in-combination with other plans or projects.

1.3.6 HRA is generally understood to be a progressive, staged process which determines Likely Significant Effect (LSE) and, where required, assesses potential Adverse Effects On Integrity (AEoI) of a European Site, examines alternative solutions and provides justification of Imperative Reasons of Overriding Public Interest (IROPI) (Planning Inspectorate 2022). Further detail on the process followed and the definition of particular terms, is provided in the methodology (**Section 4**).

1.4 Structure and purpose of the report

1.4.1 This report provides information on the work activities and the HRA process. It then carries out the Appropriate Assessment process and presents the results and conclusion. This report provides information to allow the SoS (as the competent authority) to determine whether there will be an adverse effect on the integrity of any European Site(s) in view of their Conservation Objectives (COs) as a result of the Proposed Development. Strictly speaking, the SoS will undertake the final Appropriate Assessment, with this RIAA representing a 'shadow HRA' i.e. a suggested assessment undertaken independently on behalf of Xlinks 1 Limited.

1.4.2 In the context of a HRA, where the potential for LSE cannot be excluded for a Site (at Screening), a competent authority must make an Appropriate Assessment (at Stage 2) of the implications of the plan or project for that site, in view of the Site's Conservation Objectives. The competent authority may agree to the plan or project only after having ruled out adverse effects on the integrity of the European Site. Where an AEoI on a European site

[1] Relating to Judgements prior to 31st December 2020

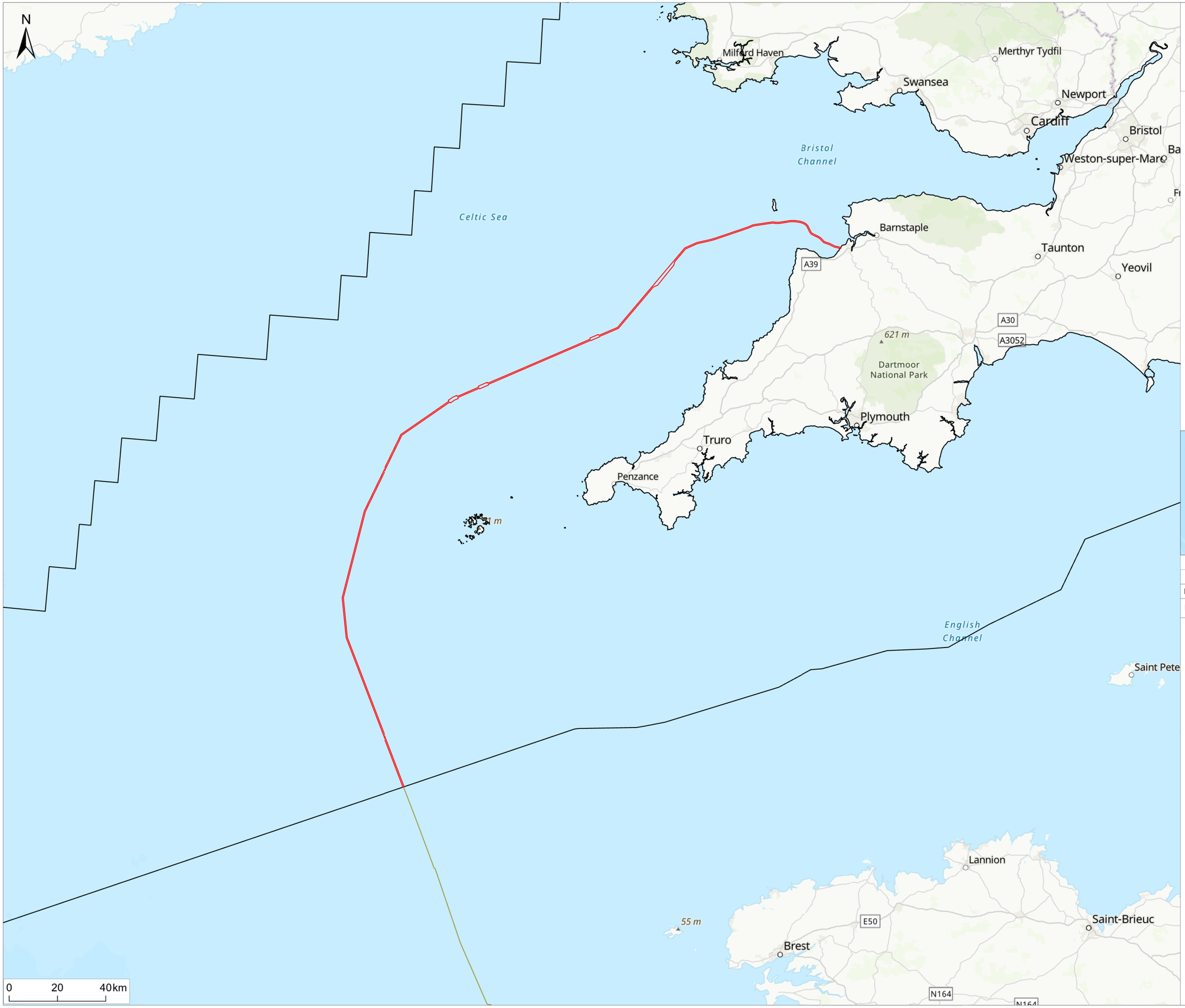
[2] From before 31st December 2020

cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of overriding public interest (IROPI) and if the necessary compensatory measures can be secured.

2 PROPOSED DEVELOPMENT

2.1 Location and context

2.1.1 Xlinks' Morocco-UK Power Project will connect Cornborough in the UK to the West Coast of Morrocco. The location of the Offshore Cable Corridor in UK waters is indicated below in **Figure 1**.



Notes
1. This plan is scaled at paper size A3. If received electronically it is the recipients responsibility to print to the correct scale. Only written dimensions should be used.

Legend

- UK Offshore Cable Corridor
- Indicative Cable Centreline
- UK Exclusive Economic Zone (EEZ)

Rev	Description	By	CB	Date
P01	FINAL	PN	MB	Nov 2024

Client: Xlinks 1 Limited

Project: Xlinks' Morocco-UK Power Project

Title: Offshore Cable Corridor

Status	Scale @ A3	Date Created
FINAL	1:1,500,000	Nov 2024

Figure Number: **1**

Rev: **P01**

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2.2 Summary of marine works

Programme and installation schedule

2.2.1 The following dates are indicative at this time, and may be influenced by e.g. weather limitations of the Cable Laying Vessel (CLV):

- **2027:**
  - Horizontal Directional Drilling (HDD) at the proposed Landfall is scheduled to commence in Q1 of 2027.
  - Pre-lay works for Bipole 1 (first cable bundle) such as route clearance and boulder removal are anticipated to take place in 2027 ahead of cable lay and protection works.
- **2027-2028:** Cable lay works for Bipole 1 are scheduled to begin in 2027. It is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that one section will be laid in Q3 2027 and two sections will be laid in 2028.
- **2029:** For Bipole 2 (second cable bundle), offshore works would begin with pre-lay works in 2029.
- **2030:** The three sections of bipole 2 are currently scheduled to be laid in 2030.

2.2.2 Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

2.2.3 Guard vessels would be provisioned for any periods after the cable has been laid, but has not yet been buried or protected, to minimise the risk of interactions with other marine traffic.

Construction Phase

Horizontal Directional Drilling – Marine Works

2.2.4 The cables would be installed at the Landfall using a HDD technique to avoid disturbance of the intertidal zone, the beach and the foreshore including coastal cliffs. This section provides a summary of the marine elements of the HDD works.

2.2.5 The HDD drill direction would be started on land and directed out to sea. For each borehole, a pilot hole would be drilled (at c. 20 m below seabed level) to within approximately 50 m of the seabed exit points. The drilled bore would then be widened to its full intended diameter before the remainder of the bore is drilled. Redundant drilling fluid and cuttings would be removed and disposed of responsibly, in accordance with waste regulations, from the land-based works.

2.2.6 The primary HDD activity that interacts with the marine environment is the breakthrough, or 'punchout', of the drill from underneath the seabed.

2.2.7 During breakthrough, drilling fluid and cuttings would be released into the immediate marine environment. The use of drilling fluids that are on the OSPAR PLONOR list (Pose Little Or No Risk to the environment) would be prioritised to minimise the risk to the marine environment during breakthrough. The volume of

drilling fluid and cuttings lost during breakthrough is minimised by the adopted construction approach i.e. the boreholes having already been drilled to their full diameter prior to breakthrough of the seabed and the continuous removal of drilling fluid and cuttings during this operation. Lower drilling fluid flow rates are also used during breakthrough to minimise the loss of drilling fluid.

2.2.8 There will be no requirement for any wet concrete pours associated with the Landfall HDD or any of the offshore works.

2.2.9 An excavated 'exit pit' may be required at HDD exit points on the seabed to clear unconsolidated sediment layers (sand and pebbles) that may jam HDD equipment on breakthrough or prevent subsequent duct installation once the boreholes have been drilled. Localised clearance of unconsolidated sediments are expected to be undertaken by either a back-hoe dredger (long arm barge mounted excavator), or mass flow excavation (MFE). Sediment will be cleared from an area of approximately 15 m x 15 m around the exit points.

2.2.10 Sediments will be cleared, rather than removed offsite (as was proposed at PEIR stage). Thus sediments will not be removed from Bideford Bay, with exit pits refilled via a combination of manual infilling (long arm barge mounted excavator) and by natural infilling of sediments (which would be expected to be rapid given the extensive mobility of surface sediments in Bideford Bay).

2.2.11 Exit points in the marine environment for the four drills are currently being considered between approx. 5 m water depth (approximately 500 m offshore) and 10 m water depth (approximately 1,800 m offshore). Volume 1, Figure 3.9 of the ES presents a plan of the landfall HDD that shows this enveloped area.

2.2.12 Following installation, cable ducts at the exit pits will be protected using the material excavated from the 'exit pit'. If concrete mattresses or rock protection are needed at the final duct exits this will be highly localised and all such protection would be below seabed level. Away from the exit pits, cables will be protected and buried in trenches, as elsewhere. The sandy sediments of Bideford Bay mean that achieving target depth burial is highly likely, with trenches infilled with the excavated sandy sediments; thus supplementary cable rock protection is highly unlikely to be required in Bideford Bay (c.f. e.g. Volume 1, Figure 3.15: Indicative rock placement along the Offshore Cable Corridor of the ES).

2.2.13 Dependant on the contractor's final design and depth of the boreholes, there would be up to a 40 m separation between adjacent drill exit points for cables on the same circuit, and approximately a 50 m separation between circuits (i.e., all four exit points would be within an area of the seabed of approximately 130 to 150 m width).

2.2.14 The HDD installation would be undertaken ahead of cable lay, likely commencing in Q1 2027 (avoiding the winter period). Active working on HDD exit pits would also be avoided during peak Spring tides; this is embedded mitigation to minimise the disturbance of suspended sediments (see Volume 3, Chapter 8: Physical Processes of the ES).

HDD Duct Installation

2.2.15 Following drilling of the four boreholes, ducting would be installed in each bore. Three methods are being considered for the installation of ducting: pulling the ducting from either onshore or offshore or pushing the ducting through the boreholes from onshore.

2.2.16 A pulled installation with a pulling winch onshore requires a complete string of duct to be towed (afloat) from offshore to the HDD exit points and pulled onshore through the boreholes. If the pulling winch is located offshore, then the string of duct can be fabricated at the HDD onshore site as the duct is pulled offshore.

2.2.17 A pushed installation involves the fabrication of the ducts at the HDD onshore site with the ducts fed into the entry points and driven through the boreholes using a pipe thruster. The project design team have rejected any option of moving ducting across the beach, which would effectively be isolated from the HDD works. The choice of the HDD installation method avoids potential impacts to designated sites and the intertidal zone.

2.2.18 All methods of duct installation require marine vessels, however, the pull method would require additional vessels relative to the push method (as described in Volume 3, Chapter 5: Shipping and Navigation of the ES).

Pre-Lay Marine Surveys

2.2.19 The baseline UK marine investigation surveys, that included geophysical surveys, subtidal drop-down video surveys and subtidal grab surveys have been completed and have informed the environmental baseline for this RIAA (see e.g. Appendix 8.4 GEOxyz Environmental Report of the ES).

2.2.20 Prior to cable installation (commencing in 2027), additional ground condition surveys may be required by the Contractor. These are unlikely to be required to further characterise the environmental baseline (given the high resolution baseline data collection already compiled for the Offshore Cable Corridor within UK waters), but may be required for micro-routing purposes or to identify any UXO within the Offshore Cable Corridor that may need to be avoided or cleared. If required, UXO clearance (removal or detonation) would be undertaken by a specialist contractor and any such works would be subject to a separate consenting process at the time such need is identified. The approach to consenting of UXO has been discussed with the MMO, following Scoping Opinion responses, and the MMO confirmed their preference and expectation for separate licensing of UXO survey and any UXO removal, separate to the DCO/deemed Marine Licence. As such, consideration of effects from activities associated with UXO clearance have been excluded from this RIAA.

Route Preparation

2.2.21 The marine baseline investigation surveys (see e.g. Volume 3, Appendix 8.4 GEOxyz Environmental Report of the ES) and any pre cable laying ground condition survey would inform the requirements for, and extent of, seabed preparation and clearance along the Offshore Cable Corridor in UK waters. Types of seabed preparation that could be required prior to cable installation include:

- Clearance of debris and some local seabed features e.g. boulders;
- Clearance of Out of Service (OOS) cables; and
- Construction of crossing structures over existing in-service cables.

2.2.22 Seabed preparations will not remove bed materials from the local area i.e. there will be no dredge arisings or similar. Any seabed preparations will be limited to immediate clearance / highly localised flattening only.

Seabed Debris

2.2.23 Where deemed necessary, marine debris such as abandoned, lost or discarded fishing gear that may impede the cable installation operations, would be cleared from the cable route prior to installation. This would require a pre-lay grapnel run involving towing a heavy grapnel hook of circa 1 m total width, at a max penetration depth of circa 1 m, along the centre line of each bundled cable pair route to clear debris. It is anticipated that the pre-lay grapnel run would extend along the entire Offshore Cable Corridor apart from at live cable crossings (the locations of which are shown on Volume 1, Figure 3.10 of the ES). The only exception will be if the cable is installed by pre-cut trenching by plough whereby a pre-lay grapnel run is not required, but this is currently not known.

2.2.24 Debris collected during the grapnel run would be recovered on board the vessel for onshore disposal at appropriately licensed disposal facilities.

Out of Service Cables

2.2.25 There are currently 27 anticipated crossings of OOS cables along the UK Offshore Cable Corridor. A section of the OOS cables would be cut and removed where possible, which is consistent with Natural England's preference (Natural England, 2022) i.e. prevents the need for mandatory external cable protection at these OOS crossings. Liaison with the asset owners for the OOS cables is underway, with the expectation that agreements for cable removal will be in place for the majority.

2.2.26 As a worst case, it is assumed for RIAA assessment purposes that x5 of the OOS cables will require crossings (5 OOS cables x 2 Bipoles = 10 OOS cable crossing protection structures in total). Should any OOS cable crossings be required, this will be confirmed to the MMO (and Natural England) post DCO approval, prior to construction.

Sandwaves and Large Ripples

2.2.27 The outline CBRA (Volume 1, Appendix 3.4 of the ES) has determined that there are no sandwaves or large sand ripples in UK waters that would require pre-sweeping / large-scale flattening. The scale of sandwaves and ripples is such that cable burial below mobile sediment layers is expected to be achieved during normal installation procedures i.e. using mass flow excavation (MFE) and/or 'surface plough'/leveller.

2.2.28 MFE utilises a jetting tool that uses high flow water jets to temporarily displace and suspend sediments for localised seabed excavation and levelling. Based on the provisional assessment of the geophysical survey data, the MFE is anticipated to be deployed infrequently (based on seabed type), potentially most appropriate to the seabed conditions in Bideford Bay.

2.2.29 Localised seabed levelling, where required, would be more likely undertaken by a pre-lay trench plough, with a swath width of 10-15 m (per trench). For the purpose of this RIAA, the entire 370 km UK Offshore Cable Corridor (OCC) length is assumed to require deployment of the pre-lay trench plough. The assumed (worst case) area for pre-lay trench clearance is 11,100,000 m^2 (15 [width] x 370,000 [length] x 2 [number]).

Boulder Clearance

2.2.30 Areas of boulder fields have been identified along the route (as presented on Volume 1, Figure 3.11: Boulder densities along Offshore Cable Corridor of the ES), which will prevent burial of the cable bundles where they cannot be avoided by micro-routing. In these areas, a pre-lay plough and / or boulder grab may be deployed for boulder clearance purposes, to increase the likelihood of successful burial. It is anticipated that boulder clearance would be carried out by boulder grab in areas of low boulder density and by pre-lay plough in areas of high boulder density, however this is not prescriptive as the use of tools may be swapped due to operational requirements (for example a small area of low density boulders may be cleared by plough if between areas of high density boulder fields or vice versa).

2.2.31 The pre-lay plough has a boulder clearance swath width of 10-15 m. It is anticipated that up to approximately 200 km of the route may need deployment of the pre-lay plough for boulder removal. Any moved boulders would remain within the limits of the Offshore Cable Corridor.

Trench Ploughing

2.2.32 The pre-lay plough can also perform pre-cut trenching, to produce an initial trench to enable subsequent cable burial. The pre-lay plough has capability to perform boulder clearance, pre-cut trenching and backfill services (after cable lay). The pre-lay plough can operate in each mode independently or carry out the boulder clearance and pre-cut trenching activities simultaneously. During boulder clearance surface boulders are unearthed and relocated to an outer spoil berm. Siphoned soil from pre-lay plough trenching is relocated to an inner spoil berm to be used to backfill the trench after cable lay.

2.2.33 The profile of the pre-lay plough trench would be 500 mm (width) x 700 mm (depth) at its base, with a further 'Y' shaped profile where the cut depth is >700 mm. Where ground conditions allow the pre-lay plough can trench down to the target cable burial depth of approximately 1.5 m.

2.2.34 The disturbance width (swath) of the pre-lay plough in pre-cut trenching and backfill modes is 15 m.

Cable Installation Methods

2.2.35 The HVDC cables would be installed as two bundled pairs from a CLV. The specific CLV(s) that would install the HVDC cables is unknown at this stage and would be determined by the selected Cable Contractor. Based on CLV(s) currently in operation, it is anticipated that two turntables would be mounted on the CLV(s), each holding up to approximately 160 km of HVDC cable. As the CLV travels along the route, the two turntables release cable at the same rate and the two cables are bundled together at the stern of the vessel and fed overboard. An additional cable tank would contain the fibre optic cables, which would be installed as part of the bundle. Tensioners control the cable tension and cameras monitor the cable to ensure it is laid safely on target.

2.2.36 Based on the initial assessment of the geotechnical and geophysical survey data as part of the CBRA (outline CBRA presented as Volume 1, Appendix 3.4: Outline Cable Burial Risk Assessment of the ES) ,the cables will be buried along the entire route. For 220 km of the route it is anticipated that the cables will be

protected by trenching and covered by natural sediments. It is anticipated that additional protection would be required along approximately 150 km of the route. Further details are provided in the following sections.

Cable Burial Method

2.2.37 Burying the cables would provide protection and avoid damage and future entanglement with fishing equipment or other marine users. Burial techniques available include trench ploughing (above), trench jetting, or mechanical trench excavation. Ground conditions suggest that trench jetting is unsuitable for the majority of the Offshore Cable Corridor, with potential exception of shallow coastal areas in Bideford Bay, or used as a remedial measure to be applied following mechanical trenching. Mechanical trenching (mechanical cutter mounted on a remotely operated vehicle (ROV)) is expected to be the main burial method in UK waters. The burial risk (as determined by the CBRA) along the Offshore Cable Corridor associated with trench jetting, mechanical trench excavation, and ploughing is shown on Volume 1, Figures 3.12 to 3.14 of the ES.

2.2.38 Once the cables have been laid on the seabed (by the CLV), the ROV is lowered to the seabed until it straddles the cable bundle lying on the seabed. Where the mechanical cutter is deployed, the tool would lift the cables up above the seabed safely out of the way of the burial tool and would then feed the cables into the trench behind the tool. Where the water jetting ROV is deployed, two jetting legs (also known as swords) would extend down either side of the cable bundle and fluidise the seabed immediately below the cable bundle enabling it to sink under its own weight.

2.2.39 Cable burial depth would be monitored as the burial tool progresses. Where the target burial depth is not achieved on first pass of the tool, a second pass may be required using e.g. the water jet.

2.2.40 The footprint of the mechanical cutter ROV on the seabed is up to 126 m^2 (10 m width and 12.6 m in length) and the water jet ROV up to 55.2 m^2 (6 m width and 9.2 m length).

2.2.41 The average rate of trenching is typically 150 m per hour.

Additional Cable Protection

2.2.42 Preliminary investigations (outline CBRA, Volume 1, Appendix 3.4: Outline Cable Burial Risk Assessment of the ES) indicate that there is significant burial risk (due to e.g. hard seabed and / or boulder fields, the locations of which are shown on Volume 1, Figure 3.12 of the ES) that may reduce the ability to protect the cables using the ROV tools for approximately 150 km of the total length of the Offshore Cable Corridor. In these areas, the pre-lay plough may pass through prior to cable lay to determine if a trench can be produced, followed by at least one pass of the mechanical cutter after the cable bundles had been surface laid with the aim of producing a trench that can be backfilled back to / close to the seabed surface. In areas where this is not possible, the final option would be for the cable to be covered with a layer of rock protection that extends above the level of the surrounding seabed (a rock berm). Indicative / estimated rock placement across the Offshore Cable Corridor is shown on Volume 1, Figure 3.15 of the ES, as interpreted from burial assessment considerations; see e.g. the outline CBRA (Volume 1, Appendix 3.4: Outline Cable Burial Risk Assessment of the ES).

2.2.43 Where required, rock protection would consist of rock ranging from coarse gravel to cobbles and be up to approximately 1 m high above the seabed. The rock source is currently not known but is highly probable to be either basaltic or granitic in origin (this will be dependent on selected rock placement contractor). Where possible rock placement would be limited to within trench and level with the existing seabed. Where rock berms are required (rock placement above sea bed level up to 1 m height), these would be constructed according to industry standards (including International Cable Protection Committee (ICPC) recommendations). Rock berms are only anticipated to be required in areas of shallow rock and boulder fields where the introduction of gravel/cobbles would not be a highly significant change of habitat i.e. rock placement will be least likely to be required where the baseline sea bed substrates are e.g. fine sands.

Cable Crossings

2.2.44 Where the cables cross other in-service cables, the cable would not be buried in a trench. The trench depth would taper to seabed level at a suitable distance from the in-service cable to be crossed and the Proposed Development cable would cross above the in-service cable. The Proposed Development cable would then be buried again on the other side of the in-service cable.

2.2.45 Where the Proposed Development cable crosses in-service cables, whether buried or surface laid, a layer of separation in the form of a pre-lay rock berm or pre-lay concrete mattress may be installed over the crossed asset. The Proposed Development cable would then also require protection in the form of a post-lay rock berm. The height of the concrete mattress and rock berm would be approximately 1.4 m above the seabed. The use of mattresses is anticipated to be very limited. Where they are necessary mattresses would be pre-formed, marine-grade concrete mattresses designed for very long-term deployment. Most of these specialist mattresses have integrated plastic handles / ropes for ease of deployment and installation. Given the specific design of these mattresses for long-term marine deployment, the potential for plastic degradation over time is assumed negligible, and due to the fact that mattresses will be covered with a rock berm / overlying sediments, any risk of degradation into the marine environment of plastics is further reduced. All crossings and crossing agreements would be in line with industry standards (including ICPC recommendations).

2.2.46 There are x20 active or planned cable crossings, the locations of which are shown on Volume 1, Figure 3.10 of the ES. There are 18 planned crossings of active fibre optic cables (15 cables but three are crossed twice), one crossing of a fibre optic cable where installation is currently under way and one crossing of a planned power cable. (Thus, 20 in-service assets x 2 bipoles = 40 in-service asset crossing protection structures in total.)

2.2.47 As outlined in **paragraph 2.2.25**, there are also x27 OOS cables that cross the Offshore Cable Corridor which will have a short section removed where possible. As a worst case (given removal conversations with historical asset owners are ongoing), it is assumed that x5 of the OOS cables will require crossings (5 OOS cables x 2 bipoles = 10 OOS cable crossing protection structures in total).

2.2.48 The total asset crossing protection structures (across both bipoles) = 50 (40 in-service asset crossing protection structures and 10 OOS cable crossing protection structures). Precautionary dimensions for these crossings are assumed in this RIAA - a crossing approach length of 250m either side of an existing asset is assumed. The crossing footprint for RIAA assessment purposes is 3500 m^2 per

crossing which is considered a precautionary/worst case overall area estimate based on 500 m length x 7 m width (recognising that width may extend out to c.9.5m width in the immediate vicinity of the other asset). The total crossing footprint is assumed to be (3500 x 50) 175,000 m^2 (taken to be representative of a worst case footprint area). As suggested above the dimensions are considered precautionary and it is likely that the length of most crossings would be less than the maximum suggested here.

Cable Burial Depth, Width and Spacing

2.2.49 The intended depth at which the cables would be buried is up to a depth of 1.6 m, as detailed in the Outline CBRA (Volume 1, Appendix 3.4: Outline Cable Burial Risk Assessment of the ES). The Outline CBRA finds an average target depth of 1.5 m, and average minimum depth of 0.8 m (n=42).

2.2.50 The width of the trench in which the cable bundles would be buried typically ranges from 0.5 to 1.5 m. The infrequent cable joints and FOC repeaters would require a short additional trench laid broadly parallel to the main cable. The trench width required for these infrequent FOC repeater cables would be narrower than the main trench (<50 cm).

Installation Vessels

2.2.51 Cable installation activities would be undertaken on a 24 hour / 7 day basis, unless interrupted by weather or other disruptions. This would maximise the available operational weather windows, vessel and equipment time, and minimise navigational impacts on other users of the sea.

2.2.52 A description of likely vessel groups to be utilised during the installation activities of the Proposed Development is provided below:

- Vessels for pre and post-installation survey works;
- Workboats/construction vessels and tugs for all works including route clearance/preparation, trenching, installation of rock protection/concrete mattresses, duct installation, cable pull and floating in, and dive support, depending on requirements. These workboats often deploy ROVs and would utilise geophysical survey and positioning equipment to monitor the progress of the works, and for positioning of any ROVs or other underwater equipment needed to complete the works;
- CLVs for cable laying;
- Guard vessels – as necessary, these would accompany the CLV to maintain surveillance around the worksite ensuring other vessels are kept clear i.e. reducing the risk of collision; guard vessels would also be deployed to protect the cable prior to burial;
- Rock placement vessel – where rock placement is required for additional cable protection (e.g. at cable crossings), a rock placement vessel may be used. Such vessels feature a rock storage hopper and equipment by which rock can be placed *in-situ* on the seabed, such as fall pipes; and
- Jack up vessel / multi-cat vessel – for the HDD works (breakthrough, duct push/pull and duct sealing works) near the landfall, jack up vessels would be deployed to enable stable and safe marine works in the subtidal environment.

2.2.53 The precise number of vessels to be used is to be determined by the Cable Contractor, however, indicative vessel types and numbers include two pre-installation survey vessels, up to five trenching vessels, two rock placement vessels, one CLV (two for brief periods during changeovers), and up to 20 guard vessels. Guard vessels would be stationed at 10 nautical mile (nm) intervals along any unprotected cable (prior to full burial); thus it is likely that a much reduced number of guard vessels would be required at any one time.

2.2.54 It is anticipated (including for assessment purposes) that a maximum of two jack up / multi-cat vessels would be required for the offshore HDD works.

Operational Phase

Inspection Surveys

2.2.55 The preferred installation methods are designed to minimise the number of cable inspection surveys that would be required. However, some cable inspection surveys are expected during the operational lifetime of the Proposed Development.

2.2.56 Following the installation of each Bipole an 'as-built' survey shall be conducted along the entirety of the subsea cable route. This survey shall involve the use of a single survey vessel equipped with an inspection ROV and geophysical survey equipment including Multibeam Echo Sounder (MBES) and Side Scan Sonar (SSS) and check:

- Status of the cable within its buried sections of the route,
- Status of rock protection and rock berms
- Condition of the seabed around the cable, include sandwaves and scars
- Fishing gear

2.2.57 Following the 'as-built' surveys, routine inspection surveys would be required under the following survey schedule:

- Routine surveys of the offshore submarine cables shall commence two years from the commissioning of the first Bipole.
- If no issues are found, the next follow up survey would be in three years, with the interval increasing by one year each time, until the period between surveys reaches five years.
- If no issues are found, routine surveying is likely to be conducted on a five-year basis.
- If an issue is found, it will be flagged for further investigation, mobilisation of repair or remediation, as appropriate.
- Following this, subject to the identified issue, associated risk and mitigation, the surveys might remain at this interval or reduce to an appropriate level (this could mean that the next survey is undertaken just one or two years from the last one).

Maintenance and Repair

2.2.58 There may be a requirement to undertake unplanned maintenance works in the event of failure of components of the system or if a cable becomes exposed due to changes in seabed morphology or the activities of third parties.

2.2.59 Repair works for cable failure would require the exposure of the cable at the point of failure, which would require de-burial of the cable from the trench. The cable would then be cut, recovered to the surface, repaired using a section of spare cable and redeployed for reburial using similar methods to those used for installation.

2.2.60 Given additional cable length would need to be added to join the cut ends at the surface, the relayed cable would take up a greater footprint than the original cable through incorporation of a 'repair loop'. Any additional footprint associated with repaired sections would be anticipated to fall within the Offshore Cable Corridor.

Decommissioning Phase

2.2.61 The current anticipated lifetime of the Proposed Development (operational phase) is 50 years, following which the Proposed Development may be decommissioned. The Applicant is not seeking consent for decommissioning and any consent required for decommissioning would be sought at the appropriate time.

2.2.62 If decommissioning is required, the options for decommissioning the cables would be evaluated at the time of decommissioning, with the available technologies of the time reviewed fully (in recognition that engineering technologies are ever evolving). The least environmentally damaging decommissioning option, is (in general) to de-energise the cable, disconnect it from any wider system, and secure it in place to be left *in-situ*, thereby avoiding unnecessary seabed disturbance.

2.2.63 However, other options may include the requirement for full or partial removal of the cables. The methods for removal would be broadly similar to those used during the construction phase with the potential for the cables to be removed by direct pulling, rather than de-burial. The requirement for any removal could also apply to other infrastructure installed as part of the project i.e. cable protection. The footprint of decommissioning activities (disturbance footprint at the sea bed) is anticipated to be less than that of the construction phase.

2.2.64 The framework of environmental permitting and all applicable UK and International legislation at the time of decommissioning (and the preparation of the decommissioning plans) would be adhered to.

2.2.65 Once the final decommissioning timescales and measures are known, an environmental assessment (EIA and HRA or similar) would be performed prior to the decommissioning phase (i.e. in approximately 50 years' time) to assess the potential impacts that may arise. This would inform any licence applications for decommissioning (separate to this application for DCO).

Outline Decommissioning Strategy

2.2.66 An Outline Decommissioning Strategy containing the anticipated approach to, and methods associated with decommissioning has been prepared in parallel to this RIAA (document reference 7.17).

2.2.67 It is recognised however, that the final Offshore Decommissioning Plan(s) would:

a. be developed in the years that precede decommissioning (separate to the current application for DCO); and

b. be subject to EIA or similar environmental appraisal and permitting at that time (separate to the current application for DCO).

2.2.68 The Outline Decommissioning Strategy represents an initial statement of:

- the measures, methods and timescales for decommissioning the offshore cables including the potential parts to be removed and the potential methods of removal, the parts to remain *in-situ* and the measures to make them safe, and the measures for the clearance of debris and the restoration of the sea bed;
- the methods of providing post-decommissioning verification that the decommissioning has been completed satisfactorily; and
- the measures for post-decommissioning monitoring, maintenance and management of the seabed.

2.2.69 The Outline Decommissioning Strategy would form the basis for the final Offshore Decommissioning Plan(s) for the offshore elements of the Proposed Development, which would be developed in consultation with The Crown Estate and other international stakeholders in line with the following decommissioning principles:

- The measures and methods for any decommissioning would comply with any legal obligations referred to in the development consent.
- All sections of the offshore cables would be removed except for any sections which it is preferable to leave *in-situ* having regard to minimising risk to the safety of surface or subsurface navigation, other uses and users of the sea, the marine environment including living resources, and health and safety.
- The Applicant would comply with any national or international requirements in relation to leaving the offshore cables *in-situ*.
- The seabed would be restored, as reasonably as possible and to the extent reasonably practicable, to the condition that it was in before the offshore cables were installed.

2.2.70 Due to the unknown element of what policies and processes would be in place when the Proposed Development reaches the end of its feasible life, the Outline Decommissioning Strategy would be reviewed, as part of the future consenting process, to ensure that all legislation at the time of decommissioning the system would be adhered to. The final decommissioning plans would be prepared ahead of decommissioning (separate to the current application for DCO).

2.2.71 The Applicant would commence further consultation with stakeholders ahead of decommissioning, in preparation of the final decommissioning plans (separate to the current application for DCO). This may be informed by the required permit applications at the time.

2.2.72 Prior to decommissioning, a contingency plan would be developed for resolving the potential issue of cables becoming exposed post-decommissioning.

2.2.73 The decision as to whether to recover a cable or leave *in-situ* would be taken at the appropriate time. The methods available for removal of out-of-service cables are summarised below.

Cable Recovery

2.2.0 All offshore cables, sections of offshore cables, or cable ends which are exposed at the time of decommissioning, or likely to become exposed, would be recovered, unless studies show that they would not pose an enduring threat to other seabed users. This would be determined by survey(s) prior to decommissioning of the Proposed Development (including the operational phase surveys over the course of the 50 year lifetime).

2.2.1 Any sub-sea trenches left after cable removal would be filled by natural tidal action. Exposed cable ends would be weighted down and then allowed to naturally rebury.

2.2.2 To recover a cable first it is necessary to obtain one end which is used to pull the cable out of the seabed by applying traction to it from a cable engine on the recovering ship or barge. To obtain an end, the cable would likely be cut at the seabed as, considering the weight of the cables, it is unlikely that a bight of cable can be brought to the surface. Methods that can be used to obtain a single end include using an ROV and or crane with grab tooling (preferred), using divers, or using special cable hooks called "grapnels".

ROV grab method

2.2.3 Initial exposure of the cables is needed prior to grabbing. This can be done by excavating a pit using water jets mounted on the ROV or an MFE. The pit size need only be sufficient to allow the ROV access to cut the cables and attach a clamp (a "cable gripper") and lifting rope to the cables. Once the cable is exposed, cut and gripped, the ROV does not take any further part in the operation, although it may be used to monitor the recovery if deemed necessary. If the seabed is particularly consolidated above the cables, the ROV water jets or MFE can be used to weaken the soil along the route line and reduce the resistance on the cables.

Diver method

2.2.4 This is essentially the same as the ROV method except that the operations are diver controlled. The operation is again precise but the downsides of diver operations, e.g. human safety, depth limitations and weather dependency, are significant. This operation can only be carried out in shallow water and, for safety reasons, the use of divers should be avoided as far as possible.

Grapnel method

2.2.5 Grapnels come in various configurations that can cut, hook and hold a cable, whether it is exposed on the seabed or buried into it. Various types and sizes of grapnels are used for different cable sizes, burial depths and soil conditions. The grappling process is essentially the same in all cases, with the grapnel towed across the seabed at right angles to the cable line, with the point of the device penetrating into the seabed at the expected depth of the cable. Initially a grapnel fitted with cutting blades is used to cut the cable and then another is used to hook and hold it a safe distance away from the cut end. In this way a small loop of cable is recovered to the ship and recovery can be started. At the time of drafting, no grapnel exists that can both cut and hold (one end of) a cable in a single operation for a large power cable.

2.2.6 The main advantage of grapnel recovery is that it is a relatively simple operation that has been used over many years. The main downside is that the grapnels may be dragged across the seabed for some distance before the cable is hooked, creating wider physical disturbance. Grapnel operations may also be restricted by the proximity of other cables or other infrastructure.

2.2.7 Deployment of a grapnel is unlikely for the Proposed Development's cable, however it is presented here as a fallback option in the event that e.g. a cable is dropped or lost. An ROV or crane grab is more likely to be deployed.

2.2.8 Any perpendicular grapnel runs would only take place in locations approved following benthic ecology and marine archaeology expert review (review , undertaken in preparation of any Final (offshore) Decommissioning Plan) i.e. areas of low environmental sensitivity would be identified for potential cable recovery by grapnel (if necessary) to avoid 'new' disturbance of receptors.

Cable recovery

2.2.9 Once a viable cable end has been recovered, the cable or cables are then recovered to the vessel in what is, in effect, a reversal of the cable lay operation; however only one vessel is usually necessary (unless burial conditions dictate the use of a de-burial system ahead of the recovery vessel). Once the ship's capacity has been reached, the cable end is abandoned to the seabed, with a marker buoy attached where appropriate, and the ship returns to port to discharge the recovered cable.

Crossings

2.2.10 Due to the protection methods employed at crossings, typically rock placement or concrete mattresses, the recovery of cable at these locations can be more complex. The presence of other, potentially still operational, assets can be a complicating factor. Where the other assets are operational at the time of decommissioning, and most likely in the case of other crossings, the likelihood is that leaving the cables in place would be the safest and most environmentally sensitive option. The use of an MFE can be used to remove rock berms at crossings and at other cable protection locations, but this is anticipated to be more damaging to the seabed than leaving *in-situ* given benthic habitats associated with the rock berms would be well-established.

Landfall sections

2.2.11 Recovery of the section of cable associated with the Landfall HDD is anticipated to be relatively straightforward. Cutting the cables at the seaward end and attaching a winch to the landward end should enable the cables to be pulled out of the HDD ducts and recovered intact onshore. These cables would then be transported in sections to appropriate recycling facilities.

2.2.12 Removal of the ducts below the Mean High Water Springs mark would be considerably riskier and would, with current techniques, entail both environmental and safety risks (. It is therefore expected that, in line with the decommissioning principle of ensuring minimal environmental disturbance, the ducts would be left *in-situ*. Note, prior to decommissioning, available technologies would be reviewed, to inform the final decommissioning strategy regarding the HDD ducts.

De-burial

2.2.13 As the cables are planned to be buried along the entire route, they may require de-burial in order to speed up the recovery process. A smaller ship preceding the main recovery ship using a tool such as a MFE is one possibility. Alternatively, a bespoke tool that allows for simultaneous de-burial and recovery from the same ship may be available in the future. The Applicant would benefit from the experience and learnings provided by the large number of decommissioning operations due to be undertaken in the intervening decades (i.e. decommissioning of similar but older assets).

2.2.14 It is assumed that the de-burial (and the entire decommissioning) footprint would be less than the Proposed Development construction phase footprint.

Offshore Decommissioning Schedule

2.2.15 The preparation of the final Offshore Decommissioning Plan(s) would be prepared (under separate consent) with sufficient time to allow for the environmental assessments (e.g. EIA, decommissioning Non-Statutory Environmental Statement or similar) to be assessed as part of a later consent. The final Offshore Decommissioning Plan(s) would therefore be prepared prior to the proposed shutdown and decommissioning of the offshore elements of the Proposed Development.

2.2.16 Should the Proposed Development be decommissioned early, or the life of the project be extended, the decommissioning programme would be adjusted accordingly. The final Offshore Decommissioning Plan(s) is expected to be informed by and include references to relevant surveys performed during the construction and operation and maintenance phases of the Proposed Development.

Post-Decommissioning - Additional Surveys & Seabed Clearance

2.2.17 Following decommissioning, surveys would be carried out to show that the route has been cleared and left in a safe condition (as part of later consenting processes). It is likely that recovery operations will be monitored by ROV and this may prove adequate to show that the cables have been cleared and the seabed left in a safe condition. However, additional surveys, including side-scan, magnetometer and bathymetric surveys, may be required (with possible use of drop-down video or ROV to ground truth the data where necessary).

2.2.18 The final Offshore Decommissioning Plan(s) (prepared as part of a later consent process) would contain details of any requirements on post-decommissioning monitoring, maintenance and remediation.

3 CONSULTATION

3.1.1 A number of consultations have been undertaken with statutory regulators to discuss the Proposed Development, notably, in terms of offshore European Sites, with the JNCC and Natural England.

3.1.2 A summary of relevant consultations which relate to the HRA assessment are provided in **Table 3.1**.

Table 3.1 Consultation comments and responses

Relevant Body	Comment	Response / Action
PINS	[EIA Scoping Opinion]: *For the avoidance of doubt, the potential for likely significant effects to designated MCZ and SAC, and relevant benthic ecology features, should be considered [in the impact assessment].*	Features of SACs and MCZs identified within the study area are considered as key receptors in the Environmental Statement. This RIAA has been prepared and submitted as part of the application for Development Consent and includes an assessment of SACs. It was informed by the HRA Screening Report which was submitted and reviewed by relevant regulatory authorities. An MCZ Assessment (application document reference 7.16) has been submitted and includes an assessment of MCZs.
PINS	[EIA Scoping Opinion]: *In the absence of the findings of the fish assessment and information demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not able to agree to scope indirect impacts resulting from impacts on marine mammal prey species out of further assessment at this stage. The ES should include an assessment of indirect impacts to marine mammals as a result of impacts to prey species, including consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC, where likely significant effects could occur.*	Consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC has been undertaken in this HRA RIAA, **Table 5.4**. These discussions are relevant to the harbour porpoise only, as it is the only species of marine mammal that is a qualifying feature of the site. This RIAA also includes consideration of Conservation Objective 3 (i.e. 'The condition of supporting habitats and processes, and the availability of prey is maintained').
PINS	[EIA Scoping Opinion]: *For the SACs, cross-reference can be made to information within a HRA Report(s) to avoid duplication.*	Volume 3 of the ES indicates that potential effects on SAC features are indicated in the HRA RIAA (this document).
PINS	[EIA Scoping Opinion]: *Where cable protection is required, the Inspectorate advises that the ES should identify the options available and provide an assessment of the likely significant effects that would arise from installation of the selected option (or options if flexibility is sought), including impacts from secondary scouring. The ES should*	The impact 'Temporary habitat loss/disturbance' is considered within Volume 3, Chapter 1: Benthic Ecology of the ES. For the assessment of effects of cable protection during operation the impact 'Long-term habitat loss/change' has been considered in the ES. Mitigation measures to avoid significant effects on benthic ecology receptors have been developed.

Relevant Body	Comment	Response / Action
	clearly describe any mitigation measures relied on to avoid significant effects on benthic receptors including SACs and MCZs and explain how the measures would be secured.	Volume 3, Chapter 8: Physical Processes of the ES includes an assessment of secondary (localised) scour, building on recent modelled estimates of bed currents (refer to Volume 3, Appendix 8.1: Sediment Source Concentrations and Assessment of Disturbance of the ES).
JNCC	[EIA Scoping Opinion]: *The East of Haig Fras MCZ is an offshore site and so JNCC is the responsible agency for this site. The South West Approaches to the Bristol Channel MCZ and Bristol Channel Approaches SAC are jointly managed sites between Natural England, Natural Resources Wales (in the case of Bristol Channel Approaches SAC) and JNCC. JNCC defer to Natural England for comments on the remaining sites as they are the responsible agency.*	Noted.
JNCC	[EIA Scoping Opinion]: *JNCC agree with the impacts scoped into the assessment however we disagree with scoping out auditory injury and indirect impacts to prey* [to marine mammals]*, as the regulator will need to understand the potential impacts of both in order to undertake their HRA for the Bristol Channel Approaches SAC.*	The Applicant consulted further with the relevant consultation bodies and has included impact assessment of indirect effects on prey species to marine mammals and sea turtles in the ES. Consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC is undertaken in this HRA RIAA, Sections 5 - 7. The HRA is relevant to the harbour porpoise only, as it is the only species of marine mammal that is a qualifying feature of the site. This RIAA also includes consideration of Conservation Objective 3 (i.e. 'The condition of supporting habitats and processes, and the availability of prey is maintained').
Natural England	[EIA Scoping Opinion]: *Natural England advise indirect impacts on marine mammals resulting from impacts on marine mammal prey species should be scoped into the EIA for the Bristol Channel Approaches*	The Applicant consulted further with the relevant consultation bodies and has included impact assessment of indirect effects on prey species to marine mammals and sea turtles in Volume 3, Chapter 4: Marine Mammals & Sea Turtles of the ES. Consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC has been undertaken in this RIAA, Sections 5 - 7. The HRA is relevant to the harbour porpoise only, as it is the only species of marine mammal that is a qualifying feature of the site. This RIAA also includes consideration of Conservation Objective 3 (i.e. 'The condition

Relevant Body	Comment	Response / Action
		of supporting habitats and processes, and the availability of prey is maintained').
JNCC	[EIA Scoping Opinion]: *JNCC agrees with the designated sites for benthic features that have been scoped into the assessment. We defer to Natural England in regard to comments on Lundy Sand Special Area of Conservation (SAC), Braunton Burrows SAC, Hartland Point to Tintagel Marine Conservation Zone (MCZ) as they are these sites' responsible agency.* *For the East of Haig Fras MCZ, JNCC is the responsible agency for this site and the South West Approaches to the Bristol Channel MCZ is jointly managed by JNCC and Natural England. We have therefore focused our comments on these two sites.* *The applicant has highlighted the designated features for these sites which are benthic species and habitats. We would recommend that the Applicant reviews the site information and Conservation Objectives available on JNCC's website in order to assess the impact the project might have on these sites. Whilst the cable corridor does not directly cross either of these sites there is potential for activities to affect designated features through impact pathways such as sediment plumes caused during construction and operation and maintenance. JNCC would therefore expect these impacts to be assessed during the subsequent EIA stages.*	Noted. Consideration of protected sites for assessment for benthic ecology has been based on a distance between 5 km and 15.2 km, which is a precautionary distance fully encompassing the ZoI for suspended sediment dispersion which is the impact with the greatest ZoI (refer to Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES). The HRA RIAA (this report) presents all relevant potential for AEoI of a European Site. The potential for Proposed Development activities to affect designated features via impact pathways such as sediment disturbance is considered within the ES, notably within Volume 3, Chapter 1: Benthic Ecology of the ES. Note, an MCZ Assessment has been submitted as part of the application for Development Consent (document reference 7.16).
Natural England	[EIA Scoping Opinion]: *The development site is within or may impact on the following Habitats/internationally designated nature conservation sites:* *Marine sites:* *• Bristol Channel Approaches Special Area of Conservation (SAC)* *• Lundy SAC* *• Isles of Scilly Complex SAC* *• Severn Estuary SAC/Ramsar*	Potential effects (potential for AEoI) on relevant European Sites are set out in this RIAA. Conservation Objective 3 for the Bristol Channel Approaches SAC (i.e. 'The condition of supporting habitats and processes, and the availability of prey is maintained') is considered in this HRA RIAA.

Relevant Body	Comment	Response / Action
	Terrestrial sites: *• Braunton Burrows SAC* *Based on the information provided, Natural England's advice is that the proposed cable route is unlikely to have a significant effect on terrestrial European sites and can therefore be screened out from requiring further assessment. (Discretionary Advice Service 17671-358612 dated 03/08/2021).*	
Natural England	[EIA Scoping Opinion]: *Cable protection within marine protected areas should be avoided and where that is possible every effort should be made to mitigate the impacts. In order to achieve this, we advise that a cable burial risk assessment is undertaken as part of the application process informed by comprehensive geotechnical and geophysical surveys. If cable protection is required options that have the greatest success of removal with least impact to interest features should be taken forward. A site integrity plan could then be used to determine the risk to the conservation objectives for the site and determine the requirements for any compensation measures.*	An outline CBRA is provided as part of the application for development consent (refer to Volume 1, Appendix 3.4: Outline Cable Burial Risk Assessment of the ES). Burial will be the preferred option for the cable protection, and only when full target burial depth is not possible will additional protection be installed. It should be noted that the cable route will not pass through any protected sites other than the Bristol Channel Approaches SAC which is designated for harbour porpoise alone. Therefore, direct loss of habitat is not an impact for any designated sites with benthic habitat features (refer to **Table 5.1** and **Table 5.4** in this RIAA).
JNCC	General consultation meeting: *This was a meeting to introduce the offshore aspects of the project to JNCC.* *JNCC indicated that the proximity of the Offshore Cable Corridor to the South-West approaches to Bristol Channel MCZ was to be considered in terms of potential effects on the MCZ. It was seen as a positive that the cable route did not run through the site. It was suggested the key information required would be the potential distance that suspended sediments released into suspension during the works could be transported beyond the MCZ boundary and the effects of any subsequent smothering.* *It was suggested that where Annex I stony or bedrock reef was present the cable should be micro-routed to*	The proposed cable route has avoided interaction with protected sites as far as possible, and the Offshore Cable Corridor avoids all protected sites with benthic features. Annex I habitat (outside protected sites) will be avoided via micro-routing of the Offshore Cable Corridor where possible. Cable protection (rock placement) would be kept level with the seabed where possible, and if above the seabed they would be kept to a maximum of c. 1 m above seabed level and c. 1.4 m at crossings**.** Specific options for cable protection are considered in more detail in Volume 1, Chapter 3: Project Description of the ES.

Relevant Body	Comment	Response / Action
	avoid them, and the boulder plough should not be used in those habitats. *Key considerations for JNCC were associated with the requirements for any cable protection measures and long-term habitat change. It was clarified that the term habitat creation should be avoided in relation to the use of cable protection measures, and habitat change should be used instead.* *There was discussion around linking the use of rock for cable protection with changes to habitat, so determining where rock would be used and selecting options most appropriate to the habitat in which the cable protection would be installed.* *JNCC confirmed no requirement for development of an Evidence Plan for this project.*	
Natural England	General consultation meeting: *This was a meeting to introduce the offshore aspects of the project to NE, with focus on areas within the 12 nm limit.* *It was confirmed to NE that previous investigations confirm the suitability of use of HDD at landfall, hence there would be no interaction with the intertidal zone.* *NE confirmed that although there was slightly overlap of the 12 nm boundary with the South-West approaches to Bristol Channel MCZ, consideration of the potential effects on this MCZ would be the responsibility of JNCC.* *Potential presence of stony and bedrock reef in some areas was discussed. It was indicated the preference would be to micro-route the cable around these areas. It was discussed that guidance in Irving (2009) and Golding et al. (2020) would be used to determine if areas of stony reef constituted Annex I habitat.*	Potential presence of Annex I reef habitat has been determined via use of best practice guidance including Irving (2009) and Golding *et al*. (2020), (see Volume 3, Appendix 8.4: GEOxyz Environmental Report of the ES). Any areas of Annex I habitat (outside protected sites) will be avoided via micro-routing of the Offshore Cable Corridor as far as possible(refer to Volume 1, Chapter 3: Project Description of the ES).

Relevant Body	Comment	Response / Action
	Natural England confirmed no requirement for development of an Evidence Plan for this project.	
Natural England	General consultation meeting: Discus*sion of Natural England Scoping Opinion responses, (including those above).* *Following issue of sediment dispersion Technical Note ahead of meeting (presented within the PEIR as Volume 3, Appendix 8.1 High Level Assessment of Sediment Dispersion), the [provisional] methods were presented and discussed. Natural England confirmed review by NE Physical Processes experts and acceptance of methods.*	Discussions confirmed approach to address Scoping Opinion responses, including those related to European sites. Sediment dispersion technical note (final version) presented as Volume 3, Appendix 8.1 of the ES.
Natural England	General consultation meeting: *Discussion includes:* • *Assessment of indirect impacts on marine mammals resulting from indirect impacts on marine mammal prey species for the Bristol Channel Approaches SAC* • *Impact of hearing damage and auditory injury on marine mammals for the Bristol Channel Approaches SAC*	• NE agreed with the Applicant's approach of assessing indirect impacts on marine mammal prey species in this HRA RIAA (indirect impacts addressed in **Table 5.4** and **Table 6.1** of this RIAA). • NE confirmed the requirement to undertake an assessment of underwater noise. Underwater noise calculations have been undertaken with the results presented in Volume 3, Appendix 4.1: Underwater Noise Technical Assessment, of the ES, which have informed this RIAA.
JNCC	General consultation meeting: *Discussed all JNCC scoping opinion responses. JNCC welcomed the presentation of the sediment dispersion calculation methods which underpin and justify e.g. the benthic ecology study area.* *JNCC confirmed that any impact assessment on the Bristol Channel Approaches SAC should include consideration of conservation objective 3.*	Conservation Objective 3 for the Bristol Channel Approaches SAC (i.e. 'The condition of supporting habitats and processes, and the availability of prey is maintained') is considered in this HRA RIAA, in **Table 5.4**. The Applicant has also included impact assessment of indirect effects on prey species to marine mammals and sea turtles in Volume 3, Chapter 4: Marine Mammals & Sea Turtles of the ES
MMO	Section 42 response: *The MMO defers to the relevant Statutory Nature Conservation Bodies ("SNCBs") regarding the potential impacts of the proposed development on the conservation*	Noted.

Relevant Body	Comment	Response / Action
	features of designated protected areas.	
Natural England	Section 42 response: *Natural England advises Mitigation hierarchy should always be followed; Avoid, Reduce, Mitigate.*	Avoidance of protected habitats has been the first mitigation step taken i.e. adhering to the Mitigation hierarchy. The Offshore Cable Corridor avoids MPAs where possible. The only MPA that the 370 km UK Offshore Cable Corridor passes through is the Bristol Channel Approaches SAC, which is unavoidable for any approach to the North Devon coast (or the wider South West). Existing asset Crossing ID84 is situated within the Bristol Channel Approaches SAC. All other crossings are located outside of MPAs. Consideration has been given to applying approaches to the Proposed Development to reduce effects as far as possible and apply mitigation measures as appropriate. Potential effects on the Bristol Channel Approaches SAC, which is designated for Harbour Porpoise, have been assessed as part of the ES in Volume 3, Chapter 4: Marine Mammals & Sea Turtles of the ES and this HRA RIAA, **Table 5.4**.
Natural England	Section 42 response: *Natural England advises that it is not clear whether secondary impacts to MPAs, such as smothering, have been appropriately characterised and considered. This is particularly relevant for the reef features with the East of Haig Fras MCZ, which are more sensitive to sediment deposition. This pressures also needs to be included in the MCZ assessment.*	Potential for smothering of habitats/species has been considered in the ES, this HRA RIAA (**Table 5.4**) and the MCZ Assessment (application document reference 7.16). These assessments have taken into account the outputs of final sediment transport studies (Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES) and MarESA sensitivity where appropriate.
Natural England	Section 42 response: *Natural England advises that consideration is needed in relation to potential habitat changes/loss from cable installation and placement of cable protection on supporting habitats for Marine Mammals and Annex I birds.*	The role of benthic habitats as supporting habitats for marine mammals and Annex I birds is considered in e.g. Volume 3, Chapter 4: Marine Mammals & Sea Turtles and Volume 3: Chapter 9: Offshore Ornithology of the ES. Conservation Objective 3 for the Bristol Channel Approaches SAC 'The condition of supporting habitats and processes, and the availability of prey for harbour porpoise is maintained' is considered in this RIAA **Table 5.4** and is included in this Benthic Ecology ES chapter and Volume 3, Chapter 4: Marine Mammals & Sea Turtles of the ES.
Natural England	Section 42 response (on HRA Screening): *Rock protection over in-*	Post PEIR direct consultations with Natural England have presented the location of all

Relevant Body	Comment	Response / Action
	service cable crossings from Table 1.19. Until a map showing where these cable crossings are and how many are within the Bristol Channel Approaches SAC, Natural England advises physical change to another seabed/sediment type and reduction in prey availability remain scoped into the HRA for now.	crossings. There is only one in-service crossing within an MPA (Bristol Channel Approaches SAC). Natural England concurred that this specific crossing is located on a low risk benthic habitat type (following meeting of 12th August 2024, see Table 1.6 in Volume 3, Chapter 1: Benthic Ecology of the ES). See e.g. Volume 3, Figure 1.14 of the ES. Maps of the planned crossing locations are presented within the ES (see Volume 1 and Volume 3 figures).
Natural England	Section 42 response: *Natural England would like to see a cable burial risk assessment as well as a map showing where cable protection is required, identified to a feature level (i.e. 10m x 10m subtidal sand) in Application, with consideration for NERC habitats.*	The Outline CBRA is presented as part of the ES. Note, the precise tools used at any one location cannot be guaranteed until installation conditions are encountered, however the risk assessments provide a good indication of the likely tools to be used. The maps include indicative (and worst case) rock placement locations, including presentation relative to benthic habitats and designated sites.
Natural England	Section 42 response: *While Natural England agrees with the scoping out of water quality changes and accidental pollution (as this will be covered in MARPOL); Natural England does not agree with the scoping out of collision with vessels, hearing damage and auditory injury, the presence of electromagnetic fields (EMF) and prey availability.* *<u>Recommendation:</u>* *Natural England cannot agree with scoping out collision with vessels and hearing damage and auditory injury until we have seen a Vessel Management Plan (VMP).* *Natural England advise that collision with vessels, hearing damage and auditory injury, presence of EMF and prey availability are scoped in and assessed in the EIA.* *In the absence of information relating to quantities and locations of external cable protection, it is not possible to fully understand the full impact on the Bristol Channel Approaches SAC and therefore NE are unable to agree that prey availability should be scoped out at this stage.*	Vessel collision, hearing damage and auditory injury have been assessed in Volume 3, Chapter 4: Marine Mammals & Sea Turtles of the ES**.** The presence of EMF has been assessed for turtles and presented in the ES. Other marine mammals have not been assessed as per NE comment in their Scoping Opinion and due to the lack of evidence of EMF having any impact (either positive or negative) on marine mammals (Copping, 2018). Indirect effects on prey species on marine mammal and sea turtle receptors have also been assessed in the ES**.** Consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC has been undertaken in this HRA RIAA. The HRA is relevant to the harbour porpoise only, as it is the only species of marine mammal that is a qualifying feature of the site. This RIAA (**Table 5.4**) also includes consideration of Conservation Objective 3 (i.e. 'The condition of supporting habitats and processes, and the availability of prey is maintained'). An outline Navigational Safety and Vessel Management Plan (NSVMP) has been prepared and is included as Volume 3, Appendix 5.2 of the ES.
Natural England	Section 42 response: *Natural England's chief concern* [with	A follow up meeting to discuss Lundy was held with Natural England on 12/08/24.

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	respect to offshore ornithology was] *the potential for impacts from vessel-related disturbance to seabirds from the Lundy SSSI. Natural England welcomed the commitment to discuss an appropriate mitigation strategy and recommend that this discussion is had well in advance of submission, so there is time to reach agreement on how best to reduce impacts in sea areas of value to foraging and aggregating seabirds to acceptable levels.*	During this meeting, additional baseline vessel movement assessments were described (undertaken by Anatec) which demonstrated that an additional c.3 project vessels within 20 km of Lundy for a limited duration was not significant in the context of baseline traffic, which included frequent transit of very large cargo vessels much closer to Lundy than the Proposed Development. As Lundy is more than 4 km from the Offshore Cable Corridor, there is no pathway for impacts on breeding birds, only foraging seabird species, that are likely to be habituated to the baseline vessel movements, and have a very large foraging range. Natural England agreed via email on 19/09/24 following a consultation meeting on 12/08/24 (see Table 1.6 in Volume 3, Chapter 1: Benthic Ecology of the ES) that the additional disturbance which would arise from the Proposed Development was not significant, and that additional mitigation would not be required. Details on baseline shipping movements across the entire OCC is available within Volume 3, Chapter 5: Shipping and Navigation of the ES.
JNCC	Section 42 response: *UXO clearance: JNCC acknowledge and agree with the decision to not include UXO clearance within license application and subsequent HRA. We welcome the approach that a stand-alone application to determine UXO removal will be applied for if it is needed during the pre-lay works.*	Noted (no action needed).
JNCC	Section 42 response: *Bristol Channel Approaches SAC: This is the only harbour porpoise SAC that is crossed by the proposed cable corridor. Conservation Objective 3 for this site states that "The condition of supporting habitats and processes, and the availability of prey is maintained'. However, Table 6.3 (HRA screening for Likely Significant Effects on European and Ramsar Sites), has screened out 'Physical change to another seabed/sediment type' of the assessment for this site [with respect to marine mammals]. The justification provided for this decision is that "although prey species may*	Consideration of the implications for the marine mammal populations of the Bristol Channel Approaches SAC is undertaken in this HRA RIAA **Table 5.4**. The HRA is relevant to the harbour porpoise only, as it is the only species of marine mammal that is a qualifying feature of the site. Habitat alteration and long-term habitat loss as a result of the placement of rock protection along cables is not estimated to result in significant impact on any fish or shellfish receptors assessed (cf. Volume 3, Chapter 2 of the ES). Therefore, any indirect effects of such changes on harbour porpoise would be anticipated to be negligible.

Relevant Body	Comment	Response / Action
	be displaced initially during the installation, this change in habitat type may result in an artificial reef effect, potentially influencing the fish assemblage present". We recommend that this rationale is supported with relevant evidence, as a permanent physical change to the seabed may impede the maintain conservation objective of the site, in reference to CO3. The potential effects of the project's works on the habitat of harbour porpoise and their prey should be considered.	
JNCC	HRA Screening Report Review comment: *JNCC defer to their colleagues in Natural England and NRW for comments on inshore sites.*	Noted.
JNCC	HRA Screening Report Review comment (Benthic Ecology): *JNCC agree with the screening criteria methodology used for benthic features. No offshore benthic sites were identified as part of the stage 1 screening assessment*	Noted. No offshore (beyond territorial limit) European sites are taken through to Stage 2 for benthic ecology consideration.
JNCC	HRA Screening Report Review comment (Offshore Ornithology): *JNCC agree with the method used during the project alone screening exercise with regard to offshore ornithology. JNCC agree with justification and results of the project alone LSE screening with regard to Skomer, Skokholm and the seas off Pembrokeshire SPA.*	Noted. No change of approach required for Stage 2 assessments (of project-alone ornithology assessment).
JNCC	HRA Screening Report Review comment (Offshore Ornithology): *JNCC disagree with the method used during the in-combination screening exercise with regard to offshore ornithology. The screening criteria for offshore ornithology for the project alone assessment used foraging ranges from Woodward et al. (2019) due to the highly mobile nature of ornithology features. An in-combination assessment should consider other plans and projects which may act in-combination upon features of SPAs. Therefore, a 30km region around the cable route is not sufficient to capture this. We advise that at the least the same principle of using foraging ranges is applied to screen plans and projects for the in-combination assessment.*	The in-combination assessment has considered sites which were screened in for Stage 2 Appropriate Assessment for the Proposed Development in isolation, and therefore an in-combination assessment was only completed for Mers Celtiques Talus du golfe de Gascogne SPA (**section 7**). This SPA is a large area of marine habitat which is designated as it is used by large numbers of foraging birds from several species. As this site is not a breeding colony, no functionally linked habitat needs to be considered, and therefore the principle of using foraging ranges when screening projects and plans does not apply in this case.

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	We therefore do not agree with results of the in-combination LSE screening, and a wider screening distance may mean that other projects and plans should be screened in to the in-combination assessment.	
JNCC	HRA Screening Report Review comment (Marine Mammals): *UXO clearance: JNCC acknowledge and agree with the decision to not include UXO clearance within license application and subsequent HRA. We welcome the approach that a stand-alone application to determine UXO removal will be applied for if it is needed during the pre-lay works.*	Noted. This RIAA does not include consideration of UXO clearance.
JNCC	HRA Screening Report Review comment (Marine Mammals): *Bristol Channel Approaches SAC: This is the only harbour porpoise SAC that is crossed by the proposed cable corridor. Conservation Objective 3 for this site states that "The condition of supporting habitats and processes, and the availability of prey is maintained'. However, Table 6.3 (HRA screening for Likely Significant Effects on European and Ramsar Sites), has screened out 'Physical change to another seabed/sediment type' of the assessment for this site. The justification provided for this decision is that "although prey species may be displaced initially during the installation, this change in habitat type may result in an artificial reef effect, potentially influencing the fish assemblage present". We recommend that this rationale is supported with relevant evidence, as a permanent physical change to the seabed may impede the maintain conservation objective of the site, in reference to CO3. The potential effects of the projects works on the habitat of porpoise and their prey should be considered*	The text for the Screening assessment has been revisited and fully updated, with justifications expanded and made more robust. The precise location of the x1 crossing in the protected site has been reviewed and discussed with Natural England in direct consultation (meeting of 12th August 2024, see Table 1.6 in Volume 3, Chapter 1: Benthic Ecology of the ES). The footprint of this crossing is a very small area within a large extent of Offshore Coarse Sediment (Volume 3, Figure 1.14 of the ES). The total area of Atlantic Offshore Circalittoral Coarse Sediment (MD32) in the OCC is 7896.7 ha (Volume 3, Appendix 1.2: Benthic habitat disturbance calculations) and the footprint of the cable crossing will be 0.35 ha.
JNCC	HRA Screening Report Review comment (Marine Mammals): *Other harbour porpoise sites: We agree with the conclusions of the LSE test of the project alone for all other harbour porpoise SACs due to their distance being >40km from the*	Noted.

Relevant Body	Comment	Response / Action
	proposed works. We defer to the relevant agencies for matters relating to inshore sites.	
JNCC	HRA Screening Report Review comment (Marine Mammals): *In-combination assessment: We agree with the conclusions regarding plans and projects to be screened in to the in-combination assessment. The Zone of Influence of 30km applied is appropriate and reflects a precautionary approach given maximum EDR proposed in the noise management approach for harbour porpoise SACs (JNCC, 2020).*	Noted.
Natural England	HRA Screening Report Review comment: *The legends of Figure 2-5 in the HRA are hard to read and could do with clarifying.*	The figure resolution and the legends associated with Figures 2-5 of the HRA Screening Report (Xlinks 2024) are amended within the RIAA.
Natural England	HRA Screening Report Review comment: *Natural England does not agree with the scoping out of collision risk for harbour porpoise within the Bristol Channel Approaches SAC. Until Natural England sees a VMP we cannot agree with scoping out collision risk and advise that it is scoped into the HRA until then.*	The Stage 1 (and dependent Stage 2) assessment in this RIAA has been updated to screen in collision risk for harbour porpoise within the Bristol Channel Approaches SAC. Note, assessment of collision risk has also been undertaken as part of the ES studies, including presentation of a VMP for the Proposed Development (c.f. vessel collision risk assessment undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 5.2: Vessel Management Plan of the ES).
Natural England	S42 comment on the Fish & Shellfish PEIR chapter (with direct relevance to HRA RIAA Fish assessment): *Natural England advises that the Cumulative Environmental Assessment is updated. Natural England advises that Hinkley Point C has its DCO and should be included in the list of projects for cumulative environmental assessment.*	Hinkley Point C has been considered within the in-combination assessment presented in **section 7**.
Appropriate Nature Conservation Bodies (ANCBs) within other European Economic Areas (EEAs)	n/a	The Proposed Development is located in UK waters, but forms part of the wider Project that extends directly into French waters and beyond. The wider Project is engaged with relevant ANCBs in other EEAs. Parallel Habitats Regulations Assessments (or equivalent) will be undertaken and agreed with the relevant authorities within all jurisdictions prior to construction. This RIAA assesses the potential for AEoI from the Proposed Development (UK

Relevant Body	Comment	Response / Action
		activities) on all relevant sites (irrespective of EEA boundaries – which includes e.g. French SAC and SPAs (**Sections 5-8**).

4 ASSESSMENT METHODOLOGY

4.1 Legislative policy and context

International and UK Legislation Commitments

4.1.1 The requirement to consider the potential effects of the Proposed development on European Sites is outlined as part of the international commitments of the following pieces of European Union (EU) legislation:

- The Conservation on Wetlands of International Importance especially as Waterfowl Habitat (the 'Ramsar Convention') (as implemented through the Habitats Regulations);
- European Directive 92/43/EEC on the 'Conservation of Natural Habitats and Wild Fauna and Flora' (referred to as the 'Habitats Directive'); and
- Council Directive 2009/147/EC (Birds Directive) and the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds) (referred to as the 'Wild Birds Directive').

4.1.2 This European legislation is implemented (principally) in England via the following Regulations, which are collectively referred to as the 'Habitats Regulations':

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in the Habitats Regulations) (applicable out to the 12 nautical mile (NM) limit);
- The Conservation of Offshore Marine Habitats and Species Regulations 2017 (applicable between 12 nm and 200 nm);
- The Conservation of Habitats and Species Regulations 2017 (as amended); and
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

4.1.3 Sites designated under the European directives are collectively referred to as European Sites and are comprised of habitats and species of regional, national and European importance and include:

- Special Areas of Conservation (SAC);
- candidate SAC (cSAC);
- Special Protection Areas (SPA);
- sites listed as a site of community importance (SCI);
- possible / candidate SACs (pSAC/cSAC) and potential SPAs (pSPA)3.

4.1.4 All Ramsar sites are also Natura 2000 sites (treated as European sites) – see 'Ramsar Convention' below.

4.1.5 As described in **Section 1.3**, following the UK's exit from the European Union (EU) in January 2020, the European Union (Withdrawal Agreement) Act 2020 was

[3] It is UK Government policy that all competent authorities should treat candidate SACs (cSACs) and potential SPAs (pSPAs) as being within the requirements of the Habitats Regulations. In the UK this is identified in paragraph 187 of the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2023).

transposed into English Law through The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Amendments made to the Habitats Regulations through these regulations are considered as part of HRA Screening.

4.1.6 Guidance from the Department of Environment, Food and Rural Affairs (Defra) has been provided on the application of the relevant legislation in the post-Brexit period in their policy paper published on 1st January 2021 available at https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017.

4.1.7 European sites are commonly referred to as Natura 2000 sites (as part of the Natura 2000 Network). Following the UK's exit from the EU in January 2020, the UK was no longer part of the Natura 2000 Network, and the equivalent UK sites are referred (domestically) as the UK's 'National Site Network'. The National Site Network encompasses all European Sites within the UK that were designated pre-EU Exit (those sites which were already designated under the Habitats and Birds Directives) or proposed to the European Commission pre-EU Exit and any new protected sites designated under the Habitats and Birds Regulations under an amended designation process.

4.1.8 Since those particular parts of the Habitats Regulations relating to the HRA process continue to refer to the designated sites collectively as 'European Sites', rather than as the 'national site network', that approach has been followed in this HRA Report to Inform Appropriate Assessment (RIAA).

Ramsar Convention

4.1.9 The UK is a contracting party to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, Iran, 1971 (the 'Ramsar Convention'), which seeks to protect wetlands of international importance, in particular, those wetlands utilised as waterfowl habitat.

4.1.10 It is UK Government policy that all competent authorities should treat Ramsar Sites in their decision-making processes as if they are SACs or SPAs and hence Ramsar Sites are considered within the requirements for HRA of the Habitats Regulations. In the UK this is identified in paragraph 187 of the National Planning Policy Framework (MHCLG 2023). As a consequence, in this report, Ramsar Sites are referred to alongside European Sites collectively as European and Ramsar Sites. UK Government policy (ODPM Circular 06/2005) states that internationally important wetlands designated under the Convention on Wetlands 1971, called the Ramsar Convention (Ramsar sites) are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them.

Statutory Requirements for the Assessment

4.1.11 The Habitats Regulations require for an assessment of the implications of a project (or plan) on a European and Ramsar Site's conservation objectives to be undertaken by the Competent Authority prior to giving consent (e.g. via the following Regulations under each piece of legislation):

- Regulation 63 of The Conservation of Habitats and Species Regulations 2017; and
- Regulation 28 of The Conservation of Offshore Marine Habitats and Species regulations 2017.

4.1.12 The wording of these Regulations is very similar and outline the requirements for HRA assessment, stating that (e.g. Regulation 28 of the Conservation of Offshore Marine Habitats and Species regulations 2017):

4.1.13 *'(1)Before decision to undertake, or give any consent, permission or other authorisation for, a relevant plan or project, a competent authority must make an appropriate assessment of the implications for the plan or project for the site in view of that site's conservation objectives[…] (5)…the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European offshore marine site or European site (as the case may be)'.*

4.1.14 The Habitat Regulations also require that (e.g. Regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017):

4.1.15 *'(3) A person applying to a competent authority for any consent, permission or other authorisation for a plan or project in the offshore marine area must provide such information as the competent authority may reasonably require (a) to enable it to determine whether an assessment under paragraph (1) is required; or (b) for the purposes of the assessment under paragraph (1)'*

Areas that are functionally linked to European and Ramsar Sites

4.1.16 Animals that are interest features of European and Ramsar Sites may be mobile and not confined to the boundary of the designated site. For example, wintering waterbirds may forage or roost on agricultural land outside of the designated site. Although that agricultural land is not part of the European or Ramsar Site, it is 'functionally linked' because it serves a function for waterfowl that are interest features of the designated site. Account has to be taken of such functionally linked land in the HRA process since, for instance, the loss of such land to development could potentially adversely affect the survival of those wintering waterbirds and lead to a reduction in the population of birds within the designated site.

4.1.17 Functionally linked land has been defined as follows (Chapman & Tyldesley 2016):

"*the term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European Site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European Site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status*."

National Policy Statement

4.1.18 The National Policy Statement (NPS) for Energy (EN-1) sets out the requirements for nationally significant projects in the energy sector, including policy on the requirements for an HRA. This includes paragraph 5.4.5 of EN-1 which states:

"As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required:

- *potential Special Protection Areas and possible Special Areas of Conservation;*

- *listed or proposed Ramsar sites; and*
- *sites identified, or required, as compensatory measures for adverse effects on any of the other sites covered by this paragraph".*

4.1.19 The government's '*Nature Recovery Green Paper: Protected Sites and Species'* (Defra 2022), consulted on changes to the HRA process. If changes are made, relevant plans and projects would have to comply with such relevant regulations. Until a new process is implemented, current legislation continues to apply.

Guidance

4.1.20 The EC guidance listed in this section has been referenced. However, The Planning Inspectorate's Advice Note on Habitats Regulations Assessments (The Planning Inspectorate, 2024), which deals explicitly with HRA for NSIP (and Projects of National Significance) under the PA 2008 process, is a principal resource. That document states:

"Applicants should provide the following HRA information with their application:

- *A summary table of all European sites and qualifying features and each pathway of effect considered at each HRA Stage (screening, AA/AEoI, and the derogations, as applicable), for each phase of the Proposed Development (construction, operation, decommissioning, as relevant) (e.g.* ***Section 6****);*
- *A copy of the citation/Natura 2000 data sheet for each European site (****Section 6****);*
- *A copy of the conservation objectives for all European sites for which LSE have not been excluded and have been carried forward to HRA Stage 2 (****Section 6 and 10****);*
- *A plan of the European site(s) potentially affected in relation to the Proposed Development (as required to be submitted with the DCO application in accordance with Regulation 5(2)(l)(i) of the APFP Regulations) (****Figure 2*** *to* ***Figure 5****);*
- *A statement which identifies (with reasons) whether significant effects are considered to be likely in respect of European sites in devolved administrations or within European Economic Area (EEA) States (e.g.* ***Table 5.4****);*
- *Evidence of agreement between the applicant and relevant ANCBs (including those in devolved administrations and/or relevant bodies in EEA States, where applicable) on the scope, methodologies, interpretation, and conclusions of the screening assessment (****Section 3****); and*
- *Cross references to relevant draft DCO requirements, development consent obligations and any other mechanisms proposed to secure measures relied upon in the AA and derogation cases (as applicable), including the identification of any factors that might affect the certainty or efficacy of their implementation (see individual impact discussions in* ***Section 6****, and Volume 1, Appendix 3.1 of the ES which sets out the 'Mitigation Schedule')."*

4.1.21 The RIAA has been carried out with reference to guidance listed below:

- Planning Inspectorate's Advice Note on Habitat Regulations Assessments (2024) (The Planning Inspectorate, 2024);

- Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM Circular 06/2005);
- The Department for Energy Security and Net Zero (successor body to the Department of Energy and Climate Change) Guidelines on the assessment of transboundary impacts of energy developments on Natura 2000 sites outside the UK;
- Habitats Regulations Assessments: Protecting a European site (2021) issued jointly by the Department for Environment, Food & Rural Affairs(Defra), Natural England, Welsh Government, and Natural Resources Wales;
- European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- European Commission (2018) Managing Natura 2000 Sites – the Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC;
- Opinion of the Commission (2007/2012) Guidance Document on Article6(4) of the Habitats Directive 92/43/EEC;
- European Commission (2018) Guidance on Energy Transmission Infrastructure and EU Nature Legislation;
- European Commission (2011) Guidance Document – The Implementation of Birds and Habitats Directives in Estuaries and Coastal Zones;
- Defra. 1 January 2021. Policy paper - Changes to the Habitats Regulations 2017 (Defra, 2021);
- 'Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (European Commission, 2018);
- Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);
- Regulations and the Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2013); and
- Ministry of Housing, Communities and Local Government Online Guidance on the use of Habitats Regulations Assessment (2019) https://www.gov.uk/guidance/appropriate-assessment

4.2 The HRA Process

Overview

4.2.1 The requirements of the Habitats Regulations regarding the implications of plans or projects are set out within Regulation 63 of The Conservation of Habitats and Species Regulations 2017. The step-based approach implicit within this Regulation is referred to as a 'Habitats Regulations Assessment' (HRA), which is the term that has been used throughout this report.

4.2.2 It is a requirement of any public body, referred to as a 'competent authority' within the Habitats Regulations, to carry out a HRA when they are proposing to carry out a project, implement a plan or authorise another party to carry out a plan or

project. Competent authorities are required to record the process undertaken, ensuring that there will be no adverse effects on the integrity of any European or Ramsar Site as a result of a plan or project whether alone or in combination with other plans or projects. The competent authority with respect to Xlinks' Morocco UK Power Project (MUPP) is the Secretary of State (SoS) as advised by Natural England and JNCC.

Assessment Stages

4.2.3 The assessment of a plan or project goes through a number of stages, and published guidance aids competent authorities to fulfil their responsibilities. Those stages are summarised in **Table 4.1**.

Table 4.1 Stages in the HRA process

Stage	Description	Legislative Context
Purpose	Determines if the purpose of the plan or project is directly connected with, or necessary, to the management of a European or Ramsar Site. If it is, then no further assessment is necessary	Regulation 63(1)(b)
Scoping	The identification of any European or Ramsar Site that might be within scope of a HRA i.e., those sites that should be taken forward to the screening stage based on a wide consideration of spatial and ecological factors. Such a site may be located within the plan or project area but may also include sites located in neighbouring authority areas.	-
Screening / 'HRA Stage One'	Assessment of whether a plan or project, either alone or in combination with other plans or projects, is likely to have a significant effect on any qualifying feature (habitats and species) and the achievement of the conservation objectives of a European or Ramsar Site. This is also known as the 'test of likely significant effect' (ToLSE). ***Deliverable/output**: HRA Screening Report (for Likely Significant Effects) i.e. Xlinks (2024).*	Regulation 63(1)(a)
Appropriate Assessment - the 'integrity test' / 'HRA Stage Two'	Consideration of the effects of the proposals to determine whether or not it is possible to conclude with certainty that the development will not result in any adverse effect on the integrity of European or Ramsar Site, either alone or in combination with other plans or projects and with reference to the conservation objectives of the European or Ramsar Site. This is also known as the test of 'adverse effect on integrity' (AEoI). At this stage consent may be granted for the plan or project if it is possible to conclude with certainty that the proposal will not result in any adverse effect on the integrity of any European or Ramsar Site, either alone or in combination with other plans or projects. ***Deliverable/output**: Report to Inform Appropriate Assessment (RIAA) i.e. this report.*	Regulation 63(5)
If it cannot be concluded with certainty that the proposal will not result in any adverse effect on the integrity of any European or Ramsar Site, then proceed to:		

Stage	Description	Legislative Context
Assessment of alternative solutions	Assess whether there is an alternative solution to the plan or project i.e. one that better respect the European or Ramsar Sites. If no such alternative solution exists, the process continues to Assessment of IROPI.	Regulation 64(1)
Assessment of IROPI	Assess whether a plan or project can be justified as being needed for 'imperative reasons of overriding public interest' (IROPI).	Regulation 64(1)
Compensatory measures	Identify and secure any necessary compensatory measures to ensure that the overall coherence of the 'national site network' is protected.	Regulation 68

In-Combination Assessment

4.2.4 The Habitats Regulations, taken with Government policy, require the consideration of the potential effects of a project on European and Ramsar Sites both alone and in-combination with other plans or projects.

4.2.5 The identification of plans and projects to include in the in-combination assessment will be based on:

- Projects under construction;
- Permitted application or applications not yet developed;
- Submitted application or applications not yet decided;
- Refused plans or projects subject to an appeal but not yet decided;
- Projects on the Planning Inspectorate's national infrastructure programme of projects; and
- Projects identified in the relevant development plan (and emerging development plans – with appropriate weight being given as they move closer to adoption).

Project Design Envelope Approach

4.2.6 The Project Design Envelope (PDE) approach (also known as the Rochdale Envelope approach) is adopted within this RIAA and for the wider DCO, in accordance with current industry best practice. This approach allows for a project to be assessed on the basis of maximum project design parameters (i.e., the worst-case scenario). This approach provides flexibility, while ensuring all potentially significant effects are assessed within the HRA. The PDE concept allows for some flexibility in project design options, in instances where the full or final details of a project design and/or its implementation methods are not known at the time of application submission.

4.2.7 This approach will be taken for the HRA because it is not possible to provide precise final design details of the Proposed Development where e.g. micro-routing will be defined later. Additionally, feedback received from statutory and non-statutory stakeholders will allow the Applicant to fully understand any likely significant environmental effects that need to be mitigated/ managed, which will aid the refinement of the final design.

4.2.8 HVDC infrastructure, including cabling and converter station technologies, is constantly evolving with a focus on efficiency, impact reduction and cost reduction. Therefore, improvements in technology and construction methodologies occur frequently and an unnecessarily prescriptive approach could preclude the adoption of new technology and methods.

4.2.9 The use of the PDE approach has been recognised in the Overarching National Policy Statement (NPS) for Energy (NPS EN-1) (DESNZ, 2023a), the NPS for Renewable Energy Infrastructure (NPS EN-3) (DESNZ, 2023b) and the NPS for Electricity Networks Infrastructure (NPS EN-5) (DESNZ, 2023c).

4.2.10 The PDE approach is also consistent with The Planning Inspectorate's Advice Note Nine: Rochdale Envelope (The Planning Inspectorate, 2018).

Case Law

4.2.11 Two cases are considered particularly pertinent and the principles defined by them have been applied to this HRA screening.

4.2.12 First, it is not typically appropriate to include proposed mitigation measures at the screening stage of an HRA. This approach takes into consideration the decision of the Court of Justice of the European Union in 'People Over Wind and Sweetman v Coillte Teoranta'(C323/17) (April 2018) (the 'Sweetman ruling') and where significant effects are likely in the absence of mitigation, it is determined that an AA should be undertaken.

4.2.13 Secondly, the ruling in Holohan and others v An Bord Pleanala [2018] (Case C-461/17) EU:C:2018:883, on 7 November 2018 determined that the AA must identify and examine the implications of the Proposed Development for the designated features present at the site, but also habitat types and species present outside the boundaries of that site and functionally linked; insofar as those implications are liable to affect the conservation objectives of the site.

5 SUMMARY OF HRA SCREENING

5.1.1 The HRA screening was undertaken in early 2024 and the Xlinks HRA Screening Report (Xlinks, 2024) was shared with Natural England and JNCC in May 2024.

5.1.2 During the preliminary consultation of the HRA Screening report, Natural England requested further consideration of primary and secondary impacts to marine protected areas, along with amendments to improve the clarity of **Figure 2 - Figure 5**. The consultation comments are presented in **Table 3.1**. As a result, further justification has been included for the scoping out of certain pressures throughout and figures have been amended to improve the visibility of map components. JNCC requested the reconsideration of the in-combination assessment methodology, as well as the consideration of the implications of auditory injury and indirect impacts on prey species for marine mammals.

5.1.3 This section presents a summary of the HRA screening process and conclusions of the HRA Screening Report (Xlinks 2024).

5.1 European and Ramsar Site Identification Process

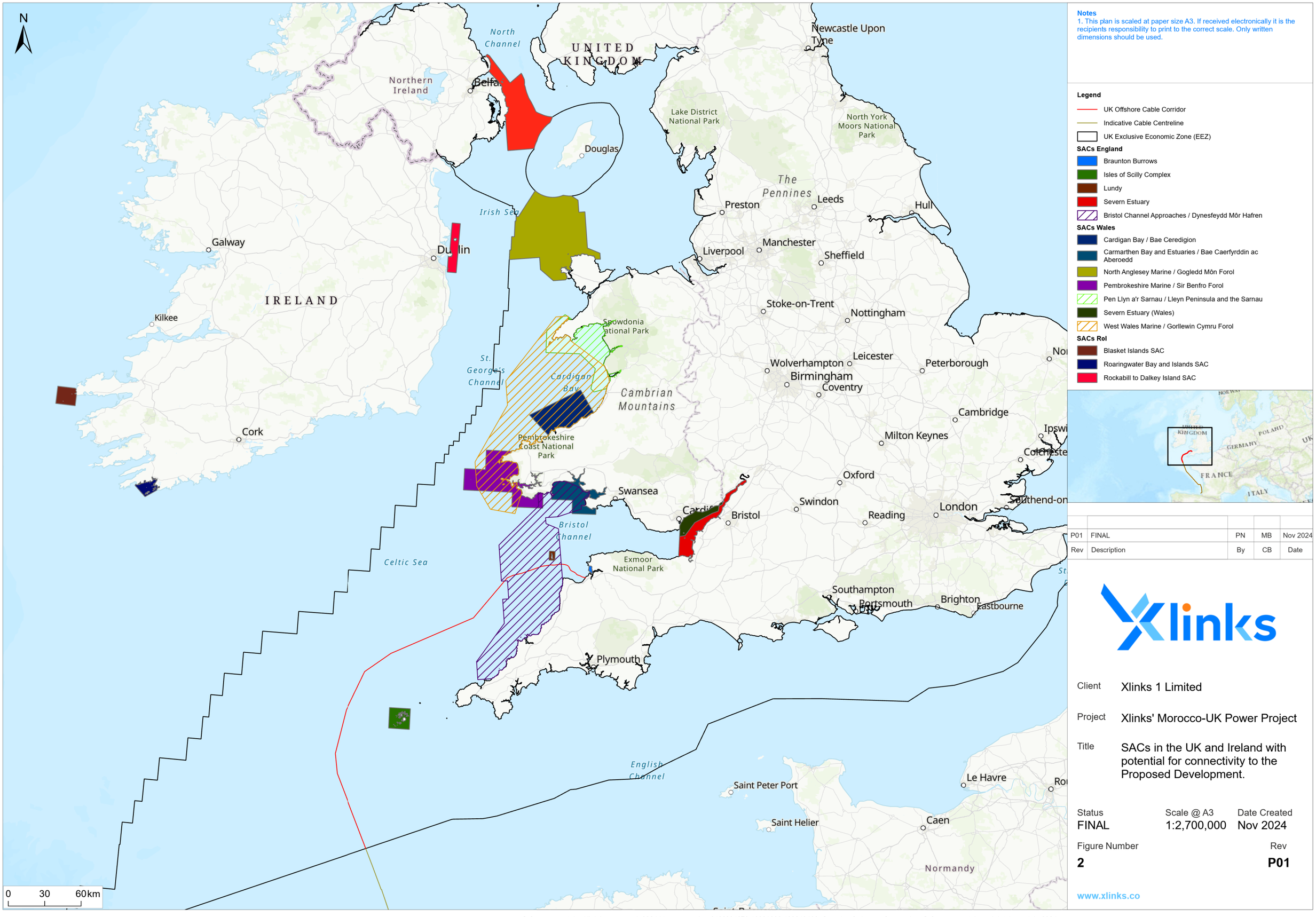
5.1.1 For the screening process, European and Ramsar Sites in the vicinity of the Proposed Development which could potentially be influenced by the proposed works activities were identified. The different interest features within these sites were then considered individually.

5.1.2 The following criteria were used to identify European and Ramsar sites that should be taken through to screening, using a precautionary approach:

- **All sites in 'close' proximity**: Inclusion of any site within a potential Zone of Influence (ZoI) of 15 km from the Proposed Development (i.e. including sites with only habitat features, only mobile features, or a combination of the two). This is considered to be highly precautionary for sites with just habitat features.
- **Additional screening of fish sites**: Inclusion of any site up to 30 km from the Proposed Development designated for fish features. Due to the potential connectivity of the Proposed Development site with designated fish species associated with the Severn Estuary (Davies *et al*., 2020), sites within the Severn Estuary have also been included.
- **Additional screening of cetacean sites**: For cetaceans, marine mammal management units (MU) were used to initially screen sites in/out. MUs typically refer to a geographical area in which the animals of a particular species are found, to which management of human activities is applied. Using MUs allows consideration of the scale of movement of a species and its respective populations, whilst taking account of jurisdictional boundaries and the management of human activities. Annex II cetaceans occurring in UK waters, and their respective MUs (IAMMWG 2023), are:
  - Harbour porpoise: Celtic & Irish Seas (CIS) MU;
  - Bottlenose dolphin: Offshore Channel, Celtic Sea & South West England (OCSW) MU.

- **Additional screening of pinniped sites:** Annex II pinniped species that occur in UK waters are grey seal and harbour seal. However, as harbour seals are rarely recorded in the south west of England (SCOS, 2023), screening has only focused on grey seals. Based on known foraging distances of grey seals, only qualifying features of sites up to 200 km have been included (**Table 5.1**). The same approach has been taken for harbour seals, with respect to transboundary designated sites (further discussion below).
- **Additional screening of seabird sites:** Inclusion of sites for seabirds relates to a ZoI based on mean max foraging ranges as outlined by Woodward *et al.* (2019).

5.1.3 The European and Ramsar Sites that fall within the criteria described above for the different receptors are listed below. A total of 48 sites were identified, including 31 SACs (12 UK, three in Ireland and 16 in France) and 16 SPAs (four in the UK, four in Ireland and eight in France) and one Ramsar site. These protected sites are designated for a variety of habitats and / or bird, fish and marine mammal species as listed in **Table 5.1**, and are indicated in **Figure 2** to **Figure 5**.



Notes
1. This plan is scaled at paper size A3. If received electronically it is the recipients responsibility to print to the correct scale. Only written dimensions should be used.

Legend

- UK Offshore Cable Corridor
- Indicative Cable Centreline
- UK Exclusive Economic Zone (EEZ)

SACs England

- Braunton Burrows
- Isles of Scilly Complex
- Lundy
- Severn Estuary
- Bristol Channel Approaches / Dynesfeydd Môr Hafren

SACs Wales

- Cardigan Bay / Bae Ceredigion
- Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd
- North Anglesey Marine / Gogledd Môn Forol
- Pembrokeshire Marine / Sir Benfro Forol
- Pen Llyn a'r Sarnau / Lleyn Peninsula and the Sarnau
- Severn Estuary (Wales)
- West Wales Marine / Gorllewin Cymru Forol

SACs RoI

- Blasket Islands SAC
- Roaringwater Bay and Islands SAC
- Rockabill to Dalkey Island SAC

Rev	Description	By	CB	Date
P01	FINAL	PN	MB	Nov 2024

Client: Xlinks 1 Limited

Project: Xlinks' Morocco-UK Power Project

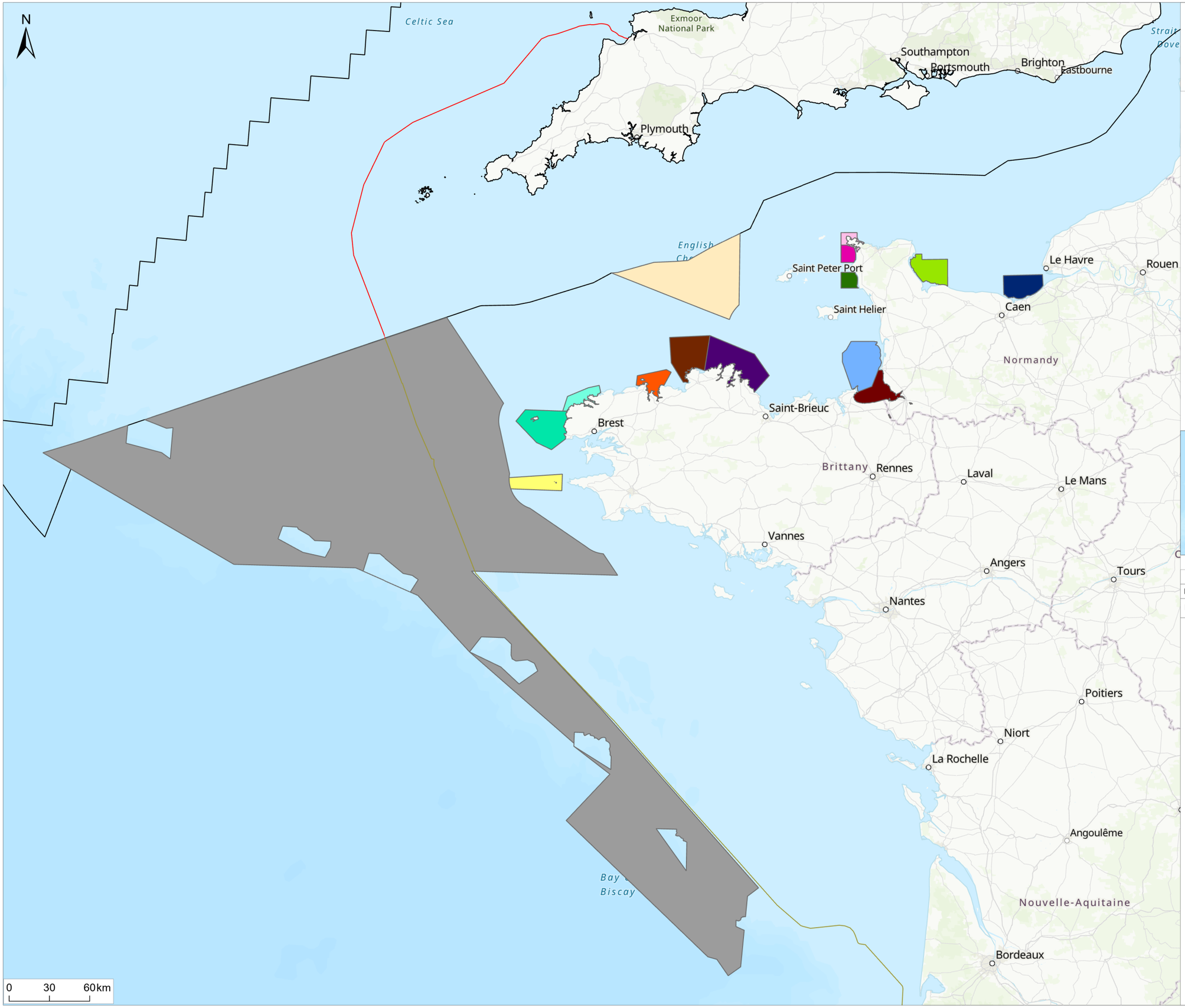
Title: SACs in the UK and Ireland with potential for connectivity to the Proposed Development.

Status	Scale @ A3	Date Created
FINAL	1:2,700,000	Nov 2024

Figure Number: **2**

Rev: **P01**

www.xlinks.co



Notes
1. This plan is scaled at paper size A3. If received electronically it is the recipients responsibility to print to the correct scale. Only written dimensions should be used.

Legend

- UK Offshore Cable Corridor
- Indicative Cable Centreline
- UK Exclusive Economic Zone (EEZ)

SACS France

- Abers - Côte des légendes
- Anse de Vauville
- Baie de Morlaix
- Baie de Seine occidentale
- Baie de Seine orientale
- Baie du Mont Saint-Michel
- Banc et récifs de Surtainville
- Chausey
- Chaussée de Sein
- Côte de Granit rose-Sept-Iles
- Mers Celtiques - Talus du golfe de Gascogne
- Nord Bretagne DH
- Ouessant-Molène
- Récifs et landes de la Hague
- Tregor Goëlo

Rev	Description	By	CB	Date
P01	FINAL	PN	MB	Nov 2024

Xlinks

Client: Xlinks 1 Limited

Project: Xlinks' Morocco-UK Power Project

Title: French SACs with potential for connectivity to the Proposed Development

Status: FINAL

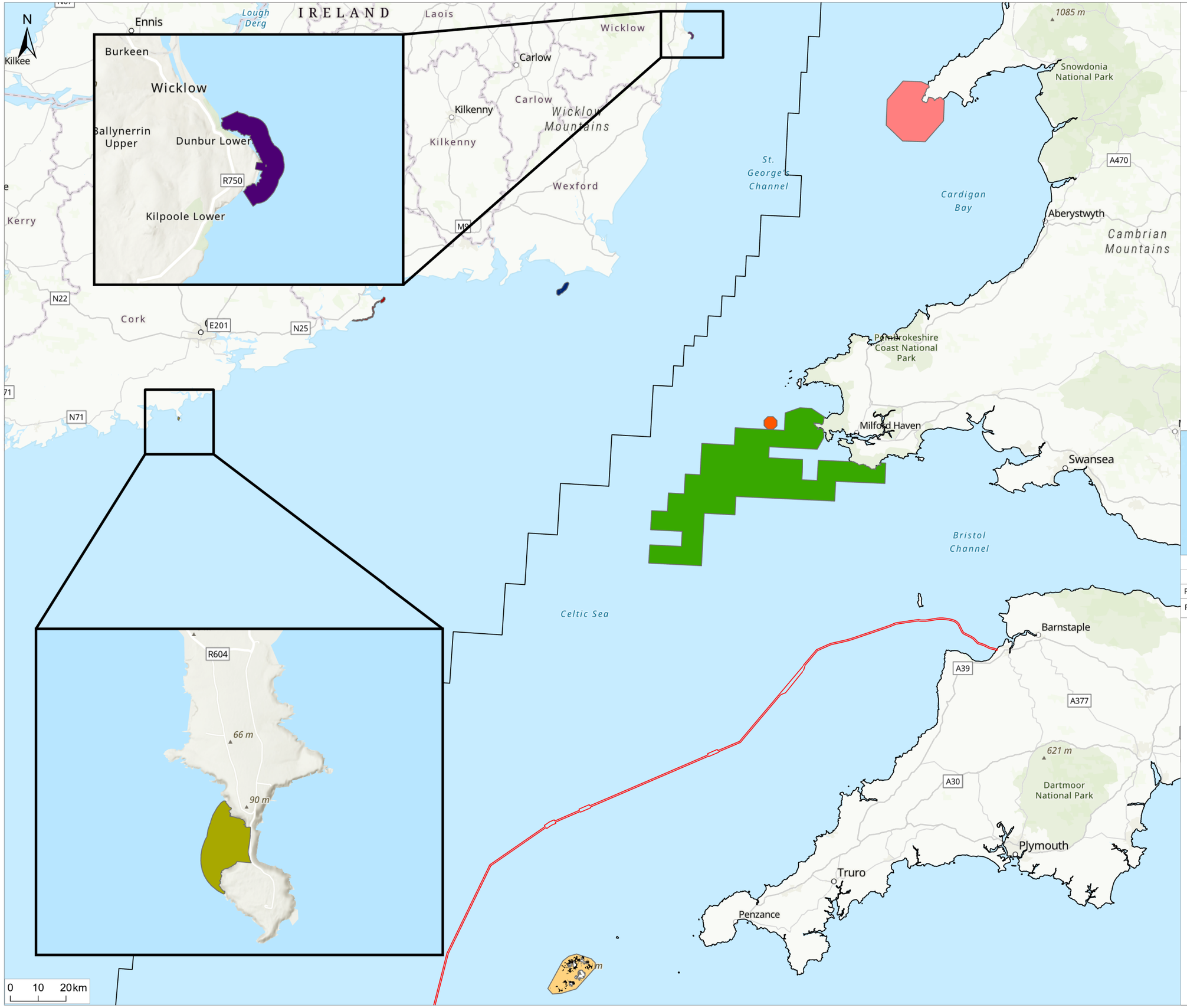
Scale @ A3: 1:2,700,000

Date Created: Nov 2024

Figure Number: 3

Rev: P01

www.xlinks.co



Notes
1. This plan is scaled at paper size A3. If received electronically it is the recipients responsibility to print to the correct scale. Only written dimensions should be used.

Legend

- UK Offshore Cable Corridor
- UK Exclusive Economic Zone (EEZ)

Ramsars England
- Isles of Scilly

SPAs England
- Isles of Scilly

SPAs Wales
- Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island
- Grassholm
- Skomer, Skokholm and the Seas off Pembrokeshire

SPAs RoI
- Helvick Head to Ballyquin SPA
- Old Head of Kinsale SPA
- Saltee Islands SPA
- Wicklow Head SPA

Rev	Description	By	CB	Date
P01	FINAL	PN	MB	Nov 2024

Xlinks

Client: Xlinks 1 Limited

Project: Xlinks' Morocco-UK Power Project

Title: SPAs and Ramsars in the UK and Ireland with potential for connectivity to the Proposed Development.

Status: FINAL

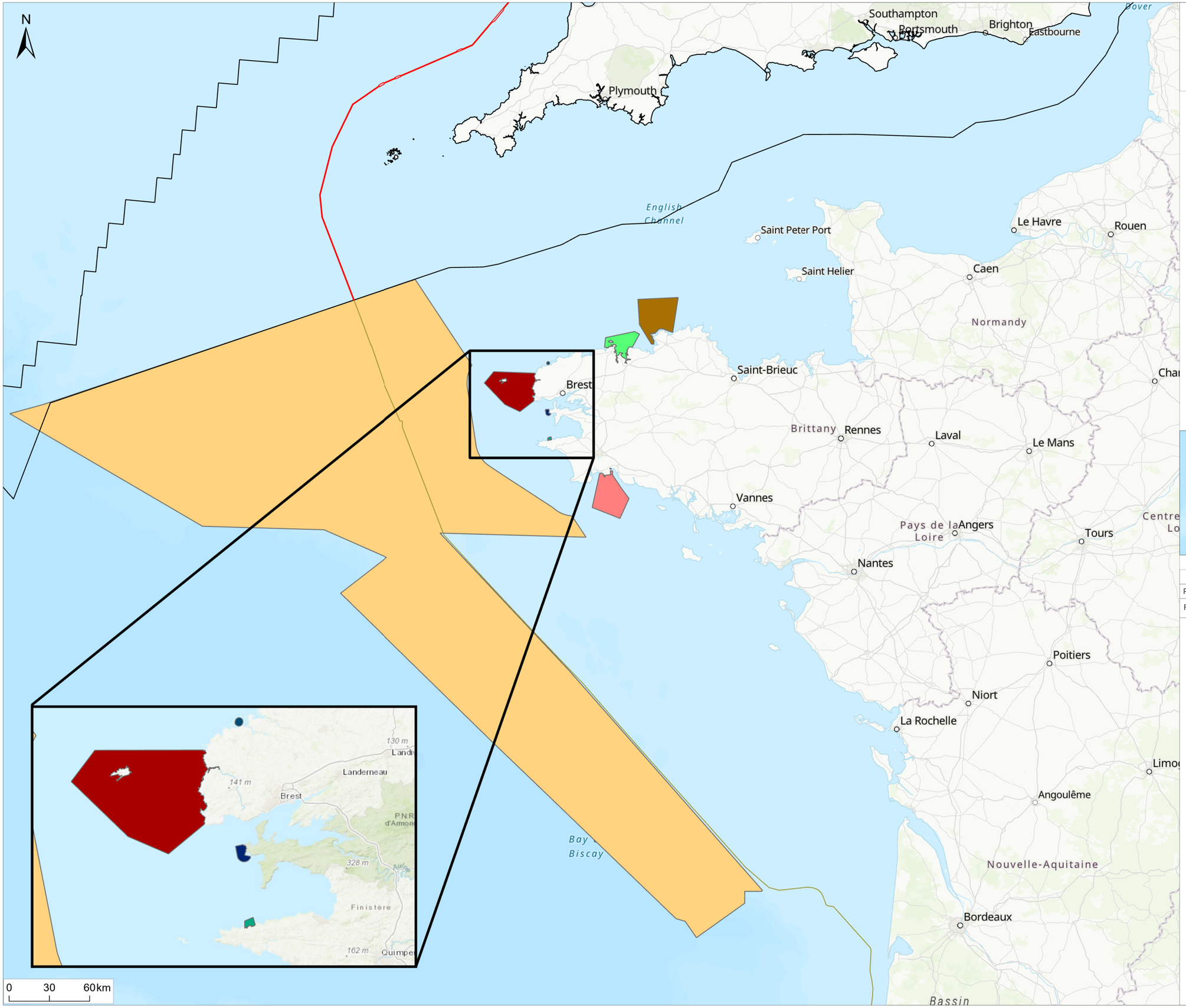
Scale @ A3: 1:1,300,000

Date Created: Nov 2024

Figure Number: 4

Rev: P01

www.xlinks.co



Notes
1. This plan is scaled at paper size A3. If received electronically it is the recipients responsibility to print to the correct scale. Only written dimensions should be used.

Legend

- UK Offshore Cable Corridor
- Indicative Cable Centreline
- UK Exclusive Economic Zone (EEZ)

SPAs France

- Archipel de Glenan
- Baie de Morlaix
- Camaret
- Cap Sizun
- Cote de Granit Rose-Sept Iles
- Ilôt du Trévors
- Ouessant-Molène
- Mers Celtiques - Talus du golfe de Gascogne

Rev	Description	By	CB	Date
P01	FINAL	PN	MB	Nov 2024

Xlinks

Client: Xlinks 1 Limited

Project: Xlinks' Morocco-UK Power Project

Title: French SPAs with potential for connectivity to the Proposed Development

Status: FINAL

Scale @ A3: 1:2,700,000

Date Created: Nov 2024

Figure Number: **5**

Rev: **P01**

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5.1.4 Qualifying features of the European and Ramsar Sites which were within the site selection criteria (as indicated in **Section 5.3**) and the distance of these sites from the Proposed Development are indicated in **Table 5.1**.

Table 5.1 European and Ramsar Sites included in the assessment (numbers in brackets are site/species codes)

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
SACs		
UK		
Bristol Channel Approaches / Dynesfeydd Môr Hafren (UK0030396)	0 km	[1351] Harbour porpoise *Phocoena Phocoena* In addition, conservation objective 3 for the site is 'The condition of supporting habitats and processes, and the availability of prey is maintained' indicating benthic habitats and prey availability need to be considered.
Lundy (UK0013114)	3.5 km	[1170] Reefs [1100] Sandbanks which are slightly covered by seawater all the time [8330] Submerged or partially submerged sea caves [1364] Grey seal *Halichoerus grypus*
Braunton Burrows (UK0012570)	6 km	[2120] Shifting dunes along the shoreline with *Ammophila arenaria* [2130] Fixed coastal dunes with herbaceous vegetation [2170] Dunes with *Salix repens* ssp. Argentea [2190] Humid dune slacks [140] Mudflats and sandflats not covered by seawater at low tide [1395] Petalwort
Isles of Scilly Complex (UK0013694)	32 km	*[1110] Sandbanks which are slightly covered by seawater all the time *[1140] Mudflats and sandflats not covered by seawater at low tide *[1170] Reefs *[1441] Shore dock *Rumex rupestris* [1364] Grey seal *Halichoerus grypus*

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd (UK0020020)	43 km	*[1110] Sandbanks which are slightly covered by seawater all the time *[1130] Estuaries *[1140] Mudflats and sandflats not covered by seawater at low tide *[1160] Large shallow inlets and bays *[1310] Salicornia and other annuals colonising mud and sand *[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1103] Twaite shad *Alosa fallax* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis* [1102] Allis shad *Alosa alosa*
Pembrokeshire Marine/ Sir Benfro Forol (UK0013116)	48 km	[1364] Grey seal *Halichoerus grypus* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey Lampetra fluviatalis [1102] Allis shad *Alosa alosa* [1103] Twaite shad *Alosa fallax* *[1130] Estuaries *[1160] Large shallow inlets and bays *[1170] Reefs *[1110] Sandbanks which are slightly covered by sea water all the time *[1140] Mudflats and sandflats not covered by seawater at low tide *[1150] Coastal lagoons *[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) *[8330] Submerged or partially submerged sea caves *[1441] Shore dock *Rumex rupestris* [1355] Otter *Lutra lutra*
West Wales Marine / Gorllewin Cymru Forol (UK0030397)	48 km	[1351] Harbour porpoise *Phocoena phocoena*
Severn Estuary / Môr Hafren (UK0013030)	78 km	*[1130] Estuaries *[1140] Mudflats and sandflats not covered by seawater at low tide *[1330] Atlantic salt meadows Glauco-Puccinellietalia maritimae *[1110] Sandbanks which are slightly covered by seawater all the time *[1170] Reefs [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatilis* [1103] Twaite shad *Alosa fallax*

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Cardigan Bay / Bae Ceridigion (UK0012712)	108 km	*[1110] Sandbanks which are slightly covered by sea water all the time *[1170] Reefs *[8330] Submerged or partially submerged sea caves [1349] Bottlenose dolphin *Tursiops truncatus* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis* [1364] Grey seal *Halichoerus grypus*
Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau (UK0013117)	144 km	*[1110] Sandbanks which are slightly covered by sea water all the time *[1130] Estuaries *[1150] Coastal lagoons *[1160] Large shallow inlets and bays *[1170] Reefs *[1140] Mudflats and sandflats not covered by seawater at low tide *[1310] Salicornia and other annuals colonising mud and sand *[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) *[8330] Submerged or partially submerged sea caves [1349] Bottlenose dolphin *Tursiops truncatus* [1364] Grey seal *Halichoerus grypus* [1355] Otter *Lutra lutra*
North Channel (UK0030399)	345 km	[1351] Harbour porpoise *Phocoena phocoena*
North Anglesey Marine / Gogledd Môn Forol (UK0030398)	234 km	[1351] Harbour porpoise *Phocoena phocoena*
Ireland		
Roaring Water Bay and Islands (IE0000101)	231 km	*[1160] large shallow inlets and bays *[1170] Reefs *[1230] Vegetated sea cliffs of the Atlantic and Baltic coasts *[4030] European dry heaths *[8330] Submerged or partially submerged sea caves [1351] Harbour porpoise *Phocoena phocoena* *[1364] Grey seal *Halichoerus grypus* [1355] Otter *Lutra lutra*
Rockabill to Dalkey Islands (IE0003000)	255 km	*[1170] Reefs [1351] Harbour porpoise *Phocoena phocoena*

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Blasket Islands (IE0002172)	323 km	*[1170] Reefs *[1230] Vegetated sea cliffs of the Atlantic and Baltic coasts *[4030] European dry heaths *[8330] Submerged or partially submerged sea caves [1351] Harbour porpoise *Phocoena phocoena* *[1364] Grey seal *Halichoerus grypus*
France		
Mers Celtiques Talus du golfe de Gascogne (France) (FR5302015)	0 km	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus*
Chaussée de Sein (France) (FR5302007)	170 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus*
Nord Bretagne DH (France) (FR2502022)	174 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus*
Ouessant-Molène (France) (FR5300018)	203 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* [137076] Otter *Lutra lutra*
Abers – Côte des légendes (France) (FR5300017)	205 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Turtruncatesncatus* *[137080] Grey seal *Halichoerus grypus* [137076] Otter *Lutra lutra*
Côte de Granit rose-Sept-Iles (France) (FR5300009)	250 km	[137117] Harbour porpoise *Phocoena Phocoena* *[137080] Grey seal *Halichoerus grypus*
Baie de Morlaix (France) (FR5300015)	255 km	[137117] Harbour porpoise *Phocoena Phocoena* *[137080] Grey seal *Halichoerus grypus*
Tregor Goëlo (France) (FR5300010)	285 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* [137076] Otter *Lutra lutra*
Chausey (France) (FR2500079)	365 km	[137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*
Banc et récifs de Surtainville (France) (FR2502018)	365 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Récifes et lands de la Hague (France) (FR2500084)	368 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*
Anse de Vauville (France) (FR2502019)	370 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*
Baie du Mont Saint-Michel (France) (FR2510048)	370 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*
Récifes et marais arrière-littoraux du Cap Lévi à la Pointe de Saire (France) (FR2500085)	390 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus* *[137084] Harbour seal *Phoca vitulina*
Baie de Seine occidentale (France) (FR2510047)	445 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137084] Harbour seal *Phoca vitulina*
Baie de Seine orientale (France) (FR2502021)	510 km	[137117] Harbour porpoise *Phocoena Phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* *[137080] Grey seal *Halichoerus grypus*
SPAs		
Site Name	**Distance from Proposed Development**	**Qualifying Features with Potential Connectivity to the Proposed Development**
UK		
Isles of Scilly (UK9020288)	38 km	[A014] Storm petrel *Hydrobates pelagicus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A187] Great black-backed gull *Larus marinus* (breeding) Seabird assemblage

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Skomer, Skokholm and the seas off Pembrokeshire (UK9014051)	49 km	[A013] Manx shearwater *Puffinus puffinus* (breeding) [A204] Puffin *Fratercula arctica* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) Seabird assemblage [A014] Storm petrel *Hydrobates pelagicus* (breeding)
Grassholm (UK9014041)	80 km	[A016] Gannet *Morus bassanus* (breeding)
Aberdaron Coast and Bardsey Island (UK9013121)	171 km	[A013] Manx shearwater *Puffinus puffinus* (breeding) [A346] Chough *Pyrrhocorax pyrrhocorax*
Ireland		
Saltee Islands (IE0004002)	157 km	[A009] Fulmar *Fulmaris glacialis* (breeding) [A016] Gannet *Morus bassanus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A188] Kittiwake *Rissa tridactyla* (breeding) [A200] Razorbill *Alca torda* (breeding) [A204] Puffin *Fratercula arctica* (breeding)
Helvick Head to Ballyquin (IE0004192)	191 km	[A188] Kittiwake *Rissa tridactyla* (breeding
Old Head of Kinsale (IE0004021)	194 km	[A188] Kittiwake *Rissa tridactyla* (breeding)
Wicklow Head (IE0004127)	222 km	[A188] Kittiwake *Rissa tridactyla* (breeding)
France		
Mers Celtiques - Talus du golfe de Gascogne (FR5212016)	0 km	[A200] Razorbill *Alca torda* (concentration) [A010] Cory's shearwater *Calonectris diomedea* (concentration) [A175] Great skua *Stercorarius skua* (concentration) [A204] Puffin *Fratercula arctica* (concentration) [A009] Fulmar *Fulmarus glacialis* (concentration) [A002] Black-throated diver *Gavia arctica* (concentration) [A014] Storm petrel *Hydrobates pelagicus* (concentration) [A184] Herring gull *Larus argentatus* (concentration) [A182] Common gull *Larus canus* (concentration) [A183] Lesser black-backed gull *Larus fuscus* (concentration)

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
		[A187] Great black-backed gull *Larus marinus* (concentration) [A176] Mediterranean gull *Ichthyaetus melanocephalus* (concentration) [A177] Little gull *Hydrocoloeus minutus* (concentration) [A179] Black-headed gull *Chroicocephalus ridibundus* (concentration) [A178] Sabine's gull *Xema sabini* [A065] Common scoter *Melanitta nigra* [A016] Gannet *Morus bassanus* [A015] Leach's storm petrel *Hydrobates leucorhoa* [A017] Cormorant *Phalacrocorax carbo* (concentration) [A171] Grey phalarope *Phalaropus fulicarius* (concentration) [A011] Great shearwater *Ardenna gravis* (concentration) [A012] Sooty shearwater *Ardenna griseus* (concentration) [A013] Manx shearwater *Puffinus puffinus* (concentration) [A384] Balearic shearwater*Puffinus mauretanicus* (concentration) [A188] (Kittiwake) *Rissa tridactyla* (concentration) [A173] Arctic skua *Stercorarius parasiticus* (concentration) [A172] Pomarine skua *Stercorarius pomarinus* (concentration) [A193] Common tern *Sterna hirundo* (concentration) [A194] Arctic tern *Sterna paradisaea* (concentration) [A191] Sandwich tern *Thalasseus sandvicensis* (concentration) [A199] Guillemot *Uria aalge* (concentration)
Ouessant-Molène (FR5310072)	114 km	[A183] Lesser black-backed gull *Larus fuscus* (breeding) [A204] Puffin *Fratercula arctica* (breeding) [A009] Fulmar Fulmarus glacialis (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding)
Ilot du Trevors (FR5310054)	150 km	[A183] Lesser black-backed gull *Larus fuscus* (breeding)
Camaret (FR5312004)	163 km	[A014] Storm petrel *Hydrobates pelagicus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A188] (Kittiwake) *Rissa tridactyla* (permanent) [A009] Fulmar *Fulmarus glacialis* (breeding)
Cap Sizun (FR5310055)	176 km	[A009] Fulmar *Fulmarus glacialis* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A188] (Kittiwake) *Rissa tridactyla* (breeding)

Site Name	Distance from Proposed Development	Qualifying Features with Potential Connectivity to the Proposed Development
Baie de Morlaix (FR5310073)	189 km	[A204] Puffin *Fratercula arctica* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding) [A183][Lesser black-backed gull *Larus fuscus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding)
Cote de Granit Rose-Sept Iles (FR5300009)	211 km	[A016] Gannet *Morus bassanus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A009] Fulmar *Fulmaris glacialis* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding) [A384] Balearic shearwater *Puffinus mauretanicus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A204] Puffin *Fratercula arctica* (breeding)
Archipel de Glenan (FR5310057)	223 km	[A183] Lesser black-backed gull *Larus fuscus* (breeding)
Ramsar		
Site Name	**Distance from** Proposed Development	**Qualifying Features with Potential Connectivity to the** Proposed Development
Isles of Scilly	38 km	[A183] Lesser black-backed gull *Larus fuscus* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding)
*It should be noted that some site boundaries include marine habitats, and therefore the distance between the Proposed Development and breeding colonies may be greater than the distance stated.		

Table notes: *Qualifying feature of site however outside of feature specific screening criteria.

5.2 The Screening Process

5.2.1 The process of testing for likely significant effects considers the adverse effects that might arise from the project activities and identifies whether or not there is a probability that an adverse effect can affect a European or Ramsar Site and their qualifying features.

5.2.2 The process that is followed is to identify if the works will generate effects that could affect any of the interest features of the relevant European or Ramsar Sites. Only when there is a source, a pathway and an effect that reaches the interest feature is it judged that there is an LSE that requires the more detailed assessment that is carried out at the HRA Appropriate Assessment stage.

5.2.3 Potential adverse effects of the proposed works on European and Ramsar Sites were identified (and reported in the HRA Screening Report, Xlinks 2024) with reference to the following:

- Conservation Advice for European Marine Sites under regulation 37(3) of the Habitats Regulations (2017).

- Natural England's Advice on Operations (AoO); and
- Professional judgement based on experience of conducting numerous assessments of similar work activities in the vicinity of European and Ramsar Sites.

5.2.4 Those medium-high risk impact pathways indicated in Natural England's AoO for Power Cable Laying, Burial and Protection that could be associated with the project activities, and which could affect European and Ramsar Site features were considered in this screening. These impact pathways were as follows:

- Above water noise;
- Visual disturbance;
- Underwater noise and vibration;
- Collision risk (below water and static or moving objects not naturally found in the marine environment);
- Pollution (from vessels and equipment including Hydrocarbon & Polycyclic Aromatic Hydrocarbon (PAH) contamination);
- Reduction in prey availability (all aspects of works generating underwater noise and vibration);
- Changes in suspended solids (water clarity);
- Smothering and siltation rate changes (light);
- Physical change (to another seabed type);
- Physical change (to another sediment type);
- Abrasion / disturbance of the substrate on the surface of the seabed (only in relation to conservation objective 3 for the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396) (see text in **Section 6.1**));
- Penetration and / or disturbance of the substratum below the surface of the seabed, including abrasion (only in relation to conservation objective 3 for the Bristol Channel Approaches SAC (see text in **Section 6.1**));
- Habitat structure changes - removal of substratum (extraction) (only in relation to conservation objective 3 for the Bristol Channel Approaches SAC (see text in **Section 6.1**)).

5.2.5 In addition, potential effects of sediment heating and Electromagnetic Fields (EMF) were also included in the screening based on professional judgement.

5.2.6 Low risk impact pathways would not usually be considered. However, for one impact pathway indicated as low risk for habitats within a SAC (according to NE's AoO), the feature habitats are still indicated to be sensitive to this impact. Consequently, a precautionary approach has been taken and the following low risk impact pathway was also considered in this screening:

- Introduction or spread of invasive non-native species (INNS).

5.2.7 The impact pathways included within Screening were reviewed following receipt of the EIA Scoping Opinion - in case of any additional concerns raised by stakeholders. The listed pathways continue to be appropriate.

5.3 HRA Screening Results

5.3.1 **Table 5.4** details the test for LSE for the qualifying features within the European Sites and Ramsar Sites taken forward for assessment.

5.3.2 It should be noted that although site conservation objectives have been considered in the HRA Screening they have not been listed for conciseness and clarity. By exception conservation objective 3 for the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396) has been considered separately in the table below. The reason for this is that the only feature of this SAC is harbour porpoise, however, conservation objective 3 is "The condition of supporting habitats and processes, and the availability of prey is maintained". Consequently, potential effects on benthic habitats and prey availability require consideration in relation to their supporting function for harbour porpoise. The Bristol Channel Approaches SAC is the only SAC intersected by the cable corridor.

5.3.3 All SAC conservation objectives are presented in **10**.

5.3.4 At HRA screening stage (Xlinks 2024), seven other projects were identified and considered within an in-combination assessment. Following consideration of potential effects arising from the identified projects, in-combination with the proposed works, it was concluded at the initial Screening stage (Xlinks 2024) that the majority of projects identified within 30 km of the proposed works would not act in-combination to give rise to an LSE on any European and Ramsar Sites.

5.3.5 By exception, due to the proximity of the Offshore Cable Corridor with the proposed corridor for the White Cross export cable, a precautionary screening of potential LSE was determined – for the Proposed development in combination with White Cross Offshore Windfarm. The in-combination assessment has been revisited in full at HRA Stage 2 (within this RIAA), and an updated in-combination assessment of potential for AEoI is presented as **Section 7**.

Table 5.4 HRA screening for Likely Significant Effects on European and Ramsar Sites

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
SACs					
UK					
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396)	[1351] Harbour porpoise *Phocoena phocoena* In addition, conservation objective 3 for the site is 'The condition of supporting habitats and processes, and the availability of prey is maintained' indicating benthic habitats and prey availability need to be considered.	Underwater noise and vibration	Yes	Installation works and cable burial could disturb harbour porpoise due to underwater noise and vibration. The Offshore Cable Corridor overlaps directly with this SAC; therefore, there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Harbour Porpoise
		Collision Risk	Yes	The proposed activities could increase the risk of collision between marine mammals and vessels due to an increase in number of vessels present in the SAC; therefore, there is potential for LSE. Assessment of collision risk which has been undertaken as part of the ES studies is discussed at Stage 2 (C.f. vessel collision risk assessment undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 5.2: Vessel Management Plan of the ES).	
		Pollution	No	Pollution will be controlled by adhering to relevant MARPOL guidance for pollution prevention and marine pollution legislation for which compliance is required by law. All vessels will be MARPOL compliant. Published guidelines and best working practices will be followed to ensure that the likelihood of accidental spills is extremely low. This compliance is a basic requirement under UK law and should be adhered to even when no European and Ramsar Sites are involved and is therefore not considered mitigation for the purposes of HRA (c.f. case law section of this report). Furthermore, in the event of a spill, the volumes of potential contaminants released would likely be small and would rapidly disperse, thus any effects would be anticipated to be negligible, and therefore will have no LSE. As changes to water quality due to pollution is assessed to have no LSE for the closest SAC to the Proposed Development for harbour porpoise, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site assessment for this feature. Pollution prevention measures will be enforced via the Offshore Construction Environmental Management Plan (OCEMP) and relevant draft Deemed Marine Licence (Schedule to the draft DCO) conditions.	**Screened out**
		Physical change to another seabed/sediment type	No	In relation to considerations for Conservation Objective 3 for the site, prey species of harbour porpoise and associated supporting habitats may be affected by the cable laying and a change in seabed (e.g. rock placement on previous supporting habitats). Natural England provided comments (in their Section 42 response) expressing concerns over physical habitat change until such time as they are shown a map of cable crossings. Post PEIR direct consultations with Natural England presented the location of all crossings. There is only one crossing (of an in-service asset) within any MPA (within the Bristol Channel Approaches SAC). The specific location is, however, a very small area within a large extent of Atlantic Offshore Circalittoral Sand (MD32), which is a habitat type regarded to have low sensitivity to disturbance. It is also a widespread and generic habitat type for the region that does not provide a unique or critical supporting role to harbour porpoise (or its prey species), i.e. the conservation objectives of the protected site will not rely on the support from this specific crossing location. (Further detail of habitats relative to crossing locations is provided in Volume 3, Chapter 1: Benthic Ecology of the ES.) Therefore, any effects of long-term habitat change on harbour porpoise are anticipated to be negligible. Natural England concurred with this assessment. Furthermore, Volume 3, Chapter 2: Fish and Shellfish	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Ecology of the ES, assessed habitat alteration and long-term habitat loss as a result of the placement of rock protection and found there to be no significant impact on any fish or shellfish receptors assessed – this assessment of the fish ecosystem included the broad supporting prey species associated with harbour porpoise. In addition, Volume 3, Chapter 4: Marine Mammals and Sea Turtles assessed that indirect impacts to harbour porpoises through changes to the seabed would be not significant i.e. consistent with the assessment of no LSE in the context of this HRA Screening (including specific consideration of CO3). As physical change to another seabed/sediment type is assessed to have no LSE for the closest site to the Proposed Development for harbour porpoise, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site assessment for this feature.	
		Reduction in prey availability	No	There is the potential for an indirect effect on harbour porpoise should their prey species be subject to any impacts during the proposed activities. However, impacts are likely to be short-term and localised, and harbour porpoises have a large foraging range due to being highly mobile and could exploit other prey resources nearby. Consequently, any indirect impacts on harbour porpoises due to impacts on their prey species would also be short-term and localised (this also includes any considerations in relation to Conservation Objective 3 for the site). In addition, the conclusions of the Volume 3, Chapter 2: Fish and Shellfish Ecology and Volume 3, Chapter 1: Benthic Ecology of the ES are of negligible (or short-term minor) impacts. As a result, the potential (secondary / dependent) effect is considered to be negligible and therefore have no LSE. As reduction in prey availability is assessed to have no LSE for the closest SAC to the Proposed Development for harbour porpoise, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site assessment.	
		Abrasion / disturbance of the substrate on the surface of the seabed	No	Benthic habitats along the offshore cable corridor have a low to medium sensitivity to this impact (see Volume 3, Chapter 1: Benthic Ecology of the ES). The Maximum Design Scenario considers the following maximum temporary habitat loss/disturbance areas across the entire 370 km OCC: precautionary footprint for use of seabed surface plough and / or Mass Flow Excavation - 7,400,000 m^2; boulder clearance - 6,000,000 m^2, pre-lay trench ploughing - 11,100,000 m^2, seabed debris removal - 740,000 m^2, and cable burial - 625,000 m^2 (max. long-term habitat loss from all rock protection including crossings). Jack-up footprints will result in compression of seabed sediments beneath spud cans or tubular legs. Potential impacts will be intermittent throughout the construction phase of the Proposed Development (and transient across the entire 370 km OCC length), taking place over several months split over two years. The disturbance will be restricted as above, and within the offshore cable corridor and when considering Conservation Objective 3, the overall area potentially disturbed is extremely small in relation to the availability of similar supporting habitats in the Bristol Channel Approaches SAC. Consequently, any effects on harbour porpoise are considered to be negligible / minimal and there would be no LSE. As this impact is assessed to have no LSE for harbour porpoise for the site which overlaps with the Proposed Development, this impact pathway is assessed to have no LSE for any other SAC with equivalent features and objectives and is therefore not included in any other site assessment.	
		Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion	No	Benthic habitats along the cable route have a low to medium sensitivity to this impact (see Volume 3, Chapter 1: Benthic Ecology of the ES). Information in the assessment above for abrasion / disturbance of the seabed is applicable	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				here. In relation to Conservation Objective 3, it is considered that any effects on harbour porpoise would be negligible / minimal and there would be no LSE. As this impact is assessed to have no LSE for harbour porpoise for the site which overlaps with the Proposed Development, this impact pathway is assessed to have no LSE for any other SAC with equivalent features and objectives and is therefore not included in any other site assessment.	
		Habitat structure changes - removal of substratum (extraction)	No	Benthic habitats along the cable route have a medium sensitivity to this impact (see Volume 3, Chapter 1: Benthic Ecology of the ES). Where mechanical trench excavation is deployed, sediment will not be removed but will be pushed to the side as the trench is formed. Provisional burial risk assessments indicate that the sea bed characteristics within the Bristol Channel Approaches SAC should allow full target depth burial - with excavated sediments expected to backfill the trench across the majority of this length (i.e. low risk of needing rock placement). The actual trench width would be 0.5 to 1.5 m (techniques other than mechanical trench excavation could be deployed as indicated in **Section 2.2**). The area of habitat potentially affected is extremely small in relation to the availability of similar habitats in the Bristol Channel Approaches SAC. In relation to Conservation Objective 3, it is considered that any effects on harbour porpoise would be negligible / minimal and there would be no LSE. As this impact is assessed to have no LSE for harbour porpoise for the site which overlaps with the Proposed Development, this impact pathway is assessed to have no LSE for any other SAC with equivalent features and objectives and is therefore not included in any other site assessment.	
Lundy SAC (UK0013114)	[1170] Reefs [1100] Sandbanks which are slightly covered by seawater all the time [8330] Submerged or partially submerged sea caves	Changes in suspended solids (water clarity)	No	Changes in suspended solids (water clarity) during cable burial activities are anticipated to be highly localised to the 500 m boundary of the offshore cable corridor (in the portion of the OCC nearest to the Lundy SAC). The Proposed Development is approximately 3.5 km, at its nearest point, from the boundary of the SAC with no overlap of the Offshore Cable Corridor, to the north west. Sediment dispersion modelling i.e. maximum potential sediment mobilisation distances and direction estimated at each of the sediment grab locations (c.f. Volume 3, Appendix 8.1: High Level Assessment of Sediment Dispersion of the ES) confirms no pathway for sediment dispersion to reach Lundy SAC (from any point of the Offshore Cable Corridor). As a result, there will be no potential effect from this impact pathway and no potential for LSE	**Screened** out
		Pollution	No	Pollution will be controlled by adhering to relevant MARPOL guidance for pollution prevention and marine pollution legislation for which compliance is required by law. All vessels will be MARPOL compliant. Published guidelines and best working practices will be followed to ensure that the likelihood of accidental spills is extremely low. This compliance is a basic requirement under UK law and should be adhered to even when no European and Ramsar Sites are involved and is therefore not considered mitigation for the purposes of HRA. Furthermore, in the event of a spill, the volumes of potential contaminants released would likely be small and would rapidly disperse, thus any effects would be anticipated to be negligible, and are therefore expected to have no LSE. Pollution prevention measures compliance will be further enforced via the OCEMP and relevant draft Deemed Marine Licence (Schedule to the draft DCO) conditions.	
		Physical change to another seabed type	No	Physical change to another seabed type following cable burial activities would be highly localised and restricted to the cable trenches. The Proposed Development is approximately 4 km from the boundary of the SAC with no overlap of the cable corridor. As a result, it is considered that there will be no potential effect from this impact pathway and no potential for LSE.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Physical change to another sediment type	No	Physical change to another sediment type following cable burial activities would be highly localised and restricted to the vicinity of the cable trenches. The Proposed Development is approximately 4 km from the boundary of the SAC with no overlap of the cable corridor. As a result, it is considered that there will be no potential effect from this impact pathway and no potential for LSE. Volume 3, Chapter 8: Physical Processes of the ES provides detail regarding assessment of physical change (including geomorphological change).	
		Smothering and siltation rate changes (light)	No	Smothering and siltation rate changes during cable burial activities would be localised in the vicinity of the cable trenches and the HDD exit pits. The Proposed Development is approximately 4 km, at its nearest point, from the boundary of the SAC with no overlap of the cable corridor. Sediment modelling of disturbed materials in Bideford Bay (Volume 3, Appendix 8.1 Sediment Dispersion Technical Note of the ES) confirms that any suspended plumes would not approach the Lundy SAC. As a result, it is considered that there will be no potential effect from this impact pathway and no potential for LSE.	
		Sediment heating and EMF	No	HVDC cables generate EMFs that could have an effect on some EMF-sensitive benthic species. Heat generated by the cables has the potential to warm the surrounding environment and to have an effect on benthic species. However, these effects would be highly localised / negligible (e.g. Hutchison *et al*., 2018 for EMF; Emeana *et al*. 2016 and ES estimates for sediment temperature) for the (bundled and buried) cables. As a result, it is considered that there will be no potential effect from these impact pathways and no potential for LSE. Volume 3, Chapter 1: Benthic Ecology of the ES provides more expansive discussion of potential for sediment heating and EMF effects on benthic ecology.	
	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration	Yes	Installation works and cable burial could disturb grey seals due to underwater noise and vibration. Grey seals are typically managed in UK waters per seal management unit (SMU) due to their highly mobile nature. This SAC is approximately 4 km from the proposed activities at its closest point and is within the South West England SMU. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Although it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC, they could be disturbed while foraging outside the SAC due to underwater noise and vibration, therefore LSE has been screened in. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Grey seal
		Collision Risk	No	The risk of and outcome (e.g. injury or mortality) of collision between marine mammals and vessels is directly influenced by the type of vessel and the speed at which it is travelling (Laist *et al*. 2001). Incidents of collision between vessels and grey seals are either a rare occurrence or under-reported (Schoeman *et al.*, 2020). Cape Cod Stranding Network recorded 622 seal (e.g. harp seal, harbour seal, grey seal and hooded seal) strandings between 1999 to 2004. Of these, only 11 were attributed to a collision event with a vessel (Swails, 2005). Within the study region, collisions are unlikely given that the increase in vessel movement associated with the Proposed Development will be restricted to the immediate areas around the OCC and transit routes, the fact that the cable route doesn't cross the SAC and the slow speeds and predictable movement of the vessels. The risk of collision is	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				considered negligible and as such, there is no LSE anticipated from this impact pathway. In addition, Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES assessed that the risk of collision to grey seals would be not significant i.e. consistent with the assessment of no LSE in the context of this HRA Screening. As collision risk is assessed to have no LSE for the closest SAC to the Proposed Development for grey seal, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature.	
		Pollution	No	Pollution will be controlled by adhering to relevant MARPOL guidance for pollution prevention and marine pollution legislation for which compliance is required by law. All vessels will be MARPOL compliant. Published guidelines and best working practices will be followed to ensure that the likelihood of accidental spills is extremely low. This compliance is a basic requirement under UK law and should be adhered to even when no European and Ramsar Sites are involved and is therefore not considered mitigation for the purposes of HRA (c.f. case law section of this report). Furthermore, in the event of a spill, the volumes of potential contaminants released would likely be small and would rapidly disperse, thus any effects would be anticipated to be negligible, and therefore is anticipated to have no LSE. As changes to water quality due to pollution is assessed to have no LSE for the closest SAC to the Proposed Development for grey seal, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature. Pollution prevention measures will be further enforced via the OCEMP and relevant draft Deemed Marine Licence (Schedule to the draft DCO) conditions.	
		Physical change to another seabed/sediment type	No	Prey species of grey seals may be affected by the cable laying and change in seabed (e.g. rock dumping on previous sand/mud environment). Although prey species may be displaced initially during the installation, this change in habitat type may be positive after the installation is complete due to the potential addition of a reef environment. Thus, any effects would be anticipated to be negligible or positive and therefore have no LSE. As physical change to another seabed/sediment type is assessed to have no LSE for the closest SAC to the Proposed Development for grey seal, this impact pathway is assessed to have no LSE for this feature for any other SAC and is therefore not included in any other site description for this feature. Volume 3, Chapter 8: Physical Processes of the ES provides detail regarding assessment of physical change (including geomorphological change), with potential for effects on fish (i.e. prey species) set out in Volume 3, Chapter 2 - Fish and Shellfish Ecology.	
		Reduction in prey availability	No	There is the potential for an indirect effect on grey seal should their prey species be subject to any impacts during the proposed activities. However, impacts are likely to be short-term and localised, and grey seal have a large foraging range due to being highly mobile and could exploit other prey resources nearby. Consequently, any indirect impacts on grey seal due to impacts on their prey species would also be short-term and localised. In addition, the conclusions of the ES regarding fish and benthic ecology (as set out in Volume 3, Chapter 2 - Fish and Shellfish Ecology of the ES) are of negligible (or short-term minor) impacts. As a result, the potential effect is considered to be negligible and therefore have no LSE. As reduction in prey availability is assessed to have no LSE for the closest SAC to the Proposed Development for grey seal, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
Braunton Burrows SAC (UK0012570)	[2120] Shifting dunes along the shoreline with *Ammophila arenaria* [2130] Fixed coastal dunes with herbaceous vegetation [2170] Dunes with *Salix repens* ssp. Argentea [2190] Humid dune slacks [140] Mudflats and sandflats not covered by seawater at low tide [1395] Petalwort	Changes in suspended solids (water clarity)	No	The Proposed Development is approximately 6 km from the boundary of the SAC with no overlap of the Offshore Cable Corridor and the site is designated for terrestrial features with the exception of one intertidal feature. The semi-empirical approach used to estimate the ZoI for suspended sediment dispersion indicated that sediment could be transported up to 15.2 km in Bideford Bay (maximum distances associated with peak spring tide currents). The methods and results are presented in Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES. Therefore, there is potential for a small amount of sediment (where potentially disturbed by construction activities) to be transported to Braunton Burrows SAC. According to MarLIN MarESAs (sensitivity assessments) (accessed via MarLIN, 2024a and 2024b), mud and sandflat biotopes are generally Not Sensitive to Changes in suspended solids (water clarity) (with a small number of biotopes having Low sensitivity). Although semi-empirical calculations indicate sediment released during construction of the Proposed Development could potentially reach Braunton Burrows SAC, the increases in suspended solids concentrations would mainly occur in the vicinity of the OCC and concentrations would reduce rapidly with increased distance from the OCC. Consequently, at the boundary of the SAC and beyond it is considered increases in suspended solid concentrations due to the Proposed Development would be minimal and are anticipated to be within background levels of change experienced across the tidal cycle or during storm events. During neap tides no sediment would be expected to reach the SAC. Therefore, based on professional judgement it is anticipated that there would be no LSE on the mudflat and sandflats not covered by seawater at low tide feature. There would be no LSE on any of the other features of the Braunton Burrows SAC as they are terrestrial habitats.	**Screened Out**
		Physical change to another seabed type	No	The Proposed Development is approximately 6 km from the boundary of the SAC with no overlap of the Offshore Cable Corridor and the site is designated for terrestrial features with the exception of one intertidal feature. Physical change to another seabed type following cable burial activities would be highly localised and restricted to the cable trenches and there is no pathway for effect. Volume 3, Chapter 8: Physical Processes of the ES provides detail regarding assessment of physical change (including geomorphological change). As a result, it is considered that there will be no potential effect from this impact pathway and no potential for LSE.	
		Physical change to another sediment type	No	The Proposed Development is approximately 6 km from the boundary of the SAC with no overlap of the Offshore Cable Corridor and the site is designated for terrestrial features with the exception of one intertidal feature. The semi-empirical approach used to estimate the ZoI for suspended sediment dispersion indicated that sediment could be transported up to 15.2 km in Bideford Bay (methods and results are in Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES). There could be extremely low levels of sediment deposition in the SAC which would likely be resuspended with tidal movements, however, any physical change to another sediment type following cable burial activities would be highly localised and restricted to the vicinity of the cable trenches only and there is no pathway for effect. As a result, it is considered that there will be no potential effect from this impact pathway and no potential for LSE.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Smothering and siltation rate changes	No	The Proposed Development is approximately 6 km from the boundary of the SAC with no overlap of the Offshore Cable Corridor and the site is designated for terrestrial features with the exception of one intertidal feature. The semi-empirical approach used to estimate the ZoI for suspended sediment dispersion indicated that sediment could be transported up to 15.2 km in Bideford Bay (maximum distances associated with peak spring tide currents). The methods and results are presented in Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES. Therefore, there is potential for a small amount of sediment to be transported to Braunton Burrows SAC and consequently potential for minimal levels of sediment deposition and smothering. Sediment would not reach Braunton Burrows SAC on a neap tide (Volume 3, Appendix 8.1: Sediment Dispersion Technical Note of the ES). According to MarLIN MarESAs (sensitivity assessments) (accessed via MarLIN, 2024a and 2024b), mud and sandflat biotopes are generally Not Sensitive to Smothering and siltation rate changes (light) (where 'light' represents <5 mm sediment deposition threshold) with a small number of biotopes having Low sensitivity. Although semi-empirical calculations indicate sediment released during construction of the Proposed Development could potentially reach Braunton Burrows SAC, the increases in suspended solids concentrations would mainly occur in the vicinity of the OCC and would reduce rapidly with increased distance from the OCC, similarly the greatest levels of sediment deposition would be in the vicinity of the OCC. Consequently, at the boundary of the SAC and beyond it is considered levels of deposition due to the Proposed Development would be minimal and are anticipated to be within background levels of change experienced across the tidal cycle or during storm events. Therefore, based on professional judgement it is anticipated that there would be no LSE on the mudflat and sandflats not covered by seawater at low tide feature. There would be no LSE on any of the other features of the Braunton Burrows SAC as they are terrestrial habitats.	
		Sediment heating and EMF	No	The Proposed Development is approximately 6 km from the boundary of the SAC with no overlap of the Offshore Cable Corridor and the site is designated for terrestrial features with the exception of one intertidal feature. HVDC cables generate EMFs that could have an effect on some EMF-sensitive benthic species. Heat generated by the cables has the potential to warm the surrounding environment and to have an effect on benthic species. However, these effects would be highly localised / negligible for the bundled and buried cables (e.g. Hutchison *et al*., 2018 for EMF; Emeana *et al*. 2016 for sediment temperature and ES estimates for sediment temperature). As a result, it is considered that there will be no potential effect from these impact pathways and no potential for LSE. Volume 3, Chapter 1: Benthic Ecology of the ES provides more expansive discussion of potential for sediment heating and EMF effects on benthic ecology.	
Isles of Scilly Complex SAC (UK0013694)	[1110] Sandbanks which are slightly covered by seawater all the time [1140] Mudflats and sandflats not covered by seawater at low tide [1170] Reefs [1441] Shore dock *Rumex rupestris*	All potential impact pathways	No	The Proposed Development is approximately 32 km from the boundary of the SAC, with no overlap of the ZoI (c.f. extent of predicted sediment transport presented in Volume 3, Appendix 8.1 of the ES: Sediment source concentrations and assessment of disturbance). Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration	Yes	Installation works and cable burial could disturb grey seals due to underwater noise and vibration. Grey seals are typically managed in UK waters per seal management unit (SMU) due to their highly mobile nature. This SAC is approximately 32 km from the proposed activities at its closest point and is within the South West England SMU. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Although it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC, they could be disturbed while foraging outwith the SAC due to underwater noise and vibration, therefore LSE cannot be screened out at this stage. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Grey seal
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC (UK0020020)	[1110] Sandbanks which are slightly covered by seawater all the time [1130] Estuaries [1140] Mudflats and sandflats not covered by seawater at low tide [1160] Large shallow inlets and bays [1310] Salicornia and other annuals colonising mud and sand [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	All potential impact pathways	No	The Proposed Development is approximately 43 km from the boundary of the SAC, with no overlap of the ZoI (c.f. extent of predicted sediment transport presented in Volume 3, Appendix 8.1 of the ES: Sediment source concentrations and assessment of disturbance). Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**
	[1103] Twaite shad *Alosa fallax* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis* [1102] Allis shad *Alosa alosa*	Underwater noise and vibration	Yes	The site is outside of the 30 km ZoI which has been applied for fish, however adopting a similar precautionary approach as advocated for the Severn Estuary SAC (assumed connectivity of the designated migratory species in question), it is assumed at Screening stage that cable installation activities could disturb mobile fish features including sea lamprey, river lamprey, twaite shad and allis shad due to underwater noise and vibration, therefore, there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Twaite shad Allis shad Sea lamprey River lamprey
Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116)	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration	Yes	Installation works and cable burial could disturb grey seals due to underwater noise and vibration. Grey seals are typically managed in UK waters per seal management unit (SMU) due to their highly mobile nature. This SAC is approximately 48 km from the proposed activities at its closest point and is within the Wales SMU. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Although it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC, they could be disturbed while foraging outwith the SAC due to underwater noise and vibration, therefore LSE has been screened in.	**Screened In** Grey seal Twaite shad Allis shad Sea lamprey River lamprey

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				(C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	
	[1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis* [1102] Allis shad *Alosa alosa* [1103] Twaite shad *Alosa fallax*	Underwater noise and vibration	Yes	The site is outside of the 30 km ZoI which has been applied for fish, however a similar precautionary approach is adopted at Screening stage as advocated for the Severn Estuary SAC (i.e. assumed connectivity of the designated migratory species in question). Cable installation activities could disturb mobile fish features including sea lamprey, river lamprey, twaite shad and allis shad due to underwater noise and vibration, therefore, it is considered that there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	
	[1130] Estuaries [1160] Large shallow inlets and bays [1170] Reefs [1110] Sandbanks which are slightly covered by sea water all the time [1140] Mudflats and sandflats not covered by seawater at low tide [1150] Coastal lagoons [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [8330] Submerged or partially submerged sea caves [1441] Shore dock *Rumex rupestris*	All potential impact pathways	No	The Proposed Development is approximately 48 km from the boundary of the SAC, with no overlap of the ZoI (c.f. extent of predicted sediment transport presented in Volume 3, Appendix 8.1 of the ES: Sediment source concentrations and assessment of disturbance). Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**
	[1355] Otter *Lutra lutra*	All potential impact pathways	No	The Proposed Development is approximately 48 km from the boundary of the SAC and there is no pathway to effect for otter in the SAC.	
West Wales Marine / Gorllewin Cymru Forol SAC (UK0030397)	[1351] Harbour porpoise *Phocoena phocoena*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 48 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC (c.f. Volume 3, Chapter 4 of the ES: Marine mammals & Turtles and Volume 3, Appendix 4.1 of the ES: Underwater Noise Technical Assessment). Therefore, the Proposed Development is considered to have no LSE.	**Screened Out**
Severn Estuary / Môr Hafren SAC (UK0013030)	[1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatilis* [1103] Twaite shad *Alosa fallax*	Underwater Noise and Vibration	Yes	Although this site is beyond the initial 30 km ZoI which has been applied for fish, as indicated in **Section 4.2**, diadromous species are known to utilise estuaries near to the Landfall site (Taw-Torridge Estuary) and may interact with the Proposed Development during migration. Installation activities will generate underwater noise and vibration that may affect designated fish species migrating in the vicinity of the Proposed Development, therefore there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Sea lamprey River lamprey Twaite shad

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Temporary increase in suspended sediments and sediment deposition	No	Seabed preparation activities, cable burial, repairs and removal may cause an increase in suspended sediments (c.f. Volume 3, Appendix 8.1 Sediment source concentrations and assessment of disturbance of the ES), which may result in smothering of eggs and blockage of feeding apparatus. The Severn Estuary is a highly turbid environment and as such increased levels of suspended sediments are unlikely to be significantly greater than the baseline conditions and it is considered that there is no potential for LSE.	**Screened out**
		Collision Risk	No	Collision only a risk to those species that spend significant time at the surface and it is considered that there is no potential for LSE.	
		EMF	No	HVDC cables generate EMFs that could have an effect on some EMF-sensitive species. However, any impacts are likely to be restricted to those occurring in very close proximity to the cable (c.f. consideration of potential for EMF impacts on fish within Volume 3, Chapter 2 - Fish and Shellfish Ecology of the ES) and it is considered that there is no potential for LSE.	
Cardigan Bay / Bae Ceridigion SAC (UK0012712)	[1349] Bottlenose dolphin *Tursiops truncatus*	Underwater noise and vibration	Yes	For UK and Irish SACs, conservation objectives for bottlenose dolphins are both site-based and consider connectivity between protected sites and neighbouring areas. Photo-identification studies of coastal populations of bottlenose dolphins has demonstrated large scale movements (e.g. Robinson *et al.,* 2012). Therefore, there is potential connectivity between the bottlenose dolphin population of this SAC and the proposed site. Consequently, installation works and cable burial could disturb bottlenose dolphin due to underwater noise and vibration, meaning there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Bottlenose dolphin

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Reduction in prey availability	No	There is the potential for an indirect effect on bottlenose dolphin should their prey species be subject to any impacts during the proposed activities. However, impacts are likely to be short-term and localised (c.f. Volume 3, Chapter 2 - Fish and Shellfish Ecology of the ES), and bottlenose dolphin have a large foraging range due to being highly mobile and could exploit other prey resources nearby. Consequently, any indirect impacts on bottlenose dolphin due to impacts on their prey species would also be short-term and localised. In addition, the conclusions of the ES regarding fish and benthic ecology are of negligible (or short-term minor) impacts. As a result, the potential effect is considered to be negligible and therefore have no LSE. As reduction in prey availability is assessed to have no LSE for the closest SAC to the Proposed Development for bottlenose dolphin, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature.	**Screened out**
	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration	No	Grey seals are typically managed in UK waters per seal management unit (SMU) due to their highly mobile nature. This SAC is approximately 108 km from the proposed activities at its closest point, and it is within the Wales SMU. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Due to these distances between the SAC and proposed site, it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC and it is unlikely that many individuals from this population would be impacted while foraging. Therefore, the risk of disturbance from underwater noise and vibration is considered negligible and as such, there is anticipated to be no LSE from this impact pathway. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis*	All potential impact pathways	No	The Proposed Development is approximately 108 km from the boundary of the SAC, therefore it is not within the ZoI for fish.	
	[1110] Sandbanks which are slightly covered by sea water all the time [1170] Reefs [8330] Submerged or partially submerged sea caves	All potential impact pathways	No	The Proposed Development is approximately 108 km from the boundary of the SAC, with no overlap of the ZoI. Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	
Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC (UK0013117)	[1110] Sandbanks which are slightly covered by sea water all the time [1130] Estuaries [1150] Coastal lagoons [1160] Large shallow inlets and bays [1170] Reefs [1140] Mudflats and sandflats not covered by seawater at low tide [1310] Salicornia and other annuals colonising mud and sand [1330] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [8330] Submerged or partially submerged sea caves	All potential impact pathways	No	The Proposed Development is approximately 144 km from the boundary of the SAC, with no overlap of the ZoI. Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**
	[1349] Bottlenose dolphin *Tursiops truncatus*	Underwater noise and vibration	Yes	For UK and Irish SACs, conservation objectives for bottlenose dolphins are both site based and consider connectivity between protected sites and neighbouring areas. Photo-identification studies of coastal populations of bottlenose dolphins has demonstrated large scale movements (e.g. Robinson *et al.,* 2012). Therefore, there is potential connectivity between the bottlenose dolphin population of this SAC and the proposed site. Consequently, installation works and cable burial could disturb bottlenose dolphin due to underwater noise and vibration, meaning there is potential for LSE. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	**Screened In** Bottlenose dolphin
	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration	No	Grey seals are typically managed in UK waters per seal management unit (SMU) due to their highly mobile nature. This SAC and the proposed activities fall within the Wales SMU and are located approximately 144 km apart. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Due to these distances between the SAC and proposed site, it is unlikely that noise emitted from the proposed installation works and cable	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				burial could disturb grey seals within the SAC and it is unlikely that many individuals from this population would be impacted while foraging. Therefore, the risk of disturbance from underwater noise and vibration is considered negligible and as such, there is anticipated to be no LSE from this impact pathway. (C.f. noise and vibration assessments undertaken in Volume 3, Chapter 4: Marine Mammals and Sea Turtles, and Volume 3, Appendix 4.1: Underwater Noise Assessment of the ES.)	
	[1355] Otter *Lutra lutra*	Underwater noise and vibration	No	Otters can be found near the coastline where there is a freshwater source. They can use the marine environment to forage; however, foraging is usually close to shore, often within 100 m (Watson 1986). This means they are unlikely to be in the vicinity of the Proposed Development with no potential for LSE and they have been screened out from further assessment.	
North Channel SAC (UK0030399)	[1351] Harbour porpoise *Phocoena phocoena*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 350 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC. Therefore, the Proposed Development is considered to have no LSE.	**Screened out**
North Anglesey Marine / Gogledd Môn Forol SAC (UK0030398)	[1351] Harbour porpoise *Phocoena phocoena*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 234 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC. Therefore, the Proposed Development is considered to have no LSE.	**Screened out**
Ireland					
Roaring Water Bay and Islands SAC (IE0000101)	[1160] large shallow inlets and bays [1170] Reefs [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts [4030] European dry heaths [8330] Submerged or partially submerged sea caves	All potential impact pathways	No	The Proposed Development is approximately 231 km from the boundary of the SAC, with no overlap of the ZoI. Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[1351] Harbour porpoise *Phocoena phocoena* [1364] Grey seal *Halichoerus grypus*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 231 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC. Therefore, the Proposed Development is considered to have no LSE. Grey seals are highly mobile. This SAC and the proposed activities are approximately 231 km apart at the closest point. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Due to these distances between the SAC and proposed site, it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC and it is unlikely that many individuals from this population would be impacted while foraging. Therefore, the Proposed Development is considered to have no LSE.	
	[1355] Otter *Lutra lutra*	All potential impact pathways	No	Otters can be found near the coastline where there is a freshwater source. They can use the marine environment to forage; however, foraging is usually close to shore, often within 100 m (Watson, 1986). Otters can travel a number of kilometres, ca.5 km in coastal waters, however, this site is 231 km from the survey area. As such, they are unlikely to be in the survey area and it is considered that there will be no LSE for otters.	
Rockabill to Dalkey Islands SAC (IE0003000)	[1170] Reefs	All potential impact pathways	No	The Proposed Development is approximately 255 km from the boundary of the SAC, with no overlap of the ZoI. Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**
	[1351] Harbour porpoise *Phocoena phocoena*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 255 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC. Therefore, the Proposed Development is considered to have no LSE.	
Blasket Islands SAC (IE0002172)	[1170] Reefs [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts [4030] European dry heaths [8330] Submerged or partially submerged sea caves	All potential impact pathways	No	The Proposed Development is approximately 323 km from the boundary of the SAC, with no overlap of the ZoI. Therefore, benthic features of this site will have no connectivity to the Proposed Development and as a result, the Proposed Development is considered to have no LSE.	**Screened out**
	[1351] Harbour porpoise *Phocoena phocoena* [1364] Grey seal *Halichoerus grypus*	All potential impact pathways	No	For UK and Irish SACs, conservation objectives are largely site based, with little to no consideration to connectivity for this feature. Due to the distance between the SAC and the proposed work at its closest point (approximately 323 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration and collision risk would impact harbour porpoise within this SAC. Therefore, the Proposed Development is considered to have no LSE.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Grey seals are highly mobile. This SAC and the proposed activities are approximately 323 km apart at the closest point. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Due to these distances between the SAC and proposed site, it is unlikely that noise emitted from the proposed installation works and cable burial could disturb grey seals within the SAC and it is unlikely that many individuals from this population would be impacted while foraging. Therefore, the Proposed Development is considered to have no LSE.	
France					
Mers Celtiques Talus du golfe de Gascogne SAC (France) (FR5302015)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus*	Underwater noise and vibration	Yes	Installation works and cable burial could disturb harbour porpoise due to underwater noise and vibration. The UK Offshore Cable Corridor is directly adjacent to this SAC (the proposed works in French waters will pass through this SAC); therefore, there is potential for LSE. It is recognised that a separate HRA will be undertaken for the Xlinks Morocco-UK Power Project activities within the French jurisdiction, which by definition (of direct geographical overlap) will have a greater potential for LSE on the Mers Celtiques Talus du golfe de Gascogne designations compared to the UK activities assessed within this HRA. Assuming the activities within French waters are consented (with demonstration of no associated LSE), then any potential for LSE from UK activities may be discounted (on account of same activities at greater distance). That said, this UK activities screening assessment is prepared as a standalone assessment.	**Screened In** Harbour porpoise Bottlenose dolphin
	[137117] Harbour porpoise *Phocoena phocoena*	Collision Risk	No	The risk of and outcome (e.g. injury or mortality) of collision between marine mammals and vessels is directly influenced by the type of vessel and the speed at which it is travelling (Laist *et al*., 2001). The Celtic Sea is thought to be an area of smaller risk of collision for harbour porpoises, compared to the English Channel (Robins, 2022). Studies from the UK suggest that incidents of mortality or injury of harbour porpoise caused by vessels remain a very rare occurrence, although numerous instances are expected to remain unreported (Thompson *et al*., 2013; Deaville *et al*., 2018). Of 537 post-mortem examinations on stranded harbour porpoises in the UK between 2011 and 2017, 10 deaths (1.9%) were attributed to probable effect of a vessel collision (Deaville *et al*., 2018). A further 33 harbour porpoises died from physical trauma of unknown origin, which may be the result of vessel strike but could also be undiagnosed bycatch or caused by bottlenose dolphin attacks (Deaville *et al*., 2018). Given the slow speeds and predictable movement of the vessels, the risk of collision is considered negligible and as such, there is no LSE from this impact pathway. Note, for information, a European sites assessment (HRA) will be undertaken for the French section of the Project, which will include consideration of vessel movements within this SAC. (The Proposed Development assessed in this RIAA does not pass through this SAC.) The Proposed Development's VMP will however benefit vessel management in the wider vicinity of this SAC (the VMP includes measures to ensure vessel movements are considerate of marine mammals). The Proposed Development's VMP is presented as Volume 3, Appendix 5.2 to the ES.	**Screened out**
	[137111] Bottlenose dolphin *Tursiops truncatus*	Collision Risk	No	The risk of and outcome (e.g. injury or mortality) of collision between marine mammals and vessels is directly influenced by the type of vessel and the speed at which it is travelling (Laist *et al*. 2001).	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				The Celtic Sea is thought to be an area of highest risk of collision for bottlenose dolphins, followed by the English Channel, due to high levels of shipping traffic (Robins, 2022). However, studies have shown that bottlenose dolphins avoid areas where shipping activity is highest (Lusseau, 2005). Studies from the UK suggest that incidents of mortality or injury of bottlenose dolphins caused by vessels remain a very rare occurrence, although numerous instances are expected to remain unreported (Schoeman *et al.*, 2020). Given the slow speeds and predictable movement of the vessels, the risk of collision is considered negligible and as such, there is anticipated to be no LSE from this impact pathway. As collision risk is assessed to have no LSE for bottlenose dolphin for the closest SAC to the Proposed Development, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature.	
		Pollution	No	Pollution will be controlled by adhering to relevant MARPOL guidance for pollution prevention and marine pollution legislation for which compliance is required by law. All vessels will be MARPOL compliant. Published guidelines and best working practices will be followed to ensure that the likelihood of accidental spills is extremely low. This compliance is a basic requirement under UK law and should be adhered to even when no European and Ramsar Sites are involved and is therefore not considered mitigation for the purposes of HRA. Furthermore, in the event of a spill, the volumes of potential contaminants released would likely be small and would rapidly disperse, thus any effects would be anticipated to be negligible and have no LSE. As changes to water quality due to pollution is assessed to have no LSE for the closest SAC to the Proposed Development for bottlenose dolphin, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature. Pollution prevention measures will be further enforced via the OCEMP and relevant draft Deemed Marine Licence (Schedule to the draft DCO) conditions.	**Screened out**
		Physical change to another seabed/sediment type	No	Prey Species of bottlenose dolphin may be affected by the cable laying and change in seabed (e.g. rock dumping on previous sand/mud environment). Although prey species may be displaced initially during the installation, this change in habitat type may be positive after the installation is complete due to the potential addition of a reef environment. Thus, any effects would be anticipated to be negligible and have no LSE. As physical change to another seabed/sediment type is assessed to have no LSE for the closest to the Proposed Development for bottlenose dolphin, this impact pathway is assessed to have no LSE for any other SAC for this feature and is therefore not included in any other site description for this feature.	**Screened out**
Chaussée de Sein SAC (France) (FR5302007)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus*	All potential impact pathways	No	Conservation objectives are site based, with little to no consideration to connectivity for qualifying features. Due to the distance between the SAC and the proposed work at its closest point (approximately 170 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration would impact harbour porpoise or bottlenose dolphin within this SAC. Therefore, the Proposed Development is considered to have no LSE. Grey seals from this SAC are unlikely to have connectivity with the proposed Offshore Cable Corridor as it is greater than 100 km from the site (typical foraging distance to any haul-out site for grey seals; Carter *et al.,* 2022). The conservation objectives are site-specific and due to the distance between sites and considering the natural behaviour of grey seals, the Proposed Development is unlikely to disturb grey seals. The ZoI for this Proposed Development does not overlap with this site and therefore, the Proposed Development is considered to have no LSE.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
Nord Bretagne DH SAC (France) (FR2502022)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus*	All potential impact pathways	No	Conservation objectives are site based, with little to no consideration to connectivity for qualifying features. Due to the distance between the SAC and the proposed work at its closest point (approximately 174 km), and the nature of the proposed work, it is unlikely that underwater noise and vibration would impact harbour porpoise or bottlenose dolphin within this SAC. Therefore, the Proposed Development is considered to have no LSE.	**Screened out**
Oussant-Molène SAC (France) (FR5300018)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137076] Otter *Lutra lutra*	All potential impact pathways	No	The Proposed Development is approximately 203 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Abers – Côte des légends SAC (France) (FR5300017)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137076] Otter *Lutra lutra*	All potential impact pathways	No	The Proposed Development is approximately 205 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Côte de Granit rose-Sept-Iles SAC (France) (FR5300009)	[137117] Harbour porpoise *Phocoena phocoena* [137080] Grey seal *Halichoerus grypus*	All potential impact pathways	No	The Proposed Development is approximately 250 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's harbour porpoise or grey seal population or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Baie de Morlaix SAC (France) (FR5300015)	[137117] Harbour porpoise *Phocoena phocoena* [137080] Grey seal *Halichoerus grypus*	All potential impact pathways	No	The Proposed Development is approximately 255 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
Tregor Goëlo SAC (France) (FR5300010)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 385 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Chausey SAC (France) (FR2500079)	[137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 365 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Banc et récifs de Surtainville SAC (France) (FR2502018)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 368 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Récifes et lands de la Hague SAC (France) (FR2500084)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 368 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Anse de Vauville SAC (France) (FR2502019)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus*	All potential impact pathways	No	The Proposed Development is approximately 370 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[137084] Harbour seal *Phoca vitulina*				
Baie du Mont Saint-Michel SAC (France) (FR2510048)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 370 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Récifes et marais arrière-littoraux du Cap Lévi à la Pointe de Saire SAC (France) (FR2500085)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 390 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Baie de Seine occidentale SAC (France) (FR2510047)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137084] Harbour seal *Phoca vitulina*	All potential impact pathways	No	The Proposed Development is approximately 445 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
Baie de Seine orientale SAC (France) (FR2502021)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncatus* [137080] Grey seal *Halichoerus grypus*	All potential impact pathways	No	The Proposed Development is approximately 510 km from the boundary of the SAC, with no overlap with the ZoI. The conservation objectives for this SAC are site-specific and considering the distance between sites and project specific activities, the Proposed Development is unlikely to cause significant disturbance to this site's qualifying features or affect the condition of the site's supporting habitats or availability of prey. Therefore, the Proposed Development is considered to have no LSE on the listed qualifying features.	**Screened out**
SPA and Ramsar sites					
Site Name	**Qualifying Features with Potential Connectivity to the Proposed Development***	**Impact Pathway**	**LSE?**	**Justification**	**Screened in/Screened out**
UK					
Isles of Scilly SPA (UK9020288)	[A014] Storm petrel *Hydrobates pelagicus*	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Storm petrel, lesser black-backed gull and great black-backed gull have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al*., 2019).	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[A183] Lesser black-backed gull *Larus fuscus* [A187] Great black-backed gull *Larus marinus* Seabird assemblage			There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site (38 km), there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as the works will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al*., 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and therefore it is considered that there would be no LSE on the site's conservation objectives.	
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward et al, 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development (although not an OWF), for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the application for DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note, pollution prevention requirements (standard practice) have not been specifically implemented to avoid or reduce harmful effects on European sites and they are therefore considered at the Screening stage.	
Isles of Scilly Ramsar	[A014] Storm petrel *Hydrobates pelagicus* [A183] Lesser black-backed gull *Larus fuscus*	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Storm petrel and lesser black-backed gull have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al.,* 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Skomer, Skokholm and the seas off Pembrokeshire SPA (UK9014051)	[A013] Manx shearwater *Puffinus puffinus* [A204] Puffin *Fratercula arctica* [A183] Lesser black-backed gull *Larus fuscus* [A014] Storm petrel *Hydrobates pelagicus* Seabird assemblage	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Manx shearwater, puffin, storm petrel, lesser black-backed gull and great black-backed gull have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019).	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Grassholm SPA (UK9014041)	[A016] Gannet *Morus bassanus*	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Gannet has a large mean max foraging range which includes the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of this species' foraging range (Furness, 2015; Waggitt *et al.*, 2020). Therefore, although there is the potential for the qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al.*, 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Aberdaron Coast and Bardsey Island SPA (UK9013121)	[A204] Manx shearwater *Puffinus puffinus*	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Manx shearwater has a large mean max foraging range which includes the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. A desk-based assessment indicates that density of this species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for this qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on birds foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of Manx shearwater (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect the qualifying feature's survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Ireland					
Saltee Islands SPA (IE0004002)	[A009] Fulmar *Fulmaris glacialis* (breeding) [A016] Gannet *Morus bassanus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A188] Kittiwake *Rissa tridactyla* (breeding) [A200] Razorbill *Alca torda* (breeding) [A204] Puffin *Fratercula arctica* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Fulmar, gannet, lesser black-backed gull, kittiwake, razorbill and puffin have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Ornithology Study Area, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the vicinity of the Study Area. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Helvick Head to Ballyquin SPA (IE0004192)	[A188] Kittiwake *Rissa tridactyla* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational	No	Kittiwake have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019).	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		phase repair activities and decommissioning		There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the vicinity of Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the vicinity of Offshore Cable Corridor These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Old Head of Kinsale SPA (IE0004021)	[A188] Kittiwake *Rissa tridactyla* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Kittiwake have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Ornithology Study Area, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Wicklow Head SPA (IE0004127)	[A188] Kittiwake *Rissa tridactyla* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Kittiwake have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area (as set out in the Screening report, Xlinks 2024, or Volume 3, Chapter 9 - Offshore Ornithology of the ES). There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
France					
Mers Celtiques - Talus du golfe de Gascogne SPA (France) (FR5212016)	[A200] Razorbill *Alca torda* (concentration) [A010] Cory's shearwater *Calonectris diomedea* (concentration) [A175] Great skua *Stercorarius skua* (concentration) [A204] Puffin *Fratercula arctica* (concentration) [A009] Fulmar *Fulmarus glacialis* (concentration) [A002] Black-throated diver *Gavia arctica* (concentration) [A014] Storm petrel *Hydrobates pelagicus* (concentration) [A184] Herring gull *Larus argentatus* (concentration) [A182] Common gull *Larus canus* (concentration)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	Yes	The designated site is immediately adjacent to the offshore cable corridor, and therefore there is the potential for disturbance / displacement of qualifying species within the area of the SPA which falls within 2 km of the offshore cable corridor. There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Potential impacts would be short-term and reversible. However, as there is the potential to have impacts on the SPA, there is potential for LSE and a Stage 2 assessment will be required. It is recognised that a separate HRA will be undertaken for the Xlinks Morocco-UK Power Project activities within the French jurisdiction (outside of the scope of this UK application), which by definition of direct geographical overlap will have a greater potential for LSE on the Mers Celtiques Talus du golfe de Gascogne SPA compared to the UK activities assessed within this HRA. Assuming the activities within French waters are consented (with demonstration of no associated LSE), then any potential for LSE from UK activities may be discounted (on account of same activities at greater distance). That said, this UK activities screening report is prepared as a standalone assessment.	**Screened in**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
	[A183] Lesser black-backed gull *Larus fuscus* (concentration) [A187] Great black-backed gull *Larus marinus* (concentration) [A176] Mediterranean gull *Ichthyaetus melanocephalus* (concentration) [A177] Little gull *Hydrocoloeus minutus* (concentration) [A179] Black-headed gull *Chroicocephalus ridibundus* (concentration) [A178] Sabine's gull *Xema sabini* [A065] Common scoter *Melanitta nigra* [A016] Gannet *Morus bassanus* [A015] Leach's storm petrel *Hydrobates leucorhoa* [A017] Cormorant *Phalacrocorax carbo* (concentration) [A171] Grey phalarope *Phalaropus fulicarius* (concentration) [A011] Great shearwater *Ardenna gravis* (concentration) [A012] Sooty shearwater*Ardenna griseus* (concentration) [A013] Manx shearwater *Puffinus puffinus* (concentration) [A384] Balearic shearwater (*Puffinus mauretanicus* (concentration) [A188] Kittiwake *Rissa tridactyla* (concentration) [A173] Arctic skua *Stercorarius parasiticus* (concentration) [A172] Pomarine skua *Stercorarius pomarinus* (concentration) [A193] Common tern *Sterna hirundo* (concentration) [A194] Arctic tern *Sterna paradisaea* (concentration) [A191] Sandwich tern *Thalasseus sandvicensis* (concentration) [A199] Guillemot *Uria aalge* (concentration)					
		Indirect impacts due to effects on prey species and habitats	No	Indirect pathways (via e.g. underwater noise or the generation of suspended sediments) could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. The conclusions of the ES regarding fish and benthic ecology are of negligible (or short-term minor) impacts to any transboundary receptors. As a result, the potential for secondary / indirect effect is considered to be negligible and therefore have no LSE. It should be noted that a separate HRA Screening exercise will also be undertaken for the section of the Offshore Cable Corridor which is within the France EEZ, where effects would be of a greater magnitude. The scope of this HRA does not include consideration of activities outside of the UK EEZ.	**Screened out**
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
Ouessant-Molène SPA (France) (FR5310072)	[A183] Lesser black-backed gull *Larus fuscus* (breeding) [A204] Puffin *Fratercula arctica* (breeding) [A009] Fulmar Fulmarus glacialis (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	The listed species have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Ilot du Trevors SPA (France) (FR5310054)	[A183] Lesser black-backed gull *Larus fuscus* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Lesser black-backed gull has a large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019).	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Camaret SPA (France) (FR5312004)	[A014] Storm petrel *Hydrobates pelagicus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A188] (Kittiwake) *Rissa tridactyla* (permanent) [A009] Fulmar *Fulmarus glacialis* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	The listed species have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor.	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	
Cap Sizun SPA (France) (FR5310055)	[A009] Fulmar *Fulmarus glacialis* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A188] Kittiwake *Rissa tridactyla* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	The listed species have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Baie de Morlaix SPA (France) (FR5310073)	[A204] Puffin *Fratercula arctica* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding) [A183][Lesser black-backed gull *Larus fuscus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	The listed species have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time.	**Screened out**

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Ornithology Study Area would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
Cote de Granit Rose-Sept Iles SPA (France) (FR5300009)	[A016] Gannet *Morus bassanus* (breeding) [A183] Lesser black-backed gull *Larus fuscus* (breeding) [A009] Fulmar *Fulmaris glacialis* (breeding) [A014] Storm petrel *Hydrobates pelagicus* (breeding) [A384] Balearic shearwater *Puffinus mauretanicus* (breeding) [A013] Manx shearwater *Puffinus puffinus* (breeding) [A204] Puffin *Fratercula arctica* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	The listed species have large mean max foraging ranges which include the Offshore Cable Corridor (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Cable Corridor, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report, **paragraph 4.2.12**).	
Archipel de Glenan SPA (France) (FR5310057)	[A183] Lesser black-backed gull *Larus fuscus* (breeding)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	No	Lesser black-backed gull has a large mean max foraging ranges which include the Offshore Ornithology Study Area (Woodward *et al.,* 2019). There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. Due to the distance of the Offshore Cable Corridor to the site, there would be no direct impacts on the site, however there is the potential for disturbance / displacement within functionally linked habitats. Works are not expected to significantly impact foraging birds as they will be undertaken sequentially, and vessels would only be present within a discrete area for a short period of time. Impacts arising from noise and visual disturbance would be short-term and reversible. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. There is also the potential for foraging to be directly impacted due to increased turbidity which could impact foraging success for species. Again, this would be highly localised and for a limited, short-term duration. A desk-based assessment indicates that density of these species within the Offshore Cable Corridor would be no greater than within the surrounding areas, and the spatial extent of any impacts would be minimal in the context of these species foraging ranges (Furness, 2015 and Waggitt *et al.*, 2020). Therefore, although there is the potential for qualifying species to forage within the Offshore Ornithology Study Area, impacts would be negligible and it is considered that there would be no LSE on the site's conservation objectives.	**Screened out**
		Indirect impacts due to effects on prey species and habitats	No	Impacts may result from underwater noise or the generation of suspended sediments that may alter the distribution, physiology or behaviour of prey species and thereby have an indirect impact on qualifying features foraging within the Offshore Cable Corridor. These mechanisms could potentially result in less prey in the area adjacent to active construction works being available to qualifying features when foraging. For example, if there are impacts on fish which reduces foraging success, then breeding success could be negatively impacted. However, any impacts on prey species arising from noise and visual disturbance would be short-term and reversible, and any habitats which are impacted are likely to be rapidly recolonised by prey species following cable	

Site Name	Qualifying Features with Potential Connectivity to the Proposed Development*	Impact Pathway	LSE?	Justification	Screened in/ Screened out
				burial. The area within which prey would be impacted is also very small in relation to the foraging range of qualifying features (Woodward *et al*., 2019). Therefore, indirect impacts on qualifying features would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives.	
		Pollution	No	The impact of pollution, including accidental spills and contaminant releases associated with the construction of infrastructure and use of supply / service vessels, may lead to direct mortality of birds or indirectly via causing a deterioration in habitat quality or a reduction in prey availability either of which may affect qualifying features' survival rates. It has been predicted for OWFs that any impact would be of local spatial extent, short term duration, and not significant. This is considered to be equally applicable to the Proposed Development, for which activities will be of a reduced scale. Therefore, assuming that construction best practice is followed as outlined in the OCEMP (included within the DCO as document reference 7.9, with the final offshore CEMP to be produced post consent by the contractor), it is considered that any impacts would be negligible during all phases of the Proposed Development, and it is considered that there would be no LSE on the site's conservation objectives. Note implementation of pollution prevention measures is considered standard practice, and is not considered mitigation for the purposes of HRA (c.f. case law section of this report).	

Table notes: *Cross reference **Table 5.1** for sites screened in.

5.4 LSE Conclusion

5.4.1 In total, nine SACs and one coincident SPA were screened in for Stage 2 Appropriate Assessment. All of the SACs were screened in due to potential LSE of underwater noise and vibration on the designated features indicated in **Table 5.4**. One SAC was also screened in for potential LSE due to collision risk. The SPA site was screened in for potential LSE due to disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning (**Table 5.4**).

Table 5.4 European and Ramsar Sites and features screened into Stage 2 Appropriate Assessment.

Site name	Qualifying features screened into AA	Impact Pathway
Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396)	[1351] Harbour porpoise *Phocoena phocoena*	Collision Risk
Lundy SAC (UK0013114)	[1364] Grey seal *Halichoerus grypus*	Underwater noise and vibration
Isles of Scilly Complex SAC (UK0013694)		
Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116)	[1103] Twaite shad *Alosa fallax* [1102] Allis shad *Alosa alosa* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatalis*	
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC (UK0020020)		
Severn Estuary / Môr Hafren SAC (UK0013030)	[1103] Twaite shad *Alosa fallax* [1095] Sea lamprey *Petromyzon marinus* [1099] River lamprey *Lampetra fluviatilis*	
Cardigan Bay / Bae Ceridigion SAC (UK0012712)	[1349] Bottlenose dolphin *Tursiops truncates* [1364] Grey seal *Halichoerus grypus*	
Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC (UK0013117)		
Mers Celtiques Talus du golfe de Gascogne SAC (France) (FR5302015)	[137117] Harbour porpoise *Phocoena phocoena* [137111] Bottlenose dolphin *Tursiops truncates*	

Site name	Qualifying features screened into AA	Impact Pathway
Mers Celtiques - Talus du golfe de Gascogne SPA (France) (FR5212016)	[A200] Razorbill *Alca torda* (concentration) [A010] Cory's shearwater *Calonectris diomedea* (concentration) [A175] Great skua *Stercorarius skua* (concentration) [A204] Puffin *Fratercula arctica* (concentration) [A009] Fulmar *Fulmarus glacialis* (concentration) [A002] Black-throated diver *Gavia arctica* (concentration) [A014] Storm petrel *Hydrobates pelagicus* (concentration) [A184] Herring gull *Larus argentatus* (concentration) [A182] Common gull *Larus canus* (concentration) [A183] Lesser black-backed gull *Larus fuscus* (concentration) [A187] Great black-backed gull *Larus marinus* (concentration) [A176] Mediterranean gull *Ichthyaetus melanocephalus* (concentration) [A177] Little gull *Hydrocoloeus minutus* (concentration) [A179] Black-headed gull *Chroicocephalus ridibundus* (concentration) [A178] Sabine's gull *Xema sabini* [A065] Common scoter *Melanitta nigra* [A016] Gannet *Morus bassanus* [A015] Leach's storm petrel *Hydrobates leucorhoa* [A017] Cormorant *Phalacrocorax carbo* (concentration) [A171] Grey phalarope Phalaropus fulicarius (concentration) [A011] Great shearwater *Ardenna gravis* (concentration) [A012] Sooty shearwater *Ardenna griseus* (concentration) [A013] Manx shearwater *Puffinus puffinus* (concentration) [A384] Balearic shearwater *Puffinus mauretanicus* (concentration) [A188] Kittiwake *Rissa tridactyla* (concentration) [A173] Arctic skua *Stercorarius parasiticus* (concentration) [A172] Pomarine skua *Stercorarius pomarinus* (concentration) [A193] Common tern *Sterna hirundo* (concentration) [A194] Arctic tern *Sterna paradisaea* (concentration) [A191] Sandwich tern *Thalasseus sandvicensis* (concentration) [A199] Guillemot *Uria aalge* (concentration)	Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning

6 INFORMATION TO SUPPORT APPROPRIATE ASSESSMENT (STAGE 2 ASSESSMENT)

6.1.1 An Appropriate Assessment (AA) of the implications of any development must be made by the relevant competent authority if a project is likely to have a significant effect on the conservation objectives of a European or Ramsar Site.

6.1.2 The HRA Screening has identified potential for LSE on a number of European and Ramsar Sites (**Section 5.4** above). As such, those sites are taken through to Stage 2 of the assessment. Information to support this Stage 2 assessment is provided in this section.

6.1.3 The AA (i.e. Stage 2) entails the consideration of impacts on the integrity of a European Site, in relation to the site's structure and function and considers if the Proposed Development could have an Adverse Effect on Site Integrity (AEoI).

6.1.4 The information presented in **Table 6.1** provides the competent authority with additional details to support the AA. **Table 6.1** confirms the sites screened in, together with the qualifying features and the pressures that were identified as potentially resulting in LSE. The nature of each relevant effect is then described (e.g. in terms of scale, duration, frequency, etc) drawing on the relevant project information.

6.1.5 The assessment of adverse effect on integrity considers the implementation of embedded mitigation measures as identified in the ES (Commitments Register in Volume 1, Appendix 3.1 of the ES).

Table 6.1 Information to support Appropriate Assessment

Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC – 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Harbour porpoise *Phocoena phocoena* The Conservation Objectives for this SAC (c.f. **10**) are, to ensure the integrity of the site is maintained, and that it makes the best possible contribution to maintain the Favourable Conservation Status (FCS) for harbour porpoise in UK (JNCC, Natural England and NRW, 2019). These can be achieved by ensuring that: • Harbour porpoise is a viable component of the site; • There is no significant disturbance of the species; and • The condition of supporting habitats and processes, and the availability of prey is maintained. The Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC supports an estimated 4.7% of the Celtic and Irish Sea (CIS) Management Unit of the harbour porpoise population (JNCC, 2023). It is recognised as an important site for the species particularly during winter when high porpoise densities persistently occur throughout the site. Within the SAC, there is an estimated harbour porpoise density of 0.58 animals/km² (Oakley *et al*., 2016).	Yes	Installation works, cable burial and associated vessel activities could disturb harbour porpoise due to underwater noise and vibration. The Offshore Cable Corridor overlaps directly with this SAC; therefore, there is potential for LSE. Harbour porpoises have a high frequency generalised hearing range (275 Hz–160 kHz) with a peak in hearing sensitivity between 100 and 125 kHz (Morell et al.,2021). The main energy of continuous noise from proposed activities including dredging, drilling, trenching, site clearance and rock placement is largely below 1 kHz (MMO, 2015). Noise from large vessels is typically up to 10 kHz and small vessels are typically up to 40 kHz (Duarte *et al*., 2021). All these frequencies overlap with the hearing frequencies of harbour porpoise but are lower than the species' peak hearing sensitivity. **PTS and TTS** A workshop conducted amongst experts in 2018, concluded that the likelihood of PTS significantly impacting the survival and reproduction of harbour porpoises was very low (Booth and Heins, 2018). While this likelihood is low, PTS is a permanent change, therefore harbour porpoise is considered to have no recoverability and overall be of medium sensitivity. Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). TTS is a temporary change in the hearing sensitivity of an individual to a specific frequency range. TTS is therefore not regarded as injury given its temporary nature and an individual's ability to recover from the impact (i.e. hearing returns to 'normal' over time). TTS thresholds are not intended to indicate a level of impact but are used to enable the prediction of where PTS might occur; therefore, they should not be used for the basis of any assessment of impact significance. Furthermore, there are no thresholds to determine a biologically significant effect from TTS and disturbance from sources of underwater noise is included as part of the qualitative assessment (which will occur over greater distances as compared to TTS). Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). A project-specific Underwater Noise Assessment has been undertaken, which is presented as Volume 3, Appendix 4.1: Underwater Noise Assessment to the ES. The proposed development activities are of a non-impulsive nature (continuous). All continuous noise sources assessed are estimated to be below the SEL_{24hrs} onset thresholds of PTS and TTS in harbour porpoises. The modelling approach assumed a lower worst-case swimming speed of 1.5 m/s for all marine mammal species, which is regarded precautionary. Continuous noise from proposed activities is likely to be similar to the ambient noise levels experienced throughout the Celtic Sea, on account e.g. of background shipping. Considering the highly mobile nature and typical aversion behaviour to vessels of harbour porpoise (Brand *et al.*, 2018) and also that the proposed development installation work will avoid winter months when the site is particularly important for harbour porpoises, it is highly unlikely that PTS or TTS onset will occur in harbour porpoises within the SAC as a result of the Proposed Development throughout all project phases. **Disturbance** Dredging activities (note, traditional 'dredging' is not proposed as part of the Proposed Development) have been shown to cause harbour porpoise displacement within a radius of 5 km around the dredging location (Verboom, 2014). Diederichs *et al.* (2010) noted there was short term avoidance (about 3 hours) at distances of up to 600 m from a trailing suction hopper dredger, but no significant long-term impacts. Modelling potential impacts of dredging of a port expansion predicted a disturbance range of 400 m, with a more conservative approach predicted avoidance of harbour porpoise up to 5 km (McQueen *et al*., 2020).

Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC – 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			A monitoring study in North West Ireland investigating the effects of construction-related activity, including but not limited to remotely operated vehicle (ROV) surveys, dredging, back filling, rock trenching, rock placement, rock breaking, pipe laying and umbilical laying. A reduction in occurrence of harbour porpoise as a result of these construction-related activities in the area (Culloch *et al*., 2016) was identified during the construction of a gas pipeline. Modelling conducted as part of the Greenlink Interconnector project for disturbance from cable laying installation (i.e. this project is a good proxy for the Proposed Development), concluded that all marine mammals are vulnerable to disturbance, but the impact zone is in general small (130 m from activities; Greenlink, 2019). Previous studies evidence some changes in porpoise behaviour and presence as a result of vessel noise (Benhemma-Le Gall *et al.,* 2021; Benhemma-Le Gall *et al.*, 2023; Brandt *et al.*, 2018; Wisniewska *et al.*, 2018). Behavioural responses include increased fluking, interrupted foraging, change to vocalisations, prolonged dives and directed movement away from the sound source (Oakley *et al.*, 2017; Wisniewska *et al*., 2018). Relatively short-term and localised disturbance of continuous noise is however estimated to be unlikely to significantly impact harbour porpoises. Based on a behavioural disturbance threshold of 120 dB SPL_{rms} for non-impulsive noise (NMFS, 2023), cable burial by water jetting is estimated to result in the largest impact range of behavioural disturbance in harbour porpoises, which is 73.6 km. It should be noted that the behavioural disturbance threshold of 120 dB SPL_{rms}, is highly precautionary and that it does not necessarily represent the onset of an adverse behavioural response. It is likely that the onset of any adverse behavioural responses will take place at a significantly smaller range from the source, and only for species which are more sensitive to the continuous noise of primarily low frequency energy. The continuous noise is also likely to be of similar levels as ambient noise nearby. A study by Merchant *et al.* (2016) measured underwater ambient noise levels in different locations in UK waters ranging from 80 to 120 dB re 1µPa. When considering the Effective Deterrence Range (EDR) of 5 km (JNCC, 2020) as the precautionary ZoI for the Proposed Development (which is consistent with that applied in the ES (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES)), the area of disturbance as a result of the Proposed Development is considered to be small given the anticipated local spatial range of impact. The impact would also be expected to be temporary with noise generating activities transient along the 270 km OCC. A review of potential effects of various cable types and installation methods used in the offshore wind farm industry, including burial ploughs, tracked burial machines, ROVs and sleds and the burial methods themselves including jetting, rock ripping, and trenching, concluded that it would be "highly unlikely that cable installation would produce noise at a level that would cause a behavioural reaction in marine mammals" (BEER and DEFRA, 2008). In addition, the proposed development installation work will avoid winter months when the site is particularly important for harbour porpoises. Therefore, harbour porpoises are considered to be at low risk of any adverse behavioural disturbance throughout all project phases. **Conclusion** Based on the assessment above (including the Proposed Development's site specific underwater noise modelling; presented as Volume 3, Appendix 4.1 Underwater Noise Technical Assessment of the ES), underwater noise and vibration from the Proposed Development is considered unlikely to alter population

Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC – 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			trajectory of harbour porpoises, or significantly disturb the species, its habitat or prey species within the SAC throughout all project phases. It therefore is not likely to result in any adverse effect on site integrity (AEoI) of the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC.
Collision Risk	Harbour porpoise *Phocoena phocoena* The Conservation Objectives for this SAC (**10**) are, to ensure the integrity of the site is maintained, and that it makes the best possible contribution to maintain the Favourable Conservation Status (FCS) for harbour porpoise in UK (JNCC, Natural England and NRW, 2019). These can be achieved by ensuring that: • Harbour porpoise is a viable component of the site; • There is no significant disturbance of the species; and • The condition of supporting habitats and processes, and the availability of prey is maintained. The Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC supports an estimated 4.7% of the Celtic and Irish Sea (CIS) Management Unit of the harbour porpoise population (JNCC, 2023). It is recognised as an important site for the species particularly during winter when high porpoise densities persistently occur throughout the site. Within the SAC, there is an estimated harbour porpoise density of 0.58 animals/km² (Oakley *et al*., 2016).	Yes	The proposed activities could increase the risk of collision between marine mammals and vessels due to an increase in number of vessels present in the SAC; therefore, there is potential for LSE. The risk of and outcome (e.g. injury or mortality) of collision between marine mammals and vessels is directly influenced by the type of vessel and the speed at which it is travelling (Laist et al., 2001), and indirectly by ambient noise levels underwater and the behaviour the marine mammal is engaged in. Vessels travelling at higher speeds (14 knots) pose a higher risk. Smaller vessels (such as guard vessels) are also able to avoid marine mammals (when detected) due to better manoeuvrability compared to larger vessels (Schoeman et al,2020). Similar vessels during construction and decommissioning will have low to moderate working speeds, hence a reduced risk of collision. Studies from the UK suggest that incidents of mortality or injury of harbour porpoise caused by vessels remain a very rare occurrence, although numerous instances are expected to remain unreported (Thompson *et al*., 2013; Deaville *et al*., 2018). Of 537 post-mortem examinations on stranded harbour porpoises in the UK between 2011 and 2017, 10 deaths (1.9%) were attributed to probable effect of a vessel collision (Deaville *et al*., 2018). A further 33 harbour porpoises died from physical trauma of unknown origin, which may be the result of vessel strike but could also be undiagnosed bycatch or caused by bottlenose dolphin attacks (Deaville *et al*., 2018). The majority of vessels used during the construction phase are likely to be large vessels that will either be travelling considerably slower than 7 m/s or will be stationary for significant periods of time. Therefore, the actual increase in vessel traffic moving within the Proposed Development and to/from port will occur over short periods of the offshore construction activity. Smaller vessels involved in construction activities (i.e. guard vessels) are able to move to avoid marine mammals (when detected by visual sighting), even when an animal is close and the vessel is going at high speed, due to better manoeuvrability compared to larger vessels (Schoeman et al., 2020). Throughout the construction of the Proposed Development, the implementation of a Vessel Management Plan (VMP) will ensure that vessel traffic moves along predictable routes and will define how vessels should behave in the presence of marine mammals and sea turtles. This is known to be a key aspect in minimising the potential risks imposed by vessel traffic (Nowacek et al., 2001; Lusseau 2003; 2006). Given the slow speeds, predictable movement of the vessels and the implementation of a VMP, harbour porpoises are considered to be at low risk of collision with vessels. **Conclusion** Based on the assessment above, collision risk from the Proposed Development is considered unlikely to alter population trajectory of harbour porpoises, or significantly disturb the species, its habitat or prey species within the SAC throughout all project phases. It therefore is not likely to result in any AEoI of the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC.

Lundy SAC – 3.5 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Grey seal *Halichoerus grypus* The Conservation Objectives for this SAC (**10**) are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features (Natural England, 2018a), by maintaining or restoring: • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats; • The structure and function of the habitats of qualifying species; • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • The populations of qualifying species; and • The distribution of qualifying species within the site. Grey seal within this SAC has been monitored annually since 2011 (Lundy Field Society, 2022). The SAC is estimated to support a breeding colony of about 70 grey seals (JNCC, 2015a).	Yes	Installation works, cable burial and associated vessel activities could disturb grey seals due to underwater noise and vibration. During key life-history events (e.g. moulting, breeding and pupping), grey seals typically remain within 20 km of their chosen haul-out (Carter *et al.,* 2022). Outside of these periods, telemetry studies have shown the majority of foraging trips fall within 100 km of a haul-out site (Carter, *et al.,* 2022; SCOS, 2023). Although it is unlikely that noise from the Proposed Development could disturb grey seals within Lundy SAC, the animals could be disturbed while foraging outside the SAC, therefore LSE has been screened in. Grey seals have a broad hearing range of 50 Hz – 86 kHz with peak in hearing sensitivity between 1.9 and 30 kHz (Southall *et al.*, 2019). The main energy of continuous noise from proposed activities including 'dredging' (local seabed preparations), drilling from HDD, trenching, site clearance and rock placement is largely below 1 kHz (MMO, 2005). Noise from large vessels is typically up to 10 kHz and small vessels are typically up to 40 kHz (Duarte *et al*., 2021). All noise frequencies from cable activities are below the species' peak hearing sensitivity, while only the low frequency components of vessel noise overlap with seals' peak hearing range. **PTS and TTS** At an expert workshop held in 2018, it was determined that there was a very low likelihood of PTS having a significant impact on the survival and reproduction of grey seal (Booth and Heinis, 2018). PTS is however, a permanent impact, therefore, grey seal is considered to have no recoverability and to be of low sensitivity. Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). TTS is a temporary change in the hearing sensitivity of an individual to a specific frequency range. TTS is therefore not regarded as injury given its temporary nature and an individual's ability to recover from the impact (i.e. hearing returns to 'normal' over time). TTS thresholds are not intended to indicate a level of impact but are used to enable the prediction of where PTS might occur; therefore, they should not be used for the basis of any assessment of impact significance. Furthermore, there are no thresholds to determine a biologically significant effect from TTS, and therefore assessment of potential TTS impact is included as part of the qualitative disturbance assessment (which will occur over greater distances when compared to TTS). Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). A project specific Underwater Noise Assessment has been undertaken, which is presented as Volume 3, Appendix 4.1: Underwater Noise Assessment to the ES. All continuous noise sources assessed are estimated to be below the SEL_{24hrs} onset threshold of PTS in grey seals. Cable burial by water jetting is estimated to reach the SEL_{24hrs} onset threshold of TTS at maximum distance of 0.16 km, meaning it does not reach to the Lundy SAC which is 3.5 km from the Proposed Development. The modelling approach assumed a lower worst-case swimming speed of 1.5 m/s for all marine mammal species, which is regarded precautionary. Continuous noise from proposed activities is also likely to be similar to the ambient noise levels. With also considering the highly mobile nature of grey seals, it is highly unlikely that PTS or TTS onset will impact grey seal within Lundy SAC or its foraging range of 100 km (Carter *et al.*, 2022) as a result of the Proposed Development throughout all project phases. **Disturbance** There is limited information on the response of grey seal to underwater noise. The most common response suggested a change in behaviour from foraging to horizontal movement, although various other responses

Lundy SAC – 3.5 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			were recorded including, altered surfacing and diving behaviour, changes in swim direction, and no response (Aarts *et al.*, 2018). Data from this study also showed that seals returned to the area on subsequent trips, despite receiving multiple exposures. An acoustic modelling study on the effects of dredging sound on aquatic life, reported that, for pinnipeds displacement could be caused to individuals up to ranges between 400 m and 5 km from site (as reflected, in part by the variation in frequency and sound pressure depending on the equipment modelled; McQueen *et al*., 2020). However, grey seals were considered to have reasonable ability to compensate for missed foraging opportunities due to disturbance from underwater noise given their generalist diet, adequate fat stores, adaptable foraging strategies, and mobility, during an expert elicitation workshop in 2018 (Booth *et al.,* 2019). They can adjust their metabolic rate and foraging strategies and can compensate for lost opportunities due to their generalist diet, mobility, and adequate fat stores (Smout *et al.,* 2014; Stansbury *et al*., 2015). They are also able to tolerate periods of fasting as part of their life history because of their large body size and thick layer of blubber (i.e. more energy reserve; Pomeroy *et al.,* 1999). Therefore, grey seals are considered to be of high adaptability to, reasonable to high tolerance to, have high recoverability from disturbance impact arising from underwater noise and vibration. Based on a behavioural disturbance threshold of 120 dB SPL_{rms} for non-impulsive noise (NMFS, 2023), cable burial by water jetting is estimated to result in the largest impact range of behavioural disturbance in harbour porpoises, which is 73.6 km. While for vessel noise from tug and cable laying vessels, behavioural responses in grey seals are estimated to occur as far as at 3 km and 34.2 km respectively from the noise sources. It should be noted that the behavioural disturbance threshold of 120 dB SPL_{rms}, is highly precautionary and that it does not necessarily represent the onset of an adverse behavioural response. It is likely that the onset of any adverse behavioural responses will take place at a significantly smaller range from the source, and only for species which are more sensitive to the continuous noise of primarily low frequency energy. The continuous noise is also likely to be of similar levels as ambient noise nearby. A study by Merchant *et al.* (2016) measured underwater ambient noise levels in different locations in UK waters ranging from 80 to 120 dB re 1µPa. When considering the Effective Deterrence Range (EDR) of 5 km (JNCC, 2020) as the precautionary ZoI for the Proposed Development (which is consistent with that applied in the ES (Volume 3, Chapter 4:Marine Mammals and Sea Turtles of the ES)), the area of disturbance as a result of the Proposed Development is considered to be small given the anticipated local spatial range of impact. The impact would also be expected to be temporary. A review of potential effects of various cable types and installation methods used in the offshore wind farm industry, including burial ploughs, tracked burial machines, ROVs and sleds and the burial methods themselves including jetting, rock ripping, and dredging, concluded that it would be "highly unlikely that cable installation would produce noise at a level that would cause a behavioural reaction in marine mammals" (BEER and DEFRA, 2008). Therefore, grey seals are considered to be at low risk of any adverse behavioural disturbance throughout all project phases. **Conclusion** Based on the assessment above, underwater noise and vibration from the Proposed Development is considered unlikely to alter the distribution, function or population structure of grey seals, or the extent or distribution of habitat grey seals rely on within the SAC throughout all project phases. It therefore is not likely to result in any AEoI of the Lundy SAC.

Isles of Scilly Complex SAC – 32 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Grey seal *Halichoerus grypus* The Conservation Objectives for this SAC (**10**) are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features (Natural England, 2018b), by maintaining or restoring: • The extent and distribution of qualifying natural habitats and habitats of qualifying species; • The structure and function (including typical species) of qualifying natural habitats; • The structure and function of the habitats of qualifying species; • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • The populations of qualifying species; and • The distribution of qualifying species within the site. The SAC is estimated to support a breeding colony of about 272 grey seals (JNCC, 2015b). Leeney *et al.* (2012) identified that about 80% of the hauled-out seals along the Cornish coast were recorded along the Isles of Scilly in 2012.	Yes	Consideration is given to the assessment for Lundy SAC, which is designated for the same qualifying feature and is located nearer to the proposed development. As Lundy SAC assessment concluded no AEoI on grey seals for all screened in impacts, given the greater distance to the site and the consequently reduced likelihood of impacts to individuals associated with the SAC and scale of effect on the population of the SAC, it is considered that the potential for AEoI is the same or reduced for this site. Therefore, it is concluded that there is no AEoI from any impacts on grey seals for this site.

Pembrokeshire Marine/ Sir Benfro Forol SAC – 48 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Grey seal *Halichoerus grypus* The Conservation Objectives for grey seals for this SAC (**10**) are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features (NRW, 2018a), by ensuring the following:	Yes	Consideration is given to the assessment for Lundy SAC, which is designated for the same qualifying feature and is located nearer to the proposed development. As Lundy SAC assessment concluded no AEoI on grey seals for all screened in impacts, given the greater distance to the site and the consequently reduced likelihood of impacts to individuals associated with the SAC and scale of effect on the population of the SAC, it is considered that the potential for AEoI is the same or reduced for this site. Therefore, it is concluded that there is no AEoI from any impacts on grey seals for this site.

Pembrokeshire Marine/ Sir Benfro Forol SAC – 48 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
	• The population is maintaining itself on a long-term basis as a viable component of its natural habitat; • The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future; • The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. The Pembrokeshire Marine SAC contains the largest breeding colony of grey seals south of the Solway Firth. It is estimated that grey seal pup production in the SAC makes up over 2% of the total annual UK pup production (JNCC, 2024).		
Underwater noise and vibration	Twaite shad *Alosa fallax* Allis shad *Alosa alosa* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatalis*	Yes	Although it is unlikely that noise from the Proposed Development could disturb migratory fish features within Pembrokeshire Marine SAC, the features could be disturbed during migration outside the SAC. Installation works, cable burial and associated vessel activities could result in mortality, recoverable injury, temporary threshold shift (TTS) or behavioural responses. Sea Lamprey and River Lamprey are considered to have low hearing sensitivity. They have no swim bladder or gas chamber and are therefore not highly susceptible to barotrauma and disturbance from underwater noise and vibration. Conversely, Twaite shad and allis shad have a swim bladder that connects to the inner ear, and they are able to detect sounds at frequencies >3,000Hz (Teague & Clough 2011). As such, shad are considered more sensitive to under water noise and may be subject to injurious and behavioural effects. Modelled noise sources used to inform the project indicate that the largest extent of recoverable injury effects will be < 40 m from source, with the largest extent for TTS being <215 m, as presented in the Proposed Development Underwater Noise modelling assessment (Volume 3, Appendix 4.1 Underwater Noise Technical Assessment of the ES). However, these effects will only take place if the fish receptor is within the predicted impact ranges for a 48-hour period, and a 12-hour period respectively. It is unlikely that a fish would remain in the vicinity of the noise emitting activities for extended periods, given: a) fish will be able to move away and avoid the noise source and behavioural responses are expected to be spatially negligible and unlikely to hinder their larger migration, and b) noise generating activities are generally related to transient construction type activities e.g. trenching which will progress at an average of 150 m/hr. It is concluded that there will be no AEoI from any underwater noise and vibration impacts on fish for this site.

Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC – 42 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Twaite shad *Alosa fallax* Allis shad *Alosa alosa* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatalis*	Yes	Although it is unlikely that noise from the Proposed Development could disturb migratory fish features within Carmarthen Bay and Estuaries SAC, the features could be disturbed during migration outside the SAC. Installation works, cable burial and associated vessel activities could result in mortality, recoverable injury, temporary threshold shift (TTS) or behavioural responses. Sea Lamprey and River Lamprey are considered to have low hearing sensitivity. They have no swim bladder or gas chamber and are therefore not highly susceptible to barotrauma and disturbance from underwater noise and vibration. Conversely, Twaite shad and allis shad have a swim bladder that connects to the inner ear, and they are able to detect sounds at frequencies >3,000Hz (Teague & Clough 2011). As such, shad are considered more sensitive to under water noise and may be subject to injurious and behavioural effects. Modelled noise sources used to inform the project indicate that the largest extent of recoverable injury effects will be < 40 m from source, with the largest extent for TTS being <215 m, as presented in the Proposed Development Underwater Noise modelling assessment (Volume 3, Appendix 4.1 Underwater Noise Technical Assessment of the ES). However, these effects will only take place if the fish receptor is within the predicted impact ranges for a 48-hour period, and a 12-hour period respectively. It is unlikely that a fish would remain in the vicinity of the noise emitting activities for extended periods, given a) fish will be able to move away and avoid the noise source and behavioural responses are expected to be spatially negligible and unlikely to hinder their larger migration, and b) noise generating activities are generally related to transient construction type activities e.g. trenching which will progress at an average of 150 m/hr. It is concluded that there will be no AEoI from any underwater noise and vibration impacts on fish for this site.

Severn Estuary / Môr Hafren SAC – 78.5 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Twaite shad *Alosa fallax* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis*	Yes	Although it is unlikely that noise from the Proposed Development could disturb migratory fish features within Severn Estuary SAC, the features could be disturbed during migration outside the SAC. Installation works, cable burial and associated vessel activities could result in mortality, recoverable injury, temporary threshold shift (TTS) or behavioural responses. Sea Lamprey and River Lamprey are considered to have low hearing sensitivity. They have no swim bladder or gas chamber and are therefore not highly susceptible to barotrauma and disturbance to from underwater noise and vibration. Conversely, Twaite shad have a swim bladder that connects to the inner ear, and they are able to detect sounds at frequencies >3,000Hz (Teague & Clough 2011). As such, shad are considered more sensitive to under water noise and may be subject to injurious and behavioural effects Modelled noise sources used to inform the project indicate that the largest extent of recoverable injury effects will be < 40 m from source, with the largest extent for TTS being <215 m, as presented in the Proposed Development Underwater Noise modelling assessment (Volume 3, Appendix 4.1 Underwater Noise Technical Assessment of the ES). However, these effects will only take place if the fish receptor is within the predicted impact ranges for a 48-hour period, and a 12-hour period respectively. It is unlikely that

Severn Estuary / Môr Hafren SAC – 78.5 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			a fish would remain in the vicinity of the proposed noise emitting activities for extended periods, given a) fish will be able to move away and avoid the source of noise as required and behavioural responses are expected to be spatially negligible, and b) noise generating activities are generally related to transient construction type activities e.g. trenching which will progress at an average of 150 m/hr. It is concluded that there will be no AEoI from any underwater noise and vibration impacts on fish for this site.

Cardigan Bay / Bae Ceridigion SAC– 108 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Bottlenose dolphin *Tursiops truncatus* The Conservation Objectives for bottlenose dolphins for this SAC (**10**) are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features (NRW, 2018b), by ensuring the following: • The population is maintaining itself on a long-term basis as a viable component of its natural habitat; • The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future; • The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Bottlenose dolphins in Cardigan Bay occur year-round. Group sizes increase to more than 60 individuals from September – October. The population size is estimated to be relatively small, at between 100 and 300 individuals (NRW, 2018). The bottlenose dolphins occurring within the vicinity of the UK component of the project are likely members of the Offshore Channel, Celtic Sea & South West England Management Unit (IAMMWG, 2023). This population is	Yes	Installation works and cable burial could disturb bottlenose dolphins due to underwater noise and vibration. Bottlenose dolphin is classed as a cetacean with a High Frequency hearing range (Southall *et al*., 2019). **PTS and TTS** At a workshop of experts held in 2018, it was determined that there remain uncertainties in the ecological consequences of PTS for bottlenose dolphin, but that the probability of PTS having a significant impact on their survival and reproduction would be very low, assuming an impact of 6 dB in the 2-10 kHz range (Booth and Heins, 2018). Nevertheless, as PTS is a permanent effect, the bottlenose dolphin is considered to have no recoverability and low sensitivity. TTS is a temporary change in the hearing sensitivity of an individual to a specific frequency range. TTS is therefore not regarded as injury given its temporary nature and an individual's ability to recover from the impact (i.e. hearing returns to 'normal' over time). TTS thresholds are not intended to indicate a level of impact but are used to enable the prediction of where PTS might occur; therefore, they should not be used for the basis of any assessment of impact significance. Furthermore, there are no thresholds to determine a biologically significant effect from TTS and disturbance from sources of underwater noise is included as part of the qualitative assessment (which will occur over greater distances as compared to TTS). Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). A project specific Underwater Noise Assessment has been undertaken, which is presented as Volume 3, Appendix 4.1: Underwater Noise Assessment to the ES. The proposed development activities are of a non-impulsive nature (continuous). All continuous noise sources assessed are estimated to be below the SEL_{24hrs} onset thresholds of PTS and TTS in bottlenose dolphins. The modelling approach assumed a lower worst-case swimming speed of 1.5 m/s for all marine mammal species, which is regarded as precautionary. Continuous noise from proposed activities is likely to be similar to ambient noise levels. The Proposed Development is a significant distance from the SAC, at 108 km, meaning that disturbance to bottlenose dolphins in the SAC is extremely unlikely. In addition, the bottlenose dolphin receptor is highly mobile and adaptable, therefore the likelihood that PTS or TTS onset will occur in bottlenose dolphins within the SAC as a result of the Proposed Development is low. **Disturbance**

Cardigan Bay / Bae Ceridigion SAC– 108 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
	estimated to be comprised of 3,573 individuals (IAMMWG, 2023).		A review of potential effects of various cable types and installation methods used in the offshore wind farm industry, including burial ploughs, tracked burial machines, ROVs and sleds and the burial methods themselves including jetting, rock ripping, and dredging, concluded that it would be "highly unlikely that cable installation would produce noise at a level that would cause a behavioural reaction in marine mammals" (BEER and DEFRA 2008). Bottlenose dolphins are considered to be highly adaptable to a changing environment and therefore the sensitivity of bottlenose dolphins to behavioural disturbance arising from underwater noise and vibration is assessed as low. The activity with the highest sound source is cable burial (water jetting). The distance which disturbance to marine mammals might occur from this type of activity has been calculated as 73.6 km, based on a behavioural disturbance threshold of 120 dB SPLrms for all species (NFMS, 2023). It should be noted that the behavioural disturbance threshold of 120 dB SPLrms, is very precautionary, and does not necessarily represent the onset of an adverse behavioural response. It is likely that the onset of any adverse behavioural responses will take place at a significantly smaller range from the source, and only for certain highly sensitive species. Furthermore, it is important to note that ambient noise levels in the areas where work is proposed could be close to or exceed this value, and hence highlights the very precautionary nature of this criterion. A study by Merchant et al. (2016) measured underwater ambient noise levels in different locations in UK waters ranging from 80 to 120 dB re 1µPa. Furthermore, it assumes that the receptor would remain within this range for a 24-hour period, as the model does not account for movement / fleeing response (in respect of disturbance activity). A study analysing the impacts of dredging on bottlenose dolphins, found that higher intensities of dredging caused bottlenose dolphin to spend less time in the area; however, this effect was only temporary (Pirotta *et al*., 2013). Another study determined that response varied depending on the site, with dolphins either remaining or being absent (Marley *et al*., 2017), which suggests that the response may be context specific (i.e. some sites being ecologically more important than others). When considering the Effective Deterrence Range (EDR) of 5 km (JNCC, 2020) as the precautionary ZoI for the Proposed Development (which is consistent with that applied in the ES (Volume 3, Chapter 4:Marine Mammals and Sea Turtles of the ES), the area of disturbance as a result of the Proposed Development is considered to be small given the anticipated local spatial range of impact. The impact would also be expected to be temporary with noise generating activities transient along the 270 km OCC. Furthermore, the bottlenose dolphin receptor is highly mobile and has a large distribution range within the Offshore Channel MU and Celtic Sea and South West England MU. Therefore, bottlenose dolphins are considered to be at low risk of any adverse behavioural disturbance. Similar to the construction phase, elevations in underwater noise as a result of cable removal activities have the greatest potential for generating underwater noise and having an impact on bottlenose dolphins. As cable removal is a similar process to the construction phase activities relating to cable laying, the magnitude of impact is expected to be similar (worst-case) to those assessed in the construction phase. <u>Conclusion</u> Based on the assessment above, underwater noise and vibration from the Proposed Development is considered unlikely to impact the long-term viability of the bottlenose dolphin population, reduce its natural range or affects its habitats. It is therefore considered that underwater noise and vibration from the Proposed Development will have no AEoI of the Cardigan Bay SAC.

Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC– 144 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Bottlenose dolphin *Tursiops truncatus* The Conservation Objectives for bottlenose dolphins for this SAC (**10**) are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features (NRW, 2018c), by ensuring the following: • The population is maintaining itself on a long-term basis as a viable component of its natural habitat; • The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future; • The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. This SAC is generally considered as a super-site with the Cardigan Bay SAC, due to the high degree of connectivity between the two SACs. As the two SACs are not considered to contain discrete populations of bottlenose dolphins, abundance estimates at Cardigan Bay are used as a proxy for abundance in the Lleyn Peninsula and the Sarnau SAC (NRW, 2018d).	Yes	Consideration is given to the assessment for Cardigan Bay / Bae Ceridigion SAC, which is designated for the same qualifying feature and is located nearer to the proposed development. As the Cardigan Bay / Bae Ceridigion SAC assessment concluded no AEoI on bottlenose dolphins for all screened in impacts, given the greater distance to the site and the consequently reduced likelihood of impacts to individuals associated with the SAC and scale of effect on the population of the SAC, it is considered that the potential for AEoI is the same or reduced for this site. Therefore, it is concluded that there is no AEoI from any impacts on bottlenose dolphins for this site.

Mers Celtiques Talus du golfe de Gascogne SAC (France)– 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Underwater noise and vibration	Harbour porpoise *Phocoena phocoena* Bottlenose dolphin *Tursiops truncatus* In the absence of Conservation Objectives for harbour porpoises and bottlenose dolphins, the vision for the populations is for them to be in a favourable conservation status, where all of the following conditions are satisfied: • Population dynamics data on the species indicate that they are maintaining themselves on a long-term basis as a viable component of their natural habitats; • The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and • There is, and will probably continue to be, a sufficiently large habitat to maintain the species population on a long-term basis.	Yes	Installation works and cable burial could disturb harbour porpoise and bottlenose dolphin due to underwater noise and vibration. The UK Offshore Cable Corridor is directly adjacent to this SAC (the proposed works in French waters will pass through this SAC). Harbour porpoises have a high frequency generalised hearing range (275 Hz–160 kHz) with a peak in hearing sensitivity between 100 and 125 kHz (Morell *et al*.,2021). Bottlenose dolphin hearing range is 150-160 Hz (Southall *et al*., 2019) The main energy of continuous noise from proposed activities including dredging, drilling, trenching, site clearance and rock placement is largely below 1 kHz (MMO, 2005). Noise from large vessels is typically up to 10 kHz and small vessels are typically up to 40 kHz (Duarte *et al*., 2021). All these frequencies overlap with the hearing frequencies of harbour porpoise but are lower than the species' peak hearing sensitivity, and overlap with the hearing **PTS and TTS** At a workshop of experts held in 2018, it was determined that there remain uncertainties in the ecological consequences of PTS for bottlenose dolphin, but that the probability of PTS having a significant impact on their survival and reproduction would be very low, assuming an impact of 6 dB in the 2-10 kHz range (Booth and Heins, 2018). Nevertheless, as PTS is a permanent effect, the bottlenose dolphin is considered to have no recoverability and low sensitivity. The same expert workshop concluded that the likelihood of PTS significantly impacting the survival and reproduction of harbour porpoises was very low (Booth and Heins, 2018). Although the likelihood is very low, PTS is a permanent change and harbour porpoises are therefore considered to have no recoverability and be of medium sensitivity. Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). TTS is a temporary change in the hearing sensitivity of an individual to a specific frequency range. TTS is therefore not regarded as injury given its temporary nature and an individual's ability to recover from the impact (i.e. hearing returns to 'normal' over time). TTS thresholds are not intended to indicate a level of impact but are used to enable the prediction of where PTS might occur; therefore, they should not be used for the basis of any assessment of impact significance. Furthermore, there are no thresholds to determine a biologically significant effect from TTS and disturbance from sources of underwater noise is included as part of the qualitative assessment (which will occur over greater distances as compared to TTS). Further details are provided in the Proposed Development's Environmental Statement (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES). A project specific Underwater Noise Assessment has been undertaken, which is presented as Volume 3, Appendix 4.1: Underwater Noise Assessment to the ES. The proposed development activities are of a non-impulsive nature (continuous). All continuous noise sources assessed are estimated to be below the SEL_{24hrs} onset thresholds of PTS and TTS in harbour porpoises and bottlenose dolphins. The modelling approach assumed a lower worst-case swimming speed of 1.5 m/s for all marine mammal species, which is regarded precautionary. Continuous noise from proposed activities is likely to be similar to the ambient noise levels, on account of e.g. cross channel shipping. With also considering the highly mobile nature of both receptors and typical aversion behaviour to vessels of harbour porpoise (Brand *et al.*, 2018), it is highly unlikely that PTS or TTS onset will occur in harbour porpoises or bottlenose dolphins within the SAC as a result of the Proposed Development throughout all project phases. **Disturbance** A review of potential effects of various cable types and installation methods used in the offshore wind farm industry, including burial ploughs, tracked burial machines, ROVs and sleds and the burial methods

Mers Celtiques Talus du golfe de Gascogne SAC (France)– 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			themselves including jetting, rock ripping, and dredging, concluded that it would be "highly unlikely that cable installation would produce noise at a level that would cause a behavioural reaction in marine mammals" (BEER and DEFRA 2008). Harbour porpoises and bottlenose dolphins are considered to be highly adaptable to a changing environment and therefore the sensitivity of harbour porpoise and bottlenose dolphins to behavioural disturbance arising from underwater noise and vibration is assessed as medium and low, respectively. Dredging activities have been shown to cause harbour porpoise displacement within a radius of 5 km around the dredging location (Verboom, 2014). Diederichs *et al.* (2010) noted there was short term avoidance (about 3 hours) at distances of up to 600 m from a trailing suction hopper dredger, but no significant long-term impacts. Modelling potential impacts of dredging of a port expansion predicted a disturbance range of 400 m, with a more conservative approach predicted avoidance of harbour porpoise up to 5 km (McQueen *et al*., 2020). A study analysing the impacts of dredging on bottlenose dolphins, found that higher intensities of dredging caused bottlenose dolphin to spend less time in the area; however, this effect was only temporary (Pirotta *et al*., 2013). Another study determined that response varied depending on the site, with dolphins either remaining or being absent (Marley *et al*., 2017), which suggests that the response may be context specific (i.e. some sites being ecologically more important than others). A monitoring study in Northwest Ireland investigating the effects of construction-related activity, including but not limited to remotely operated vehicle (ROV) surveys, dredging, back filling, rock trenching, rock placement, rock breaking, pipe laying and umbilical laying. A reduction in occurrence of harbour porpoise as a result of these construction-related activities in the area (Culloch *et al*., 2016) was identified during the construction of a gas pipeline. Modelling conducted as part of the Greenlink Interconnector project for disturbance from cable laying installation (i.e. this project is a good proxy for the Proposed Development), concluded that all marine mammals are vulnerable to disturbance, but the impact zone is in general small (130 m from activities; Greenlink, 2019). The activity with the highest sound source is cable burial (water jetting). The distance which disturbance to marine mammals might occur from this type of activity has been calculated as 73.6 km, based on a behavioural disturbance threshold of 120 dB SPL_{rms} for all species (NFMS, 2023). It should be noted that the behavioural disturbance threshold of 120 dB SPL_{rms}, is very precautionary, and does not necessarily represent the onset of an adverse behavioural response. It is likely that the onset of any adverse behavioural responses will take place at a significantly smaller range from the source, and only for certain highly sensitive species. Furthermore, it is important to note that ambient noise levels in the areas where work is proposed could be close to or exceed this value, and hence highlights the very precautionary nature of this criterion. Several studies have reported underwater ambient noise levels ranging from 80 to 126 dB re 1µPa (i.e. Merchant *et al.* (2016) and Maglio *et al.* (2015). Furthermore, it assumes that the receptor would remain within this range for a 24-hour period, as the model does not account for movement / fleeing response (in respect of disturbance activities). When considering the Effective Deterrence Range (EDR) of 5 km (JNCC, 2020) as the precautionary ZoI for the Proposed Development (which is consistent with that applied in the ES (Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES), the area of disturbance as a result of the Proposed Development is considered to be small given the anticipated local spatial range of impact. The impact would also be expected to be temporary. Furthermore, the harbour porpoise is highly mobile and has a large distribution range within the Celtic and Irish Seas Management Unit. Similarly, the bottlenose dolphin is highly mobile and widely distributed throughout the Offshore Channel MU and Celtic Sea and South West England MU. Therefore, harbour porpoises and bottlenose dolphins are considered to be at low risk of any adverse behavioural disturbance.

Mers Celtiques Talus du golfe de Gascogne SAC (France)– 0 km from the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
			Similar to the construction phase, elevations in underwater noise as a result of cable removal activities have the greatest potential for generating underwater noise and having an impact on harbour porpoises and bottlenose dolphins. As cable removal is a similar process to the construction phase activities relating to cable laying, the magnitude of impact is expected to be similar (worst-case) to those assessed in the construction phase. <u>Conclusion</u> It is recognised that a separate HRA will be undertaken for the Xlinks Morocco-UK Power Project activities within the French jurisdiction, which by definition (of direct geographical overlap) will have a greater potential for LSE on the Mers Celtiques Talus du golfe de Gascogne SAC designations compared to the UK activities assessed within this RIAA. However, based on the assessment above, underwater noise and vibration from the Proposed Development is considered unlikely to impact the long-term viability of the harbour porpoise and bottlenose dolphin populations, reduce its natural range or affects its habitats. It is therefore considered that underwater noise and vibration from the Proposed Development will have no Adverse Effect on Site Integrity (AEoI) of the Mers Celtiques Talus du golfe de Gascogne SAC.

Mers Celtiques Talus du golfe de Gascogne SPA (France)– immediately adjacent to the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
Disturbance and displacement arising from vessel movements during construction, operational phase repair activities and decommissioning	Razorbill *Alca torda* (concentration) Cory's shearwater *Calonectris diomedea* (concentration) Great skua *Stercorarius skua* (concentration) Puffin *Fratercula arctica* (concentration) Fulmar *Fulmarus glacialis* (concentration) Black-throated diver *Gavia arctica* (concentration) Storm petrel *Hydrobates pelagicus* (concentration) Herring gull *Larus argentatus* (concentration) Common gull *Larus canus* (concentration) Lesser black-backed gull *Larus fuscus* (concentration) Great black-backed gull *Larus marinus* (concentration) Mediterranean gull *Ichthyaetus melanocephalus* (concentration) Little gull *Hydrocoloeus minutus* (concentration) Black-headed gull *Chroicocephalus ridibundus* (concentration) Sabine's gull *Xema sabini* Common scoter *Melanitta nigra*	Yes	The designated site is immediately adjacent to the offshore cable corridor, and therefore there is the potential for disturbance / displacement of qualifying species within the area of the SPA which falls within 2 km of the offshore cable corridor (the ZoI). The SPA is a large area of marine habitat which is designated as it is used by large numbers of foraging birds from several species. There is the potential for visual and noise disturbance arising from vessel movements during the construction, operational phase repair activities and decommissioning phases. The ZoI is highly precautionary and is based on professional judgment regarding disturbance distances for species and displacement observed at Offshore Wind Farms (OWFs). However, the area of the SPA which falls within 2 km of the offshore cable corridor is extremely small in the context of the overall size of the SPA, which is 58,995 km^2, and therefore there is only the potential for effects within <0.01% of the SPA. In addition, there is abundant alternative foraging habitat within the SPA if birds are disturbed / displaced within 2 km of the offshore cable corridor. Vessels would only be present within 2 km of the SPA for a very short time (any vessel disturbance would be highly intermittent and transient – trenching operations as an example are anticipated to progress at c.150 m/hr), and impacts arising from noise and visual disturbance would be short-term and reversible. Based on an anticipated progress of c.150 m/hr, there is only the potential for visual and noise disturbance for <1 day. In addition, disturbance from vessels is common within the Celtic Sea, and therefore species will be habituated to this source of disturbance, which will be similar to the baseline conditions within the wider area. For this reason, it is concluded that there will be No Adverse Effect on Site Integrity (No AEoI) during construction, operational phase repair activities or decommissioning.

Mers Celtiques Talus du golfe de Gascogne SPA (France)– immediately adjacent to the Proposed Development			
Pressure	**Qualifying features (including sub-features and supporting habitats**	**Taking account of any mitigation measures where necessary, can you conclude no adverse effect of site integrity?**	**Justification**
	Gannet *Morus bassanus* Leach's storm petrel *Hydrobates leucorhoa* Cormorant *Phalacrocorax carbo* (concentration) Grey phalarope *Phalaropus fulicarius* (concentration) Great shearwater Ardenna *gravis* (concentration) Sooty shearwater *Ardennagriseus* (concentration) Manx shearwater Puffinus puffinus (concentration) Balearic shearwater *Puffinus mauretanicus* (concentration) Kittiwake *Rissa tridactyla* (concentration) Arctic skua *Stercorarius parasiticus* (concentration) Pomarine skua *Stercorarius pomarinus* (concentration) Common tern *Sterna hirundo* (concentration) Arctic tern *Sterna paradisaea* (concentration) Sandwich tern *Thalasseus sandvicensis* (concentration) Guillemot *Uria aalge* (concentration)		It is recognised that a separate HRA will be undertaken for the Xlinks Morocco-UK Power Project activities within the French jurisdiction (outside of the scope of this UK application), which by definition of direct geographical overlap will have a greater potential for LSE on the Mers Celtiques Talus du golfe de Gascogne SPA compared to the UK activities assessed within this HRA.

7 IN-COMBINATION ASSESSMENT

7.1 Overview and Methodology

7.1.1 In-combination effects are effects on a single receptor due to the Proposed Development combined with the likely effects arising from other plans/projects. This includes plans/projects that were not present at the time of data collection or survey and, as such, are not considered as part of the baseline for the topic being assessed. This section provides details of the in-combination assessment for the HRA.

7.1.2 The ZoI for the HRA in-combination assessment aims to identify all other projects and plans with potential to have in-combination effects on European Site integrity. The approach adopted in this RIAA to identifying other projects and the potential for in-combination effects is staged as follows:

- **Stage A** – Undertake an *initial* review of other plans and projects within the ZoI of the Proposed Development i.e. adopting a plans/projects search area of up to 30 km from the OCC boundary. This ensures an initial review of projects consistent with the EIA CEA.
    - Consideration of any potential for in-combination pressures to arise from these plans/projects (in combination with the Proposed Development), on all designated features of those European Sites screened into HRA Stage 2.
- **Stage B** – This stage is specifically to consider plans/projects beyond the ZoI of the Proposed Development. A pragmatic review of the potential for the Proposed Development to have in-combination effects with other plans / projects in terms of potential for AEoI will be undertaken.
    - This considers plans/projects of a scale sufficient to have a ZoI which could affect relevant Designated Sites considered in this RIAA.
    - This stage also considers the magnitude of effect and potential for AEoI for each impact pathway associated with the Proposed Development.
    - Based on the considerations above, combined with professional judgement, other plans/projects could be included in the in-combination assessment at Stage B.

7.2 Stage A – Initial identification of other plans/projects

7.2.1 The ZoI for the Proposed Development (in isolation) i.e. 30 km beyond the OCC, was identified based on the largest individual direct ecological ZoI which was for fish and shellfish (this is a precautionary ZoI which encompasses the ZoI for both underwater noise and suspended sediments pathway effects). This ZoI is consistent with the CEA undertaken for EIA studies.

7.2.2 All projects and plans identified at Stage A have been allocated into 'tiers' reflecting their current stage within the planning and development process (as

advocated under the Planning Act, 2008 and for consistency with the Proposed Development's EIA).

- Tier 1
- Under construction
- Permitted application
- Submitted application
- Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact
- Tier 2
- Scoping report has been submitted
- Tier 3
- Scoping report has not been submitted
- Identified in the relevant Development Plan
- Identified in other plans and programmes.

7.2.3 The other Stage A developments were identified through a desktop review of the following online resources:

- Marine Management Organisation (MMO) marine licence public register;
- GOV.UK 'Explore Marine Plans';
- The Planning Inspectorate National Infrastructure Planning Portal; and
- The Crown Estate Floating Offshore Wind Leasing Round 5.

7.2.4 Due to the nature of offshore works, all offshore projects and plans identified within the Stage A ZoI which involve proposed construction of new works have been included in the long list. Marine licence applications for minor marine activities (such as sampling or the maintenance of existing structures or assets) were reviewed and have been excluded as they are not likely to result in any potential for significant in-combination effects.

7.2.5 Eight projects were identified that were within the Stage A ZoI (30 km) of the Proposed Development (**Table 7.1**).

Table 7.1 Projects or plans identified for in-combination assessment (at Stage A)

Other Projects for Consideration	Distance from Proposed Development	Summary of Works	Status	Overlap with the Proposed Development?
Tier 1				
Celtic Interconnector	0 km (crosses offshore cable corridor)	700 MW high-voltage direct current submarine power cable under construction between the southern coast of Ireland and the north-west coast of France. The UK elements of the Celtic Interconnector comprise: • A submarine cable within the UK EEZ approximately 211 km in length placed on or beneath the seabed. It passes approximately 30 km west of the Isles of Scilly and approximately 75 km west of Land's End, but does not enter UK Territorial Waters. • Secondary rock protection using rock placement (if required), where target depth of cable lowering is not fully achieved or at cable crossings, with a linear extent of between 0 km and 80 km or 0 to 270 tonnes. • A fibre optic link will be laid along the cable route for operational control, communication and telemetry purposes. It is programmed that installation phase of the offshore route will commence in 2024, for it to become fully operational by 2027.	Permitted	Celtic Interconnector is a planned crossing.
White Cross Offshore Windfarm	7.8 km (with the Offshore Cable Corridor overlapping / directly adjacent to the White Cross Cable Corridor)	Proposed offshore windfarm located in the Celtic Sea with a capacity of up to 100MW. The Windfarm Site is located over 52 km off the North Cornwall and North Devon coast (west north west of Hartland Point), in a water depth of 60 m – 80 m. The Windfarm Site covers 50 km^2. The current wind turbine design envelope for the project is a WTG capacity of 12-24 MW, 6-8 three bladed horizontal axis turbines with a rotor diameter of 220-300 m. The White Cross export cable shares a broadly similar route corridor to the proposed Offshore Cable Corridor. Construction is anticipated to commence in mid 2024 with the site anticipated to be operational by 2026.	Permitted	No overlap with construction (based on latest White Cross indicative dates), however there will be operational overlap (temporal) with the Proposed Development. Note a portion of the OCC shares a similar route to the White Cross export cable.
Aqua Botanika - nearshore	27.4 km	Kelp farm with buoys anchored to the seabed or to blocks in roughly 50 m frequencies, with the main ropes connecting the	Pending	No overlap with construction, however there will be

Other Projects for Consideration	Distance from Proposed Development	Summary of Works	Status	Overlap with the Proposed Development?
seaweed cultivation of native species		buoys in each direction creating a grid. Growing ropes will be connected to main ropes to run parallel at 10 m centres. Proposal is for multiple bays which equate to an area of 100 hectares. Aim to install the seeded lines, seabed anchors, buoys etc during the autumn of 2024 in order to grow the first crop during the winter and harvest in spring 2025.		operational overlap (temporal) with the Proposed Development.
The TwinHub Floating Offshore Wind Demonstration Project	29.5 km	The TwinHub project consists of two semisubmersible platforms with two turbines each to generate up to 32MW power from renewable floating offshore wind energy. The Site already consists of existing cables and onshore infrastructure which was originally granted consent in 2007. No further work to existing infrastructure is anticipated. Assembly is planned to be completed and both platforms will be sequentially floated to site to the anchors and mooring lines during Q4 2024. Commissioning will take place during Q1 2025 with a commercial operation date in Q2 2025.	Under construction	No overlap with Proposed Development construction phase. Operational overlap (temporal).
New dwelling and flood defence wall flanking River Torridge	4.5	It is proposed to construct a new four bedroom, three-storey residential dwelling with ground floor parking, driveway, and landscaped border. As part of the proposed development, it is proposed to modify and extend the existing flood defence wall which runs for a 40 metre (m) length along the eastern site boundary. These works are required to provide necessary flood protection to the proposed dwelling. The works are proposed to take place from August 2024 - March 2025.	Under construction	No overlap with Proposed Development construction phase. Operational overlap (temporal).
Shellfish cultivation pilot at seaweed farm	1	Algapelago Marine Limited intend to trial a shellfish cultivation pilot to establish the commercial feasibility of shellfish cultivation at their existing site in Bideford Bay. The shellfish pilot study will last four years, to enable species to reach full market size. Two species are in scope for the cultivation pilot trials: i) blue mussel - spat sourced from natural settlement and ii) king scallop - spat sourced from Scallop Ranch Ltd. The pilot trial is anticipated to run from August 2024 - August 2028.	Permitted	No overlap with construction, however there will be operational overlap with the Proposed Development.

Other Projects for Consideration	Distance from Proposed Development	Summary of Works	Status	Overlap with the Proposed Development?
		Infrastructure: algapelago intend to install 4 x 200 m submerged longlines for the propagation of shellfish. All infrastructure will be deployed within algapelago's existing licenced area.		
Tier 2				
None identified				
Tier 3				
The Crown Estate's Celtic Sea Floating Offshore Wind Leasing Round 5 - Project Development Area 2 (PDA2)	20.1 km	Project Development Area (PDA) 2 sits within Welsh and English Governance and is one of three suitable PDAs identified within the Celtic Sea for floating offshore wind development, each of which having a potential capacity of up to 1.5 GW. Currently in the early stages of the project, the schedule for PDA 2 is unknown, however, pre-consent metocean surveys are planned for early 2024 and geotechnical investigations are planned for summer 2024.	Future planned development	As the schedule for PDA2 is currently unknown, there is the potential for overlap with both the construction and operational phases of the Proposed Development.
The Crown Estate's Celtic Sea Floating Offshore Wind Leasing Round 5 - Project Development Area 3 (PDA3)	0 km (partially intercepts with Offshore Cable Corridor)	Project Development Area (PDA) 3 sits within English Governance and is one of three suitable PDAs identified within the Celtic Sea for floating offshore wind development, each of which having a potential capacity of up to 1.5 GW. Currently in the early stages of the project, the schedule for PDA 3 is unknown, however, pre-consent metocean surveys are planned for early 2024 and geotechnical investigations are planned for summer 2024.	Future planned development	As the schedule for PDA 3 is currently unknown, there is the potential for overlap with both the construction and operational phases of the Proposed Development. The latest indicative landfall assessment report suggests a Devon landfall which would require crossing of the Proposed Development.

7.3 Stage B – Identification of further plans/projects

7.3.1 All Protected Sites that passed through to HRA Stage 2 (as listed in **Table 5.4**) were reviewed as part of these Stage B considerations.

7.3.2 **Fish & Shellfish (Stage B project identification):** Some Protected Sites beyond the Stage A ZoI (and outside of the immediate EIA Fish Study Area) were screened into Stage 2 Appropriate Assessment on account of potential connectivity of designated fish features i.e. migratory species (**Table 5.4**). Stage B in-combination considerations have identified the Hinkley Point C (HPC) project, with a potential for AEoI of the Severn Estuary SAC, noting the ongoing proposals to remove the HPC Acoustic Fish Deterrent (AFD) and the Environment Agency's latest determination that they are unable to conclude that these scheme changes would have no adverse effect on some of the protected species in the Severn Estuary Special Area of Conservation (SAC) (gov.uk 2024).

7.3.3 The HPC project is located approximately 80 km from the Proposed Development and is under construction (the determination above relates to a proposed material change to the granted DCO). The Hinkley Point C project involves the construction of two new nuclear reactors, the first in a new generation of nuclear power stations in Britain. In 2024 the first reactor, pipes cables and equipment are planned to be fitted onsite. In the next few years the second reactor will be built, with the first power generation (forecast) by 2030.

7.3.4 Notable HPC construction and operation activities include:

- an alteration to the alignment of the sea wall to avoid an existing dry dock;
- the erection of additional pipework along the underside of the temporary jetty to enable discharges of water from the site;
- Commissioning phase discharges to the Bristol Channel;
- Cooling water abstraction (operational phase) from the Bristol Channel of 134 m^3/s (with anticipated impingement and entrainment); and
- Operational phase discharges to the Bristol Channel (including Total Residual Oxidants (TROs) and chlorination by-products (CBPs) discharges, and the associated temperature rise).

7.3.5 No other plans/projects were identified at Stage B for Fish and Shellfish.

7.3.6 **Marine Mammals (Stage B project identification)**: Consideration of other projects and plans with respect to marine mammals finds the Stage A ZOI review to be sufficient based on the very limited potential for the Proposed Development to disturb and / or displace marine mammals beyond the Offshore Cable Corridor due to noise, disturbance and collision risk during the installation of the cable. The magnitude of potential effect on marine mammals (or the potential to influence the site integrity of identified Protected Sites) from the Proposed Development alone is not considered sufficient for any in-combination effects to be generated with any projects / plans beyond the Stage A ZoI.

7.3.7 No plans/projects were identified at Stage B for Marine Mammals.

7.3.8 **Offshore Ornithology (Stage B project identification)**: After consultation with Natural England and JNCC, the 30 km ZoI from the Proposed Development was deemed unsuitable for use in the HRA offshore ornithology in-combination assessment.

7.3.9 In their response to the HRA Screening of ornithology considerations, JNCC stated that:

"*An in-combination assessment should consider other plans and projects which may act in-combination upon feature of SPAs. Therefore, a 30 km region around the cable route is not sufficient to capture this. We advise that at the least the same principle of using foraging ranges is applied to screen plans and projects for the in-combination assessment. We therefore do not agree with results of the in-combination LSE screening, and a wider screening distance may mean that other projects and plans should be screened in to the in-combination assessment*".

7.3.10 The Stage B considerations for offshore ornithology are based on the maximum extent of likely effects on ornithology receptors. The Stage B search area has been determined using the same criteria for individual sites during HRA Screening. The likely ZoI of works for offshore ornithology is based on the potential to disturb and / or displace birds present within 2 km of the Offshore Cable Corridor due to noise and visual disturbance during the installation of the cable.

7.3.11 Due to the highly mobile nature of seabird species, there is the potential for breeding seabird species associated with European and Ramsar sites to forage within the ZoI (generally based on their published mean-maximum foraging ranges plus one standard deviation (Woodward *et al*. 2019)). Where there is potential for effects on sites individually, there is the potential for in-combination effects to arise where 'other developments' are within the mean-maximum foraging ranges (plus one standard deviation) of breeding seabird species.

7.3.12 JNCC's comment has been reviewed. Given that no potential for LSE has been identified for European and Ramsar sites that are designated for breeding seabirds in isolation, and no such sites were screened into Stage 2 of the assessment, no in-combination assessment is considered necessary for those Protected sites designated for breeding seabirds.

7.3.13 This HRA identified the potential for LSE on The Mers Celtiques - Talus du golfe de Gascogne SPA. This is a marine site which is designated as it supports populations which forage within the SPA. As this site is not designated as a breeding colony, no functionally linked habitat needs to be considered, and therefore the principle of using foraging ranges when screening projects and plans (including for the in-combination assessment) does not apply in this case.

7.3.14 There is the potential for in-combination effects to occur within 10 km of the SPA due to visual and noise disturbance, based on professional judgement. As stated in **Table 6.1**, the potential for impacts on the site due to the Proposed Development in isolation are negligible based on the extremely short-term, negligible magnitude, and reversible nature of effects within an extremely small area (<0.01%) in relation to the size of the SPA (58,995 km^2). Based on the potential effects in isolation, it has been concluded that there would be no potential for in-combination AEoI on Mers Celtiques Talus du golfe de Gascogne SPA.

7.3.15 Stage B considerations have not identified any other plans/projects with a potential to act in combination in relation to ornithology features or associated Protected Sites.

7.3.16 Therefore, no plans/projects were identified at Stage B for Marine Mammals.

7.4 In-combination assessment of identified projects/plans

7.4.1 A summary of project information gathered on each of the other plans/projects considered in the in-combination assessment is included in **Section 7.2** and **Section 7.3** above.

7.4.2 Initial assessment of the potential for AEoI from the Proposed Development in-combination with the other identified plans/projects is presented in **Table 7.2**.

Table 7.2 In-combination assessment

Other Projects for Consideration	Potential for in-combination AEoI?	Justification
Celtic Interconnector	No	Given the timeline of the Celtic Interconnector project and the nature of the proposed installation works, it is concluded that there is no potential for the works and activities at the Celtic Interconnector site to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
White Cross Offshore Windfarm	Yes	Given the timeline of the White Cross project, it is initially assumed that there would be no potential for the works and activities at the White Cross Offshore Windfarm site to have in-combination effects on European and Ramsar sites. However, given the proximity of the Offshore Cable Corridor with the proposed corridor for the White Cross export cable, there is potential for additive or cumulative effects beyond those associated with the schemes in isolation. A precautionary assessment dictates that further characterisation is explored below.
Aqua Botanika - nearshore seaweed cultivation of native species	No	Given the small scale and nature of the proposed activities, it is concluded that there is no potential for the works and activities to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
The TwinHub Floating Offshore Wind Demonstration Project	No	Given the timeline of the TwinHub project, it is concluded that there is no potential for the works and activities at the TwinHub site to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
New dwelling and flood defence wall flanking River Torridge	No	Given the small scale and nature of the proposed activities, it is concluded that there is no potential for the works and activities to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
Shellfish cultivation pilot at seaweed farm	No	Given the small scale and nature of the proposed activities, it is concluded that there is no potential for the works and activities to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
The Crown Estate's Celtic Sea Floating Offshore Wind Leasing Round 5 – Project	No	Given that PDA 2 is still exploring viable options for potential leasing opportunities with no publicly available plans for development, as well as the assumed nature of the proposed installation works (based on general OWF activities) and the temporary duration, it is concluded that there is no potential for the works and activities at the PDA 2 site to have in-

Other Projects for Consideration	Potential for in-combination AEoI?	Justification
Development Area 2 (PDA2)		combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
The Crown Estate's Celtic Sea Floating Offshore Wind Leasing Round 5 - Project Development Area 3 (PDA3)	No	Given that PDA 3 is still exploring viable options for potential leasing opportunities with no publicly available plans for development, as well as the assumed nature of the proposed installation works (based on general OWF activities) and the temporary duration, it is concluded that there is no potential for the works and activities at the PDA 3 site to have in-combination effects on European and Ramsar sites. Therefore, it is anticipated there is no potential for AEoI.
Hinkley Point C	Yes	Given the close proximity of Hinkley Point C to the Severn Estuary SAC and the current status of that projects assessment of effects on European Sites in isolation, there is a potential for an in-combination LSE on the fish features of the Severn Estuary SAC.

White Cross Offshore Windfarm

7.4.3 Due to the proximity of the proposed corridor for the White Cross Offshore Windfarm export cable to the Bristol Channel and Approaches SAC (0 km), Lundy SAC (4 km) and Carmarthen Bay SAC (39 km) a consideration of potential for effects on European Sites in-combination with the Proposed development is appropriate. The potential environmental impacts as set out in the White Cross OWF Environmental Statement have been reviewed.

7.4.4 Given the timeline of the White Cross Offshore Windfarm, the installation of the Proposed Development is not expected to temporally overlap with the construction of the proposed export cable corridor for White Cross. However, there will be overlap with the two relevant Operational and Maintenance phases. Due to the proximity of the Offshore Cable Corridor with the proposed corridor for the White Cross export cable, there is potential for additive or in-combination effects beyond those associated with the schemes in isolation. There is potential for in-combination impacts from cumulative or additive direct and indirect changes to the seabed due to cable laying activities and cable presence.

7.4.5 Both the Proposed Development and the export cable corridor for White Cross overlap the Bristol Channel and Approaches SAC designated for harbour porpoise. In relation to considerations for Conservation Objective 3 for the site, prey species of harbour porpoise may be affected by the cable laying and change in seabed (e.g. rock placement on previous sand/mud environments). However, these effects are highly localised and represent only a small proportion of the total available habitat for the species within the SAC. Furthermore, harbour porpoise have a large foraging range as they are a highly mobile species and are able to exploit other prey resources nearby. Consequently, any indirect impacts on harbour porpoise due to impacts on their prey species would also be short-term and localised considering the high mobility and/or fecundity of many fish and shellfish species allowing for rapid recovery at a population level.

7.4.6 For underwater noise and vibration and collision risk on marine mammals qualifying features, it is anticipated that all offshore projects will adopt a vessel management plan or adhere to vessel codes of conduct to further reduce potential impacts relating to vessel noise on and vessel collision with marine mammals. When considering noise from the cable installation activities, it is likely to be similar to the ambient noise levels in the Celtic Sea (c.f. Volume 3, Appendix 4.1 Underwater Noise Technical Assessment of the ES), and the associated disturbance impact will be primarily dominated by underwater noise from vessels.

7.4.7 The White Cross Offshore Windfarm Cumulative Effects Assessment (CEA) assessed the potential in-combination impacts on marine mammals as a result of underwater noise from the White Cross OWF proposed piling and other construction activities. The assessment took a precautionary worst-case approach to identifying potential cumulative effects with other projects activities during the operation and maintenance phase of the project. It was concluded that there would be minor to negligible effects from underwater noise and disturbance due to the temporal overlap with the Proposed Development (White Cross 2023).

7.4.8 Furthermore, due to the highly localised nature of any project impacts, the management and mitigation measures proposed by the Proposed Development and also by the other projects, the potential for in-combination effects is minimal and this in-combination impact is not considered further.

7.4.9 As set out in Volume 3, Chapter 2: Fish and Shellfish Ecology of the ES, habitat alteration and long-term habitat loss as a result of the placement of rock protection along cables is not estimated to result in significant impact on any fish or shellfish receptors assessed. Similarly, the White Cross ES Chapter for Fish and Shellfish (White Cross, 2023) identified that any impacts on prey species to be temporary with minimal effects on species abundance. In addition, Volume 3, Chapter 4: Marine Mammals and Sea Turtles of the ES, assessed indirect impacts to harbour porpoises through changes to the seabed; this was assessed as having a negligible adverse significance due to local spatial extent and short term duration.

7.4.10 There is not considered to be potential for the works and activities at the White Cross export cable corridor site and the Proposed Development to have in-combination effects on European and Ramsar Sites.

7.4.11 In conclusion, the in-combination effect is not likely to result in any AEoI of the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC or with other functionally linked sites.

Hinkley Point C

7.4.12 The potential for the Proposed Development to have an in-combination AEoI on the Severn Estuary SAC with HPC is assessed. The Severn Estuary SAC is designated for twaite shad, sea lamprey and river lamprey. It is assumed for the purposes of this RIAA that the current proposed HPC development, which includes removal of the previously intended acoustic fish deterrent (AFD) system, has the potential to have AEoI of the Severn Estuary SAC[4].

7.4.13 Any anticipated noise disturbance from the Proposed Development on migratory fish features associated with the Severn Estuary SAC is anticipated to be minimal given the negligible extent of injurious effects in relation to the mobile nature of these fish features and the short duration of any behavioural effects.

7.4.14 Therefore, there is no potential for the works and activities associated with the Proposed Development to act in-combination with the HPC project. There are no predicted effects with the Proposed Development on the designated fish features of the Severn Estuary SAC, and it is not likely to result in any AEoI (i.e. zero increase in potential AEoI beyond that of HPC in isolation).

7.5 In-Combination Assessment Conclusion

7.5.1 Consideration has been given to the relevant qualifying features and the activities associated with other projects and plans (including White Cross Offshore Windfarm and Hinkley Point C), and it is concluded there is no adverse effect on the integrity (AEoI) alone, or in-combination, on the European and Ramsar Sites listed below:

- Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC – No AEoI identified;
- Lundy SAC – No AEoI identified;

[4] https://www.gov.uk/government/publications/hinkley-point-c-responses-to-hinkley-point-c-company-dco-consultations/environment-agency-response-to-hinkley-point-c-development-consent-order-material-change-consultation

- Isles of Scilly Complex SAC – No AEoI identified;
- Pembrokeshire Marine/ Sir Benfro Forol SAC – No AEoI identified;
- Cardigan Bay / Bae Ceridigion SAC – No AEoI identified;
- Severn Estuary / Môr Hafren SAC – No AEoI identified;
- Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC – No AEoI identified; and
- Mers Celtiques Talus du golfe de Gascogne SAC – No AEoI identified.

8 CONCLUSIONS

8.1.1 The work activities required for the Proposed Development have the potential to interact with protected European and Ramsar Sites. This assessment identified protected sites in the vicinity of the Proposed Development that could potentially be influenced by effects arising from the works.

8.1.2 Consideration was given to the relevant guidance issued by a number of governmental, statutory and industry bodies including, but not limited to, the PINS Advice Note on Habitat Regulations Assessments and MMO guidance on Habitat Regulations Assessments, NPS EN-1 policy on HRA, Natural England's Advice on Operations, and MMO's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features. The following impact pathways were assessed:

- Above water noise;
- Visual disturbance;
- Underwater noise changes and vibration;
- Collision (below water and static or moving objects not naturally found in the marine environment);
- Pollution (from vessels and equipment including Hydrocarbon & Polycyclic Aromatic Hydrocarbon (PAH) contamination);
- Reduction in prey availability (all aspects of works generating underwater noise and vibration);
- Changes in suspended solids (water clarity);
- Smothering and siltation rate changes (light);
- Physical change (to another seabed type);
- Physical change (to another sediment type);
- Abrasion / disturbance of the substrate on the surface of the seabed (only in relation to Conservation Objective 3 for the Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396) (see text in **Section 6.1**));
- Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion (only in relation to Conservation Objective 3 for the Bristol Channel Approaches SAC (see text in **Section 6.1**));
- Habitat structure changes - removal of substratum (extraction) (only in relation to Conservation Objective 3 for the Bristol Channel Approaches SAC (see text in **Section 6.1**)).
- Sediment Heating and EMF; and
- Introduction or spread of invasive non-native species (INNS).

8.1.3 The test for LSE carried out on designated sites concluded that there is potential for LSE for the following sites during the construction, operational and maintenance, and decommissioning phases:

- Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC (UK0030396)

- Lundy SAC (UK0013114)
- Isles of Scilly Complex SAC (UK0013694)
- Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC (UK0020020)
- Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116)
- Severn Estuary / Môr Hafren SAC (UK0013030)
- Cardigan Bay/ Bae Ceridigion SAC (UK0012712)
- Lleyn Peninsula and the Sarnau SAC / Pen Llyn a`r Sarnau (UK0013117)
- Mers Celtiques Talus du golfe de Gascogne SAC (France) (FR5302015)
- Mers Celtiques Talus du golfe de Gascogne SPA (France) (FR5212016)

8.1.4 The sites listed above, apart from Mers Celtiques Talus du golfe de Gascogne SPA, have the potential for LSE due to the potential effects of underwater noise and vibration on designated marine mammal features and / or fish features. The Bristol Channel and Approaches SAC also has the potential for LSE due the potential effects of collision risk on harbour porpoise. There is potential for LSE for Mers Celtiques Talus du golfe de Gascogne SPA due to the potential effects on birds from disturbance and displacement arising from vessel movements. It is recognised that a separate HRA will be undertaken for the Xlinks Morocco-UK Power Project activities within the French jurisdiction, which by definition (of direct geographical overlap) will have a greater potential for LSE on the Mers Celtiques Talus du golfe de Gascogne designations compared to the UK activities assessed within this HRA.

8.1.5 Although the majority of these protected sites are outside the ZoI for direct disturbance from the Proposed Development's proposed activities, potential connectivity between site features and the Proposed Development could not be discounted. The above sites were taken through to Stage 2 Appropriate Assessment to allow further characterisation and discussion within this RIAA.

8.1.6 After taking account of embedded mitigation measures, it was concluded that there would be no adverse effects on integrity to all of the sites taken through for AA. Therefore, no further mitigation measures were proposed other than those already embedded into the Proposed Development (as outlined in Volume 1, Appendix 3.1: Commitments Register of the ES) and the standard practice and measures presented in the OCEMP for the Proposed Development ((an OCEMP is submitted as part of the application for DCO as document reference 7.9, with the final offshore CEMP to be produced by the contractor post consent).

8.1.7 The in-combination assessment identified two potential projects with potential for additive or in-combination effects beyond those associated with individual projects in isolation, i.e. White Cross Offshore Windfarm and Hinkley Point C. After further assessment of the potential for in-combination impacts it was concluded that there would be no potential for in-combination AEoI on any European Sites.

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10 CONSERVATION OBJECTIVES

Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC

Qualifying features:

- S1351 Harbour Porpoise *Phoceona phoceona*

Harbour Porpoise *Phoceona phoceona* were screened in for assessment in this RIAA and are qualifying feature for the site, and are a primary reason for selection of this site (JNCC, Natural England and NRW 2019).

Conservation Objectives for Harbour Porpoise:

To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters.

In the context of natural change, this will be achieved by ensuring that:

- Harbour porpoise is a viable component of the site;
- There is no significant disturbance of the species; and
- The condition of supporting habitats and processes, and the availability of prey is maintained.

Lundy SAC (UK0013114A)

Qualifying features:

- H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks
- H1170. Reefs
- H8330. Submerged or partially submerged sea caves
- S1364. Halichoerus grypus; Grey seal

Grey seal *Halichoerus grypus* were screened in for assessment in this RIAA and are qualifying feature for the site, but not a primary reason for site selection (Natural England 2018a).

The Conservation Objectives for this SAC are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and

- The distribution of qualifying species within the site.

Isles of Scilly Complex SAC (UK0013694A)

Qualifying Features:

- H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks
- H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats
- H1170. Reefs S1364. Halichoerus grypus; Grey seal
- S1441. Rumex rupestris; Shore dock

Grey seal *Halichoerus grypus* were screened in for assessment and are qualifying feature for the site, but not a primary reason for site selection (Natural England 2018b).

The Conservation Objectives for this SAC are, to ensure the integrity of the site is maintained or restored, and that it contributes to achieving the FCS of its qualifying features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116)

Qualifying features:

- 1110 Sandbanks which are slightly covered by seawater all the time
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1150 Coastal lagoons
- 1160 Large shallow inlets and bays
- 1170 Reefs
- 8330 Submerged or partially submerged sea caves
- 1330 Atlantic salt meadows
- 1364 Grey Seal *Halichoeurus grypus*

- 1355 Otter *Lutra lutra*
- 1102 Allis shad *Alosa alosa*
- 1103 Twaite shad *Alosa fallax*
- 1099 River lamprey *Lampetra fluviatilis*
- 1095 Sea lamprey *Petromyzon marinus*
- 1441 Shore dock *Rumex rupestris*

Grey seal *Halichoerus grypus* were screened in for assessment in this RIAA and are qualifying feature for the site (NRW 2018a).

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Objectives are to maintain and restore the following:

- Populations: The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:
    - Population size:
    - Structure, production;
    - Condition of the species within the site.
- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression
- Range: The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. For grey seal:
    - Their range within the SAC and adjacent inter-connected areas is not constrained or hindered;
    - There are appropriate and sufficient food resources within the SAC and beyond;
    - The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing.
- Supporting habitats and species: The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include; distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that;
    - The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term.
    - The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term.
    - Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
    - Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour.

Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC (UK0020020)

Qualifying features:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1160 Large shallow inlets and bays
- 1310 Salicornia and other annuals colonizing mud and sand
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 1103 Twaite shad *Alosa fallax*
- 1095 Sea lamprey *Petromyzon marinus*
- 1099 River lamprey *Lampetra fluviatilis*
- 1102 Allis shad *Alosa alosa*
- 1355 Otter *Lutra lutra*

Twait shad *Allosa fallax*, allis shad *Allosa allosa*, sea lamprey *Petromyzon marinus* and river lamprey *Lampeta fluviatalis* are features of this site that have been screened in for assessment in this RIAA. Twait shad are Annex II species that are a primary reason for site selection, whilst Sea lamprey, allis shad and river lamprey are Annex II species present as a qualifying feature but are not a primary reason for site selection (NRW 2018e).

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Objectives aim to maintain and restore the following:

- The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include;
    - species richness;
    - population structure and dynamics;
    - physiological heath;
    - reproductive capacity;
    - recruitment;
    - mobility;
    - range.
- Populations: The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:
    - population size;

  - structure;
  - production;
  - condition of the species within the site;
- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression.
- Range: The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that:
  - Their range within the SAC and adjacent inter-connected areas is not constrained or hindered.
  - There are appropriate and sufficient food resources within the SAC and beyond.
  - The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing.
- Supporting habitats and species: The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include; distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective, it should be noted that;
  - The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term.
  - The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term.
  - Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
  - Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour.

Severn Estuary / Môr Hafren SAC (UK0013030)

Qualifying features:

- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- 1110 Sandbanks which are slightly covered by sea water all the time
- 1170 Reefs
- 1095 Sea Lamprey *Petromyzon marinus*
- 1099 River lamprey *Lampetra fluviatilis*
- 1103 Twaite shad *Alosa fallax*

Twait shad *Alosa fallax*, sea lamprey *Petromyzon marinus* and river lamprey *Lampeta fluviatalis* are features of this site that have been screened in for assessment in this RIAA and are all Annex II species that are a primary reason for site selection (Natural England 2018f).

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;
    - The extent and distribution of qualifying natural habitats and habitats of qualifying species;
    - The structure and function (including typical species) of qualifying natural habitats;
    - The structure and function of the habitats of qualifying species;
    - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
    - The populations of qualifying species, and,
    - The distribution of qualifying species within the site.

Cardigan Bay / Bae Ceridigion SAC (UK0012712)

Qualifying features:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1170 Reefs
- 8330 Submerged or partially submerged sea caves
- 1349 Bottlenose dolphin *Tursiops truncatus*
- 1095 Sea lamprey *Petromyzon marinus*
- 1099 River lamprey *Lampetra fluviatilis*
- 1364 Grey seal *Halichoerus grypus*

Bottlenose dolphin *Tursiops truncatus* is a feature of this site that has been screened in for assessment in this RIAA and are Annex II species that are a primary reason for site selection (NRW 2018b).

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Objectives aim to maintain and restore the following:

- Populations: The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:
    - Population size:
    - Structure, production;
    - Condition of the species within the site.

- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression
- Range: The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. For grey seal:
    - Their range within the SAC and adjacent inter-connected areas is not constrained or hindered;
    - There are appropriate and sufficient food resources within the SAC and beyond;
    - The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing.
    - Supporting habitats and species: The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include; distribution, extent, structure, function and qualittThe abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term.
    - The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term.
    - Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
    - Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour.

Lleyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC (UK0013117)

Qualifying features:

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1150 Coastal lagoons * Priority feature
- 1160 Large shallow inlets and bays
- 1170 Reefs
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1310 Salicornia and other annuals colonizing mud and sand
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 8330 Submerged or partially submerged sea caves
- 1349 Bottlenose dolphin *Tursiops truncatus*
- 1355 Otter *Lutra lutra*
- 1364 Grey seal *Halichoerus grypus*

Bottlenose dolphin *Tursiops truncatus* is a feature of this site that has been screened in for assessment in this RIAA. Bottlenose dolphin is an Annex II species present as a qualifying feature, but not a primary reason for site selection (NRW 2018c).

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Objectives aim to maintain and restore the following:

- Populations: The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:
    - Population size:
    - Structure, production;
    - Condition of the species within the site.
- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression
- Range: The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. For grey seal:
    - Their range within the SAC and adjacent inter-connected areas is not constrained or hindered;
    - There are appropriate and sufficient food resources within the SAC and beyond;
    - The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing.
    - Supporting habitats and species: The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include; distribution, extent, structure, function and qualittThe abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term.
    - The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term.
    - Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
    - Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour.

Mers Celtiques Talus du golfe de Gascogne SAC (France) (FR5302015)

Qualifying features:

- Bottlenose dolphin *Tursiops truncatus*
- Harbour porpoise *Phocoena phocoena*

Harbour porpoise *Phocoena phocoena* and bottlenose dolphin *Tursiops truncatus* are features of this site that have been screened in for assessment in this RIAA and are Annex II species that are a primary reason for site selection (Natura 2000 2024).

In the absence of Conservation Objectives for harbour porpoises and bottlenose dolphins, the vision for the populations is for them to be in a favourable conservation status, where all of the following conditions are satisfied:

- Population dynamics data on the species indicate that they are maintaining themselves on a long-term basis as a viable component of their natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain the species population on a long-term basis.