codling wind park

Natura Impact Statement (NIS) Addendum

Part 1

Introduction, Screening and SAC/SPA Project Alone Assessment

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ABBREVIATIONS

Abbreviation	Term In Full
AAM	Alternative Alignment For The Purposes Of Modelling
AESI	Adverse Effect On Site Integrity
AFBI	Agri-Food And Biosciences Institute
CO	Conservation Objectives
CWPL	Codling Wind Park Limited
DAHG	Department of Arts, Heritage and the Gaeltacht, now part of the Department of Housing, Local Government and Heritage
DAS	Digital Aerial Survey
DBT	Dibutyl Tin
DECC	Department Of Environment, Climate And Communications
DMAP'S	Designated Maritime Area Plans
DO	Dissolved Oxygen
EDF	Électricité De Franc
EDR	Effective Deterrent Range
EDR	Effective Deterrent Range
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Fields
EU	European Union
FIR	Further Information Request
FOS	Fred. Olsen Seawind
IACS	Inter-Array Cables
IFI	Inland Fisheries Ireland
JNCC	Joint Nature Conservation Committee
JTB	Transition Joint Bays
KM	Kilometer
LS.LSa	Littoral Sand
LSE	Likely Significant Effect.
MAC	Maritime Area Consent
MAP	Maritime Area Planning
MBES	Multibeam Echo Sounder

Abbreviation	Term In Full
MBT	Monobutyltin
MI	Marine Institute
MMMP	Marine Mammal Management Plan
MSL	Mean Sea Level
NE	North East
NEQ	New Explosive Quantity
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
NW	North West
O&M	Operations And Maintenance
OECC	Offshore Export Cable Corridor
OSSS	Offshore Substation Structures
OTI	Onshore Transmission Infrastructure
PAB	Planning Application Boundary
PAH	Polyaromatic Hydrocarbons
PBC	Polychlorinated Biphenyls
PTS	Permanent Threshold Shift
RED	Renewable Energy Directive
SAC	Special Areas of Conservation
SBI	Sub-Bottom Imager
SBP	Sub-Bottom Profiler
SCI	Special Conservation Interests
SE	South East
SFPA	Sea Fisheries Protection Authority
SPA	special Protection Areas
SSC	Suspended Sediment Concentration
SSCO	Site-Specific Conservation Objectives
SSS	Side Scan Sonar
SW	South West
TBT	Tributyl Tin
TTS	Temporary Threshold Shift
UHRS	Ultra High Resolution Seismic
UK	United Kingdom

Abbreviation	Term In Full
USBL	Ultra-Short Baseline
UXO	Unexploded Ordnance
WTGS	Wind Turbine Generators
ZOI	Zone Of Influence
ZSC	Zone Spéciale de Conservation

DEFINITIONS

Glossary	Meaning
the Applicant	The developer, Codling Wind Park Limited (CWPL).
Array Site	The area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the offshore substation structures (OSSs) are proposed.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure and any associated temporary works.
Codling Wind Park Limited (CWPL)	A joint venture between Fred. Olsen Seawind (FOS) and Électricité de France (EDF) Renewables, established to develop the CWP Project.
Dun Laoghaire Harbour	The historic harbour of Dun Laoghaire on the southern shore of Dublin Bay with limits defined as the areas contained within and including the East and West piers of Dún Laoghaire Harbour and within 600 metres of the entrance to that harbour, together with any adjoining land, banks, inlets and havens vested in Dún Laoghaire Harbour Company and the docks, piers, jetties, quays and other works vested in that company.
Environmental Impact Assessment (EIA)	A systematic means of assessing the likely significant effects of a proposed project, undertaken in accordance with the EIA Directive and the relevant Irish legislation.
Environmental Impact Assessment Report (EIAR)	The report prepared by the Applicant to describe the findings of the EIA for the CWP Project.
Export Cables	The cables, both onshore and offshore, that connect the offshore substations with the onshore substation.
High Water Mark (HWM)	The line of high water of ordinary or medium tides of the sea or tidal river or estuary.
Inter-Array Cables (IACS)	The subsea electricity cables between each WTG between and the OSSs.
Landfall	The point at which the offshore export cables are brought onshore and connected to the onshore export cables via the transition joint bays (TJB). For the CWP Project The landfall works include the installation of the offshore export cables within Dublin Bay out to approximately 4 km offshore, where water depths that are too shallow for conventional cable lay vessels to operate.
Maritime Area Consent (MAC)	A Maritime Area Consent (MAC) provides State authorisation for a prospective developer to undertake a maritime usage and occupy a specified part of the maritime area. A MAC is required to be in place before planning consent can be sought.

Glossary	Meaning
Maritime Area Planning (MAP) Act 2021	An Act to regulate the maritime area, to achieve such regulation by means of a National Marine Planning Framework, maritime area consents for the occupation of the maritime area for the purposes of maritime usages that will be undertaken for undefined or relatively long periods of time (including any such usages which also require development permission under the Planning and Development Act 2000) and licences for the occupation of the maritime area for maritime usages that are minor or that will be undertaken for relatively short periods of time
Metocean	Meteorological and oceanographic data (for example metocean data or metocean conditions).
Offshore Development Area	The total footprint of the offshore infrastructure and associated temporary works including the array site and the OECC.
Offshore Export Cables	The cables which transport electricity generated by the wind turbine generators (WTGs) from the offshore substation structures (OSSs) to the TJBs at the landfall.
Offshore Export Cable Corridor (OECC)	The area between the array site and the landfall, within which the offshore export cables will be installed along with cable protection and other temporary infrastructure for construction.
Offshore Infrastructure	The permanent offshore infrastructure, comprising of the WTGs, IACs, OSSs, interconnector cables, offshore export cables and other associated infrastructure such as cable and scour protection.
Offshore Substation Structure (OSS)	A fixed structure located within the array site, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
Onshore Development Area	The entire footprint of the OTI and associated temporary works that will form the onshore boundary for the planning application.
Onshore Transmission Infrastructure (OTI)	The onshore transmission assets comprising the TJBs, onshore export cables and the onshore substation. The EIAR considers both permanent and temporary works associated with the OTI.
Onshore Substation	Site containing electrical equipment to enable connection to the national grid.
Operations And Maintenance (O&M) activities	Activities (e.g., monitoring, inspections, reactive repairs, planned maintenance) undertaken during the O&M phase of the CWP Project.
Phase 1 Project	Under the special transition provisions in the Maritime Area Planning Act 2021, as amended (the MAP Act), the Minister for the Department of Environment, Climate and Communications (DECC) has responsibility for assessing and granting a Maritime Area Consent (MAC) for a first phase of offshore wind projects in Ireland. The Phase 1 Projects include Oriel Wind Park, Arklow Bank II, Dublin Array, North Irish Sea Array, Codling Wind Park and Skerd Rocks. A MAC has since been granted by DECC for each of the Phase 1 Projects.

Glossary	Meaning
Planning Application Boundary	The area subject to the application for development consent, including all permanent and temporary works for the CWP Project.
Revetment	A facing of impact-resistant material applied to a bank or wall in order to absorb the energy of incoming water and protect it from erosion.
Temporary Cofferdam	A barrier to tidal inundation whilst the existing stone covered foreshore is temporarily removed to install the landfall cable ducts.
Transition Joint Bay (TJB)	This is required as part of the OTI and is located at the landfall. It is an underground bay housing a joint which connects the offshore and onshore export cables.
Wind Turbine Generator	All the components of a wind turbine, including the tower, nacelle, and rotor.
Zone Of Influence (ZoI)	Spatial extent of potential impacts resulting from the project.

1 INTRODUCTION

1.1 Purpose of the NIS addendum

1. This Addendum to the Natura Impact Statement (NIS) has been prepared to address the clarifications and further information requested by An Coimisiún Pleanála (and referred to hereafter as the Commission) in a Further Information Request (FIR) issued on 1st August 2025. It provides targeted updates and revisions to the existing NIS, ensuring continued compliance with the relevant legislative and policy framework and reflecting the most up-to-date technical assessments.

2. General updates to the NIS assessment since submission of the original planning application are detailed in **Section 1.2** General updates of this document. These include clarifications relating to the screening decision, updates to the policy and legislative framework, and an audit and correction of proxy Conservation Objectives (COs) to Site-Specific Conservation Objectives (SSCOs).

3. **Section 1.5** Summary of updates to NIS Volumes 1 – 7 of this document presents the specific updates made to the NIS. This section follows the structure of the NIS documentation, replacing individual paragraphs or subsections where necessary, or adding new text where further clarification or information is required. Sub-sections not referenced in this Addendum remain unchanged from the NIS submission. A summary cross-referencing each updated NIS section to the corresponding FIR item is provided in **Table 2.**

4. The overarching objectives of this Addendum are to:

   - Present succinct rationale and clarification for screening decisions;
   - Reflect updates to the policy and legislative framework of relevance, with a focus on COs and their transition to SSCOs, while noting broader strategic considerations such as Directive 2023/2413 (Renewable Energy Directive (RED) III);
   - Audit and update all COs for which a proxy was used in the NIS to SSCOs across all relevant sites.
     - This is provided in **Appendix A SPAs Site Specific Conservation Objectives** (for special protection areas (SPAs)) and **Appendix B SACs Site Specific Conservation Objectives** (for Special Areas of Conservation (SACs)) to this document, presented in tabular form and concluded with statements of compliance and signposts to where each SSCO has been incorporated;
   - Integrate updates from the technical FIR responses, developed in coordination with subject-matter leads, including revisions to assessments where required; and
   - Provide an updated in-combination assessment (formerly **Volume 6** of the NIS) reflecting any relevant changes.

5. Collectively, these updates ensure that the NIS remains accurate, transparent, and aligned with current evidence, assessment methodologies, and conservation objectives.

6. Throughout this NIS Addendum reference made to ‘Volume’ is a reference to the NIS or other application document(s). Reference to ‘Part’ is used as a reference to this **NIS Addendum**.

1.2 General updates

1.2.1 Screening clarification

7. This screening clarification has been prepared in response to the FIR issued by the Commission and

is intended to further support and clarify the Appropriate Assessment screening undertaken for the proposed development. The clarification provides additional detail in relation to the characteristics of the proposed project, the environmental context, and the potential for impact pathways to European sites, having regard to the best available scientific knowledge. On the basis of the information set out herein, and taking account of the specific conservation objectives of the relevant European sites, it is confirmed that the existing conclusions of the original screening assessment remain unchanged. No new SAC's are carried through into the next stage of the assessment. With regards SPAs, a single additional site (Coquet Island SPA) has been screened in to the assessment for roseate tern, and the associated conclusions of no Adverse Effect on Site Integrity (AESI) are presented in **Section 4.43 Coquet Island SPA** (Volume 5) Part 2) of this document.).

8. **Table 1** below provides a succinct rationale and clarification for each screening decision for SACs to ensure transparency and traceability of the assessment process. **Table 1** presents SACs according to receptor, with benthic receptors considered initially, followed by fish receptors and marine mammals, as such sites that are designated for multiple receptors are considered under each receptor. **Table 1** is a summary of the screening position and does not relate directly to the RFI except where specifically noted.

9. The screening of Natura 2000 sites for breeding bird Special Conservation Interests (SCIs) has been updated as part of this addendum and is presented in **Table 6, Section 3.3.1** Sites designated for breeding seabird SCIs (Volume 3) of this document.

10. As can be seen in **Table 1,** there are no European sites that may be affected by the onshore development area designated for Annex II terrestrial mammals.

Table 1 Screening clarification

Site	Summary of screening conclusion	Additional information
Benthic and Intertidal Ecology		
South Dublin Bay SAC	In	Screened in for Benthic and Intertidal as there is direct overlap with the OECC and the SAC. As such there is potential for QIs of this SAC to be present within the zone of influence (ZoI) of these potential effects. **Therefore, the potential for Likely Significant Effect. (LSE) cannot be ruled out.** Screened in for Onshore Terrestrial habitats and Flora QIs as the onshore development area overlaps with the SAC at the proposed landfall location. Although no Annex I QI habitats were recorded within the works area (EIAR **Appendix 21.3**), the loss of habitat within the SAC boundary could result in indirect effects on the SAC. Additionally, the proposed construction works associated with the OTI have the potential to result in the disturbance of INNS within the onshore development area, The introduction or spread of the INNS into the SAC site boundary, particularly within the terrestrial QI habitats could negatively impact the SAC. **Therefore, the potential for LSE cannot be ruled out**.
Rockabill to Dalkey Island SAC	In	Screened in for Benthic and Intertidal QIs as there is direct overlap with the OECC and the SAC. As such there is potential for QIs of this SAC to be present within the ZoI of these potential effects. **Therefore, the potential for LSE cannot be ruled out.**
North Dublin Bay SAC	In	Screened in for Benthic and Intertidal QIs as the SAC lies in close proximity to the OECC and Landfall (1.28 km). Disturbance of the fine sediments in South Dublin Bay have the potential to lead to an increase in Suspended Sediment Concentration (SSC). **Therefore, the potential for LSE cannot be ruled out**.
Wicklow Reef SAC	Out	There is no direct overlap between the QIs of this SAC and the offshore development area. Based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. Updated sediment plume modelling undertaken in response to FIR Item 6i (see **FIR Response Document**) predicts that plumes of suspended sediment generated during dredge disposal and

Site	Summary of screening conclusion	Additional information
		cable installation activities (trenching) will travel in a north-south / slight east direction. Although plumes generated at the array site may travel up to 7 km they will not reach the Wicklow Reef SAC due to their direction of travel – the SAC lies to the south west of the array site. Although the Wicklow Reef SAC lies to the south of the OECC, plumes generated (which may travel up to 6 km) will not reach the Wicklow Reef SAC which is greater than 11 km from the OECC at its closest point. These updates to screening are made in response to FIR Item 8g (see **FIR Response Document**). As such, **there is no potential for the QIs of this SAC to be within the ZoI of these potential effects.** **Therefore, the potential for LSE can be ruled out.**
Murrough Wetlands SAC	Out	This SAC and its QIs lie behind a gravel bar that maintains a physical separation of the wetlands from the marine environment. As such there is no potential for the QIs of this SAC to be within the ZoI of these potential effects. **Therefore, the potential for LSE can be ruled out.**
Baldoyle Bay SAC	Out	There is no direct overlap between the QIs of this SAC and the offshore development area. As such, **there is no potential for the QIs of this SAC to be within the ZoI of these potential effects.** Based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. **Therefore, the potential for LSE can be ruled out.**
Malahide Estuary SAC	Out	There is no direct overlap between the QIs of this SAC and the offshore development area. As such, **there is no potential for the QIs of this SAC to be within the ZoI of these potential**

Site	Summary of screening conclusion	Additional information
		effects. Based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. **Therefore, the potential for LSE can be ruled out.**
Rogerstown Estuary SAC	Out	There is no direct overlap between the QIs of this SAC and the offshore development area. As such, **there is no potential for the QIs of this SAC to be within the ZoI of these potential effects.** Based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. **Therefore, the potential for LSE can be ruled out.**
Lambay Island SAC	Out	There is no direct overlap between the Reef QIs of this SAC and the CWP Project. In addition, based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. As such there is no potential for the QIs of this SAC to be within the ZoI of these potential effects. **Therefore, the potential for LSE can be ruled out.**
Codling Fault Zone SAC	Out	There is no direct overlap between the QIs of this SAC and the offshore development area. As such there is no potential for the QIs of this SAC to be within the ZoI of these potential effects. **Therefore, the potential for LSE can be ruled out.** Based upon the hydrodynamic conditions present in and around the offshore development area, it is concluded that there is no potential for any connectivity with the CWP Project. **Therefore, the potential for LSE can be ruled out.** There is no potential for the QIs of this SAC to be within the ZoI of these potential effects. **Therefore, the potential for LSE can be ruled out.**
Migratory Fish		

Site	Summary of screening conclusion	Additional information
Cardigan Bay SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Slaney River Valley SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Barrow and River Nore SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Lower River Suir SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Blackwater River (Cork / Waterford) SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Boyne and River Blackwater SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Killala Bay / Moy Estuary SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.

Site	Summary of screening conclusion	Additional information
Lough Gill SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Moy SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Castlemaine Harbour SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Lower River Shannon SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Lough Corrib SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Pembrokeshire Marine / Sir Benfro Forol SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.

[1] Note that River Lamprey was not listed for this SAC in **Table 3-8** of **Volume 3** of the **NIS**. This feature was however screened in as it fulfilled the screening criteria at this SAC. River Lamprey was fully assessed in the assessment of this SAC in the NIS, and in associated updates in the NIS Addendum.

Site	Summary of screening conclusion	Additional information
Afon Tywi / River Tywi SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Severn Estuary / Môr Hafren SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Usk / Afon Wysg SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Wye / Afon Gwy SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Afon Teifi / River Teifi SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Dee Estuary / Aber Dyfrdwy SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Afonydd Cleddau / Cleddau Rivers SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Dee and Bala Lake / Afon Dyfrdwy a Llŷn Tegid SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.

Site	Summary of screening conclusion	Additional information
River Derwent and Bassenthwaite Lake SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Solway Firth SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Eden SAC[1]	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Axe SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
River Avon SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Baie du Mont Saint-Michel Zone Spéciale de Conservation (ZSC)	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Estuaire de la Rance ZSC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.

Site	Summary of screening conclusion	Additional information
Baie de Saint-Brieuc – Est ZSC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Tregor Goëlo ZSC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Côte de Granit rose-Sept-Iles ZSC	In	Screened in for Annex II Migratory Fish as there is potential for connectivity with CWP Project activities and a potential route to impact on Annex II diadromous fish species. **Therefore, the potential for LSE cannot be ruled out**.
Owenkillew River SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Lough Melvin SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass

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		directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
River Faughan and Tributaries SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
River Foyle and Tributaries SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
River Roe and Tributaries SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that

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		populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
River Finn SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Leannan River SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities.

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		Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.
Blackwater River (Kerry) SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
West of Ardara/Maas Road SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Unshin River SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into

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		deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Lough Eske and Ardnamona Wood SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Glenamoy Bog Complex SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**

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Connemara Bog Complex SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
The Twelve Bens/Garraun Complex SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Owenduff/Nephin Complex SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass

Site	Summary of screening conclusion	Additional information
		directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Mweelrea/Sheeffry/Erriff Complex SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Newport River SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Maumturk Mountains SAC	Out	SACs on the west / north coast of Ireland, Northern Ireland and the west coast of the UK have been screened out for Atlantic salmon due to a lack of connectivity. Recent published studies found that

Site	Summary of screening conclusion	Additional information
		populations migrate offshore towards oceanographic fronts for feeding, including a westward migration of salmon from Irish southeast coast rivers towards Greenland (Rikardsen et al., 2021). Barry et al. (2020) also found individuals from northeast Irish rivers migrating further north into deeper offshore waters, out of the Irish Sea, through the North Channel. Atlantic salmon from Welsh SACs are also considered to follow prevailing currents north (Cefas, 2021) and are unlikely to pass directly through Irish coastal waters. As such, only those rivers on the east and south coasts of Ireland are considered to have connectivity with the Proposed Activities. **Therefore, for these SACs located on the west / north coast of Ireland, Northern Ireland and the west coast of the UK the potential for LSE can be ruled out.**
Marine Mammals		
Abers - Côte des légendes ZSC [FR5300017] (502.03 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Anse de Vauville ZSC [FR2502019] (603.30 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard ZSC [FR5300012] (626.73 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Baie de Morlaix ZSC [FR5300015] (514.49 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Baie de Saint-Brieuc - Est ZSC [FR5300066] (601.79 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Baie du Mont Saint-Michel ZSC	In	The SAC is located within the same MU as the reference population for harbour porpoise against

Site	Summary of screening conclusion	Additional information
[FR2500077] (649.60 km)		which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Banc et récifs de Surtainville ZSC [FR2502018] (603.70 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Ballysadare Bay SAC [IE000622] (513.09 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Belgica Mound Province SAC (IE002327) (~550 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Blasket Islands SAC [IE002172] (443.45 km)	In	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity). The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Bristol Channel Approaches SAC [UK0030396] (180.55 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Cap d'Erquy-Cap Fréhel ZSC [FR5300011] (601.05 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.

Site	Summary of screening conclusion	Additional information
Cardigan Bay SAC [UK0012712] (99.62 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Carnsore Point SAC (IE002269) (~88 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Chausey ZSC [FR2500079] (626.04 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Chaussée de Sein ZSC [FR5302007] (551.44 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Clew Bay Complex SAC [IE001482] (622.22 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Codling Fault Zone SAC (IE003015) (18.31 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Côte de Granit rose-Sept-Iles ZSC [FR5300009] (510.28 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Côtes de Crozon ZSC [FR5302006] (542.42 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be

Site	Summary of screening conclusion	Additional information
		impacted. Therefore, **the potential for LSE cannot be ruled out**.
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [IE000627] (501.12 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Donegal Bay (Murvagh) SAC [IE000133] (503.74 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Duvillaun Islands SAC [IE000495] (562.88 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Estuaire de la Rance ZSC [FR5300061] (640.27 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Galway Bay Complex SAC [IE000268] (607.51 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Glengarriff Harbour and Woodland SAC [IE000090] (421.11 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Hook Head SAC (IE000764) (~135 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for harbour porpoise against

Site	Summary of screening conclusion	Additional information
		which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Horn Head and Rinclevan SAC [IE000147] (366.64 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Inishbofin and Inishshark SAC [IE000278] (616.18 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Inishkea Islands SAC [IE000507] (555.73 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Inishmore Island SAC (IE000213) (~540 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Kenmare River SAC (IE002158) (~430 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Kilkieran Bay and Islands SAC (IE002111) (~550 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Kilkieran Bay and Islands SAC [IE002111] (585.83 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).

Site	Summary of screening conclusion	Additional information
Killala Bay/Moy Estuary SAC [IE000458] (508.24 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Lambay Island SAC [IE000204] (20.55 km)	In	The zones of effect of these potential impacts fall within the likely foraging range of grey seals using these SACs (100 km). Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts fall within the likely foraging range of harbour seals using these SACs <50 km). Therefore, **the potential for LSE cannot be ruled out**.
Lleyn Peninsula and the Sarnau SAC [UK0013117] (61.45 km)	In	The zones of effect of these potential impacts fall within the likely foraging range of grey seals using these SACs (100 km). Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Lower River Shannon SAC [IE002165] (506.57 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Mers Celtiques - Talus du golfe de Gascogne ZSC [FR5302015] (434.13 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Murlough SAC [UK0016612] (93.60 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Nord Bretagne DH ZSC [FR2502022] (446.79 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
North Anglesey Marine SAC [UK0030398] (37.77 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be

Site	Summary of screening conclusion	Additional information
		impacted. Therefore, **the potential for LSE cannot be ruled out**.
North Channel SAC [UK0030399] (106.88 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Ouessant-Molène ZSC [FR5300018] (502.95 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Pembrokeshire Marine SAC [UK0013116] (117.98 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Porcupine Bank Canyon SAC (IE003001) (~620 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Récifs et Landes de la Hague ZSC [FR2500084] (602.06 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Roaringwater Bay and Islands SAC [IE000101] (324.79 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Rockabill to Dalkey Island SAC	In	The SAC is located within the same MU as the reference population for harbour porpoise against

Site	Summary of screening conclusion	Additional information
[IE003000] (0 km)		which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Rutland Island and Sound SAC [IE002283] (409.39 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Saltee Islands SAC (IE000707) (110 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Slaney River Valley SAC [IE000781] (80.24 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Slieve Tooey/Tormore Island/Loughros Beg Bay SAC [IE000190] (440.13 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Slyne Head Islands SAC [IE000328] (599.52 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The zones of effect of these potential impacts do not fall within the likely foraging range of grey seals using these SACs (100 km;). Therefore, **the potential for LSE on grey seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Slyne Head Peninsula SAC [IE002074] (597.48 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.

Site	Summary of screening conclusion	Additional information
South-West Porcupine Bank SAC (IE002329) (~615 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
St. Johns Point SAC (IE000191)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
Strangford Lough SAC [UK0016618] (117.53 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
Tregor Goëlo ZSC [FR5300010] (533.21 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
West Connacht Coast SAC (IE002998) (~600 km)	In	The SAC is located within the same MU as the reference population for bottlenose dolphins against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**. The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be impacted. Therefore, **the potential for LSE cannot be ruled out**.
West of Ardara/Maas Road SAC [IE000197] (433.73 km)	Out	The zones of effect of these potential impacts do not fall within the likely foraging range of harbour seals using these SACs (50 km). Therefore, **the potential for LSE on harbour seals which use these SACs can be ruled out** (because there is no potential for connectivity).
West Wales Marine SAC [UK0030397] (57.38 km)	In	The SAC is located within the same MU as the reference population for harbour porpoise against which impacts are assessed. There is potential for individuals which use these SACs to be

Site	Summary of screening conclusion	Additional information
		impacted. Therefore, **the potential for LSE cannot be ruled out**.

1.3 Policy and legislative framework

1.3.1 Policy and Legislative Update (December 2024 – January 2026)

11. This section reviews changes to the Irish policy and legislative framework relevant to offshore wind development and environmental assessment since publication of the original Codling Wind Park Natura Impact Statement (September 2024). The review is undertaken in the context of the project's current status as a Marine Development planning application before the Commission (Case Ref. 320768), supported by an EIAR and NIS, and in respect of the project's Maritime Area Consent (MAC No. 2022-MAC-006).

1.3.2 RED III

12. Ireland's evolving offshore wind landscape continues to be shaped by the wider EU policy context, including Directive (EU) 2023/2413 (RED III), which raises the EU-wide renewable energy consumption target to 42.5% by 2030 and aims to accelerate and simplify permitting processes, particularly for repowering projects, with maximum decision timelines of 3, 6 or 12 months depending on project type.

13. However, it is important to note that RED III has not yet been fully transposed into Irish law, meaning its provisions cannot currently be relied upon and should not be inferred as currently applicable in practice. Nonetheless, a brief overview remains useful given the direction of future regulatory expectations. In parallel, Ireland continues advancing its domestic offshore wind framework through instruments such as the Future Framework for Offshore Renewable Energy and associated Designated Maritime Area Plans (DMAPs), which identify multi-gigawatt development zones and articulate long-term ambitions of 20 GW by 2040 and 37 GW by 2050.

14. Combined, these emerging EU and national policy pathways signal the trajectory of the permitting and planning environment, even as Ireland's full legislative alignment with RED III remains pending.

1.3.3 Planning and Development Act 2024

15. Since the submission of the NIS, the Planning and Development Act 2024 has been enacted and is undergoing phased commencement. The Act consolidates Irish planning legislation and introduces procedural reforms affecting applications subject to EIA and Appropriate Assessment, including marine development applications determined by the Commission.

16. For Codling Wind Park, which was lodged on 6 September 2024 and is subject to both EIA and AA, the transition to the new Act does not alter the substantive legal tests applicable under the EIA Directive or Article 6(3) of the Habitats Directive. The project continues to be assessed against the requirements to identify, describe and evaluate potential effects on European sites, applying the precautionary principle. The assessment approach adopted within the NIS therefore remains valid and compliant within the current legislative framework.

1.3.4 Marine Area Planning Act and Maritime Area Consent

17. Codling Wind Park is a Phase One offshore wind project which holds a valid Maritime Area Consent (MAC No. 2022-MAC-006) granted under the Maritime Area Planning Act 2021, with amendments issued in May and August 2024 to extend submission timelines and refine the consent area.

18. The operationalisation of the MAP Act during 2025 clarified the interface between the MAC regime and the planning consent process now before the Commission. These developments do not introduce new environmental assessment requirements but confirm that project-level EIA and AA remain mandatory, notwithstanding the plan-led marine planning framework. The EIAR and NIS were prepared and submitted fully in accordance with this consent architecture and remain aligned with the refined procedural guidance.

1.3.5 National Designated Maritime Area Plan (DMAP) for Offshore Renewable Energy

19. During 2025, the Government progressed proposals for a National Designated Maritime Area Plan (DMAP) for Offshore Renewable Energy, following the approval of the South Coast DMAP in October 2024. The National DMAP establishes a strategic, plan-led framework for identifying suitable maritime areas for offshore renewable development at national scale.

20. Codling Wind Park, as a Phase One project with an existing MAC, sits outside the National DMAP designation process and continues to be assessed on its individual merits. The National DMAP does not remove or diminish the requirement for robust project-level EIA or Appropriate Assessment, nor does it alter the conclusions of the NIS. However, the emergence of the National DMAP reinforces the importance of cumulative and in-combination assessment, particularly in the context of other east coast offshore wind proposals referenced within the Codling documentation.

1.3.6 Future Framework for Offshore Renewable Energy

21. In May 2025, the Future Framework for Offshore Renewable Energy was reviewed and updated. The review reaffirmed national deployment targets and was accompanied by publication of the Offshore Wind Technical Resource Assessment, identifying long-term offshore wind potential around the Irish coast.

22. Codling Wind Park is specifically identified in national policy as a key Phase One project contributing towards Ireland's 2030 offshore wind targets, accounting for over one-quarter of the national grid-connected 2030 target. The Future Framework Review does not introduce any change to EIA or AA requirements applicable to the project but provides updated policy context supporting the strategic importance of the development. The NIS remains consistent with this policy framework.

1.3.7 Offshore Wind Marine Planning Guidelines

23. During 2025, the Department of the Environment, Climate and Communications confirmed that Offshore Wind Energy Marine Planning Guidelines are in preparation under section 7 of the Maritime

Area Planning Act. These guidelines will support consistent decision-making by the Commission for offshore wind applications, including those at the scale of Codling Wind Park.

24. As of January 2026, these guidelines have not been formally published and do not have statutory effect. Accordingly, no changes arise that would necessitate amendment of the Codling NIS methodology or conclusions.

1.3.7 Further Information Request Context

25. In August 2025, the Commission issued a FIR in respect of Codling Wind Park, seeking clarification on a range of issues including habitat impacts, cumulative effects, survey currency, and cross-referencing of revised information across the EIAR and NIS.

26. This Policy and Legislative Update is provided to support that FIR response and confirms that, notwithstanding procedural and policy developments since December 2024, the legal and policy basis underpinning the NIS remains current, appropriate and robust.

1.3.8 Conclusion

27. Since the publication of the NIS in December 2024, there have been no substantive changes to Irish or EU legislation that alter the standards, thresholds or legal tests applicable to Appropriate Assessment or Environmental Impact Assessment for the project. Legislative and policy developments during this period have focused on procedural reform and strategic marine spatial planning. The Codling Wind Park NIS remains aligned with the current policy and legislative context and continues to provide a valid basis for Appropriate Assessment under Article 6(3) of the Habitats Directive.

1.4 Audit and update of Proxy COs to SSCOs

28. The NIS changes being implemented for this FIR acknowledge that some existing phraseology within the document may now be out of date. Notwithstanding this, the underlying assessments are considered to remain relevant and robust. Where updates or clarifications have been required to reflect current requirements or context, these have been captured explicitly within the addendum text provided, ensuring transparency and continuity of assessment.

29. At the time of publishing of the NIS, a number of proxy conservation objectives were used as stand-in, precautionary conservation objectives (COs) for Natura 2000 sites that did not yet have published Site-Specific Conservation Objectives (SSCOs).

30. In order to meet EU requirements, NPWS have been actively updating and implementing SSCOs for Irelands Natura 2000 sites. At the time of providing this addendum, these sites have been updated with published SSCOs. Therefore, the Proxy COs that were previously utilised at the time of publishing the NIS are presented alongside the new SSCOs, where new SSCOs are available. In a number of instances, there is clear overlap, and in these cases the new SSCOs supersede the Proxy COs. Where such alignment does not exist, this has been highlighted, and the reader is signposted to the relevant sections of the addendum where updates or revised wording have been applied. For all sites, if no newly published SSCOs are available, COs utilised within the NIS remain unchanged.

31. The list of updates to the COs are presented in **Appendix A SPAs Site Specific Conservation Objectives**, and, **Appendix B SACs Site Specific Conservation Objectives** which accompany this **NIS Addendum**. These Appendices provide the definitive and up-to-date COs and, where applicable, supersede earlier COs within the Application. It is also considered that unless updated assessments

are provided, that the existing assessments which were undertaken on the best scientific knowledge available at the time remain valid for any updated COs presented herein.

32. Further information pertaining to the specific use of SSCOs and their application in relevant updated SPA assessments are presented in detail in **Section 2** EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES (Volume 5 - Part 1), of this document.

1.5 Summary of updates to NIS Volumes 1 – 7

1.5.1 Signposting to sections of the NIS that have been updated

33. **Table 2** below identifies the sections and volumes of the NIS that have been updated in **NIS Addendum (Parts 1 – 3)** in response to specific FIR items. The updated sections are presented volume by volume below. The section numbering corresponds with the original NIS volumes, sub-sections that have not been updated are not included in this document.

Table 2 Summary of updates to NIS volumes 1-7

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
Part 1 of the NIS Addendum			
1	1 INTRODUCTION / PURPOSE OF THE DOCUMENT	This section remains unchanged.	
	2 DOCUMENT STRUCTURE	This section remains unchanged.	
	3 APPROACH TO SCREENING AND ASSESSMENT OF ADVERSE EFFECTS ON SITE INTEGRITY	This section remains unchanged.	
	4 SUMMARY OF ASSESSMENTS	Section 4.1 remains unchanged	
		Section 4.2 has been updated in response to FIR item 7a.	**Section 4.2** SPA assessment
2	1 INTRODUCTION	This section remains unchanged.	
	2 METHODOLOGY	This section remains unchanged.	
	3 STAKEHOLDER ENGAGEMENT	This section remains unchanged.	
	4 PROJECT DESCRIPTION	This section remains unchanged.	
3	1 INTRODUCTION	This section remains unchanged.	

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
	2 APPROACH TO SCREENING	Section 2.1 has been updated in response to FIR item 8j and 6i	**Section 2.1** Benthic and Intertidal Ecology
		Sectiuon 2.1 and 2.3 remain unchanged	
		Section 2.4 has been updated in response to FIR items 10a, 10t and 6i.	**Section 2.4** Annex II Migratory Fish
	3 DETERMINATION OF THE POTENTIAL FOR LSE FROM THE PROJECT ALONE	Section 3.3 has been updated in response to FIR Items 7e, 7j and 7o.	**Section 3.3** Offshore and Intertidal Ornithology
	4 THE SCREENING PROCESS FOR THE PROJECT IN COMBINATION	This section remains unchanged.	
	5 REFERENCES	This section remains unchanged.	
	6 ANNEX A – SUPPLEMENTAERY ORNITHOLOGICAL INFORMATION	This section remains unchanged.	
4	1 INTRODUCTION	This section remains unchanged.	
	2 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES – PROJECT ALONE	Section 2.1.1.1 has been updated in response to FIR Items 8e, 8k and 8i	**Section 2.1.1.1** Direct temporary impacts on habitats
		Section 2.1.1.1.1 has been updated in response to FIR Item 6i	**Section 2.1.1.1.1** Increased SSC and sediment deposition

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.1.1.1.2 has been updated in response to FIR items 8k and 8i.	**Section 2.1.1.1.2** Remobilisation of contaminated sediments
		Section 2.1.1.1.3 has been updated in response to FIR item 8n.	**Section 2.1.1.1 .3** Presence of EMF / temperature changes
		Section 2.1.2.1.1 has been updated in response to FIR item 6i.	**Section 2.1.2.1.1** Increased SSC and sediment deposition
		Section 2.1.2.1.2 has been updated in response to FIR items 8k and 8i.	**Section 2.1.2.1.2** Remobilisation of contaminated sediments
		Section 2.2.1.1.1 has been updated in response to FIR item 6i.	**Section 2.2.1.1.1** Increased SSC and sediment deposition
		Section 2.2.1.3 has been updated in response to FIR items 8k and 8i.	**Section 2.2.1.3** Remobilisation of contaminated sediments
		Section 2.2.1.4 has been updated in response to FIR item 8n.	**Section 2.2.1.4** Presence of EMF / temperature changes (O&M)
		Section 2.2.2 has been updated in response to FIR Items 10aa and 10bb	**Section 2.2.2** Harbour porpoise [1351]
		Section 2.3.1.1 has been updated in response to FIR item 6i.	**Section 2.3.1.1** Increased SSC and sediment deposition

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.3.1.2 has been updated in response to FIR items 8k and 8i.	**Section 2.3.1.2** Trenching
		Section 2.4.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.4.1** Harbour porpoise
		Section 2.5.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.5.1** Grey seals [1364] and harbour seals [1365]
		Section 2.6.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.6.1** Harbour porpoise
		Section 2.7.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.7.1** Harbour porpoise
		Section 2.8.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.8.1** Harbour porpoise
		Section 2.9.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.9.1** Harbour porpoise
		Section 2.10.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.10.1** Harbour porpoise
		Section 2.10.2 has been updated in response to FIR Items 10aa and 10bb	**Section 2.10.2** Bottlenose dolphin

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.11.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.11.1** Harbour porpoise
		Section 2.12.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.12.1** Bottlenose dolphin
		Section 2.12.2 has been updated in response to FIR Items 10aa and 10bb	**Section 2.12.2** Grey seals
		Section 2.13.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.13.1** Bottlenose dolphin
		Section 2.13.2.1 has been updated in response to FIR Items 11g, 10a and 10t	**Section 2.13.2.1** Increase in underwater noise and vibration
		Section 2.13.2.1.1 has been updated in response to FIR items 10a and 10t.	**Section 2.13.2.1.1** Mortality
		Section 2.13.2.1.2 has been updated in response to FIR items 10a and 10t.	**Section 2.13.2.1.2** Recoverable **injury**
		Section 2.13.2.1.3 has been updated in response to FIR items 10a and 10t.	**Section 2.13.2.1.3** Temporary threshold shift and behavioural responses
		Section 2.13.2.1.4 has been updated in response to FIR items 10a and 10t.	**Section 2.13.2.1.4** Conclusions relating to underwater noise impacts

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.13.2.3 has been updated in response to FIR Item 6i	**Section 2.13.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.14.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.14.1** Harbour porpoise
		Section 2.15.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.15.1** Harbour porpoise
		Section 2.16.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.16.1** Harbour porpoise
		Section 2.17.1 has been updated in response to FIR Items 10aa and 10bb	**Section 2.17.1** Harbour porpoise
		Section 2.18.1.1 has been updated in response to FIR items 10a and 10t.	**Section 2.18.1.1** Increase in underwater noise and vibration
		Section 2.18.1.3 has been updated in response to FIR Item 6i	**Section 2.18.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.18.2.1 has been updated in response to FIR items 11g, 10a and 10t.	**Section 2.18.2.1** Increase in underwater noise and vibration
		Section 2.18.2.1.1 has been updated in response to FIR items 10a and 10t.	**Section 2.18.2.1.1** Mortality

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.18.2.1.2 has been updated in response to FIR items 10a and 10t.	**Section 2.18.2.1.2** Recoverable injury
		Section 2.18.2.1.3 has been updated in response to FIR items 10a and 10t.	**Section 2.18.2.1.3** Temporary threshold shift and behavioural responses
		Section 2.18.2.1.4 has been updated in response to FIR items 10a and 10t.	**Section 2.18.2.1.4** Conclusions relating to underwater noise impacts
		Section 2.18.2.3 has been updated in response to FIR Item 6i	**Section 2.18.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.18.3.1 has been updated in response to FIR items 11g, 10a and 10t.	**Section 2.18.3.1** Increase in underwater noise and vibration
		Section 2.18.3.1.1 has been updated in response to FIR items 10a and 10t.	**Section 2.18.3.1.1** Mortality
		Section 2.18.3.1.2 has been updated in response to FIR items 10a and 10t.	**Section 2.18.3.1.2** Recoverable injury
		Section 2.18.3.1.3 has been updated in response to FIR items 10a and 10t.	**Section 2.18.3.1.3** Temporary threshold shift and behavioural responses
		Section 2.18.3.1.4 has been updated in response to FIR items 10a and 10t.	**Section 2.18.3.1.4** Conclusions relating to underwater noise impacts

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.18.3.3. has been updated in response to FIR Item 6i	**Section 2.18.3.3** Temporary increase in SSC and contaminated sediments
		Section 2.19.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.19.1.1** Increase in underwater noise and vibration
		Section 2.19.1.3 has been updated in response to FIR Item 6i	**Section 2.19.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.19.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.19.2.1** Increase in underwater noise and vibration
		Section 2.19.2.3 has been updated in response to FIR Item 6i	**Section 2.19.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.19.3.1 has been updated in response to FIR Items 10a and 10t	**Section 2.19.3.1** Increase in underwater noise and vibration
		Section 2.19.3.3 has been updated in response to FIR Item 6i	**Section 2.19.3.3** Temporary increase in SSC and contaminated sediments
		Section 2.20.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.20.1.1** Increase in underwater noise and vibration
		Section 2.20.1.3 has been updated in response to FIR Item 6i	**Section 2.20.1.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.20.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.20.2.1** Increase in underwater noise and vibration
		Section 2.20.2.3 has been updated in response to FIR Item 6i	**Section 2.20.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.20.3.1 has been updated in response to FIR Items 10a and 10t	**Section 2.20.3.1** Increase in underwater noise and vibration
		Section 2.20.3.3 has been updated in response to FIR Item 6i	**Section 2.20.3.3** Temporary increase in SSC and contaminated sediments
		Section 2.21.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.21.1** Sea lamprey [1095] and River lamprey [1099]
		Section 2.21.1.3 has been updated in response to FIR Item 6i	**Section 2.21.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.21.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.21.2.1** Increase in underwater noise and vibration
		Section 2.21.2.3 has been updated in response to FIR Item 6i	**Section 2.21.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.21.3.1 has been updated in response to FIR Items 10a and 10t	**Section 2.21.3.1** Increase in underwater noise and vibration

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.21.3.3 has been updated in response to FIR Item 6i	**Section 2.21.3.3** Temporary increase in SSC and contaminated sediments
		Section 2.22.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.22.1.1** Increase in underwater noise and vibration
		Section 2.22.1.3 has been updated in response to FIR Item 6i	**Section 2.22.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.22.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.22.2.1** Increase in underwater noise and vibration
		Section 2.22.2.3 has been updated in response to FIR Item 6i	**Section 2.22.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.24.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.24.1.1** Increase in underwater noise and vibration
		Section 2.24.1.3 has been updated in response to FIR Item 6i	**Section 2.24.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.24.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.24.2.1** Increase in underwater noise and vibration
		Section 2.24.2.3 has been updated in response to FIR Item 6i	**Section 2.24.2.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.25.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.25.1.1** Increase in underwater noise and vibration
		Section 2.25.1.3 has been updated in response to FIR Item 6i	**Section 2.25.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.26.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.26.1.1** Increase in underwater noise and vibration
		Section 2.26.1.3 has been updated in response to FIR Item 6i	**Section 2.26.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.26.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.26.2.1** Increase in underwater noise and vibration
		Section 2.26.2.3 has been updated in response to FIR Item 6i	**Section 2.26.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.27.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.27.1.1** Increase in underwater noise and vibration
		Section 2.27.1.3 has been updated in response to FIR Item 6i	**Section 2.27.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.27.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.27.2.1** Increase in underwater noise and vibration

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.27.2.3 has been updated in response to FIR Item 6i	**Section 2.27.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.28.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.28.1.1** Increase in underwater noise and vibration
		Section 2.28.1.3 has been updated in response to FIR Item 6i	**Section 2.28.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.28.2.1 has been updated in response to FIR Items 10a and b	**Section 2.28.2.1** Increase in underwater noise and vibration
		Section 2.28.2.3 has been updated in response to FIR Item 6i	**Section 2.28.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.29.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.29.1.1** Increase in underwater noise and vibration
		Section 2.29.1.3 has been updated in response to FIR Item 6i	**Section 2.29.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.29.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.29.2.1** Increase in underwater noise and vibration
		Section 2.29.2.3 has been updated in response to FIR Item 6i	**Section 2.29.2.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.30.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.30.1.1** Increase in underwater noise and vibration
		Section 2.30.1.3 has been updated in response to FIR Item 6i	**Section 2.30.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.30.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.30.2.1** Increase in underwater noise and vibration
		Section 2.30.2.3 has been updated in response to FIR Item 6i	**Section 2.30.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.31.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.31.1.1** Increase in underwater noise and vibration
		Section 2.31.1.3 has been updated in response to FIR Item 6i	**Section 2.31.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.31.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.31.2.1** Increase in underwater noise and vibration
		Section 2.31.2.3 has been updated in response to FIR Item 6i	**Section 2.31.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.32.1.1 has been updated in response to FIR Items 10a and 10t	**Section 2.32.1.1** Increase in underwater noise and vibration

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.32.1.3 has been updated in response to FIR Item 6i	**Section 2.32.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.32.2.1 has been updated in response to FIR Items 10a and 10t	**Section 2.32.2.1** Increase in underwater noise and vibration
		Section 2.32.2.3 has been updated in response to FIR Item 6i	**Section 2.32.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.33.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.33.1** Sea lamprey [1095] and River lamprey [1099]
		Section 2.33.1.3 has been updated in response to the FIR Item 6i	**Section 2.33.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.33.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.33.2.1** Increase in underwater noise and vibration
		Section 2.33.2.3 has been updated in response to the FIR Item 6i	**Section 2.33.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.34.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.34.1.1** Increase in underwater noise and vibration
		Section 2.34.1.3 has been updated in response to the FIR Item 6i	**Section 2.34.1.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.34.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.34.2.1** Increase in underwater noise and vibration
		Section 2.34.2.3 has been updated in response to the FIR Item 6i	**Section 2.34.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.35.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.35.1.1** Increase in underwater noise and vibration
		Section 2.35.1.3 has been updated in response to the FIR Item 6i	**Section 2.35.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.35.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.35.2.1** Increase in underwater noise and vibration
		Section 2.35.2.3 has been updated in response to the FIR Item 6i	**Section 2.35.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.36.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.36.1.1** Increase in underwater noise and vibration
		Section 2.36.1.3 has been updated in response to the FIR Item 6i	**Section 2.36.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.36.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.36.2.1** Increase in underwater noise and vibration

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.36.2.3 has been updated in response to the FIR Item 6i	**Section 2.36.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.36.3.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.36.3.1** Increase in underwater noise and vibration
		Section 2.36.3.3 has been updated in response to the FIR Item 6i	**Section 2.36.3.3** Temporary increase in SSC and contaminated sediments
		Section 2.37.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.37.1.1** Increase in underwater noise and vibration
		Section 2.37.1.3 has been updated in response to the FIR Item 6i	**Section 2.37.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.37.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.37.2.1** Increase in underwater noise and vibration
		Section 2.37.2.3 has been updated in response to the FIR Item 6i	**Section 2.37.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.38.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.38.1.1** Increase in underwater noise and vibration
		Section 2.38.1.3 has been updated in response to the FIR Item 6i	**Section 2.38.1.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.39.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.39.1.1** Increase in underwater noise and vibration
		Section 2.39.1.3 has been updated in response to the FIR Item 6i	**Section 2.39.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.40.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.40.1.1** Increase in underwater noise and vibration
		Section 2.40.1.3 has been updated in response to the FIR Item 6i	**Section 2.40.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.40.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.40.2.1** Increase in underwater noise and vibration
		Section 2.40.2.3 has been updated in response to the FIR Item 6i	**Section 2.40.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.41.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.41.1.1** Increase in underwater noise and vibration
		Section 2.41.1.3 has been updated in response to the FIR Item 6i	**Section 2.41.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.41.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.41.2.1** Increase in underwater noise and vibration

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.41.2.3 has been updated in response to the FIR Item 6i	**Section 2.41.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.42.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.42.1.1** Increase in underwater noise and vibration
		Section 2.42.1.3 has been updated in response to the FIR Item 6i	**Section 2.42.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.43.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.43.1.1** Increase in underwater noise and vibration
		Section 2.43.1.3 has been updated in response to the FIR Item 6i	**Section 2.43.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.43.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.43.2.1** Increase in underwater noise and vibration
		Section 2.43.2.3 has been updated in response to the FIR Item 6i	**Section 2.43.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.44.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.44.1.1** Increase in underwater noise and vibration
		Section 2.44.1.3 has been updated in response to the FIR Item 6i	**Section 2.44.1.3** Temporary increase in SSC and contaminated sediments

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 2.45.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.45.1.1** Increase in underwater noise and vibration
		Section 2.45.1.3 has been updated in response to the FIR Item 6i	**Section 2.45.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.45.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.45.2.1** Increase in underwater noise and vibration
		Section 2.45.2.3 has been updated in response to the FIR Item 6i	**Section 2.45.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.46.1.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.46.1.1** Increase in underwater noise and vibration
		Section 2.46.1.3 has been updated in response to the FIR Item 6i	**Section 2.46.1.3** Temporary increase in SSC and contaminated sediments
		Section 2.46.2.1 has been updated in response to the FIR Items 10a and 10t	**Section 2.46.2.1** Increase in underwater noise and vibration
		Section 2.46.2.3 has been updated in response to the FIR Item 6i	**Section 2.46.2.3** Temporary increase in SSC and contaminated sediments
		Section 2.47 has been updated in response to the FIR Items 10aa and 10bb	**Section 2.47** French ZSCs – harbour porpoise

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
	3 NIS CONCLUSION	This section remains unchanged.	
	4 REFERENCES		
5 Part 1	1 INTRODUCTION	This section remains unchanged.	
	2 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES	Section 2 has been updated to include explanatory narrative regarding assessment approaches in relation to revised Conservation Objective	**Section 2** EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES
		Section 2.2 has been updated in response to FIR Item 7v.	**Section 2.2** South Dublin Bay and River Tolka Estuary SPA (IE004024)
		Section 2.3 remains unchanged	
		Section 2.4 has been updated in response to FIR item 7v.	**Section 2.4** Dalkey Islands SPA (IE004172)
		Section 2.5 has been updated in response to FIR items 7f and 7k.	**Section 2.5** The Murrough SPA (IE004186)
	3 INTRODUCTION	This section remains unchanged.	

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
5 Part 2	4 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES	Section 4, 4.1, 4.2 and 4.3 remains unchanged	
		Section 4.4 has been updated in response to FIR Item 7j	**Section 4.4** Wicklow Head SPA (IE004127)
		Section 4.5 has been updated in response to FIR Item 7j	**Section 4.5** Howth Head Coast SPA
		Section 4.6 has been updated in response to FIR Item 7j	**Section 4.6** Ireland's Eye SPA
		Section 4.7 has been updated in response to FIR item 7j.	**Section 4.7** Lambay Island SPA (IE004069)
		Section 4.8 has been updated in response to FIR item 7e.	**Section 4.8** Rockabill SPA (IE004014)
		Section 4.9 has been updated to include additional information.	**Section 4.9** Skerries Islands SPA (IE004122)
		Section 4.10 has been updated in response to FIR item 7o.	**Section 4.10** Aberdaron Coast and Bardsey Island SPA (Wales – UK9013121)
		Section 4.11 has been updated in response to FIR items 7j and 7m.	**Section 4.11** Saltee Islands SPA (IE004002)

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 4.12 has been updated in response to FIR item 7o.	**Section 4.12** Skomer, Skokholm and the seas off Pembrokeshire SPA (Wales – UK9015051)
		Section 4.13 has been updated in response to FIR item 7m.	**Section 4.13** Grassholm SPA (Wales – UK9014041)
		Section 4.14 has been updated in response to FIR item 7o.	**Section 4.14** Copeland Islands SPA (Northern Ireland – UK9020291)
		Section 4.15 remains unchanged	
		Section 4.16 has been updated in response to FIR item 7j.	**Section** 4.16 Helvick Head to Ballyquin SPA (IE004192)
		Section 4.17 remains unchanged	
		Section 4.18 has been updated in response to FIR items 7j and 7m.	**Section** 4.18 Ailsa Craig SPA (Scotland – UK9003091)
		Section 4.19 has been updated in response to FIR item 7j.	**Section 4.19** Rathlin Island SPA (Northern Ireland – UK9020011)
		Section 4.20 has been updated in response to FIR item 7j.	**Section 4.20** Old Head of Kinsale SPA (IE004021)

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Sections 4.21-4.24 remain unchanged	
		Section 4.25 has been updated in response to FIR item 7m.	**Section 4.25** The Bull and the Cow Rocks SPA (IE004066)
		Section 4.26 remains unchanged	
		Section 4.27 has been updated in response to FIR item 7o.	**Section 4.27** Deenish Islands and Scariff Island SPA (IE004175)
		Section 4.28 remains unchanged	
		Section 4.29 has been updated in response to FIR item 7o.	**Section 4.29** Puffin Island SPA (IE004003)
		Section 4.30 has been updated in response to FIR items 7m and 7o.	**Section 4.30** Skelligs SPA (IE004007)
		Section 4.31 has been updated in response to FIR item 7o.	**Section 4.31** Rum SPA (Scotland – UK9001341)
		Section 4.32 remains unchanged	
		Section 4.33 has been updated in response to FIR item 7o.	**Section 4.33** Blasket Islands SPA (IE004008)

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
		Section 4.34 and 4.25 remain unchanged	
		Section 4.36 has been updated in response to FIR item 7o.	**Section 4.36** North-west Irish Sea SPA (IE004236)
		Section 4.37 has been updated in response to FIR items 7o and 7m.	**Section 4.37** Seas off Wexford SPA (IE004237)
		Section 4.38 has been updated in response to FIR item 7o.	**Section 4.38** Irish Sea Front SPA
		Section 4.39 – 4.42 remain unchanged	
		Section 4.43 has been updated in response to FIR Item 7e.	**Section 4.43** Coquet Island SPA
	5 REFERENCES		**Section 5 REFERENCES**
NIS Addendum (Part 2)			
6 Part 1	1 INTRODUCTION	This section remains unchanged.	See **Table 1** in **NIS Addendum (Part 2)**
	2 APPROACH TO IN-COMBINATION ASSESSMENT	Section 2 has been updated in response to FIR Item 5	

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
	3 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES – CWP PROJECT IN-COMBINATION WITH OTHER PLANS AND PROJECTS	Section 3 has been updated in response to FIR Item 5, 10aa and 10bb	
	4 NIS (IN-COMBINATION) CONCLUSION	This section remains unchanged.	
	5 REFERENCES		
NIS Addendum (Part 3)			
6 Part 2	1 INTRODUCTION	All sections have been updated.	See **NIS Addendum (Part 3)**
	2 APPROACH TO IN-COMBINATION ASSESSMENT		
	3 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES – CWP PROJECT IN-COMBINATION WITH OTHER PLANS AND PROJECTS		
	4 NIS CONCLUSION		
	5 REFERENCES		
7	Appendix 1 - Onshore Invasive Species Management Plan	This appendix remains unchanged	
	Appendix 2 - Harbour porpoise Dynamic Energy Budget model	This appendix remains unchanged	
	Appendix 3 - Apportioning ratios technical appendix	This appendix remains unchanged	
	Appendix 4 - Population Viability Analysis	This appendix remains unchanged	

NIS Volume	Section	Summary of Updates	Cross reference to section of this NIS Addendum document
	Appendix 5 - Justification of the use of Counterfactual of Growth Rate Values to determine Adverse Effect on Site Integrity	This appendix remains unchanged	
	Appendix 6 - Marine Mammal Mitigation Protocol		Refer to updated **Marine Mammal Mitigation Protocol (MMMP)**
	Appendix 7 - Ornithology Proxy Conservation objectives		Superseded by this **NIS Addendum**

NIS ADDENDUM VOLUME 1 SUMMARY

Section 1.1 – Section 3 remains unchanged

Section 4.1 remains unchanged

4.2 SPA assessment

Section 4.2 remains unchanged except for paragraphs 58 and 59 which are replaced by paragraphs 34 and 35 below. This update has been made in response to FIR Item 7e, which required the Rockabill SPA and Coquet Island SPA being screened in for roseate tern and FIR Item 7o, which requested that artificial lighting is assessed as an impact for Manx shearwater (see **FIR Response Document**). In addition, although not replaced here, paragraph 60 is updated so that the AA Screening Report (NIS Volume 3) now concludes that LSE could not be ruled out for 97 SPAs (previously 96 SPAs), and "Coquet Island SPA (UK9006031), screened in for roseate tern" is added as an additional SPA to those listed.

34. Connectivity ranges for each of the species groupings (and marine area SPAs) detailed above, with justification of the rationale used to define those ranges, are defined as follows:

- **SPAs designated in relation to breeding seabird SCIs:** SPAs were selected on the basis of the array site, OECC, landfall location or the onshore substation falling within foraging range of designated seabird SCIs of those SPAs, subject to the below exceptions. Foraging range was defined from the species specific mean-maximum foraging range plus one standard deviation, as stated in Woodward *et al.,* 2019. As foraging ranges differ between seabird species, the ZoI is treated as differing between species.
    - Exceptions to this rule are outlined below:
        - For Manx shearwater and fulmar, species known to have extremely large foraging ranges. For these species, very distant SPAs, classed as sites for which the by sea distance between the SPA and CWP Project areas is greater than the foraging range of gannet (509.4 km), there was not considered to be any meaningful pathway to impact with CWP Project activities or infrastructure, on account that numbers of individuals potentially using CWP Project areas would be negligible, the potential impact therefore *de minimis*;
        - For little tern, although not within foraging range of the array site, works and infrastructure within this area of the CWP Project were considered in relation to the Murrough SPA on account of observations of this species in the array site during breeding season (ObSERVE surveys in 2016, Jessopp *et al*., 2018). As no other little tern colonies occur locally and information relating to little tern foraging range is minimal, assessment was undertaken on the conservative assumption that little tern recorded within the array site and surrounding areas during ObSERVE surveys may have originated from the breeding colony within The Murrough SPA; and
        - For roseate tern, although not within foraging range of the array site, tagging data for roseate tern show that some individuals from Rockabill SPA and Coquet SPA colonies may pass through the CWP array site on migration (Redfern *et al.,* 2020). Collision risk modelling was undertaken to assess the risk of collision from roseate terns from these two SPAs.
- **SPAs designated in relation to non-breeding seabird SCIs:** SPAs within the Irish Sea Region were selected. The Irish Sea Region is here defined as the sea area in a direct line between Fair Head (Northern Ireland) and the Mull of Kintyre (Scotland) in the north, and a direct line between Carnsore Point (Ireland) and St David's Head (Wales) in the South. This zone of impact allows for the potential that wintering seabirds may move between sites around the Irish Sea.

- **SPAs designated in relation to migratory wildfowl and wader SCIs:** Coastal, estuarine and lowland SPAs from the eastern coast of Northern Ireland and along the Irish eastern and southern coasts were selected on the basis that SCIs of these SPAs may pass through the CWP array site or through South Dublin Bay and River Tolka Estuary in the vicinity of the export cable landfall during migration.
- **SPAs designated in relation to other migratory non-seabird SCIs:** All Irish SPAs designated in relation to wintering or breeding populations of the following terrestrial (i.e., non-seabird and non-wader or wildfowl species) migratory SCIs were selected on the basis that these SCIs may pass through the CWP array site during migration:
    - Hen harrier;
    - Merlin; and
    - Corncrake.
- **SPAs designated in relation to important marine areas:** SPAs within the Irish Sea Region were selected as those with potential connectivity to the project. The Irish Sea Region is here defined as the sea area in a direct line between Fair Head (Northern Ireland) and the Mull of Kintyre (Scotland) in the north, and a direct line between Carnsore Point (Ireland) and St David's Head (Wales) in the South.

35. Seven potential impacts to SPAs for which ornithological features are a SCI were identified:

- Direct effects on habitat impacts are considered effects which directly remove or alter habitats and that prevent or reduce the use of those habitats by ornithological receptors;
- Disturbance and displacement impacts are considered behavioural responses to wind farm infrastructure or associated activity leading to effective indirect habitat loss through the avoidance of particular areas, or barrier effects from the avoidance of particular areas;
- Changes in prey availability impacts are considered effects which result in changes to the distribution, abundance or behaviour of prey species in such a way as to alter their availability for ornithological receptors. These changes may result in energetic consequences to, and redistribution of, ornithological receptors;
- Pollution impacts are considered effects which result from the accidental release of materials during proposed works which may impact ornithological receptors by causing mortality, reductions in fitness or reduce the quality of the habitats which they use;
- Introduction or spread of invasive species impacts are considered effects which result from the accidental release or redistribution of invasive species during proposed works, which may impact ornithological receptors by reducing the quality of the habitats which they use;
- Collision impacts are considered as the death (or injury) of ornithological receptors where individuals collide with OWF infrastructure, specifically rotating WTG blades during the operational phase; and
- Artificial light emissions are considered as a potential impact for Manx shearwater which may increase their susceptibility to collision with objects or grounding.

NIS ADDENDUM VOLUME 2 INTRODUCTION

Section 1 remains unchanged

2 METHODOLOGY

2.1 Guidance

Section 2.1 remains unchanged, with the exception of the addition of reference to updated guidance used in the addressing of FIR items 7f, 7k, 7j, 7m and 7o. (see **FIR Response Document)**.

- JNCC (2022) Joint SNCB Interim Advice on the Treatment of Displacement for Red-Throated Diver.
- NatureScot (2023) Guidance Note 7: Guidance to support Offshore Wind Applications: Marine Ornithology - Advice for assessing collision risk of marine birds;
- NatureScot (2023) Guidance Note 8: Guidance to support Offshore Wind Applications: Marine Ornithology Advice for assessing the distributional responses, displacement and barrier effects of Marine birds;
- Irish Aviation Authority 2026, Guidance Material on Off-Shore Wind Farms, IAA.

2.2 Data and information sources

Section 2.2 remains unchanged, with the exception of the addition of reference to updated data and information sources used in the addressing of FIR items 7f, 7k, 7j, 7m and 7o (see **FIR Response Document)**.

- Appendix 10-I: Density, abundance and distributional response of the red-throated diver;
- Arklow Extension Survey Data; Cork Ecology, 2023;
- Appendix 10-H Kittiwake Displacement Matrices;
- SMP (2023) Seabird Population Trends and Causes of Change: 1986–2023;
- ABPmer (2023) Review of Method Statement: Offshore Wind Ornithology Assessment for East Coast Phase 1 Projects;
- Deakin *et al.* (2022). A review to inform the assessment of the risk of collision and displacement in petrels and shearwaters from offshore wind developments in Scotland;
- RWE (2022) Awel y Môr Offshore Wind Farm Volume 4, Annex 4.1: Offshore Ornithology Baseline Characterisation Report.

Section 2.3 remains unchanged

Section 2.4 (paragraphs 36 to 54 below) is a new section which has been added to avoid duplication of the methodology across the report and is applicable to the assessment for all SACs with Annex II marine mammal qualifying features.

2.4 Assessment methodology - Annex II marine mammal qualifying features

2.4.1 Assessment of the Project Alone - Increased underwater noise

36. For marine mammals, the main potential impacts from the CWP Project are associated with underwater noise.

37. Increased underwater noise levels are anticipated to occur through:

- Pre-construction geophysical surveys (Multibeam Echo Sounder (MBES), Sub-bottom Imager (SBI), Side Scan Sonar (SSS), Sub-bottom Profiler (SBP), Ultra High Resolution Seismic (UHRS), Ultra-short Baseline (USBL));
- Unexploded Ordnance (UXO) clearance; and
- Pile driving (Wind Turbine Generators (WTGs) and Offshore SubStations (OSSs)).

38. The generation of underwater noise has the potential to result in both auditory injury impacts (i.e., Permanent Threshold Shift (PTS) onset) and disturbance, each of which have been assessed below for both *in situ* and *ex situ*. Each of the impacts assessed below are presented as a representative scenario and unmitigated, whilst the final conclusions draw upon the implementation of mitigation measures.

39. It is noted that Temporary Threshold Shift (TTS) is not included in this NIS for piling. The Applicants commitment to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events means that no TTS-onset threshold contours from WTG or OSS piling overlap with any marine mammal SAC boundary. Therefore, there will be no *in situ* impacts.

40. The potential for significant ex situ impacts on European sites can be excluded, based on objective information. As outlined in the TTS Position Statement (**Appendix 11-B SMRU Consulting TTS Position Statement** of the **EIAR Addendum**) there will be no biologically meaningful impact arising from TTS.

Injury

41. The assessment for auditory injury uses the PTS thresholds as advised in NMFS (2024).

Disturbance

Geophysical surveys

42. Due to the near absence of empirical studies of harbour porpoise responses to geophysical surveys and lack of activity-specific thresholds, the assessment presents the impacts associated with geophysical surveys drawing on the recent review by Majewska *et al.* (2025) and updated guidance from JNCC (2025b). The JNCC guidance recommends a 3 km Effective Deterrent Range (EDR) to assess significant disturbance to harbour porpoise within SACs from geophysical surveys undertaken as a part of the CWP project such as SBPs, USBL, and MBES with an operating frequency of ≤12 kHz operating in waters ≤200 m depth. This EDR is used as a proxy for other geophysical surveys such as sub-bottom imager (SBI), side scan sonar (SSS) and ultra-high resolution seismic UHRS. There are

no project-specific mitigation measures that could reduce the risk of disturbance due to geophysical surveys.

UXO clearance

43. The empirical data on the effect of disturbance from UXO clearance is very limited (Majewska *et al.*, 2025). There is no dose-response function available that appropriately reflects the behavioural disturbance from UXO clearance, nor are there any UXO-specific thresholds available. It should be noted that while piling and explosives are categorised as 'impulsive', these sound sources differ drastically in the number of pulses and the overall duration of the noise emission, both of which will ultimately drive the behavioural response. Therefore, piling-specific thresholds are not considered for UXO clearance and alternative approach have been considered instead.

44. An estimation of the extent of behavioural disturbance from UXO clearance is presented based on the sound levels at which the onset of TTS is predicted to occur. It is acknowledged that TTS-onset criteria are not empirically derived behavioural response thresholds. However, they are widely used and accepted in the UK by regulators and their advisors as a proxy for behavioural response thresholds to single impulses (i.e. explosions), with the assumption that they correspond to the noise level at which a fleeing response may be expected to occur in marine mammals. This is a result of discussion in Southall *et al.* (2007) which states that in the absence of empirical data on behavioural responses, the use of the TTS-onset threshold may be appropriate for single pulses (like UXO clearance). It should be however noted that "a*lthough TTS is not a behavioral effect per se, this approach is used because any compromise, even temporarily, to hearing functions has the potential to affect vital rates by interfering with essential communication and/or detection capabilities. This approach is expected to be precautionary because TTS at onset levels is unlikely to last a full diel cycle or to have serious biological consequences during the time TTS persists."* (Southall et al., 2007). TTS-onset thresholds are taken as those proposed for different functional hearing groups by NMFS (2024).

45. Additionally, the assessment applies the UXO-specific EDRs published in the most recent JNCC guidance. The 20 km EDR is used for unmitigated, high-order UXO clearance (JNCC, 2025b) (noting that it is based on data collected during detonation of UXO sizes of up to 263 kg). The assessment of mitigated UXO clearance is presented using 10 km EDR for high-order UXO clearance with noise abatement and 5 km EDR for low-order UXO clearance (JNCC, 2025b).

Piling of WTGs

46. To mitigate potential impacts from underwater noise during the construction of the project, the Applicant commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.

47. For cetaceans, given differing guidance in different countries, the approach to the assessment of disturbance as a result of piling differs depending on the location of the SAC:

- **Republic of Ireland:** there is no guidance on disturbance thresholds for SACs in Ireland. Therefore, a range of thresholds have been presented:
    - dose-response function (Graham *et al.*, 2017)
    - level B harassment threshold (NOAA, 2005)
    - 145 dB SEL_{ss} threshold (Lucke *et al.*, 2009)
    - EDRs (20 km for unmitigated and 11 km for mitigated piling) (JNCC, 2025b).
- **Wales:** advice from NRW (2023) has been followed:
    - level B harassment threshold (NOAA, 2005)
    - 145 dB SEL_{ss} threshold (Lucke *et al.*, 2009)
    - EDRs (20 km for unmitigated and 11 km for mitigated piling) (JNCC, 2025b).

- **England:** advice from (JNCC, 2020) has been followed:
  - EDRs (20 km for unmitigated and 11 km for mitigated piling) (JNCC, 2025b).
- **Northern Ireland:** advice from (JNCC, 2020) has been followed:
  - EDRs (20 km for unmitigated and 11 km for mitigated piling) (JNCC, 2025b).

48. For seals and the SACs located in English, Welsh and Northern Irish waters, assessment using EDRs is considered (20 km for unmitigated and 11 km for mitigated piling) (JNCC, 2025b). For SACs located within Irish waters, the disturbance assessment includes the EDRs as well as a dose-response function presented in Whyte *et al.* (2020).

2.4.2 Assessment in-combination with other plans and projects - Increased underwater noise

49. For marine mammals, the main potential impacts from the CWP Project in-combination with other plans and projects are associated with underwater noise due to:

- Pre-construction geophysical surveys;
- UXO clearance; and
- Pile driving.

50. The generation of underwater noise has the potential to result in both auditory injury impacts (i.e., PTS onset) and disturbance. Auditory injury (PTS) was screened out of the in-combination assessment since suitable mitigation will be put in place across all projects to reduce injury risk to marine mammals to negligible levels (as a requirement of European Protected Species legislation).

Disturbance

Pile driving

51. This assessment assumed that all projects constructing in 2031 will, in accordance with prevailing policy and guidance, use noise abatement or commit to a maximum noise level for pile driving and thus, an 11 km EDR is assumed for mitigated piling at each project. To standardise the density estimates used, all cetacean species assessments used the relevant species-specific SCANS IV block density estimate.

52. It is important to note that, depending on each SAC's jurisdiction, the assessment of potential impacts from pile driving for the CWP alone applied a range of criteria, including dose-response, various thresholds, and EDRs (see paragraph 46). It is noted that NRW and Natural England advise the use of an EDR and not dose-response for HRA, for the reasons outlined in NRW (2023): "*loss of habitat quality is a binary event as an area is either ensonified by a sound at a given level (and hence "lost"), or not. This differs from behavioural disturbance of animals which occurs over a continuum and relates to the numbers of animals affected; the spatial / temporal thresholds for HRA are not concerned with numbers of animals. This is because harbour porpoise is a highly mobile species, able to travel 100s of km in a short period of time, part of large wide-ranging population with highly variable numbers of animals spatially and temporally hence the concept of a "site population" does not apply.*" Therefore, to standarise the in-combination assessment and to reflect the most recent policy and guidance, an 11 km EDR has been used, based on the latest evidence review and JNCC guidance (JNCC, 2025b, Majewska *et al.*, 2025). For the in-combination assessment, where the 11 km EDR for CWP alone does not overlap with an SAC, the CWP project is considered highly unlikely to make a significant *in*

situ contribution to in-combination effects[2]. A separate assessment of *ex situ* impacts, including the CWP project's contribution, is provided regardless of the spatial overlap with the SAC.

Geophysical surveys

53. For the assessment of in-combination impacts due to geophysical surveys, a 3 km EDR is used in line with the Project alone assessment (see paragraph 41) (JNCC, 2025b).

UXO clearance

54. It is expected that all Projects will use low-order deflagration as the primary UXO clearance method. This aligns with the advice provided in the joint interim position statement released in 2022 and updated in 2025 (DEFRA *et al.*, 2022, DEFRA *et al.*, 2025). As such, for UXO clearance, the in-combination assessment uses an EDR of 5 km EDR for low-order UXO clearance (JNCC, 2025b).

3 STAKEHOLDER ENGAGEMENT

Section 3 remains unchanged. **Appendix B Schedule of Post Application Consultations** of the FIR Response Document provides an overview of EIA and FIR related consultation undertaken by the Applicant since the CWP Project planning application was submitted.

4 PROJECT DESCRIPTION

This section remains unchanged however it is noted that revised sediment plume modelling has been undertaken in response to FIR item 6i. Relevant assessments have been updated to reflect this as appropriate throughout the NIS Addendum.

[2] It should be noted that, while applying this uniform method may result in no predicted spatial overlap between the CWP project's EDR and certain SACs, approaches used for the CWP Alone (e.g., dose-response, see **Section 2 (Volume 4**) of the **NIS Addendum (Part 1)** indicated a potential overlap. This discrepancy is expected and arises from differences in guidance and jurisdictional requirements. It should be noted that the overall conclusion for the CWP Alone was that pile-driving activities would not result in AESI for any of the SACs.

NIS ADDENDUM VOLUME 3 SCREENING

Section 1 remains unchanged

2 APPROACH TO SCREENING

2.1 Benthic and Intertidal Ecology

Section 2.1 remains unchanged except for Table 2-1 which is replaced by Table 4 below. This update has been made following the updated sediment plume modelling in response to FIR Item 6i and in relation to FIR item 8j which requests that permanent habitat loss is split out from the impact: Direct Effects on Habitats.

Table 4 Description of potential impacts – benthic and intertidal ecology

Benthic and intertidal ecology					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**
Direct temporary impacts on habitats	✓	✓	✓	Array site, OECC and / or landfall	Direct physical habitat disturbance and / or loss may occur from a variety of activities associated with the CWP Project that have direct contact with the seabed (i.e., through construction activities such as pile driving, installation of WTGs, cable route preparation and installation, and rock placement, and surveys) in those locations where benthic QIs exist.
Long-term permanent habitat loss	✓	✓	✓	No potential for any effect. This is because no infrastructure with the potential to lead to permanent or long term habitat loss will be installed within an SAC with benthic QIs.	No long-term permanent habitat loss will result from activities associated with the CWP Project. This is because no infrastructure with the potential to lead to permanent or long term habitat loss will be installed within an SAC which has benthic QIs.
Temporary increases in suspended sediments / smothering	✓	✓	✓	The ZoI for temporary increases in suspended sediments / smothering is determined by the greatest ranges predicted by the modelling outputs from the CWP Project hydrological model (**Appendix 6-A Modelling Report** of the **EIAR Addendum**). This can be summarised as: • Dredge disposal plumes in array site: o Transient increase in SSC of c. 250 mg/L over 4–7 km in a north-south / slight east direction in c. 11 days o Maximum cumulative sediment deposition thickness of *c.* 3 cm.	Increased SSC may be introduced by a variety of activities associated with the CWP Project that physically disturb the sediment, for example during deployment of equipment on seabed, pile driving and other construction-related activities (e.g., route preparation, cable installation, trenching and rock placement). Spatially limited increases in SSC (within metres) may also occur during sediment and seabed sampling surveys. The potential ZoI varies depending on the activity and the sensitivity of the receptor with QI habitats having varying degrees of tolerance to increases in SSC. These increases in SSC can affect filter feeding species by blocking feeding apparatus, smothering sessile species, or interfering with respiratory function, or can

Benthic and intertidal ecology					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**
				• Dredge disposal plumes in the OECC: ○ Transient increase in SSC of up to c. 400 mg/L travelling over 3-6 km in a north-south / slight east direction, or up to c. 125 mg/L, travelling a maximum of 4 km in a north-south direction ○ Cumulative sediment deposition thickness of *c.* 3–4 cm. • Sediment plumes from cable installation activities across the array site: ○ Sediments transported in a north-south / slight east direction up to 1-6 km at an increase of c. 80 mg/L. ○ Cumulative sediment deposition thickness of c. 1 cm, near the release location. • Sediment plumes generated during cable installation activities across the OECC[3] ○ SSC of c. 140 mg/L being transported for up to 5 km in a north-south / slight east direction ○ Cumulative sediment deposition thickness of c. 1 cm, near the	increase scour in areas of strong tidal movement (Shin et al., 2002). Please also refer to **Appendix 6-A** of the **EIAR Addendum,** which provides aggregated modelling outputs incorporating the maximum, though transient, spatial extent of SSCs generated over the full construction campaign, which represent the disposal of dredge arisings, cable trenching, and WTG foundation installation

[3] Please note this considers both the 2 m maximum trench depth, and the increased trench depth where the OECC crosses the approaches to Dun Laoghaire harbour (in the zone of greater burial depth), and 3 m where the OECC crosses the RWE cable

Benthic and intertidal ecology					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**
				release location	
Remobilisation of contaminated sediments	✓	✓	✓	See Temporary increases in Suspended Sediments / smothering above	Pollution by contaminated sediments can impact on the fitness or health of organisms or communities and thus alter community structure or habitats. Potential connectivity is considered to be in line with that associated with increases in SSC.
Introduction of INNS	✓	✓	✓	Array site, OECC and / or landfall	Introduction of INNS can alter community composition through changes in predation or competition for resource, which can lead to a change in habitat, or loss of native species (Bax et al., 2003). The introduction of such invasive species can be via vessel or through contaminated equipment (i.e., colonised by invasive species). The results of CWP Project site specific benthic surveys contained no INNS species.
Presence of EMF and / or Temperature changes resulting from presence of electrical infrastructure		✓		Array site, OECC and / or landfall, noting the additional area defined by EMF model outputs.	EMF and small localised temperature changes in the sediment will be present around export and inter-array cables associated with the CWP Project. The distance over which EMF persist is typically dependant on the strength of the electrical charge, characteristics of the surrounding environment and characteristics of the cable (Tethys, 2022).

Section 2.2 and 2.3 remain unchanged

2.4 Annex II Migratory Fish

Section 2.4 remains unchanged except for Table 2-4 which is replaced by Table 5 below. This update has been made following the updated sediment plume modelling in response to FIR Item 6i and to include the results from the updated underwater noise modelling assessment using mitigation (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events) in response to FIR item 10a and 10t (see **FIR Response Document**).

Table 5 Description of potential impact - migratory fish

Annex II Migratory Fish					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**
Direct impacts on habitats	✓	✓	✓	Array site, OECC, landfall, and onshore substation area where this overlaps with species' migratory routes	Habitat disturbance and / or loss may occur from a variety of activities associated with the CWP Project that have direct contact with the seabed (i.e., through construction activities such as pile driving, installation of WTGs, cable route preparation and installation, and rock placement, and surveys). This can lead to reduced foraging / sheltering habitat and increases in SSC (see below).
Temporary increase in SSC and contaminated sediments	✓	✓	✓	The ZoI for temporary increases in Suspended Sediments / smothering is determined by the greatest ranges predicted by the modelling outputs from the CWP Project hydrological model (**Appendix 6-A** of the **EIAR Addendum**) where this overlaps with species' migratory routes. This can be summarised as: • Dredge disposal plumes in Array Site: o Transient increase in SSC of c. 250 mg/L over 4–7 km in a north-south / slight east direction in *c.*11 days • Dredge disposal plumes in the OECC: o Transient increase in SSC of up to c. 400 mg/L travelling over 3-6 km in a north-south / slight east direction, or up to c. 125 mg/L, travelling a maximum of 4 km in a	Increased SSC and pollution by contaminated sediments may be introduced by a variety of activities associated with the CWP Project that physically disturb the substrate, for example during surveys, deployment of metocean equipment, pile driving and other construction-related activities (e.g., route preparation, cable installation, trenching and rock placement). Please also refer to**,** **Appendix 6-A** of the **EIAR Addendum,** which provides aggregated modelling outputs incorporating the maximum, though transient, spatial extent of SSCs generated over the full construction campaign, which represent the disposal of dredge arisings, cable trenching, and WTG foundation installation In general, fish are more likely to undergo sublethal stress from increased suspended sediments rather than lethal effects because of their ability to move away from or out of an area of higher concentration to a lower concentration versus sessile or less mobile species (Kjelland et al., 2015). Sublethal metabolic and behavioural effects could include, e.g., temporary respiratory difficulties from depleted oxygen levels and reduced foraging / predator avoidance (Kjelland et al*.,* 2015). Pollution by contaminated sediments can impact on the fitness or health of benthic organisms and thus alter prey availability.

Annex II Migratory Fish					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**

				north-south direction
				• Sediment plumes from cable installation activities across the array site:
				  ○ Sediments transported in a north-south / slight east direction up to 1-6 km at an increase of c. 80 mg/L.
				• Sediment plumes generated during cable installation activities across the OECC including the zone of greater burial depth
				  ○ SSC of c. 140 mg/L being transported for up to 5 km in a north-south / slight east direction	

Increase in underwater noise and vibration	✓	✓	✓	The greatest distance over which noise related effects (from pile driving using mitigation – CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events) are predicted to be observed (against best available published thresholds; Popper et al., 2014) is 11 km from the noise source (see **Appendix 9-C Underwater Noise Modelling Assessment** of the **EIAR Addendum**). The ZoI for this impact is therefore considered to be at 11 km,	Underwater noise may be introduced by a variety of activities associated with the CWP Project for example during geophysical / geotechnical surveys, pile driving at both the array site and onshore substation and other construction-related activities (e.g., route preparation, cable installation, trenching and rock placement). Fish vary in their abilities to detect and utilise sound as well as their potential susceptibility to damage by sound (Popper et al., 2014; Popper and Hawkins, 2019; Popper et al., 2022). Potential effects of underwater noise on fish include mortality and potential mortal injury (including PTS, impairment (recoverable injury, TTS and masking)) and behavioural responses (disturbance / displacement) (Popper et al., 2014).

Annex II Migratory Fish					
Potential impact	**C**	**O**	**D**	**Zone of potential effect**	**Rationale**
				where this area overlaps migratory range of species.	
Presence of EMF		✓		The area over which EMF is predicted to be detectable is *c.* 2 m from the position of the cable, at the level of the seabed. The ZoI for this impact is therefore considered to be the Array site, OECC and / or landfall areas, plus a buffer of 5 m (includes conservative allowance) where this overlaps with species' migratory routes.	EMF may be generated around export, interconnector and inter-array cables associated with the CWP Project. Heat is also generated as electricity passes through cables as a result of the resistance of the conductor material. The distance over which EMF persist is typically dependant on the strength of the electrical charge, characteristics of the surrounding environment and characteristics of the cable (Tethys, 2022).
Presence of structures and associated predator aggregation		✓		Array site where this overlaps with species' migratory routes	Due to the presence of structures, there is potential for predator aggregation (e.g., piscivorous fish, birds, or mammals) and thus increased predatory pressure in such areas on migratory fish species.

Section 2.5, 2.6, 2.7 and 2.8 remain unchanged

3 DETERMINATION OF THE POTENTIAL FOR LSE FROM THE PROJECT ALONE

Section 3.1 and 3.2 remain unchanged

3.3 Offshore and Intertidal Ornithology

Section 3.3 remains unchanged except for the addition of Table 6 and Figure 1 below, which replace Table 3-3 and Figure 3-2 respectively. These updates include an additional row that has been added to assess relevant SPAs for Roseate tern (in which collision is now considered to be a potential impact), the screening in of artificial lighting as an impact for breeding Manx shearwater SCIs, and changes to screening in kittiwake for disturbance and displacement around WTG infrastructure. These updates have been made in response to FIR Items 7e, 7j and 7o (see **FIR Response Document)**.

3.3.1 Sites designated for breeding seabird SCIs

Table 6 Project alone screening of Natura 2000 sites designated for breeding seabird SCIs

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
Kittiwake	Wicklow Head (IE004127) [10.58; 14.04; 40.27], straight line [10.61; 14.07; 41.42], by sea Howth Head Coast (IE004113) [27.49; 6.83; 8.19], straight line [27.54; 6.85; 8.41], by sea Ireland's Eye (IE004117) [31.44; 9.0; 9.69], straight line [31.49; 11.09; 12.61], by sea Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Islands (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea Helvick Head to Ballyquin	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3 ,Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	(IE004192) [155.23 ; 158.32 ; 167.74], straight line [179.75 ; 187.9 ; 215.97], by sea Ailsa Craig (Scotland) (UK9003091) [235.67; 220.55; 220.55], straight line [235.71; 223.37; 224.9], by sea Rathlin Island (IE004120) [235.82; 213.12; 213.12], straight line [249.51; 237.11; 238.64], by sea Old Head of Kinsale (IE004021) [239.97; 242.28; 248.23], straight line [262.53; 270.68; 298.75], by sea		Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site	In	In	In	By sea distance between these SPAs and the array site and OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the of the NIS), and consultation responses have requested for kittiwake to be considered as sensitive to disturbance and displacement effects from offshore wind farm infrastructure. As such, there is a pathway to impact from disturbance and displacement effects associated with the presence of offshore wind farm infrastructure. Therefore, it is considered that **there is potential for LSE in relation to disturbance and displacement effects associated with the presence of offshore wind farm infrastructure.** As kittiwake are considered insensitive to disturbance and displacement effects from vessel activity (i.e., low behavioural sensitivity (**Table A 2 , Annex A** of **Volume 3, Screening** of the NIS), there is no pathway to impact. As such, **there is no potential for LSE in relation to disturbance and displacement effects associated with vessel activity.**

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			OECC	Out	Out	Out	Although the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), kittiwake are considered to be insensitive to disturbance and displacement effects from vessel activity (i.e., low behavioural sensitivity (**Table A 2, Table A 4 and Table A 5, Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect.**
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		In		As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, kittiwake frequently fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A**). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of kittiwake (300.6 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Gannet	Saltee Islands (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea Grassholm (Wales) (UK9014041) [139.91; 149.15; 181.22], straight line [139.91; 149.18; 182.2], by sea Ailsa Craig (Scotland) (UK9003091) [235.67; 220.55; 220.55], straight line [235.71; 223.37; 224.9], by sea The Bull and The Cow Rocks (IE004066) [337.77; 334.57; 334.57], straight line [385.59; 393.74; 421.82], by sea Skelligs (IE004007) [344.91; 338.34; 338.34], straight line [414.84; 422.99; 451.06], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site	In	In	In	The by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3 Section 2.3** of the NIS). Gannet are considered to be insensitive to disturbance by vessel traffic, but sensitive to displacement from OWF infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS). Although there is no pathway to impact from disturbance and displacement effects in relation to vessel activity and consequently no potential for LSE in relation to such activities, a pathway to disturbance and displacement effects in relation to the presence of OWF infrastructure is identified (in the form of indirect habitat loss and barrier effects as turbines are erected during the construction phase, present throughout the operational phase and until they are removed during the decommissioning phase). Therefore, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			OECC	Out	Out	Out	Although the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), gannet are insensitive to disturbance by vessel traffic (**Table A-2**, **Annex A**). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		In		As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), There is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, gannet frequently fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), There is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of gannet (509.4 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Fulmar	Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Islands (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea Horn Head to Fanad Head (IE004194) [253.21; 223.47; 223.47], straight line [347.24; 334.85; 336.38], by sea Beara Peninsula (IE004155) [311.42; 310.17; 310.17], straight line [372.29; 380.43; 408.51], by sea Tory Island (IE004073) [280.39; 249.27; 249.27], straight line [379.96; 367.57; 369.1], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	Out	Out	Out	Although the by sea distance between these SPAs and the array site and OECC is less than the foraging range extent used to define the ZoI for

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	West Donegal Coast (IE004150) [243.06; 210.47; 210.47], straight line [396.77; 384.37; 385.9], by sea Deenish Islands and Scariff Island (IE004175) [328.71; 323.98; 323.98], straight line [398.72; 406.87; 434.94], by sea Iveragh Peninsula (IE004154) [300.42; 292.53; 292.53], straight line [399.16; 407.31; 435.38 Skelligs (IE004007) [344.91; 338.34; 338.34], straight line [414.84; 422.99; 451.06], by sea Puffin Island (IE004003) [335.54; 328.67; 328.76], straight line [414.7; 422.85; 450.93], by sea Mingulay and Berneray (Scotland) (UK9001121) [417.63; 390.95; 390.95], straight line [438.51; 426.11; 427.64], by sea						effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact, fulmar are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		Although the by sea distance between these SPAs and the array site is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3 , Section 2.3** of the NIS), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact, flight activity by fulmar occurs almost exclusively below 20 m (**Table A-6**, **Annex A**). Given the proposed minimum tip height of the CWP Project is 36 m Mean Sea Level (MSL), there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and OECC is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3 Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	Dingle Peninsula (IE004153) [293.61; 281.89; 281.89], straight line [446.78; 454.92; 483.00], by sea Kerry Head (IE002263) [268.57; 254.90; 254.90], straight line [498.86; 507.00; 535.08], by sea	Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Manx shearwater	Aberdaron Coast and Bardsey Island (Wales) (UK9013121) [57.68; 67.87; 101.81], straight line [57.73; 67.92; 101.85], by sea Skomer, Skokholm and the Seas off Pembrokeshire (Wales) (UK9014051) [137.98; 147.65; 180.81], straight line [138.01; 147.68; 181.56], by sea Copeland Islands (Northern Ireland) (UK9020291)	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact and a pathway to impact to this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	[170.51; 153.86; 153.86], straight line [172.55; 160.15; 161.68], by sea Deenish Islands and Scariff Island (IE004175) [328.71; 323.98; 323.98], straight line [398.72; 406.87; 434.94], by sea Skelligs (IE004007) [344.91; 338.34; 338.34], straight line [414.84; 422.99; 451.06], by sea Puffin Island (IE004003) [335.54; 328.67; 328.76], straight line [414.7; 422.85; 450.93], by sea Rum (Scotland) (UK0012594) [418.72; 396.3; 396.3], straight line [431.18; 418.79; 420.32], by sea Blasket Islands (IE0004008) [330.6; 319.6; 319.6], straight line [440.6; 448.7; 476.8], by sea North-west Irish Sea (IE0004236) [21.3; 1.3; 1.5], straight line [21.0; 1.3; 1.5], by sea Seas off Wexford (IE0004237) [51.9, 61.0; 84.1], straight line [52.1, 61.0, 88.1], by sea	displacement					the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3 Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact. Manx shearwater are considered to be insensitive to disturbance by vessel traffic, but sensitive to displacement from OWF infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). Although there is no pathway to impact from disturbance and displacement effects in relation to vessel activity and consequently no potential for LSE in relation to such activities, a pathway to disturbance and displacement effects in relation to the presence of OWF infrastructure is identified (in the form of indirect habitat loss and barrier effects as turbines are erected during the construction phase, present throughout the operational phase and until they are removed during the decommissioning phase). Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	Although the by sea distance between these SPAs and the OECC is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS) and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact, however, Manx shearwater are insensitive to disturbance by vessel traffic (**Table A-2, Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Artificial lighting impacts (applicable to Manx shearwater only)	Array site		In		The lighting of WTGs and OSSs is required as a safety measure to ensure that any offshore infrastructure is visible and navigable for both vessels and aircraft. The presence of such artificial lighting within the marine environment has the potential to lead to impacts upon certain age classes of Manx shearwater, through attraction and/or disorientation from artificial lighting during the operation and maintenance phase.
			OECC		Out		Although the by sea distance between these SPAs and the OECC is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS) and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact. However, there will be no non-vessel artificial lighting within the OECC. As such, there is no pathway to impact from artificial lighting impacts. Therefore, **there is no LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	Irish Sea Front (UK9020328) [68.9; 73.5; 76.7], straight line [69.0; 73.6; 76.6], by sea		Intertidal cable route landfall Onshore infrastructure		Out		Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from artificial lighting impacts. Therefore, **there is no LSE in relation to this effect**.
		Collision	Array site		Out		Although the by sea distance between these SPAs and the array site is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3 Section 2.3** of the NIS) and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), flight activity by Manx shearwater occurs almost exclusively below 20 m (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). Given the proposed minimum tip height of the CWP Project is 36 m MSL, there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and OECC is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the foraging range extent used to define the ZoI for effects to this species (509.4 km - see **Volume 3, Section 2.3** of the NIS), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
European storm petrel	Skomer, Skokholm and the Seas off Pembrokeshire (UK9014051) (Wales) [137.98; 147.65; 180.81], straight line [138.01; 147.68; 181.56], by sea Isles of Scilly (England) (UK9020288) [336.88; 345.36; 371.72], straight line [336.9; 345.39; 375.2], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the maximum breeding season foraging range of European storm petrel (336 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	Out	Out	Out	Although the by sea distance between these SPAs and the array site and OECC is less than the maximum breeding season foraging range of European storm petrel (336 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), storm petrel are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		Although the by sea distance between these SPAs and the array site is less than the maximum breeding season foraging range of European storm petrel (336 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS); however, flight activity by European storm petrel occurs almost exclusively below 20 m (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). Given the proposed minimum tip height of the CWP Project is 36 m MSL, there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and OECC is less than the maximum breeding season foraging range of European

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							storm petrel (336 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the maximum breeding season foraging range of European storm petrel (336 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Cormorant	Ireland's Eye (IE004117) [31.44; 9.0; 9.69], straight line [31.49; 11.09; 12.61], by sea Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Skerries Islands (IE004122) [49.82; 26.12; 26.12], straight line [49.86; 30.2; 31.72], by sea	Direct effects on habitat	Array site (for Ireland's Eye SPA)	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3 Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Array site (for Lambay Island SPA and Skerries Islands SPA)	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	The by sea distance between these SPAs and the intertidal cable route landfall and associated onshore infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019). It is considered that non-foraging behaviours such as roosting, loafing and, importantly for cormorant, plumage maintenance (drying) after foraging may occur within intertidal cable route landfall areas in which temporary direct effects to habitat may occur (which may be immediately adjacent to marine foraging areas). As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site (for Ireland's Eye SPA)	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Cormorant are considered to be sensitive to disturbance by vessel traffic, but insensitive to displacement from OWF infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). Although there is no pathway to impact from disturbance and displacement effects in relation to OWF infrastructure (either in the form of indirect habitat loss or barrier effects), a pathway to disturbance and displacement effects in relation to vessel activity is identified. Therefore, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			Array site (for Lambay Island SPA and Skerries Islands SPA)	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	In	In	In	As the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3 Section 2.3** of the NIS) and cormorant are sensitive to disturbance by vessel traffic (**Table A-2**, **Annex A** of **Volume 3, Screening** of the NIS). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), and cormorant were regularly observed within submerged and non-submerged areas of South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which disturbance and displacement impacts may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site (for Ireland's Eye SPA)		In		As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, cormorant fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
			Array site		Out		As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			(for Lambay Island SPA and Skerries Islands SPA)				cormorant (33.9 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from collision effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site (for Ireland's Eye SPA)	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			Array site (for Lambay Island SPA and Skerries Islands SPA)	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from changes in prey availability effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	In	In	In	As the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), and cormorant were regularly observed within submerged and non-submerged areas of South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which temporary changes to prey availability may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	As this SCI does not forage within terrestrial environments, there is considered to be no pathway for activities in this area to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between this SPA and project activities is less than the mean maximum (+ 1 SD) breeding season foraging range of cormorant (33.9 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3 ,Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Shag	Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea	Direct effects on habitat	Array site	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Disturbance and displacement	Array site	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	In	In	In	As the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and shag are sensitive to disturbance by vessel traffic (**Table A-2**, **Annex A** of **Volume 3, Screening** of the NIS). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from collision effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from changes in prey availability effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	In	In	In	As the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between this SPA and project activities is less than the mean maximum (+ 1 SD) breeding season foraging range of shag (23.7 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Herring gull	Ireland's Eye (IE004117) [31.44; 9.0; 9.69], straight line [31.49; 11.09; 12.61], by sea Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Skerries Islands (IE004122) [49.82; 26.12; 26.12], straight line [49.86; 30.2; 31.72], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			Intertidal cable route landfall	In	In	In	As herring gull utilise intertidal habitats for non-foraging behaviours (such as roosting) and the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019) and herring gull were frequently observed within the intertidal habitats of South Dublin Bay during baseline surveys, there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	Out	Out	Out	Although the by sea distance between these SPAs and the array site and OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), however, herring gull are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore wind farm infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A**). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), and herring gull were regularly observed within South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which disturbance and displacement impacts may occur. Although herring gull is considered insensitive to disturbance and displacement from vessel activity, visual and acoustic stimuli from onshore activities within intertidal areas may affect this receptor. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Collision	Array site		In		As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, herring gull frequently fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A**). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), and herring gull were regularly observed within South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which temporary changes to prey availability may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of herring gull (85.6 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Lesser black-backed gull	Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Islands (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea Skomer, Skokholm and the Seas off Pembrokeshire (UK9014051) (Wales) [137.98; 147.65; 180.81], straight line [138.01; 147.68; 181.56], by sea Ribble & Alt Estuaries (England) (UK9005103) [177.24; 185.31; 201.57], straight line [178.65; 186.37; 201.61], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effect on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As lesser black-backed gull utilise intertidal habitats for non-foraging behaviours (such as roosting) and the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019) and lesser black-backed gull were frequently observed within the intertidal habitats of South Dublin Bay during baseline surveys, there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
	Morecambe Bay and Duddon Estuary (England) (UK9020326) [190.7; 197.67; 202.67], straight line [190.74; 197.72; 202.94], by sea Ailsa Craig (UK9003091) (Scotland) [235.67; 220.55; 220.55], straight line [235.71; 223.37; 224.9], by sea		Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	Out	Out	Out	Although the by sea distance between these SPAs and the array site and OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), lesser black-backed gull are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore wind farm infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), and lesser black-backed gull were regularly observed within South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which disturbance and displacement impacts may occur. Although lesser black-backed gull is considered insensitive to disturbance and displacement from vessel activity, visual and acoustic stimuli from onshore activities within intertidal areas may affect this receptor. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		In		As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, lesser black-backed gull frequently fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A**). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), and lesser black-backed gull were regularly observed within South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which temporary changes to prey availability may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Direct effects on habitat from the footprint of onshore infrastructure within the industrialised Pigeon Park area, south of the Liffey channel, does not coincide with any areas of important terrestrial habitat used by this SCI. As such, no pathway to impact is identified and **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of lesser black-backed gull (236 km; Woodward *et al.*, 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
Little tern	The Murrough (IE0004186) [7.51; 0.0; 22.87], straight line [7.51; 0.0; 23.77], by sea	Direct effects on habitat	Array site	In	In	In	Although the distance between the little tern breeding colony within the Murrough SPA at Kilcoole and the array site is considerably greater than the maximum recorded foraging range of this species (13.1 km compared to a maximum foraging range of 5 km – Woodward *et al.*, 2019), little tern were reported foraging in offshore areas within the vicinity of the Array Site during the visual aerial ObSERVE surveys during the summer and autumn periods of 2016 (Jessopp *et al.,* 2018). As such, assessment is undertaken on the conservative allowance that, for the Murrough SPA breeding colony, little tern may be foraging further afield than the maximum range observed elsewhere. Consequently, there is considered to be the potential that little tern breeding within The Murrough SPA may experience direct effects on habitat impacts as a result of infrastructure within the array site. If the potential for individuals which use this SPA to be present within the ZoI of this impact is considered (see **Volume 3, Section 2.3** of the NIS) a pathway to impact this receptor is identified. Therefore, allowing for a conservative approach in relation to breeding season connectivity, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	Out	Out	Out	As the by sea distance between cable landfall and The Murrough SPA is considerably greater (23.77 km) than the maximum foraging range of little tern (5 km, Woodward *et al.*, 2019) and little tern were not recorded within the intertidal habitats of South Dublin Bay during baseline surveys, any use of habitats within the cable route landfall area by this receptor is considered negligible. As such, no pathway to impact from direct effects on habitat is identified and **it is considered that there is no potential for LSE in relation to this effect**.
			Onshore infrastructure	Out	Out	Out	Use of terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Disturbance and displacement	Array site OECC	Out	Out	Out	Away from breeding colonies, when foraging or otherwise utilising marine environments, tern species are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore wind farm infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	Out	Out	Out	As the by sea distance between cable landfall and The Murrough SPA is considerably greater (23.77 km) than the maximum foraging range of little tern (5 km, Woodward *et al.,* 2019) and little tern were not recorded within the intertidal habitats of South Dublin Bay during baseline surveys, any use of habitats within the cable route landfall area by this receptor is considered negligible. As such, no pathway to impact from disturbance and displacement is identified and **it is considered that there is no potential for LSE in relation to this effect**.
			Onshore infrastructure	Out	Out	Out	Use of terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Collision	Array site		In		Although the distance between the little tern breeding colony within the Murrough SPA at Kilcoole and the array site is considerably greater than the maximum recorded foraging range of this species (13.1 km compared to a maximum foraging range of 5 km – Woodward *et al.,* 2019), little tern were reported foraging in offshore areas within the vicinity of the array site during the visual aerial ObSERVE surveys during the summer and autumn periods of 2016 (Jessopp *et al.,* 2018). As such, if assessment is undertaken on the conservative allowance that, for the Murrough SPA breeding colony, little tern may be foraging further afield than the maximum range observed elsewhere. Consequently, there is considered to be the potential that little tern breeding within The Murrough SPA may experience collision risk through from flight activity within the array site. If there is considered to be the potential for individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) a pathway to impact to this receptor is identified. Therefore, allowing for a conservative approach in relation to breeding season connectivity, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Changes in prey availability	Array site OECC	In	In	In	Although the distance between the little tern breeding colony within the Murrough SPA at Kilcoole and the array site and OECC is considerably greater than the maximum recorded foraging range of this species (13.1 km and 6.3 km, respectively, compared to a maximum foraging range of 5 km – Woodward *et al.,* 2019), little tern were reported foraging in offshore areas within the vicinity of the array site and OECC during the visual aerial ObSERVE surveys during the summer and autumn periods of 2016 (Jessopp *et al.,* 2018). As such, if assessment is undertaken on the conservative allowance that, for the Murrough SPA breeding colony, little tern may be foraging further afield than the maximum range observed elsewhere. Consequently, there is considered to be the potential that little tern breeding within The Murrough SPA may experience changes in prey availability impacts through the use of habitats within and surrounding the OECC and array site. If there is considered to be the potential for individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) a pathway to impact to this receptor is identified. Therefore, allowing for a conservative approach in relation to breeding season connectivity, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	Out	Out	Out	As the by sea distance between cable landfall and The Murrough SPA is considerably greater (23.77 km) than the maximum foraging range of little tern (5 km, Woodward *et al.,* 2019) and little tern were not recorded within the intertidal habitats of South Dublin Bay during baseline surveys, any use of habitats within the cable route landfall area by this receptor is considered negligible. As such, no pathway to impact from changes in prey availability is identified and **it is considered that there is no potential for LSE in relation to this effect**.
			Onshore infrastructure	Out	Out	Out	Use of terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from changes in prey availability. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. As such, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
Roseate tern	Rockabill (IE0004014) [47.36; 26.39; 26.39], straight line [47.38; 29.8; 31.32], by sea Coquet Island (UK9006031) [368.82; 372.96; 374.53], straight line [1186.30; 1174.88; 1174.17], by sea	Collision	Array site	Out	In	Out	Although the distance between these SPAs and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of roseate tern (23.2 km; Woodward *et al.*, 2019), tagging data for roseate tern show that some individuals from Rockabill SPA and Coquet SPA colonies may pass through the CWP array site on migration (Redfern *et al.*, 2020). There is therefore potential for non-negligible numbers of individuals which use these SPAs to be at risk of collision with the CWP array site. As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
Common tern	South Dublin Bay and River Tolka Estuary [26.2; 0.0; 0.0], straight line [26.22; 0.0; 0.0], by sea Rockabill (IE0004014) [47.36; 26.39; 26.39], straight line [47.38; 29.8; 31.32], by sea	Direct effects on habitat	Array site (for South Dublin Bay and River Tolka Estuary SPA)	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Array site (for Rockabill SPA)	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As common tern utilise intertidal habitats for non-foraging behaviours (such as roosting) and the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019) and common tern were frequently observed within the intertidal habitats of South Dublin Bay during baseline surveys, there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Use of terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
		Disturbance and displacement	Array site OECC	Out	Out	Out	Common tern are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), and common tern were regularly observed within intertidal areas of South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within areas in which disturbance and displacement impacts may occur in relation to intertidal landfall activities. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure (for South Dublin Bay and River Tolka Estuary SPA)	In	In	In	As common tern is sensitive to anthropogenic disturbance at breeding colonies and is a breeding SCI of South Dublin Bay and River Tolka Estuary SPA and onshore infrastructure will be located close to SPA breeding colonies (300 m southwest) and associated colonies (60 m south) within the River Liffey channel, it is considered that individuals from this SPA may occur within areas in which disturbance and displacement impacts may occur in relation to intertidal landfall activities. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure (for Rockabill SPA)	Out	Out	Out	Although intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019) and common tern breed upon structures within the River Liffey channel (with colonies approximately 60 m to the north), it is considered that individuals which breed at Rockabill SPA would not be affected by potential disturbance and displacement impacts to common tern breeding at colonies within the River Liffey channel. As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site (for South Dublin Bay and River Tolka Estuary SPA)		In		As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, common tern fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). As such, a pathway

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							to impact is identified and **the potential for LSE cannot be ruled out**.
			Array site (for Rockabill SPA)		Out		As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from collision effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site (for South Dublin Bay and River Tolka Estuary SPA)	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			Array site (for Rockabill SPA)	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from collision effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	In	In	In	As the by sea distance between these SPAs and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact on this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between these SPAs and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), and common tern were regularly observed within areas of South Dublin Bay during baseline surveys, it is considered that individuals from these SPAs may occur within intertidal cable route landfall areas in which temporary changes to prey availability may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	As this SCI does not forage within terrestrial environments, there is considered to be no pathway for activities in this area to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			Onshore infrastructure				In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Arctic tern	Rockabill (IE0004014) [47.36; 26.39; 26.39], straight line [47.38; 29.8; 31.32], by sea	Direct effects on habitat	Array site	Out	Out	Out	As the by sea distance between this SPA and the array site is greater than the mean maximum (+ 1 SD) breeding season foraging range of common tern (40.5 km; Woodward *et al.,* 2019), there is no potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall	In	In	In	As Arctic tern utilise intertidal habitats for non-foraging behaviours (such as roosting) and the by sea distance between this SPA and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (40.5 km; Woodward *et al.,* 2019) and common tern were frequently observed within the intertidal habitats of South Dublin Bay during baseline surveys, there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Use of terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	Out	Out	Out	Arctic tern are considered to be insensitive to disturbance and displacement effects from either vessel activity or from offshore infrastructure (**Table A-2** and **Table A-4**, **Annex A** of **Volume 3, Screening** of the NIS). As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
			Intertidal cable route landfall	In	In	In	As the by sea distance between this SPA and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019), and Arctic tern were regularly observed within intertidal areas of South Dublin Bay during baseline surveys, it is considered that individuals from this SPA may occur within areas in which disturbance and displacement impacts may occur in relation to intertidal landfall activities. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	Although intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019) and Arctic tern breed upon structures within the River Liffey channel (with colonies approximately 60 m to the north), it is considered that individuals which breed at Rockabill SPA would not be affected by potential disturbance and displacement impacts to Arctic tern breeding at colonies within the River Liffey channel. As such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		In		As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Furthermore, Arctic tern fly within the rotor swept altitude range of the development and therefore may be vulnerable to collisions within the array site (**Table A-6**, **Annex A**). As such, a pathway to impact is identified and **the potential for LSE cannot be ruled out**.
		Changes in prey availability	Array site	In	In	In	As the by sea distance between this SPA and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	In	In	In	As the by sea distance between this SPA and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use this SPA to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall	In	In	In	As the by sea distance between this SPA and the intertidal cable route landfall is less than the mean maximum (+ 1 SD) breeding season foraging range of Arctic tern (40.5 km; Woodward *et al.,* 2019), and Arctic tern were regularly observed within areas of South Dublin Bay during

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							baseline surveys, it is considered that individuals from this SPA may occur within intertidal cable route landfall areas in which temporary changes to prey availability may occur. As such, a pathway to impact to this receptor is identified and **the potential for LSE cannot be ruled out**.
			Onshore infrastructure	Out	Out	Out	As this SCI does not forage within terrestrial environments, there is considered to be no pathway for activities in this area to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact on this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of common tern (26.9 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Guillemot	Ireland's Eye (IE004117) [31.44; 9.0; 9.69], straight line [31.49; 11.09; 12.61], by sea Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Island (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of guillemot (153.7 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	In	In	In	The by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of guillemot (153.7 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Guillemot are considered to be sensitive to disturbance and displacement effects from vessel activity and OWF infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS).

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							Pathways to disturbance and displacement effects are therefore identified in relation to vessel activity (in the form of indirect habitat loss) and in relation to the presence of OWF infrastructure (in the form of indirect habitat loss and barrier effects as turbines are erected during the construction phase and are present throughout the operational phase until they are removed during the decommissioning phase). Consequently, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		Although the sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of guillemot (153.7 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), flight activity by guillemot occurs almost exclusively below 20 m (**Table A-6**, **Annex A** of **Volume 3, Screening** of the NIS). Given that the proposed minimum tip height of the CWP Project is 36 m MSL, there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of guillemot (153.7 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3 , Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of guillemot (153.7 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
Razorbill	Ireland's Eye (IE004117) [31.44; 9.0; 9.69], straight line [31.49; 11.09; 12.61], by sea Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Island (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of razorbill (164.6 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore, **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	In	In	In	The by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of razorbill (164.6 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Razorbill are considered to be sensitive to disturbance and displacement effects from vessel activity and OWF infrastructure (**Table A-2**, **Table A-4** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS). Pathways to disturbance and displacement effects are therefore identified in relation to vessel activity (in the form of indirect habitat loss) and in relation to the presence of OWF infrastructure (in the form of indirect habitat loss and barrier effects as turbines are erected during the construction phase and are present throughout the operational phase until they are removed during the decommissioning phase). Consequently, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		Although the sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of razorbill (164.6 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), flight activity by razorbill occurs almost exclusively below 20 m (**Table A-6 Annex A** of **Volume 3, Screening** of the NIS). Given the proposed minimum tip height of the CWP Project is 36 m MSL, there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this**

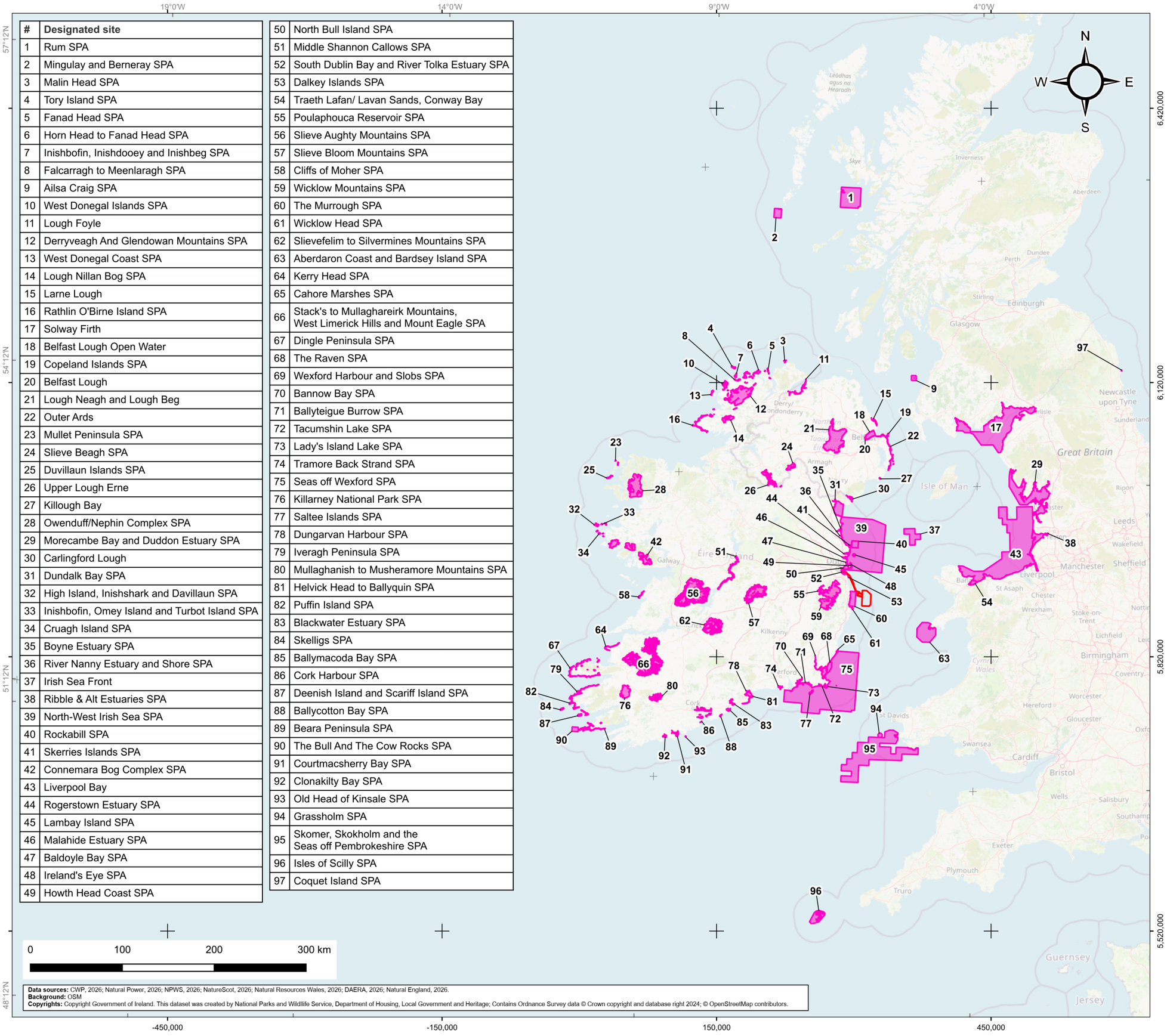
SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							effect.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of razorbill (164.6 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact to this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact to this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of razorbill (164.6 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.
Puffin	Lambay Island (IE004069) [38.83; 18.27; 18.49], straight line [38.88; 20.22; 21.74], by sea Saltee Island (IE004002) [107.06; 114.1; 133.87], straight line [113.58; 121.73; 149.8], by sea Skomer, Skokholm and the Seas off Pembrokeshire (Wales) (UK9014051) [137.98; 147.65; 180.81], straight line [138.01; 147.68 ; 181.56], by sea	Direct effects on habitat	Array site	In	In	In	As the by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of puffin (265.4 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact on this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			OECC	Out	Out	Out	As direct effects on habitat to breeding seabird SCIs in offshore areas relate to the occupancy of areas of sea surface by project infrastructure and there will be no above sea infrastructure beyond transient construction vessel traffic within the offshore extent of the OECC, there is assessed to be no source of impact. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from direct effects on habitat. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Disturbance and displacement	Array site OECC	In	In	In	The by sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of puffin (265.4 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). Puffin

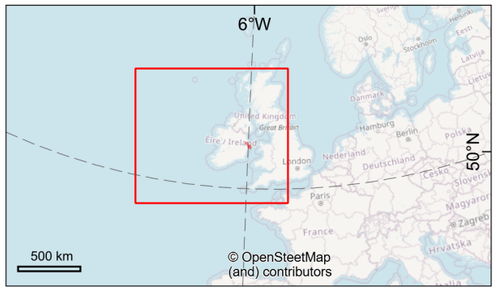
SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							are considered to be sensitive to disturbance and displacement effects from vessel activity and OWF infrastructure (**Table A-2** and **Table A-5**, **Annex A** of **Volume 3, Screening** of the NIS)**.** In the absence of information relating specifically to puffin, other auk species, namely guillemot and razorbill, are considered as proxies. Pathways to disturbance and displacement effects are therefore identified in relation to vessel activity (in the form of indirect habitat loss) and in relation to the presence of OWF infrastructure (in the form of indirect habitat loss and barrier effects as turbines are erected during the construction phase and are present throughout the operational phase until they are removed during the decommissioning phase). Consequently, **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	Use of intertidal and terrestrial habitats by this marine SCI is minimal and, as such, there is no pathway to impact from disturbance and displacement effects. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Collision	Array site		Out		Although the sea distance between these SPAs and the array site is less than the mean maximum (+ 1 SD) breeding season foraging range of puffin (265.4 km; Woodward *et al.,* 2019), and there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS), flight activity by puffin occurs almost exclusively below 20 m (**Table A-6**, **Annex A**). Given that the proposed minimum tip height of the CWP Project is 36 m MSL, there is therefore considered to be no pathway to impact from collision effects. As such, **it is considered that there is no potential for LSE in relation to this effect**.
		Changes in prey availability	Array site OECC	In	In	In	As the by sea distance between these SPAs and the array site and the OECC is less than the mean maximum (+ 1 SD) breeding season foraging range of puffin (265.4 km; Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS) and a pathway to impact on this receptor is identified. Therefore **the potential for LSE cannot be ruled out**.
			Intertidal cable route landfall Onshore infrastructure	Out	Out	Out	As this SCI exclusively utilises offshore marine environments for foraging, there is considered to be no pathway for activities in these areas to result in changes in the availability of prey for this SCI. Therefore, **it is considered that there is no potential for LSE in relation to this effect**.
		Introduction or spread of invasive species	Array site OECC Intertidal cable route landfall Onshore infrastructure	In	In	In	As mitigation measures to prevent the introduction or spread on INNS are not a requirement of underlying legislation and may be construed as being implemented specifically to address risks in relation to the Habitats Regulations, these measures cannot be applied at the screening phase. In the absence of mitigation measures, introduction or spread of invasive species may occur due to the CWP Project and, therefore, a pathway to impact on this receptor is identified. Furthermore, as the by sea distance between these SPAs and the project infrastructure is less than the mean maximum (+ 1 SD) breeding season foraging range of puffin (265.4 km;

SCI	Relevant SPAs and nearest distance to each project component (km) [Array; OECC; Intertidal landfall]	Potential impact	Project component	Screened in / out			Reasoning
				C	O&M	D	
							Woodward *et al.,* 2019), there is potential for non-negligible numbers of individuals which use these SPAs to be present within the ZoI of this impact (see **Volume 3, Section 2.3** of the NIS). As such, **the potential for LSE cannot be ruled out**.

In response to FIR Item 7e Figure 3-2 has been replaced by Figure 1 below to include the Coquet Island SPA which has now been screened in.

#	Designated site
1	Rum SPA
2	Mingulay and Berneray SPA
3	Malin Head SPA
4	Tory Island SPA
5	Fanad Head SPA
6	Horn Head to Fanad Head SPA
7	Inishbofin, Inishdooey and Inishbeg SPA
8	Falcarragh to Meenlaragh SPA
9	Ailsa Craig SPA
10	West Donegal Islands SPA
11	Lough Foyle
12	Derryveagh And Glendowan Mountains SPA
13	West Donegal Coast SPA
14	Lough Nillan Bog SPA
15	Larne Lough
16	Rathlin O'Birne Island SPA
17	Solway Firth
18	Belfast Lough Open Water
19	Copeland Islands SPA
20	Belfast Lough
21	Lough Neagh and Lough Beg
22	Outer Ards
23	Mullet Peninsula SPA
24	Slieve Beagh SPA
25	Duvillaun Islands SPA
26	Upper Lough Erne
27	Killough Bay
28	Owenduff/Nephin Complex SPA
29	Morecambe Bay and Duddon Estuary SPA
30	Carlingford Lough
31	Dundalk Bay SPA
32	High Island, Inishshark and Davillaun SPA
33	Inishbofin, Omey Island and Turbot Island SPA
34	Cruagh Island SPA
35	Boyne Estuary SPA
36	River Nanny Estuary and Shore SPA
37	Irish Sea Front
38	Ribble & Alt Estuaries SPA
39	North-West Irish Sea SPA
40	Rockabill SPA
41	Skerries Islands SPA
42	Connemara Bog Complex SPA
43	Liverpool Bay
44	Rogerstown Estuary SPA
45	Lambay Island SPA
46	Malahide Estuary SPA
47	Baldoyle Bay SPA
48	Ireland's Eye SPA
49	Howth Head Coast SPA
50	North Bull Island SPA
51	Middle Shannon Callows SPA
52	South Dublin Bay and River Tolka Estuary SPA
53	Dalkey Islands SPA
54	Traeth Lafan/ Lavan Sands, Conway Bay
55	Poulaphouca Reservoir SPA
56	Slieve Aughty Mountains SPA
57	Slieve Bloom Mountains SPA
58	Cliffs of Moher SPA
59	Wicklow Mountains SPA
60	The Murrough SPA
61	Wicklow Head SPA
62	Slievefelim to Silvermines Mountains SPA
63	Aberdaron Coast and Bardsey Island SPA
64	Kerry Head SPA
65	Cahore Marshes SPA
66	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
67	Dingle Peninsula SPA
68	The Raven SPA
69	Wexford Harbour and Slobs SPA
70	Bannow Bay SPA
71	Ballyteigue Burrow SPA
72	Tacumshin Lake SPA
73	Lady's Island Lake SPA
74	Tramore Back Strand SPA
75	Seas off Wexford SPA
76	Killarney National Park SPA
77	Saltee Islands SPA
78	Dungarvan Harbour SPA
79	Iveragh Peninsula SPA
80	Mullaghanish to Musheramore Mountains SPA
81	Helvick Head to Ballyquin SPA
82	Puffin Island SPA
83	Blackwater Estuary SPA
84	Skelligs SPA
85	Ballymacoda Bay SPA
86	Cork Harbour SPA
87	Deenish Island and Scariff Island SPA
88	Ballycotton Bay SPA
89	Beara Peninsula SPA
90	The Bull And The Cow Rocks SPA
91	Courtmacsherry Bay SPA
92	Clonakilty Bay SPA
93	Old Head of Kinsale SPA
94	Grassholm SPA
95	Skomer, Skokholm and the Seas off Pembrokeshire SPA
96	Isles of Scilly SPA
97	Coquet Island SPA





Legend

- Planning Application Boundary (PAB)
- Special Protection Area (SPA)

Data sources: CWP, 2026; Natural Power, 2026; NPWS, 2026; NatureScot, 2026; Natural Resources Wales, 2026; DAERA, 2026; Natural England, 2026.
Background: OSM
Copyrights: Copyright Government of Ireland. This dataset was created by National Parks and Wildlife Service, Department of Housing, Local Government and Heritage; Contains Ordnance Survey data © Crown copyright and database right 2024; © OpenStreetMap contributors.

codling wind park

Project: Codling Wind Park

Contractor: natural power www.naturalpower.com

Figure 1
SPAs considered for the determination of the potential for the LSE from the project alone for ornithology

CWP doc. number: CWP-NPC-ENG-08-01-MAP-1525

Internal descriptive code:	*Size:*	*CRS:*
IRE - PAB - SPAs.ORNTH - (NIS.Vol.03.Sec.03.FIG.02)	*Scale:* 1:4,000,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
01	For FIR submission	2026/05/27	AC	FM/EA	GC

Section 3.4, 3.5, 3.6, 3.7, and Section 4 and remain unchanged

NIS ADDENDUM VOLUME 4 ASSESSMENT OF IMPLICATIONS FOR SPECIAL AREAS OF CONSERVATION

Section 1 remains unchanged

2 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES – PROJECT ALONE

2.1 South Dublin Bay SAC (IE000210)

2.1.1 Mudflats and sandflats not covered by seawater at low tide [1140]

2.1.1.1 Direct temporary impacts on habitats

Paragraph 9 and 10 of Section 2.1.1.1 remains unchanged but should now be read in conjunction with the additional text provided in paragraphs 55 to 61 and Table 7 below. This update has been made to provide additional details on construction activities in the intertidal area in response to FIR Item 8e (see **FIR Response Document**).

55. Additional detail on the intertidal construction operations is provided in **Chapter 4 Project Description** of the **EIAR Addendum** and summarised below, with the total footprint as per the representative scenario table set out in **Table 7**.

56. Three landfall cable ducts (each 50 m long) will be installed via open-cut trenching, requiring excavation of approximately 4,224 m³ of material and temporary removal of the existing coastal revetment. A temporary cofferdam (40 m × 75 m footprint) will be constructed to enable dry working conditions below the HWM, and supported by a gravel access ramp (60 m × 10 m) across the foreshore, which will remain in place for up to 24 months.

57. Three intertidal cable ducts will be installed below the existing intertidal sediment surface over a 300 m length, each within individual trenches up to 18 m wide and 2 m deep. Further seaward (350 m to c. 4 km offshore), three non-ducted offshore export cables will be free-laid and buried using a combination of open-cut trenching (3 x 1.7 km, 4 m width) and shallow-water trenching tools (3 x 2 km, 4 m width). Temporary support structures for cable pull-in include a mid-support pontoon (20 m × 50 m), three tensioner platforms (15 m × 10 m each), approximately 400 rollers per cable circuit, and one equipment storage platform (70 m × 25 m), all of which will be removed post-installation. Construction will be phased over 10 - 12 months, with Phase 1 covering site clearance, berm excavation, cofferdam installation, and duct laying, and Phase 2 involving cable pull-in, burial, and reinstatement.

58. This additional information does not change the area of the intertidal habitat temporarily affected by construction activities originally assessed and as such the conclusions of the NIS remain valid.

Table 7 Footprint of works within intertidal area as per the Representative scenario

Component	Representative scenario footprint
Cable Duct installation	36,000 m^2
Temporary Cofferdam	6,100 m^2
Non-Ducted Export Cables	108,000 m^2
Support Structures	6,900 m^2

Paragraphs 11 to 16 of Section 2.1.1.1 remain unchanged but should now be read in conjunction with the additional text provided in paragraphs 59 to 61 below. This update has been made to include the results from the 2025 benthic and intertidal site-specific validation surveys in response to FIR Item 8k and 8i (see **FIR Response Document**).

59. The additional 2025 intertidal survey aligns closely with the 2021 intertidal survey with sediment type across the lower, middle and upper shore being identified as fine sand or muddy sand. Species diversity was low across the majority of sampling stations with common species present including the lug worm *Arenicola marina,* common cockle *Cerastoderma edule* and bivalve *Macomangulus tenuis*. These species are typical of sandy middle to lower shores and are consistent with the previous baseline survey results. As, with the 2021 intertidal survey moderate amounts of green algae species such as *Ulva* sp. were present at some stations throughout the survey area. These species may indicate some nutrient enrichment which can occur due to agricultural run-off or other sources of nutrient enrichment.

60. No seagrass beds were recorded within the survey area. However, several small patches of seagrass were identified approximately 20 m from one of the sampling stations and out with the Planning Application Boundary (PAB).

61. Only one biotope was identified in the 2025 intertidal survey, Littoral Sand (LS.LSa), this validates the previous baseline characterisation as this biotope was present at vast majority of sampling stations in the 2021 intertidal survey. Given this, the additional 2025 intertidal survey supports conclusions of the original assessment that direct impacts on habitat arising as a result of the CWP Project will not impede the conservation objective for the South Dublin Bay SAC.

2.1.1.1.1 Increased SSC and sediment deposition

Section 2.1.1.1.1 remains unchanged except for the dredging and dredge disposal section and the trenching section.

Dredging and dredge disposal

The dredging and dredge disposal section is replaced in its entirety by paragraphs 62 to 65 below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

62. Suspended sediment plumes created during dredge disposal operations are predicted to enhance SSC levels in the near field (i.e., to the point of release) and far field (i.e., up to *c*. 7 km) from the point of release).

63. The predicted transport of sediment plumes and subsequent deposition during dredge disposal activities within the offshore development area can be summarised as follows:

64. Updated modelling was undertaken, the model inputs were aligned to the measured baseline sediment sizes (**Appendix 6-A Modelling Report Addendum**). Updated modelling of representative scenarios of dredge disposal activities within the array site predicted: a maximum transient increase in SSC of *c*. 250 mg/l, travelling up to 7 km in a north-south / slight east direction resulting in a cumulative sediment deposition thickness of *c*. 3 cm, near the disposal location. For the array site scenarios the time required to return to baseline SSCs was *c*. 11 days (**Appendix 6-A** of the **EIAR Addendum**).

65. Updated modelling of representative scenarios of dredge disposal activities within the OECC (taken here to refer to arisings as a result of jet trenching) predicted: a maximum transient increase in SSC of *c*. 400 mg/l, travelling up to 6 km in a north-south / slight east direction resulting in a cumulative sediment deposition thickness of *c*. 4 cm, near the disposal location. In a final scenario, a maximum transient increase in SSC of *c*. 125 mg/l, travelling up to 4 km in a north-south direction resulting in a cumulative sediment deposition thickness of *c*. 3 cm, near the disposal location. For the OECC scenarios the time required to return to baseline SSCs was *c*. 8 days (**Appendix 6-A** of the **EIAR Addendum**).

Trenching

The trenching section remains unchanged except for paragraphs 25 to 27 which are replaced by paragraphs 66 to 71 below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

66. The modelled transport of sediment plumes generated during cable installation activities (trenching) across the array site indicates the finest sediments will potentially be transported north-south / slight east up to 6 km at an increase of 80 mg/l, resulting in a cumulative sediment deposition thickness of *c*. 1 cm, near the release location. The time required to return to baseline SSCs was *c*. 11 days.

67. The predicted transport of sediment plumes generated during cable installation activities (trenching) across the OECC, within both the zone of greater burial depth and the OECC more broadly, were for an increase in SSC of *c*. 140 mg/l being transported for up to 5 km north-south / slight east resulting in a cumulative sediment deposition thickness of *c*. 1 cm, near the release location. The time required to return to baseline SSCs was *c*. 12 days.

68. Therefore, the maximum thickness of the deposit on the seabed away from the trenching activities was predicted to be *c*. 1 cm; deposited sediments would be reworked and rapidly integrated into the prevailing sediment transport regime, and thus would have negligible impact on the prevailing environment. Consequently, enhanced SSC and the predicted deposition thickness would not be discernible above natural variation observed during storm events, with SSCs predicted to reduce to baseline levels within *c*. 12 days following trenching operations.

69. The total disturbed footprint for all three export cables and associated works in the intertidal zone is 40,200 m^2 within the Dublin Bay SAC; this equates to 0.55% of the designated site.

70. **Appendix 6-A** of the **EIAR Addendum** of the **EIAR Addendum** provides further detail on refined modelling undertaken to validate predictions made with regards predicted increases in SSC and sediment deposition within South Dublin Bay SAC. The modelling further confirms that excavation and trenching activities will also generate short-term, localised increases in SSC's within the immediate works area. These elevations will primarily occur during tidal inundation, when redistributed sediments are entrained by incoming flows and dispersed across the foreshore. However, as noted within the original assessment, predicted SSC levels remain within the natural variability of Dublin Bay, where background concentrations fluctuate considerably during spring tides and storm-driven wave events. Given the dynamic tidal regime and active wave energy, any SSC increase will be highly transient,

dispersing rapidly and returning to baseline conditions within hours to days following cessation of works.

71. The results of the revised modelling, summarised above, supports and validates the previous modelling results. Given this, the additional sediment plume modelling supports conclusions of the original assessment that increased SSC and sediment deposition arising as a result of the CWP Project will not impede the conservation objective for the South Dublin Bay SAC. As such it validates the original conclusion that there will be no adverse effects on the site integrity of the South Dublin Bay SAC from increased SSC and sediment deposition.

2.1.1.1.2 Remobilisation of contaminated sediments

Section 2.1.1.1.2 remains unchanged but should now be read in conjunction with the additional text provided in paragraphs 72 to 74 below. This update has been made in response to FIR Item 8k and 8i (see **FIR Response Document**).

72. Samples for contaminants were collected at 10 stations within the intertidal area in 2025, full results are presented in **Appendix 6-B Intertidal Assessment** (subtidal is further considered in **Appendix 8-A Benthic Subtidal Survey Report 2025b** of the **EIAR Addendum**. The survey results showed that, stations 16 and 20 had chromium concentrations below Irish lower and upper levels and slightly above Cefas AL1 but below AL2. All other metal concentrations were below both below Irish lower and upper levels and Cefas AL1 and AL2.

73. Organotin compounds (tributyl tin (TBT), dibutyl tin (DBT) and monobutyltin (MBT)) were below the limits of detection and there was no exceedance of Irish or Cefas ALs at any of the sampling stations and no Irish or Cefas ALs were exceeded for polychlorinated biphenyls (PCBs) or polyaromatic hydrocarbons (PAHs).

74. These low levels on contamination found in the 2025 intertidal survey support the conclusions of the NIS that considering the low levels of contamination within the sediments within the area, the relatively low predicted levels of sediment deposition, and predicted tolerance of individuals, there will be no adverse effects on the site integrity of the South Dublin Bay SAC from the remobilisation of contaminated sediments.

2.1.1.1 .3 Presence of EMF / temperature changes

Section 2.1.1.3 remains unchanged but should now be read in conjunction with the additional text provided in paragraphs 75 to 77 and Plates 1 to 3 below. This update has been made in response to FIR Item 8n (see FIR Response Document).

75. Based upon the predicted cable arrangements, the magnetic field strength at the sediment surface (assuming a minimum depth of cover of 1.4 m [4]) will be 1.5 µT for a 1400 Cu mild steel cable (**Plate 1**), 2.05 µT for a 1800 Cu mild steel cable (**Plate 2**) and 4.7 µT for an 1800 Cu stainless steel cable (**Plate 3**). These values fall sharply as distance from the cable increases, with levels back to near zero within 2 m of the cable.

[4] In both the area of 2 m maximum trench depth, increased where the OECC crosses the approaches to Dun Laoghaire harbour (in the zone of greater burial depth), and 3 m where the OECC crosses the RWE cable

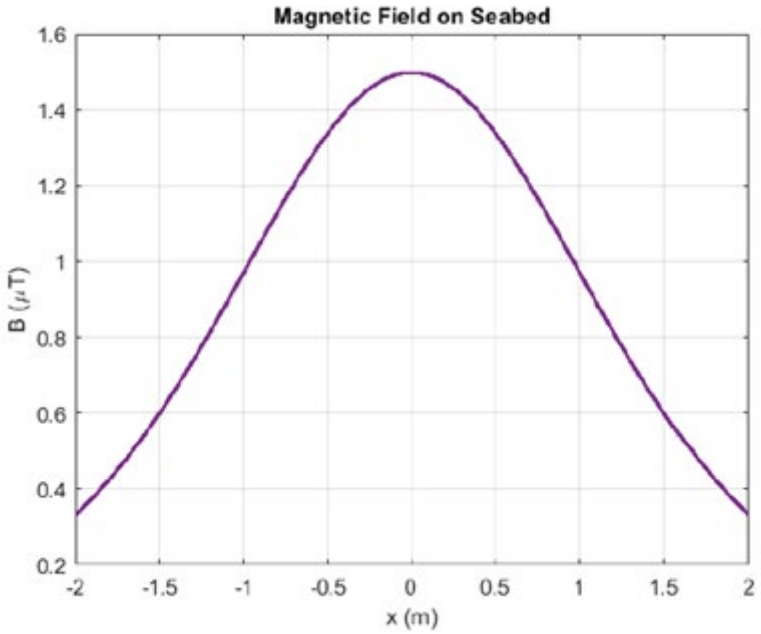


Plate 1 OECC Magnetic field at seabed surface – 1400 Cu, mild steel – 1064A – 2 m depth of burial[4]

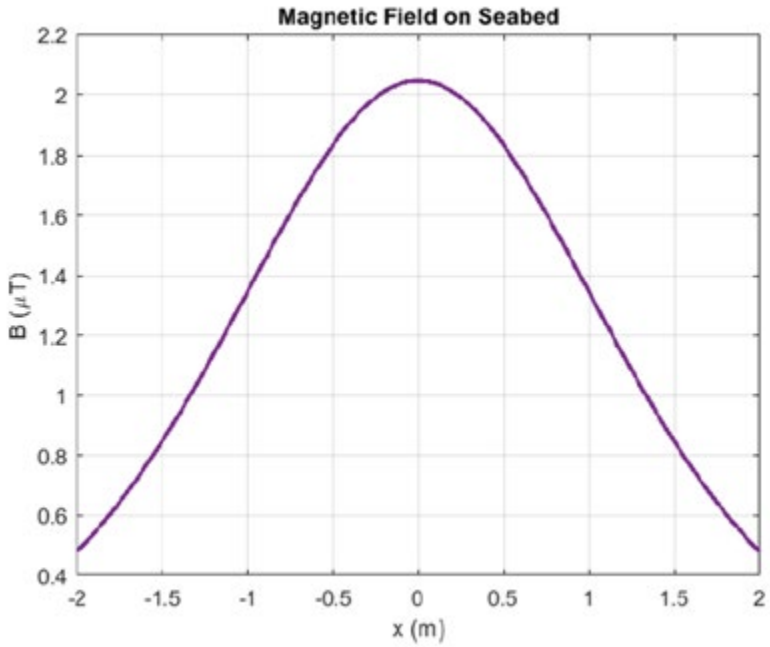


Plate 2 OECC Magnetic field at seabed surface – 1800 Cu, mild steel – 1083A – 2 m depth of burial[4]

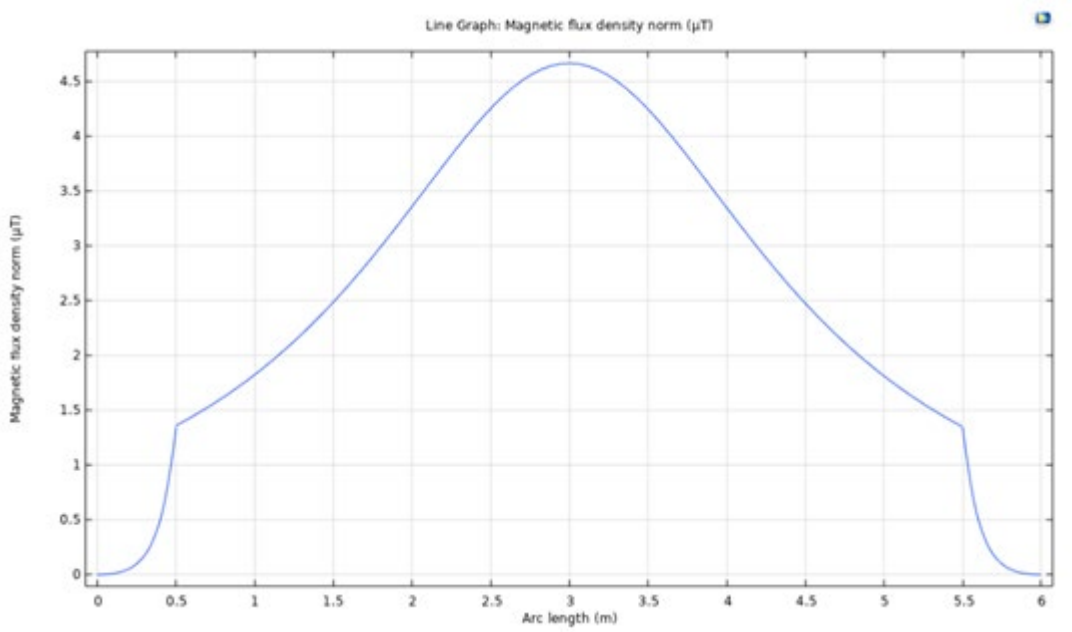


Plate 3 IAC magnetic field at seabed surface – 1800 Cu, stainless steel – 1083A – 2 m depth of burial

76. The Magnetic flux present at the cable surface is considerably higher than on the seabed, however the magnetic field reduces rapidly with distance. Magnetic field density at the cable surface approximately is likely to be in the region of 1600 μT, however this is expected to reduce to less than 30 μT at the seabed surface for a buried and/or protected cable (which is less than the Earth's magnetic field which is approximated at 50 μT in the UK) and further reduce to zero within approximately 6 m (Tripp, 2024).

77. The additional information provided in paragraphs 75 to 76 above support the conclusions of the NIS that considering the low levels of EMF and predicted temperature changes associated with the installation of the OECC, and predicted tolerance and acclimatation of individuals, this impact is only considered to have the potential to cause very slight or imperceptible changes to mudflats and sandflats QI of South Dublin Bay SAC and that there will be no adverse effects on the site integrity of the South Dublin Bay SAC from EMF and temperature changes associated with the installation of the OECC.

2.1.2 *Salicornia* and other annuals colonising mud and sand [1310]

2.1.2.1 Direct temporary impacts on habitats

2.1.2.1.1 Increased SSC and sediment deposition

Section 2.1.2.1.1 remains unchanged except for the dredging and dredge disposal section and the trenching section.

Dredging and dredge disposal

The dredging and dredge disposal section here is replaced in its entirety by the text provided in the Dredging and dredge disposal paragraphs 62 to 65 provided in Section 2.1.1.1.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

Trenching

The trenching section remains unchanged except for paragraphs 66 to 68 which are replaced by the text provided in the Trenching paragraphs 66 to 71 provided in Section 2.1.1.1.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.1.2.1.2 Remobilisation of contaminated sediments

Section 2.1.2.1.2 remains unchanged but should now be read in conjunction with the additional text provided in the paragraphs 72 to 74 provided in the Remobilisation of contaminated sediments paragraphs provided in Section 2.1.1.1.2 above. This update has been made in response to FIR Item 8k and 8i (see **FIR Response Document**).

2.2 Rockabill to Dalkey Island SAC (IE003000)

2.2.1 Reefs [1170]

2.2.1.1 Direct temporary impacts on habitats

2.2.1.1.1 Increased SSC and sediment deposition

Section 2.2.1.1.1 remains unchanged except for the dredging and dredge disposal section and the trenching section.

Dredging and dredge disposal

The dredging and dredge disposal section here is replaced in its entirety by the text provided in the Dredging and dredge disposal paragraphs 62 to 65 provided in Section 2.1.1.1.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

Trenching

The trenching section remains unchanged except for paragraphs 125 to 127 which are replaced by paragraphs 66 to 68 in the Trenching paragraphs provided in Section 2.1.1.1.1 above and paragraphs 78 and 79 provided below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**), and a revision to the cable depth of cover with the zone of greater burial depth.

78. The results of the revised modelling, summarised above, supports and validates the previous modelling results. Given this, the additional sediment plume modelling supports conclusions of the original assessment that based upon the modelling of sediment transport arising from the CWP Project

activities, there is no potential for increases in SSC to affect the protected habitats within the Rockabill to Dalkey SAC.

79. Therefore, the additional sediment plume modelling validates the original conclusions of the NIS increased SSC and sediment deposition arising as a result of the CWP Project will not impede the conservation objective for the Rockabill to Dalkey Island SAC.

2.2.1.3 Remobilisation of contaminated sediments

Section 2.2.1.3 remains unchanged but should now be read in conjunction with the additional paragraphs 72 to 73 provided in the Remobilisation of contaminated sediments paragraphs in Section 2.1.1.1.2 above, and paragraph 80 below. This update has been made in response to FIR Item 8k and 8i (see **FIR Response Document**).

80. These low levels on contamination found in the 2025 South Dublin Bay intertidal survey, combined with the low levels of contaminants identified within the subtidal benthic survey (**Appendix 8-A** of the **EIAR Addendum** to the **EIAR Addendum**), support the conclusions of the NIS that considering the low levels of contamination within the sediments within the area, the relatively low predicted levels of sediment deposition, there will be no adverse effects on the site integrity of the Rockabill to Dalkey Island SAC from the remobilisation of contaminated sediments.

2.2.1.4 Presence of EMF / temperature changes (O&M)

Section 2.2.1.4 remains unchanged but should now be read in conjunction with paragraphs 75 to 76 in Section 2.1.1.3 above and paragraph 81 below. This update has been made in response to FIR Item 8n (see FIR Response Document).

81. The additional information provided in paragraphs above do not alter the assessment and conclusions of the NIS as the reef features in the Rockabill to Dalkey SAC are outside of the OECC, and as such there is no potential for impacts from EMF or temperature changes to arise. As such, there is no potential for AESI to arise from EMF or temperature changes.

2.2.2 Harbour porpoise [1351]

Section 2.2.2 remains unchanged except for paragraphs 153 through to 183 which are replaced by paragraphs 82 and 113 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of effective deterrence ranges (EDRs) for high and low order UXO clearance and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance in response to the FIR;
4. Updates to the EIAR Addendum in response to the FIR; and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1).** Where impacts associated with increased underwater noise from vessel presence, other construction activities

and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.2.2.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

82. The CWP array site is located approximately 14.2 km away from the Rockabill to Dalkey Island SAC, and a section of the OECC overlaps with the SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

83. The underwater noise assessment within **Appendix 9-C Underwater Noise Modelling Assessment** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

84. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

85. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

86. Considering the above, geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

87. As the OECC of the CWP Project overlaps with the Rockabill to Dalkey Island SAC, there is the potential for *in situ* overlap between PTS-onset ranges and the Rockabill to Dalkey Island SAC for unmitigated UXO clearance activities occurring within the OECC. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As such, there would be an overlap of the injury range with the SAC when detonated within the OECC but no overlap when the UXO is detonated within the array area.

88. To further reduce the risk of injury, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible.
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

89. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for harbour porpoise is 990 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 5.1 km for harbour porpoise. As such, there is a potential for overlap of the injury range with the SAC if the UXO is cleared by high-order detonation with noise abatement within the OECC, but not within the array area.

90. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the UXO clearance occurs. Given that the injury range for the low-order clearance is 990 m, there will be no residual risk of injury to harbour porpoise following the mitigation. For high-order clearance with noise abatement, the injury range is larger than the 1 km radius that will be monitored by the MMO, and thus a residual risk of injury remains. It is however anticipated that a 5.1 km impact range can be mitigated through the use of pre-detonation ADD activation, to deter porpoise out of the injury range.

91. Additionally, it should be noted that the injury range of 5.1 km represents a very precautionary value as this estimation is based on the assumption that the noise levels will be proportional to full detonation of the new explosive quantity (NEQ) of the UXO, and does not account for absorption of energy by the seabed or degradation of the UXO. Most recent studies on high-order UXO clearance did not report a strong correlation between the estimated UXO NEQ and measured noise levels, suggesting that not all explosive material within the UXO detonates (Robinson *et al.*, 2022). Further, the majority of acoustic energy produced by a high-order detonation is below a few hundred Hz, decreasing on average by about SEL 10 dB per decade above 100 Hz, and there is a pronounced drop-off in energy levels above ~5-10 kHz (von Benda-Beckmann *et al.*, 2015, Salomons *et al.*, 2021). Therefore, the primary acoustic energy from a high-order UXO detonation is below the region of greatest sensitivity for harbour porpoise (Southall *et al.*, 2019, NMFS, 2024). If PTS were to occur within this low frequency range, it would be unlikely to result in any significant impact to vital rates of porpoise.

92. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

93. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Rockabill and Dalkey Island SAC. When considering the impacts of piling of WTGs, using SCANS IV block density, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

94. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 minutes (supplemented by PAM).
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

95. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

96. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

97. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both within and outside of the SAC are expected to be to be reduced to negligible levels. Therefore, the proposed activities are highly unlikely to cause death or injury to individuals and will not affect the harbour porpoise community at the site. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Rockabill to Dalkey Island SAC will not occur as a result of injury from underwater noise generated from geophysical surveys, UXO clearance and WTG piling at the CWP Project Alone.

Disturbance

98. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

99. For *in situ* disturbance from geophysical surveys, a 3 km EDR centred in the OECC results in up to 26.2 km^2 impacted area within the SAC (9.62% SAC area). For geophysical surveys occurring within the array area, there is no overlap with the SAC. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using the SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

100. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

101. For a 20 km EDR for high-order UXO clearance occurring in the project OECC, harbour porpoises are at risk of experiencing disturbance within up to 185.63 km^2 of the SAC area (68.02%). Using TTS as a proxy for disturbance for unmitigated UXO clearance, results in up to 227.95 km^2 overlap with the SAC area (83.53%). When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a

maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

102. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

103. For a 10 km EDR for high-order UXO clearance using noise abatement occurring in the project OECC (at the point closest to the SAC), harbour porpoises are at risk of experiencing disturbance within up to 95.94 km^2 of the SAC area (35.16%). For a 5 km EDR for low-order UXO clearance occurring within the OECC (at the point closest to the SAC), this results in an overlap with up to 52.32 km^2 (19.2%) of the SAC area. For UXO clearance occurring within the array area, there is no overlap of the 5 km EDR with the SAC. Using TTS as a proxy for disturbance results in up to 54.71 km^2 (20.05%) of the SAC area being affected (using the OECC point closest to the SAC).

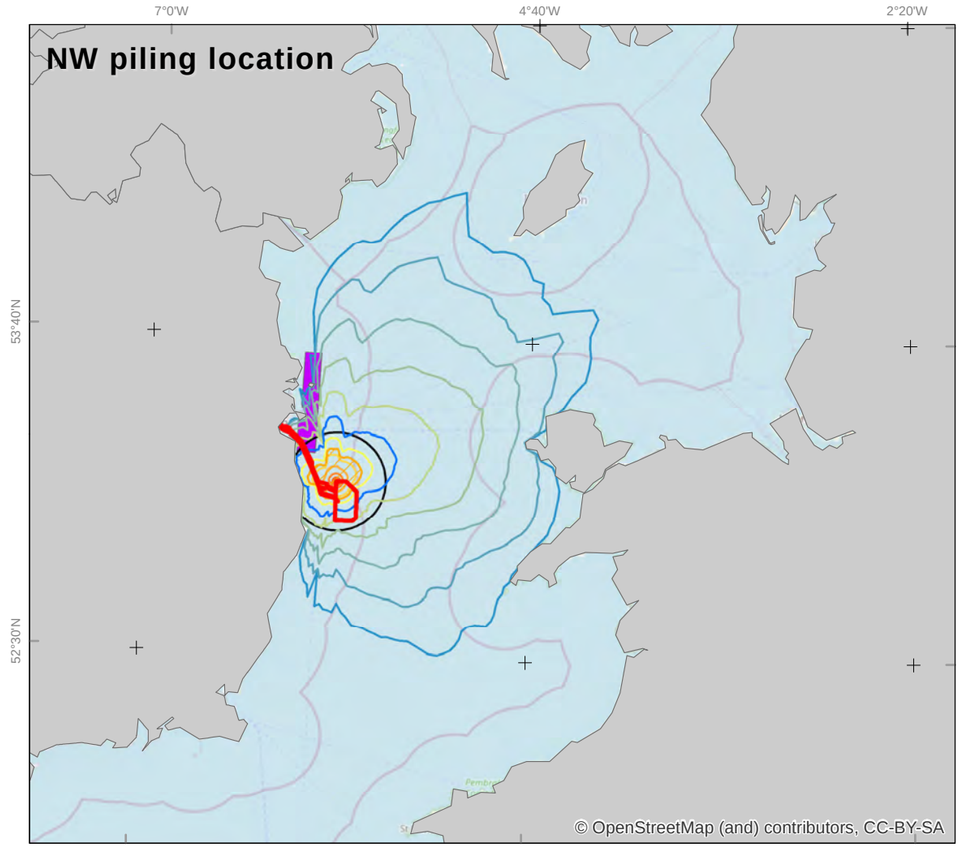
104. When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. For TTS as a proxy for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

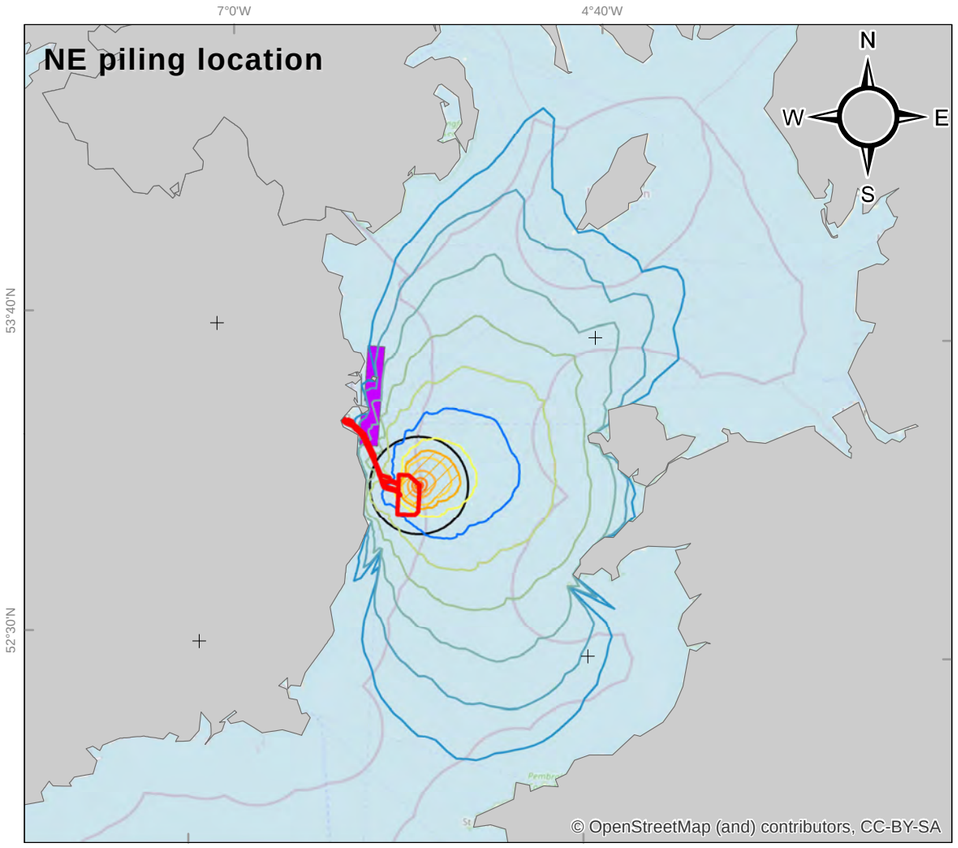
105. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, *"...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement..."*. Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

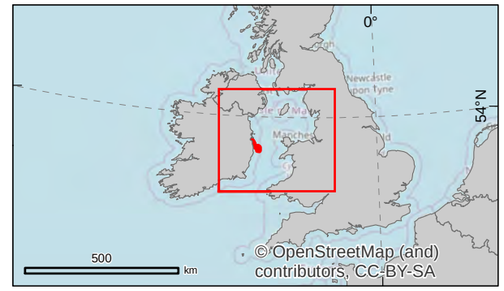
Piling of WTGs

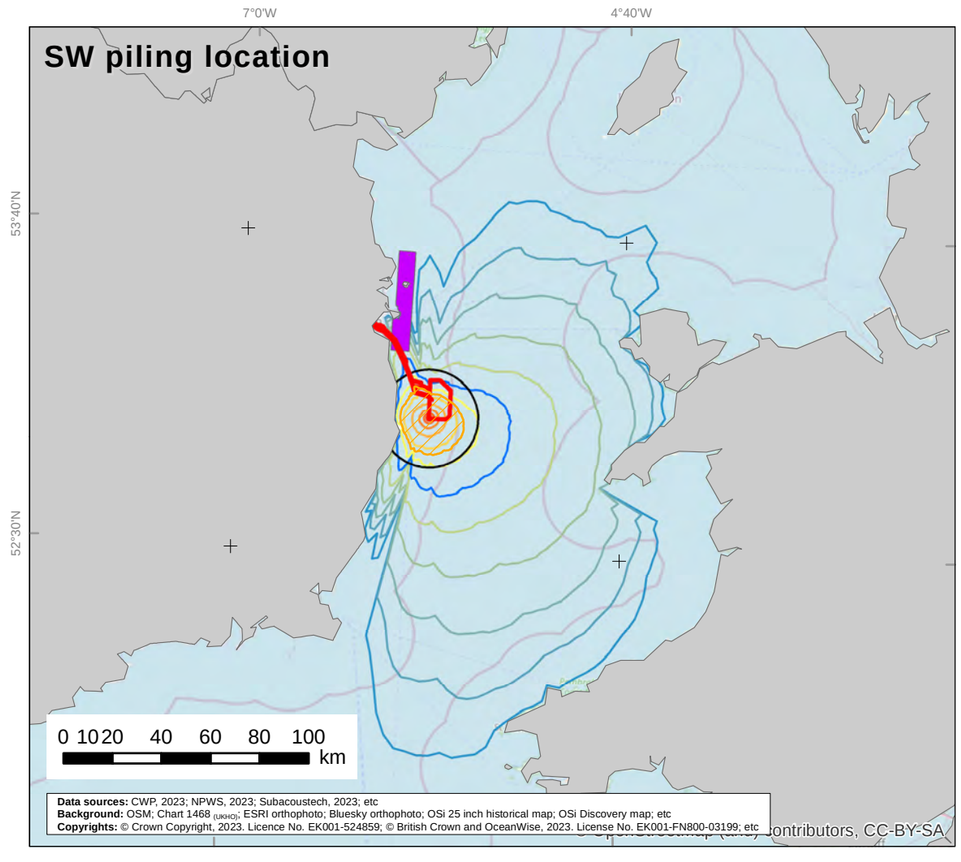
Unmitigated piling

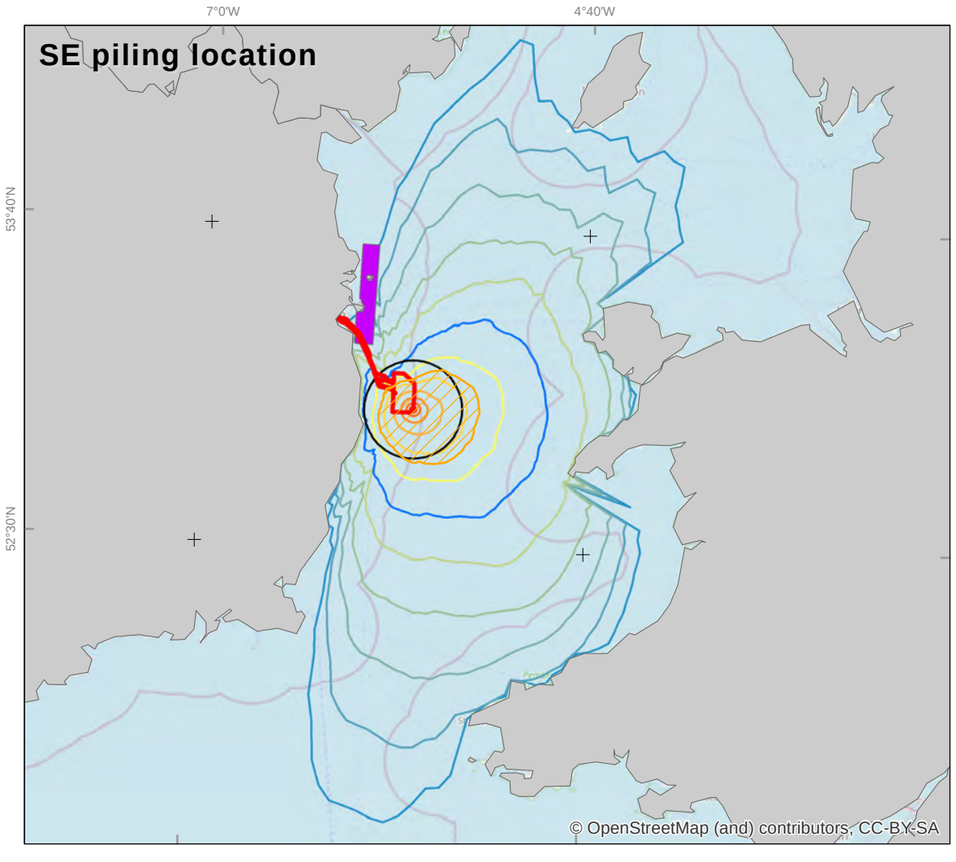
106. For the unmitigated piling using the harbour porpoise dose-response function, a portion of the disturbance contours overlap with the Rockabill to Dalkey Island SAC boundary (see **Figure 2** and **Table 8**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Rockabill to Dalkey Island SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting

Figure 2: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Rockabill to Dalkey Island SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2080

Internal descriptive code: N/A

Size: A3

Scale: 1:2,500,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

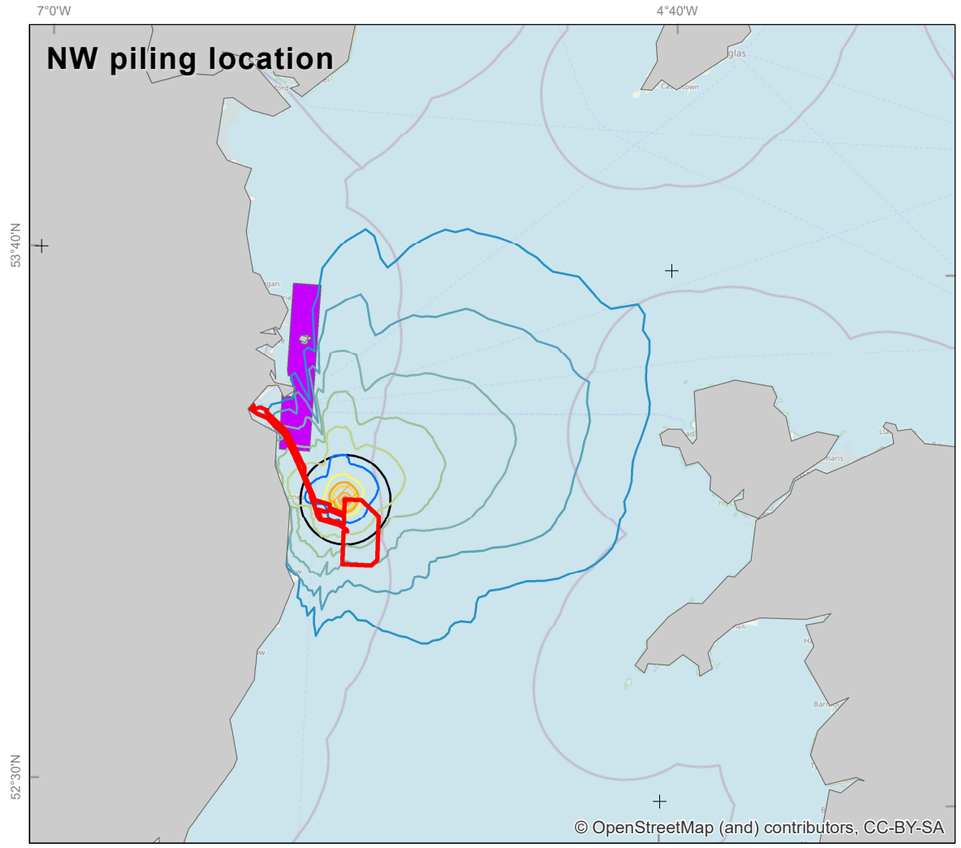
107. Based on the dose-response assumptions, there is effective disturbance to 20.46% of the SAC area from unmitigated piling at the NW location, where 9 harbour porpoise within the SAC are predicted to show a disturbance response (**Table 8**). Using the Level B harassment threshold, disturbance impact ranges from piling do not overlap with the Rockabill to Dalkey Island SAC. The overlap with the 145 dB SEL_{ss} threshold during unmitigated piling is minimal, with the disturbance to 1.81% of the SAC area at the NW location. The overlap with the 20 km unmitigated piling EDR and the SAC is 25.34 km^2, equal to 9.29% of the SAC area.

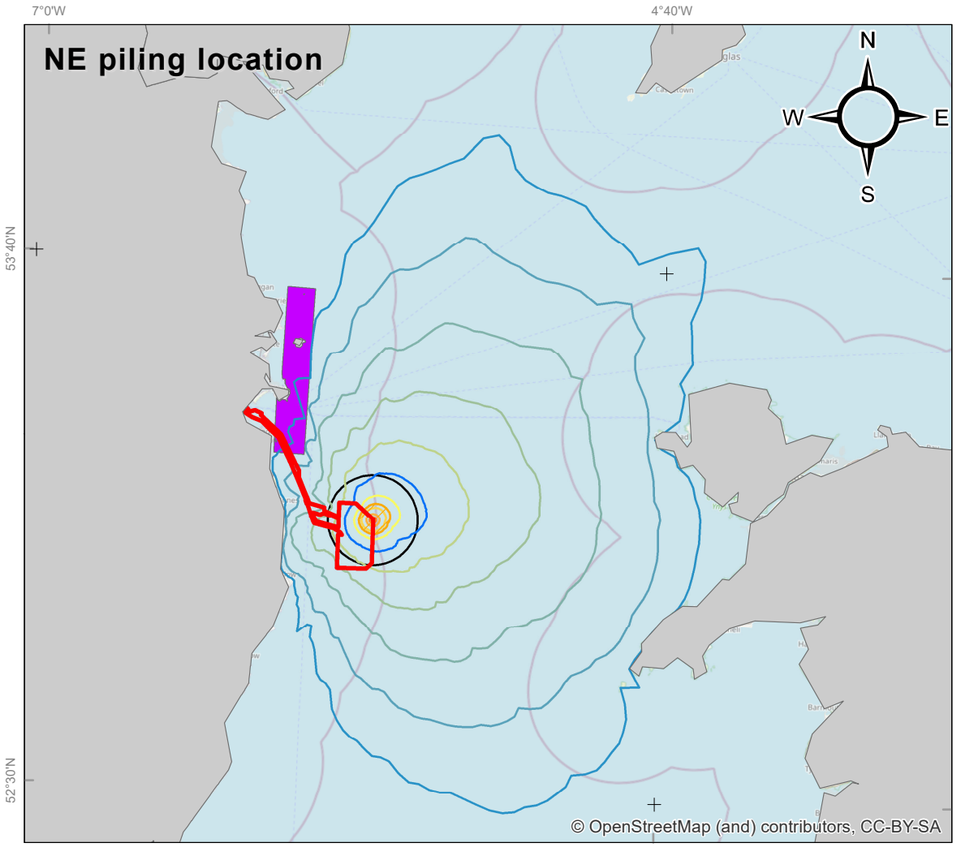
Table 8 Predicted overlap between predicted disturbance contours from unmitigated piling of WTGs at CWP and the Rockabill to Dalkey Island SAC using a range of approaches and the SCANS IV block density block CS-D density estimate.

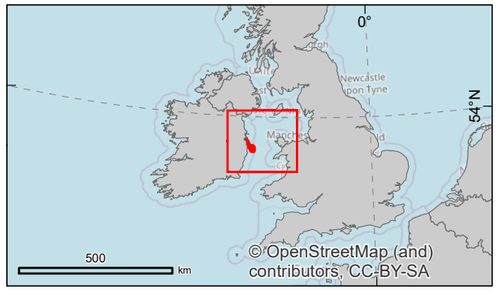
Disturbance Threshold	Model location	Total overlap (% SAC area)	Effective area disturbed (% SAC)	# porpoise disturbed in SAC
Dose-response	NE	237.26 km^2 (86.94% SAC)	14.32 km^2 (5.25% SAC)	3
	NW	219.54 km^2 (80.45% SAC)	55.83 km^2 (20.46% SAC)	9
	SE	157.35 km^2 (57.66% SAC)	5.21 km^2 (1.91% SAC)	1
	SW	121.9 km^2 (44.67% SAC)	28.88 km^2 (10.58% SAC)	5
145 dB SEL_{ss}	NE, SE & SW	0 km^2	NA	0
	NW	4.93 km^2 (1.81% SAC)		1
20 km EDR	NE, SE & SW	0 km^2	NA	0
	NW	25.34 km^2 (9.29% SAC)		7
Level B harassment threshold	All	0 km^2	NA	0

Mitigated piling

108. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measures applicable to disturbance include a commitment to the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. For the mitigated piling using the harbour porpoise dose-response function, a portion of the disturbance contours overlap with the Rockabill to Dalkey Island SAC boundary (see **Figure 3** and **Table 9)**.





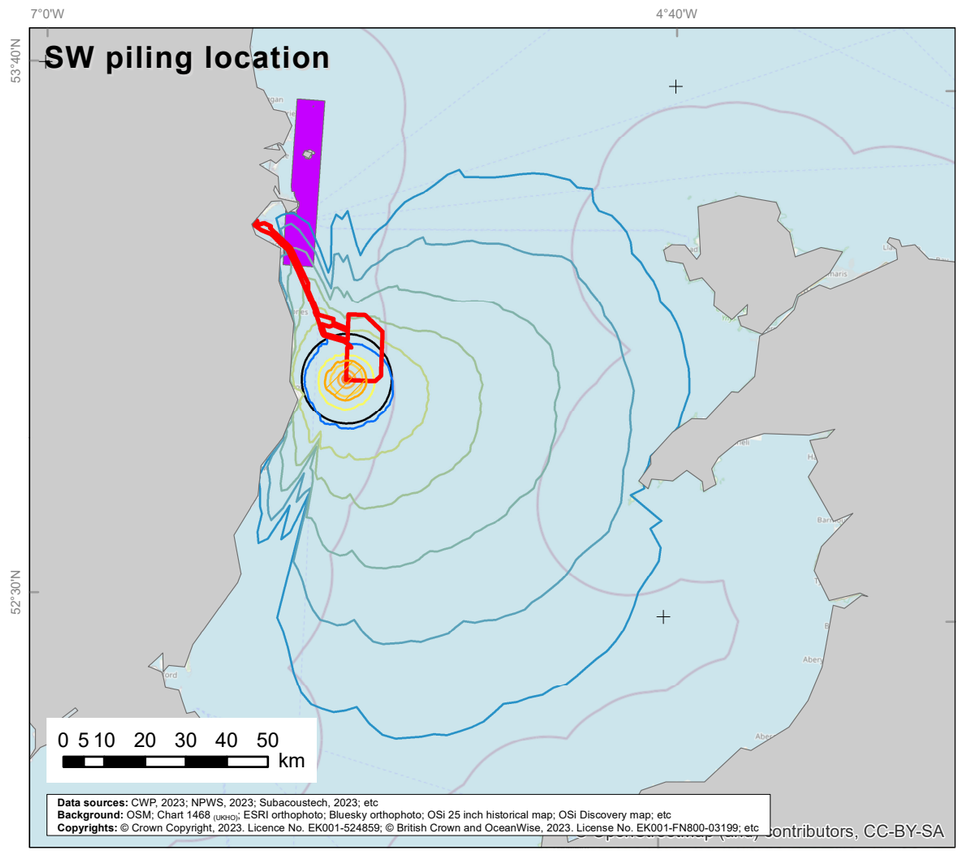


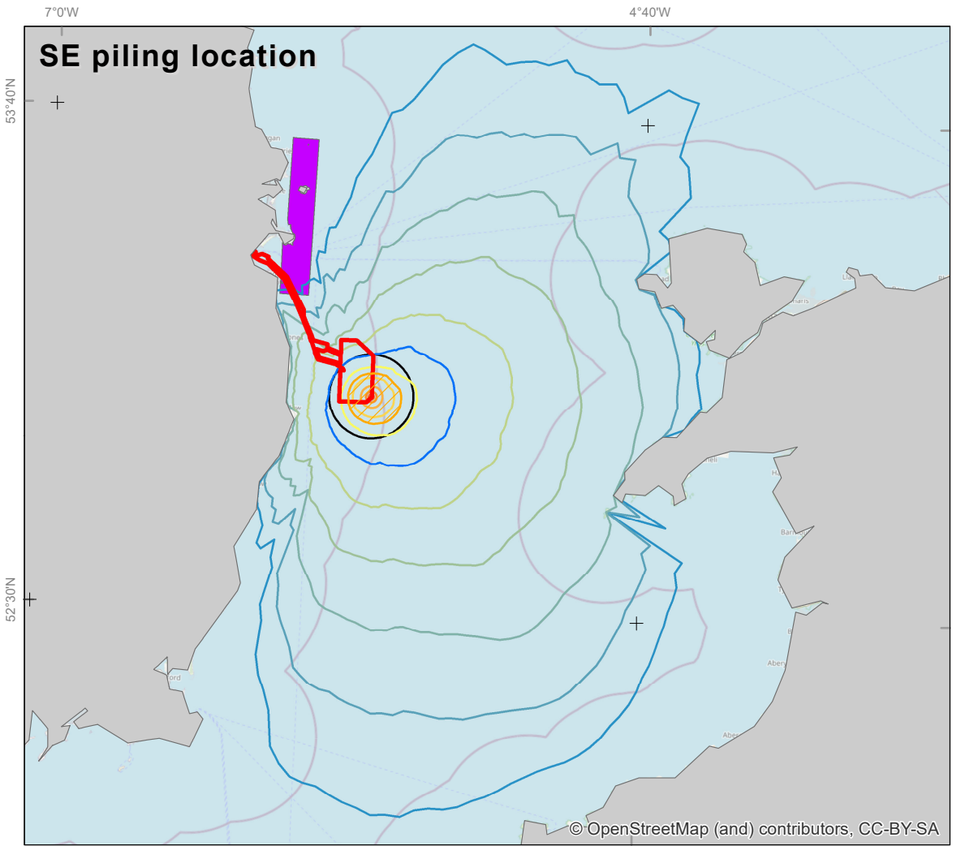
Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s threshold

SEL_{ss} dB re μPa^2s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Rockabill to Dalkey Island SAC





codling wind park

Project: Codling Wind Park

SMRU Consulting
understand + assess + mitigate

Figure 3: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Rockabill to Dalkey Island SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2081

Internal descriptive code:	*Size:*	*CRS:*
N/A	A3 *Scale:* 1:1,500,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

109. Based on the dose-response assumptions, there is effective disturbance to 4.23% of the SAC area from mitigated piling at the NW location (**Table 9**), where 2 harbour porpoises within the SAC are predicted to show a disturbance response. When using the Lucke *et al.* (2009) 145 dB SEL_{ss} threshold, the 11 km EDR for mitigated piling (JNCC, 2025b) and the Level B harassment threshold, disturbance impact ranges from piling do not overlap with the Rockabill to Dalkey Island SAC.

Table 9 Predicted overlap between predicted disturbance contours from mitigated piling of WTGs at CWP and the Rockabill to Dalkey Island SAC using a range of approaches and the SCANS IV block density block CS-D density estimate.

Disturbance Threshold	Model location	Total overlap (% SAC area)	Effective area disturbed (% SAC)	# porpoise disturbed in SAC
Dose-response	NE	54.46 km^2 (19.96% SAC)	0.63 km^2 (0.23% SAC)	<1
	NW (see **Table 10** for details)	195.68 km^2 (71.70% SAC)	11.53 km^2 (4.23% SAC)	2
	SE	10.59 km^2 (3.88% SAC)	4.53 km^2 (1.66% SAC)	<1
	SW	82.93 km^2 (30.39% SAC)	2.85 km^2 (1.04% SAC)	1
145 dB SEL_{ss}	All	0 km^2	NA	0
11 km EDR	All	0 km^2	NA	0
Level B harassment threshold	All	0 km^2	NA	0

Table 10 Dose-response function overlap with the Rockabill to Dalkey Island SAC for mitigated piling at the NW location.

Contour (unweighted dB SEL_{ss})	Area of SAC within contour (km^2)	% response within contour	Effective area of SAC disturbed (km^2)	% overlap of the SAC
135<140	12.38	19	2.29	0.84%
130<135	42.96	9	3.77	1.38%
125<130	92.13	3	3.22	1.18%
120<125	195.68	1	2.25	0.82%
TOTAL	**103.55**	**-**	**11.53**	**4.23%**

110. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or average of 10% of the area over a season is considered significant (JNCC, 2020). This approach is based on using fixed EDRs as average habitat loss per individual (JNCC, 2025b). Following application of the mitigation measures, there is no overlap of the 11 km EDR with the

Rockabill to Dalkey Island SAC. The use of noise contours and dose-response is considered below as a precautionary approach. Piling at the NW location, closest to the SAC, results in effective disturbance of up to 4.23% of the Rockabill to Dalkey Island SAC area (using the dose-response approach, **Table 10**), which is well below the 20% area threshold for any given day. The COs supporting document does not specify whether a portion of the SAC is designated for summer and/or winter periods (NPWS, 2013). Therefore, the whole area of the SAC was taken into account over the entire year to calculate seasonal average. If the piling will take place up to 78 days, the seasonal average is 0.90%, which is below the 10% threshold. As such, there is no risk of significant disturbance to porpoise within the SAC.

111. For mitigated piling of WTGs, the approach presented below is in line with **Chapter 11 Marine Mammals** of the **EIAR Addendum**. When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU (when a monopile foundation is installed at the SE location and using the Evans and Waggitt (2023) density estimate). To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the CO Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 4** and **Table 11**).

112. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

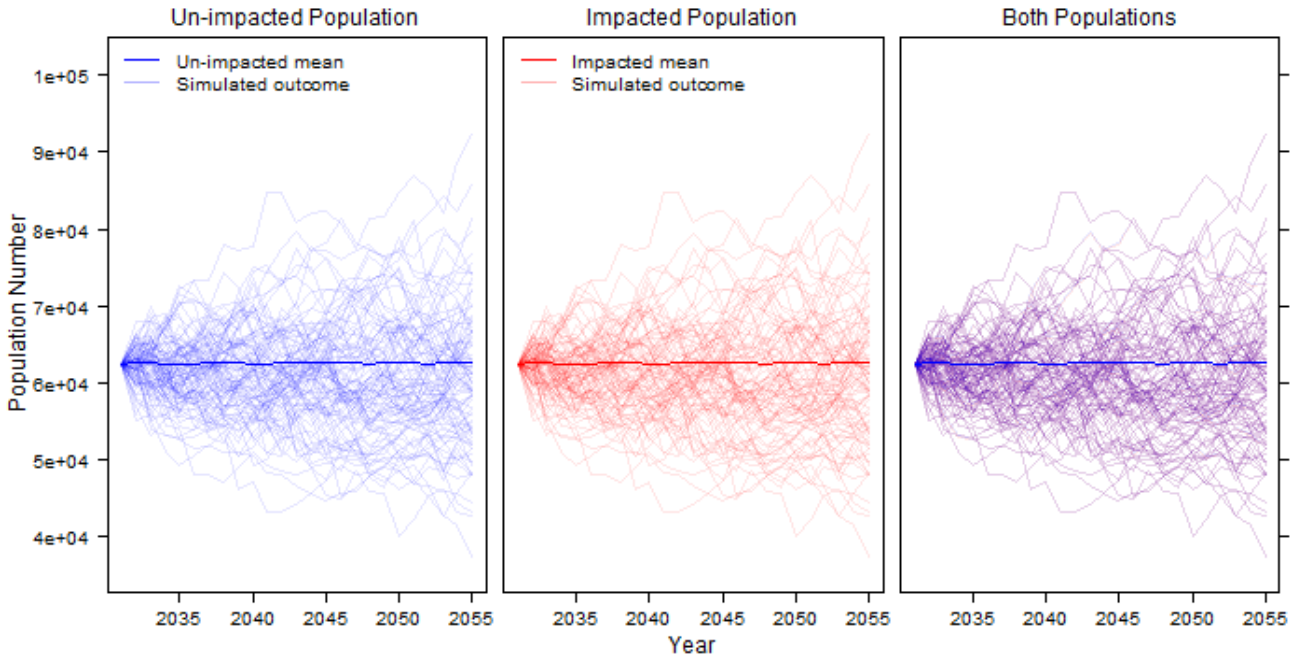


Plate 4 Predicted population trajectories for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 453 harbour porpoise per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

Table 11 Predicted mean population size for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 453 harbour porpoise per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

	Unimpacted population mean size	**Unimpacted population mean size**	**Impacted population size as a % of the unimpacted population size**
Start 2031 (before piling commences)	62,516	62,516	100.00%
End 2031 (after piling ends)	62,638	62,635	100.00%
End 2036 (6 years after piling ends)	62,591	62,586	99.99%
End 2042 (12 years after piling ends)	62,600	62,595	99.99%
End 2048 (18 years after piling ends)	62,600	62,595	99.99%

Conclusion

113. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Rockabill to Dalkey Island SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.3 North Dublin Bay SAC (IE000206)

2.3.1 Mudflats and sandflats not covered by seawater at low tide [1140], *Salicornia* and other annuals colonising mud and sand [1310], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] and Mediterranean salt meadows (*Juncetalia maritimi*) [1410]

2.3.1.1 Increased SSC and sediment deposition

2.3.1.1.1 Dredging and dredge disposal

The dredging and dredge disposal section here is replaced in its entirety by the text provided in the Dredging and dredge disposal paragraphs 62 to 65 provided in Section 2.1.1.1.1 Increased SSC and sediment deposition above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.3.1.1.2 Trenching

Section 2.3.1.1.2 remains unchanged except for paragraphs 218 to 220 which are replaced by paragraphs 66 to 68 in the Trenching paragraphs provided in Section 2.1.1.1.1 Increased SSC and sediment deposition above and paragraph 114 and 115 provided below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**), and a revision to the cable depth of cover with the zone of greater burial depth

114. The results of the revised modelling, summarised above, supports and validates the previous modelling results. Given this, the additional sediment plume modelling supports conclusions of the original assessment that considering the distance to the QIs, the lack of predicted sediment transport in the direction of the SAC, and high tolerance to the impacts of the QIs, it is considered that no adverse effects on the integrity of North Dublin Bay SAC will arise as a result of this impact.

115. Therefore, the additional sediment plume modelling validates the original conclusions of the NIS that that there will be no adverse effects on the site integrity of the North Dublin Bay SAC from increased SSC and sediment deposition arising as a result of the CWP Project.

2.3.1.2 Remobilisation of contaminated sediments

Section 2.3.1.2 remains unchanged but should now be read in conjunction with the additional paragraphs 72 to 74 provided in the Remobilisation of contaminated sediments paragraphs in Section 2.1.1.1.2

Remobilisation of contaminated sediments above, and the paragraph below. This update has been made in response to FIR Item 8k and 8i (see **FIR Response Document**).

These low levels on contamination found in the 2025 South Dublin Bay intertidal survey support the conclusions of the NIS that considering the low levels of contamination within the sediments within the area, the relatively low predicted levels of sediment deposition, and predicted tolerance of individuals, there will be no adverse effects on the site integrity of the North Dublin Bay SAC from the remobilisation of contaminated sediments.

2.4 Codling Fault Zone SAC (003015)

2.4.1 Harbour porpoise

Section 2.4.1 remains unchanged except for paragraphs 244 through to 270 which are replaced by paragraphs 116 and 143 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance as described in the **Updated MMMP**;
4. Updates made to the EIAR Addendum in response to the FIR and observations, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1).** Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.4.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

116. The CWP array site is located approximately 18.9 km away from the Codling Fault Zone SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

117. There is no overlap between the CWP array area or the OECC with the SAC. The underwater noise assessment within the EIAR Addendum (**Appendix 9-C** to the **EIAR Addendum**) concludes that for

pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

118. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

119. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

120. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

121. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Codling Fault Zone SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

122. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 of this **NIS Addendum** evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Codling Fault Zone SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the nearest site *ex situ.*

123. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

124. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Codling Fault Zone SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

125. To further reduce the risk of injury, The Applicant has to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

126. The maximum mitigated PTS-onset range for harbour porpoise is 140. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for

the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

127. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

128. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not affect the harbour porpoise community at the site. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Codling Fault Zone SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

129. This SAC is located within the Republic of Ireland offshore region.

Pre-construction geophysical surveys

130. Given that there is no spatial overlap of the CWP Project with the Codling Fault Zone SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

131. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

132. For a 20 km EDR for high-order UXO clearance, harbour porpoises are at risk of experiencing disturbance within up to 1.75 km^2 of the SAC area (5.87%). Using TTS as a proxy for disturbance for unmitigated UXO clearance, results in up to 29.41 km^2 overlap with the SAC area (98.69%). When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at

risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

133. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

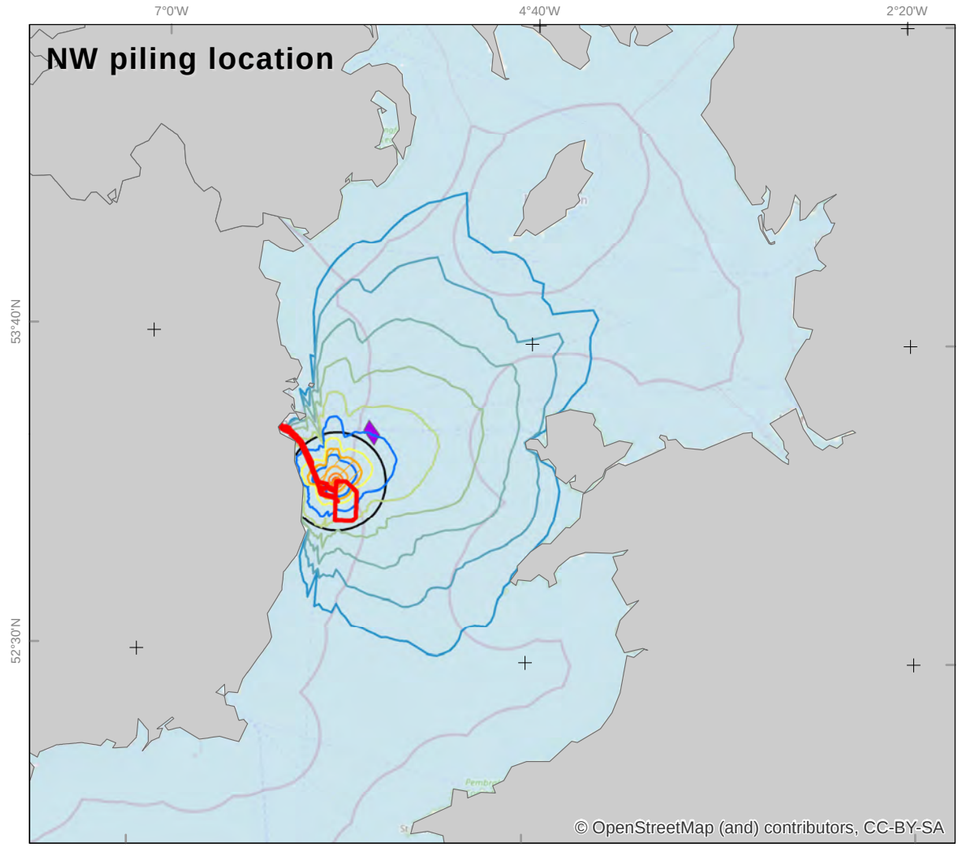
134. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. For TTS as a proxy for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

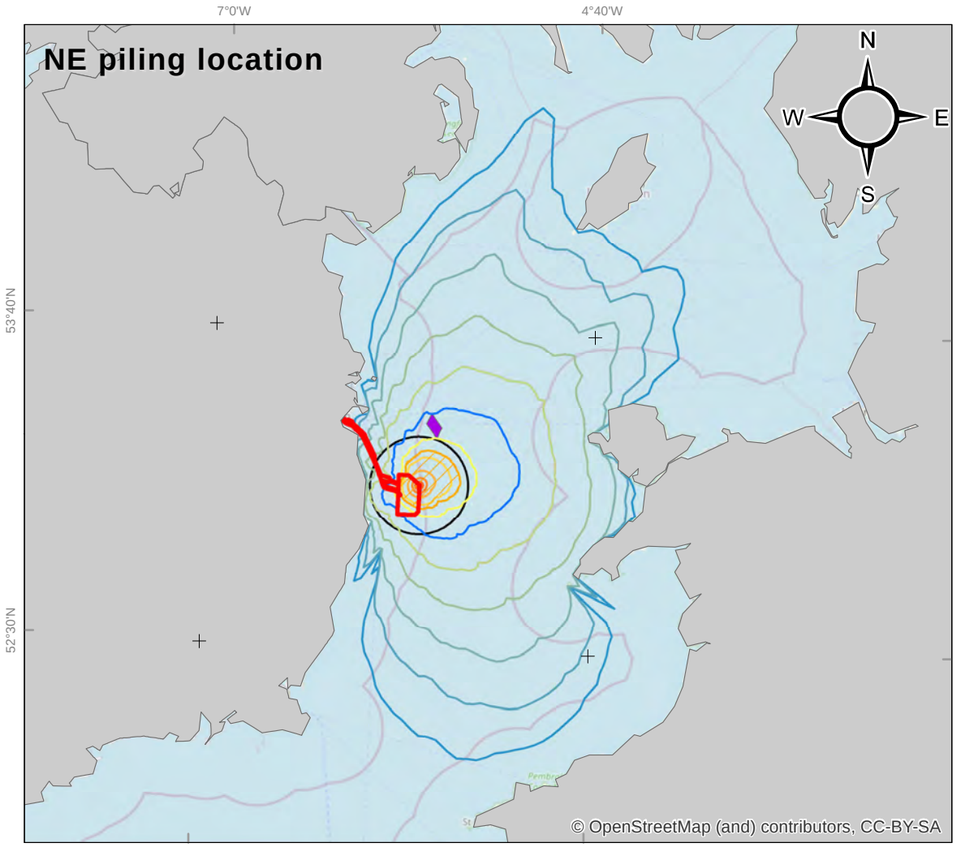
135. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, *"...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement..."*. Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

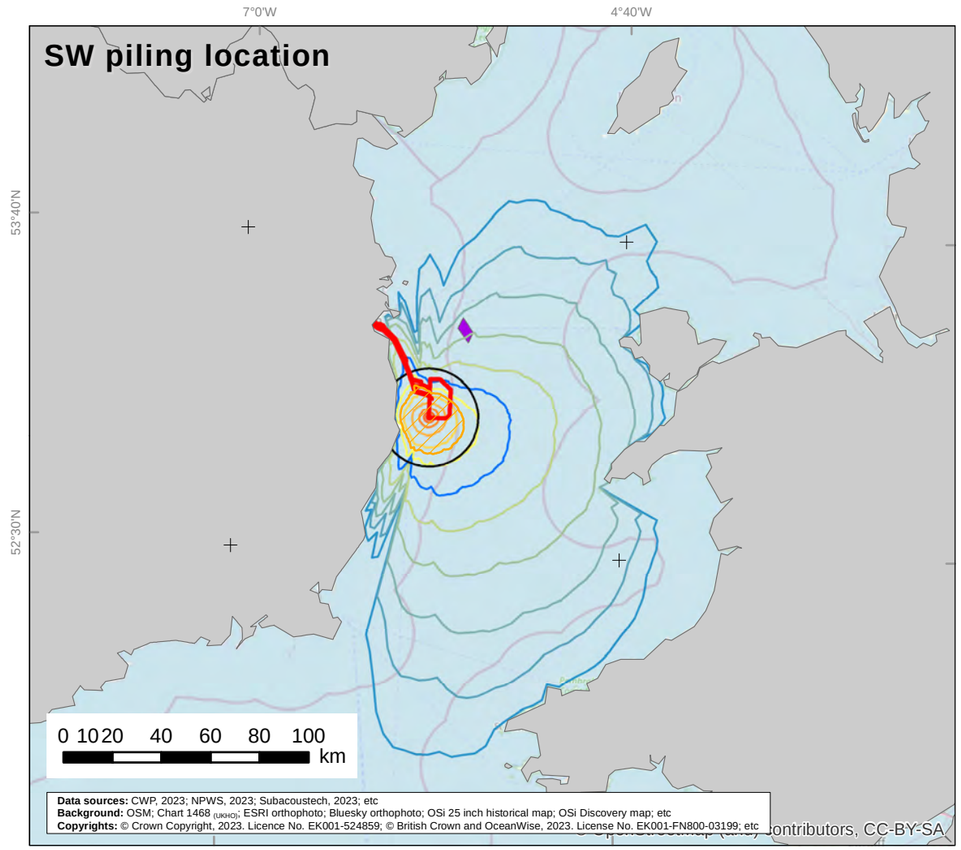
Piling of WTGs

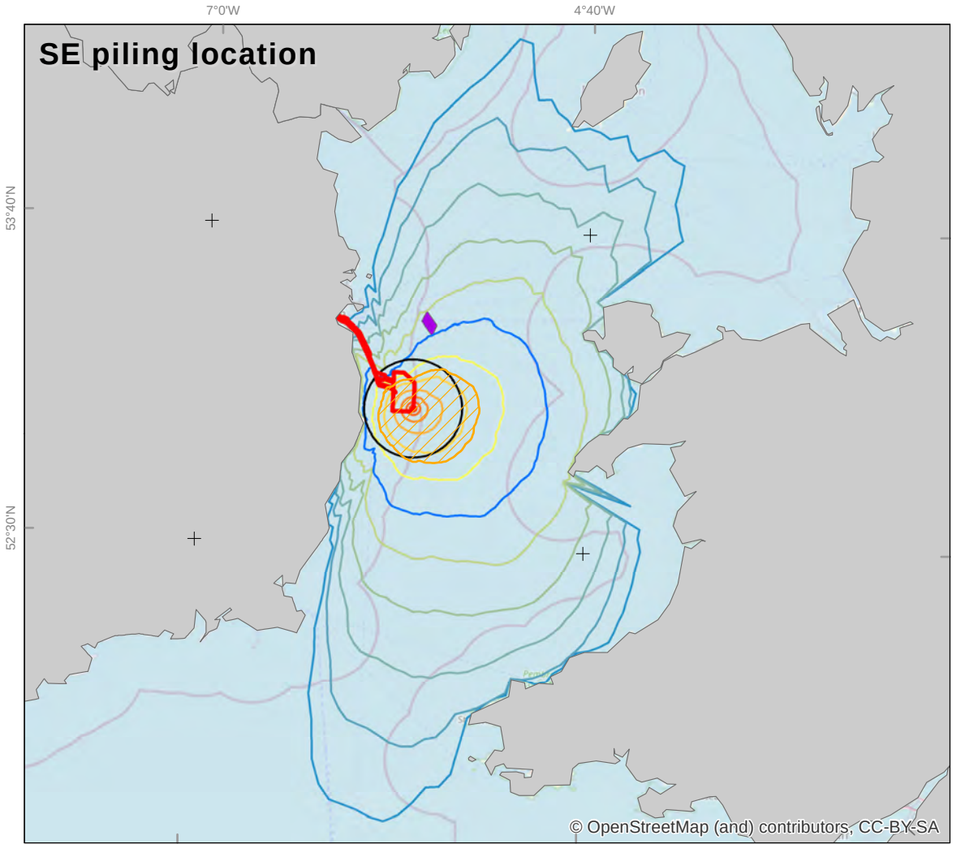
Unmitigated piling

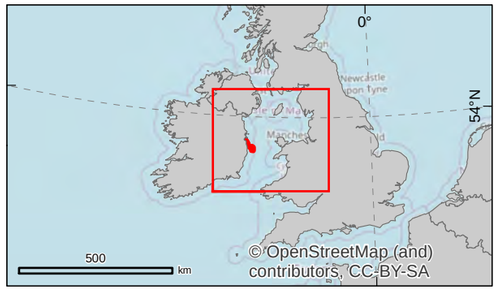
136. For the unmitigated piling using the harbour porpoise dose-response function, a portion of the disturbance contours overlap with the Codling Fault Zone SAC boundary (see **Figure 4** and **Table 12**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Codling Fault Zone SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting

Figure 4: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Codling Fault Zone SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2082

Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:2,500,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

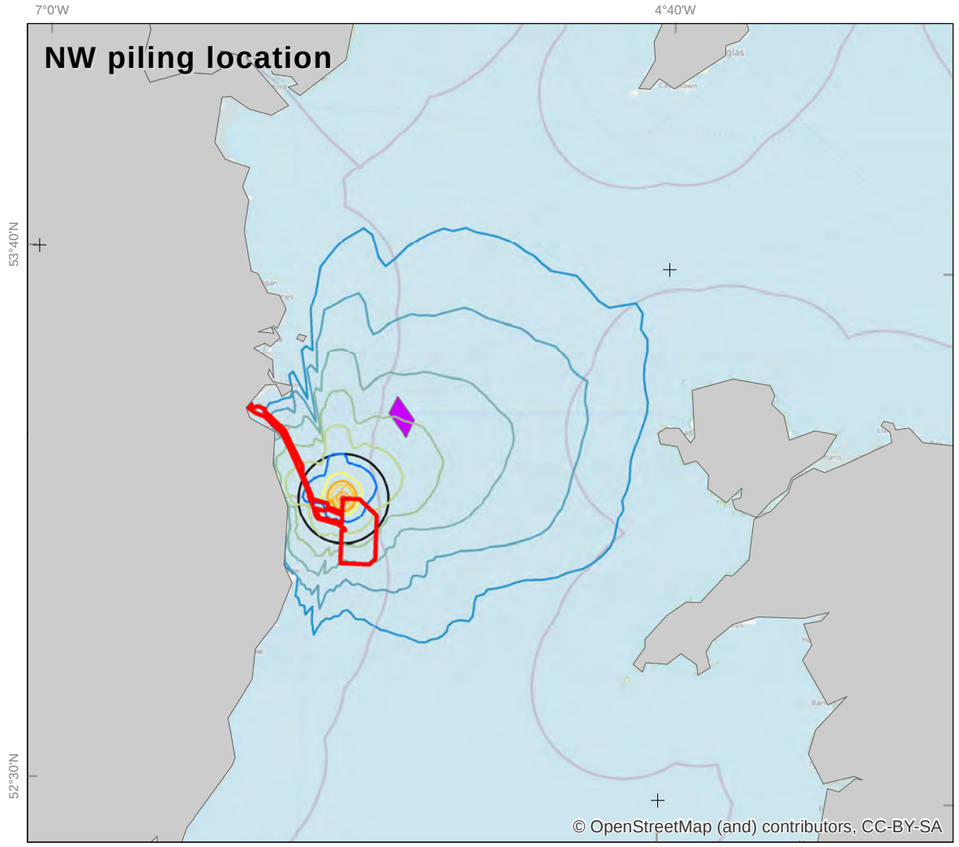
137. Based on the dose-response assumptions, there is effective disturbance to 51.41% of the SAC area from unmitigated piling at the NW location, where 3 harbour porpoise within the SAC are predicted to show a disturbance response (**Table 12).** When using the Lucke *et al.* (2009) 145 dB SEL_{ss} threshold, there is disturbance up to 100% of the SAC area from unmitigated piling at the NW location where 8 harbour porpoise are predicted to be disturbed. For the 20 km EDR for unmitigated piling (JNCC, 2025b) and the Level B harassment threshold, disturbance impact ranges from piling do not overlap with the Codling Fault Zone SAC.

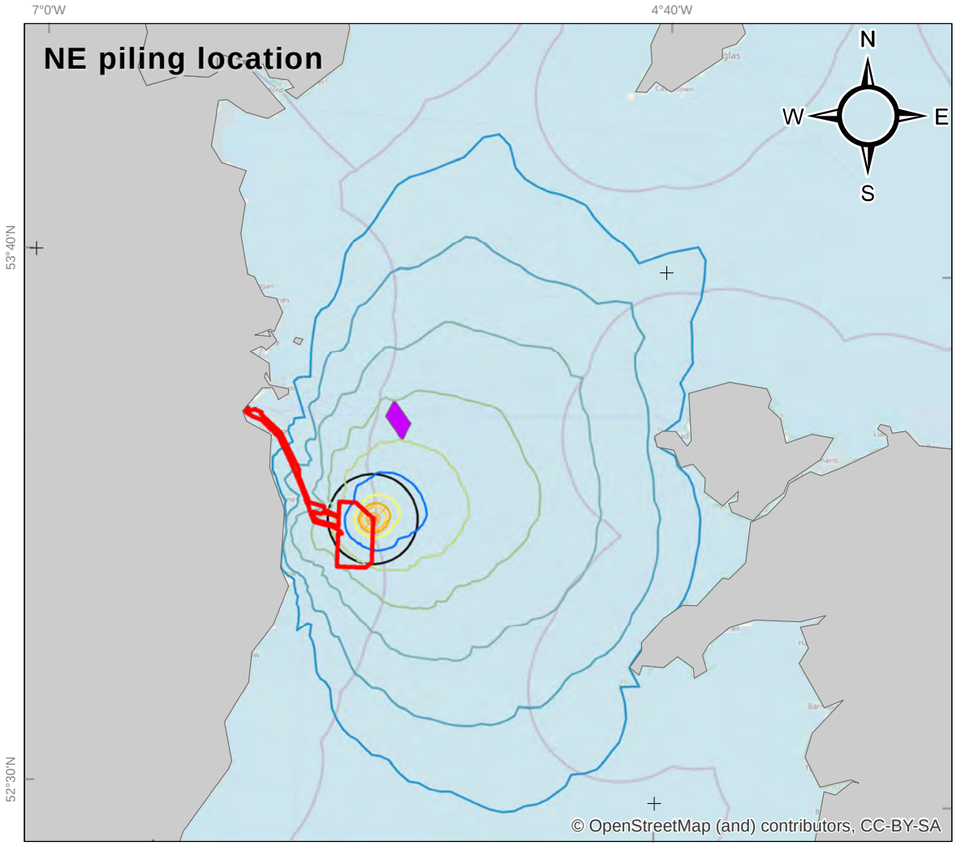
Table 12 Predicted overlap between predicted disturbance contours from unmitigated piling of WTGs at CWP and the Codling Fault Zone SAC using a range of approaches and using the SCANS IV block CS-D density estimate.

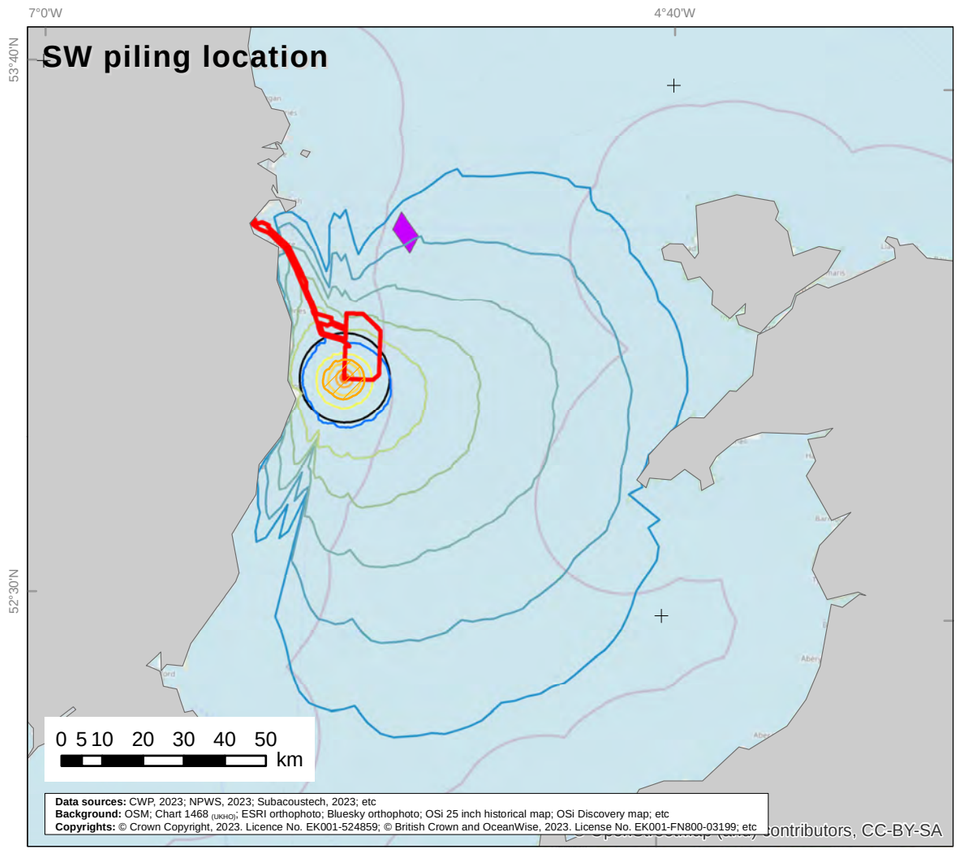
Disturbance Threshold	Model location	Total overlap (% SAC area)	Effective area disturbed (% SAC)	# porpoise disturbed in SAC
Dose-response	NE	29.8 km^2 (100% SAC)	15.17 km^2 (50.9% SAC)	4
	NW	29.8 km^2 (100% SAC)	15.32 km^2 (51.41% SAC)	3
	SE	29.8 km^2 (100% SAC)	9.87 km^2 (33.12% SAC)	3
	SW	29.8 km^2 (100% SAC)	3.54 km^2 (11.88% SAC)	1
145 dB SEL_{ss}	NE	29.8 km^2 (100% SAC)	NA	8
	NW	10.7 km^2 (35.91% SAC)		3
	SE & SW	0 km^2		0
20 km EDR	All	0 km^2	NA	0
Level B harassment threshold	All	0 km^2	NA	0

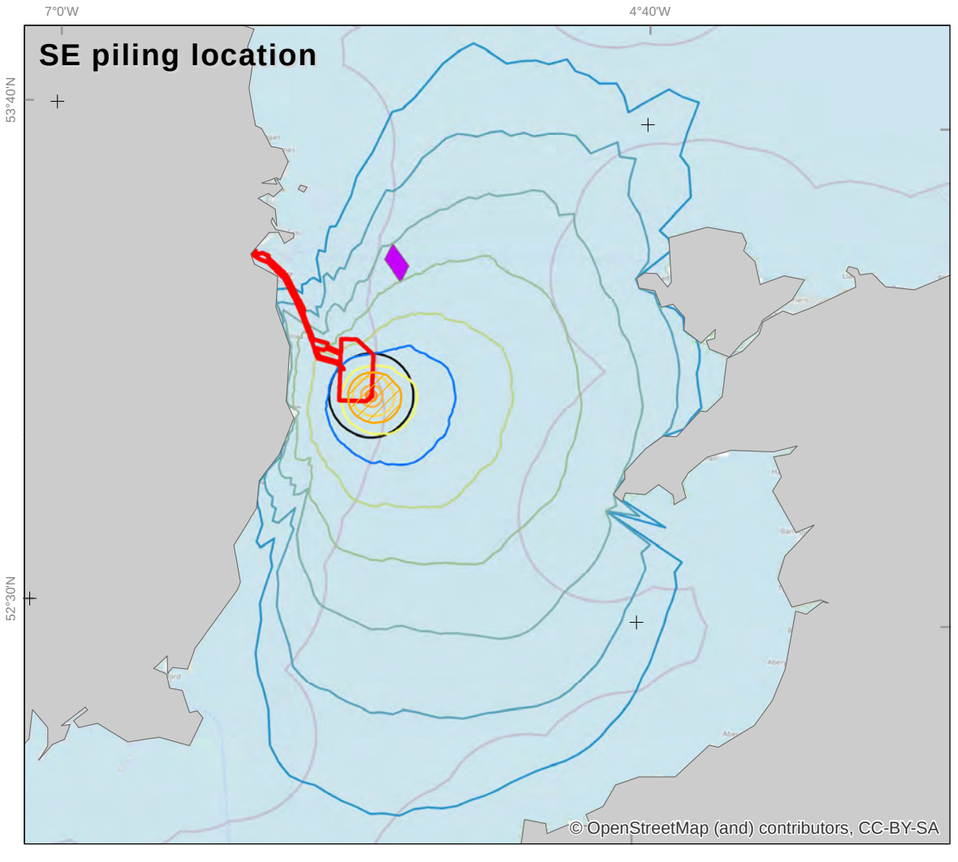
Mitigated piling

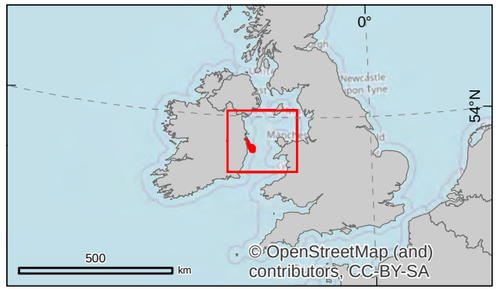
138. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Following mitigation, there is an overlap of the noise dose-response disturbance contours with the Codling Fault Zone SAC boundary (see **Figure 5** and **Table 13**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Codling Fault Zone SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting

understand • assess • mitigate

Figure 5: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Codling Fault Zone SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2083

Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:1,500,000	EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

139. Based on the dose-response assumptions, there is effective disturbance to 51.63% of the SAC area from piling at the NE location, where up to 3 harbour porpoise within the SAC are predicted to show a disturbance response (**Table 13**). When using the Lucke *et al.* (2009) 145 dB SEL_{ss} threshold, the 11 km EDR for mitigated piling (JNCC, 2025b), and the Level B harassment threshold, disturbance impact ranges from piling at all piling locations do not overlap with the Codling Fault Zone SAC.

Table 13 Predicted overlap between predicted disturbance contours from piling of WTGs at CWP and the Codling Fault Zone SAC, using the SCANS IV block CS-D density estimate.

Disturbance Threshold	Model location	Total overlap (% SAC area)	Effective area disturbed (% SAC)	# porpoise disturbed in SAC
Dose-response	NE (see **Table 14** for details)	29.80 km^2 (100% SAC)	15.39 km^2 (51.63% SAC)	3
	NW	29.80 km^2 (100% SAC)	4.60 km^2 (15.43% SAC)	1
	SE	29.80 km^2 (100% SAC)	1.38 km^2 (4.64% SAC)	<1
	SW	29.8 km^2 (100% SAC)	0.52 km^2 (1.73% SAC)	<1
145 dB SEL_{ss}	All	0 km^2	NA	0
11 km EDR	All	0 km^2	NA	0
Level B harassment threshold	All	0 km^2	NA	0

Table 14 : Dose-response function overlap with the Codling Fault Zone SAC for piling at the NE location.

Contour (unweighted dB SEL_{ss})	Area of SAC within contour (km^2)	% response within contour	Effective area of SAC disturbed (km^2)	% overlap of the SAC
140<145	29.79	**33**	9.87	33.11%
135<140	29.8	19	5.52	18.52%
130<135	0	9	0	0%
125<130	0	3	0	0%
120<125	0	1	0	0%
TOTAL	**29.8**	**-**	**15.39**	**51.63%**

140. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or average of 10% of the area over a season is considered significant (JNCC, 2020). This approach is based on using fixed EDRs as average habitat loss per individual (JNCC, 2025b). Following application of the mitigation measures, there is no overlap of the 11 km EDR with the Codling Fault Zone SAC. The use of noise contours and dose-response is considered below as a precautionary approach. Piling at the NE location, results in effective disturbance of up to 51.63% of the Codling Fault Zone SAC area on any given day (using the dose-response approach, **Table 14**). It should be noted that this is a location representing the maximum overlap and therefore relates only to a small proportion of the overall piling, therefore the assessment below is conservative (**Table 13**). The COs supporting document does not specify whether a portion of the SAC is designated for summer and/or winter periods (NPWS, 2024). As such, the whole area of the SAC was taken into account over the entire year to calculate seasonal average. If the piling will take place over up to 78 days, the seasonal average is 11.03%. As such, noise disturbance exceeds the 20% daily and 10% seasonal thresholds for the Codling Fault Zone SAC when using the dose-response approach and the maximum overlap location. The area thresholds for disturbance were designed to ensure no significant disturbance within large SACs that have been shown to contain high densities of harbour porpoise. For example, the Southern North Sea SAC is 36,951 km^2 (1,240 times larger than the Codling Fault Zone SAC), and the North Anglesey marine SAC is 3,249 km^2 (109 times larger than the Codling Fault Zone SAC). The area thresholds in combination with use of noise contours and dose-response are considered unsuitable to apply at the Codling Fault Zone SAC given its small size.

141. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Chapter 10** of the **EIAR Addendum**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to

result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (as per **Plate 4** and **Table 11).**

142. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

143. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Codling Fault Zone SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.5 Lambay Island SAC (IE000204)

2.5.1 Grey seals [1364] and harbour seals [1365]

Section 2.5.1 remains unchanged except for paragraphs 303 through to 319 which are replaced by paragraphs 144 to 170 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

Assessment of the project alone

144. The CWP Project is located approximately 19.2 km away from the Lambay Island SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

145. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C of the EIAR Addendum** concludes that for pre-construction geophysical surveys and seals, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

146. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

147. The MMO watch of the 1 km radius will ensure that no seals are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to seals following the mitigation.

148. Considering the above, geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

149. The maximum PTS impact range for seals due to high-order detonation of the largest 750 kg + donor UXO is 1.6 km. As there is no spatial overlap of the CWP Project with the Lambay Island SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

150. To further reduce the risk of injury outside of the SAC, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

151. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for seals is 110 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 610 m.

152. The MMO watch of the 1 km radius will ensure that no seals are present within the mitigation zone before the UXO clearance occurs. Given that the maximum injury zone for the mitigated UXO clearance is 610 m, there will be no residual risk of injury to seals following the mitigation.

153. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

154. The maximum unmitigated PTS-onset range for seals is <50 m. As such, there will be no overlap between PTS-onset ranges and the Lambay Island SAC.

155. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

156. The maximum mitigated PTS-onset range for seals is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no seals are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to seals following the mitigation.

157. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

158. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both within and outside of the SAC are expected to be to be reduced to negligible levels. Therefore, the proposed activities are highly unlikely to cause death or injury to individuals and will not affect the grey and harbour seal communities at the site. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, grey and harbour seals, which undermine the COs of the Lambay Island SAC will not occur as a result of injury from underwater noise generated from geophysical surveys, UXO clearance and WTG piling at the CWP Project Alone.

Disturbance

159. This SAC is located within the Irish inshore region.

Pre-construction geophysical surveys

160. Given that there is no spatial overlap of the CWP Project with the Lambay Island SAC, there is no risk of behavioural disturbance impacts for seals *in situ*. As such, the proposed geophysical survey activities will not result in interference or disturbance of a breeding, moulting or resting behaviour of

grey and harbour seals at the site. They will also not lead to the permanent exclusion of seals from any part of its range within the site.

161. For *ex situ* disturbance from geophysical surveys within the Irish Sea MU, using SCANS IV block density and 3 km EDR, the numbers of individuals predicted to impacted are 4 grey seals (0.07% East regions of RoI and Northern Ireland MU) and <1 harbour seal (<0.07% East regions of RoI and Northern Ireland MU). It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects. As such, the proposed geophysical surveys will not result in significant interference or disturbance within the habitats used during the life cycles of grey and harbour seals.

UXO clearance

162. There will be an overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. In case of the 20 km EDR, up to 2.46 km^2 of the SAC can be affected, equal to 60.89% of the SAC area. When considering 26 km TTS EDR, the whole area of the SAC (100% could be affected).

163. To reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

164. Following the mitigation measures, there will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (up to 3.2 km for high-order clearance with noise abatement). As such, the proposed UXO clearance activities will not result in interference or disturbance of a breeding, moulting or resting behaviour of grey and harbour seals at the site. They will also not lead to the permanent exclusion of seals from any part of its range within the site.

165. When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 49 grey seals (0.81% East regions of RoI and Northern Ireland MU) and 1 harbour seals (<0.07% East regions of RoI and Northern Ireland MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 12 grey seals (0.20% East regions of RoI and Northern Ireland MU) and 1 harbour seals (<0.07% East regions of RoI and Northern Ireland MU) are predicted to be disturbed. Using TTS as a proxy for disturbance, up to 5 grey seals (0.08% East regions of RoI and Northern Ireland MU) and <1 harbour seal (<0.07% East regions of RoI and Northern Ireland MU) are predicted to be disturbed.

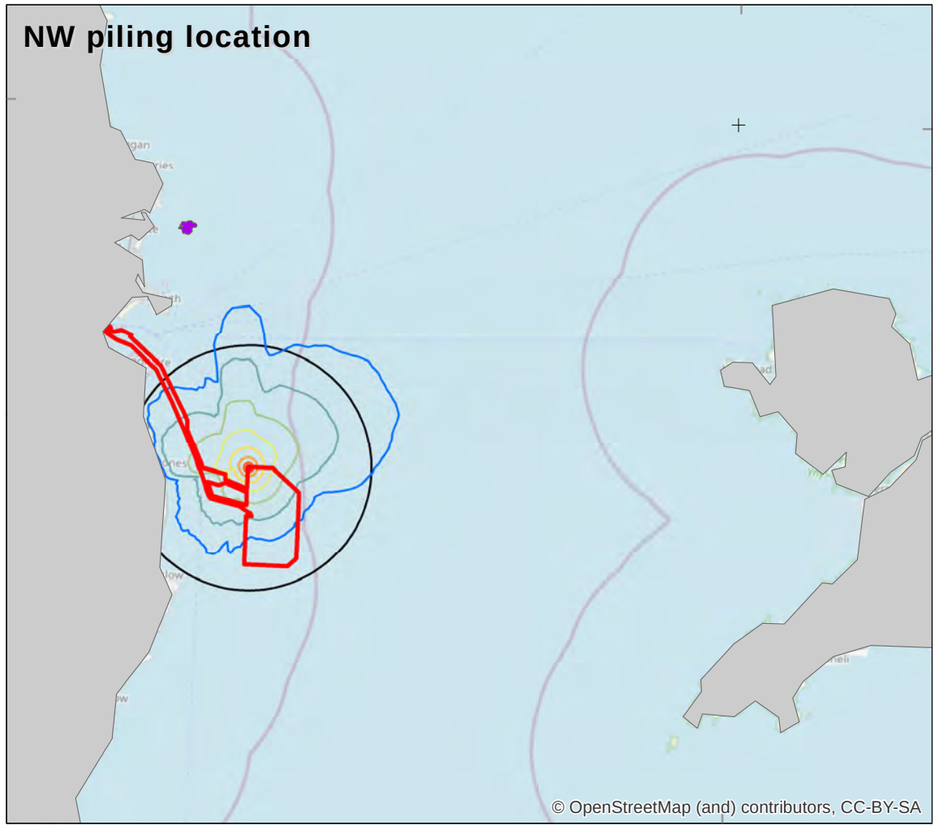
166. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and

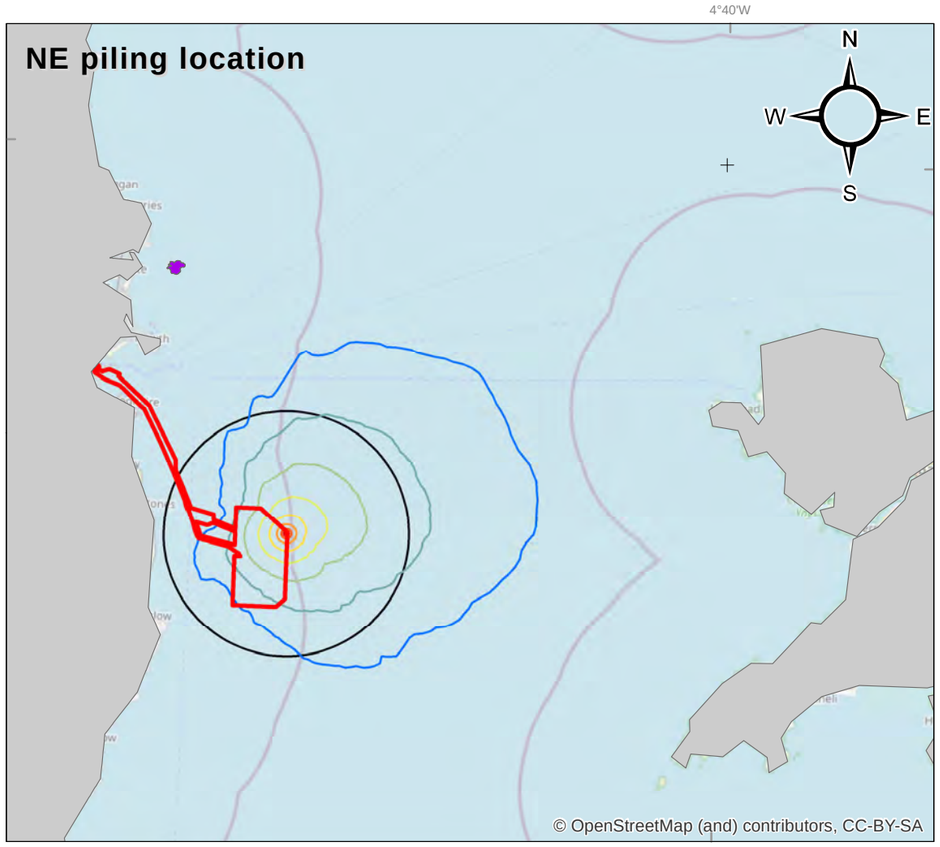
reversible. As such, the proposed UXO clearance will not result in significant interference or disturbance within the habitats used during the life cycles of grey and harbour seals.

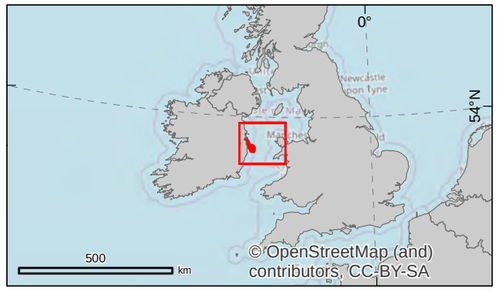
Piling of WTGs

Unmitigated piling

167. For the unmitigated piling using the dose-response function, none of the noise contours overlap with the Lambay Island SAC (see **Figure 6).** Similarly, when using the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the Lambay Island SAC.

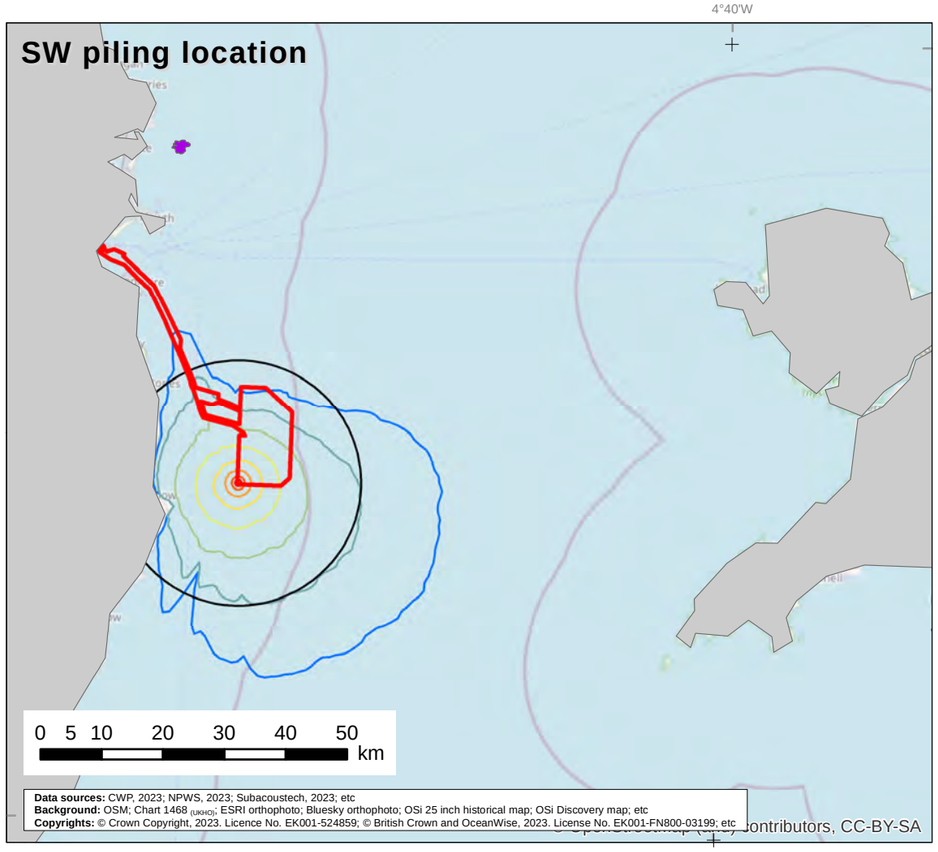


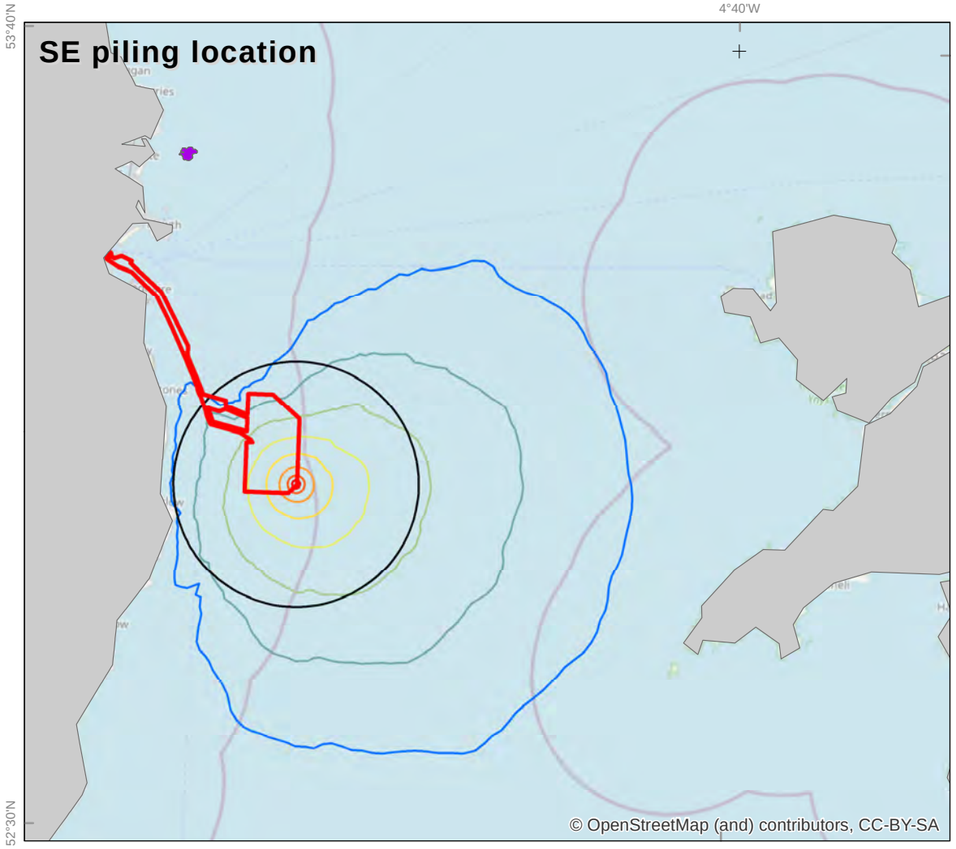




Legend

- Planning application boundary
- SEL_{ss} dB re μPa^2s (5dB contours)
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Lambay Islands SAC





codling wind park

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Figure 6: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Lambay Island SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2084

Internal descriptive code: N/A

Size: A3

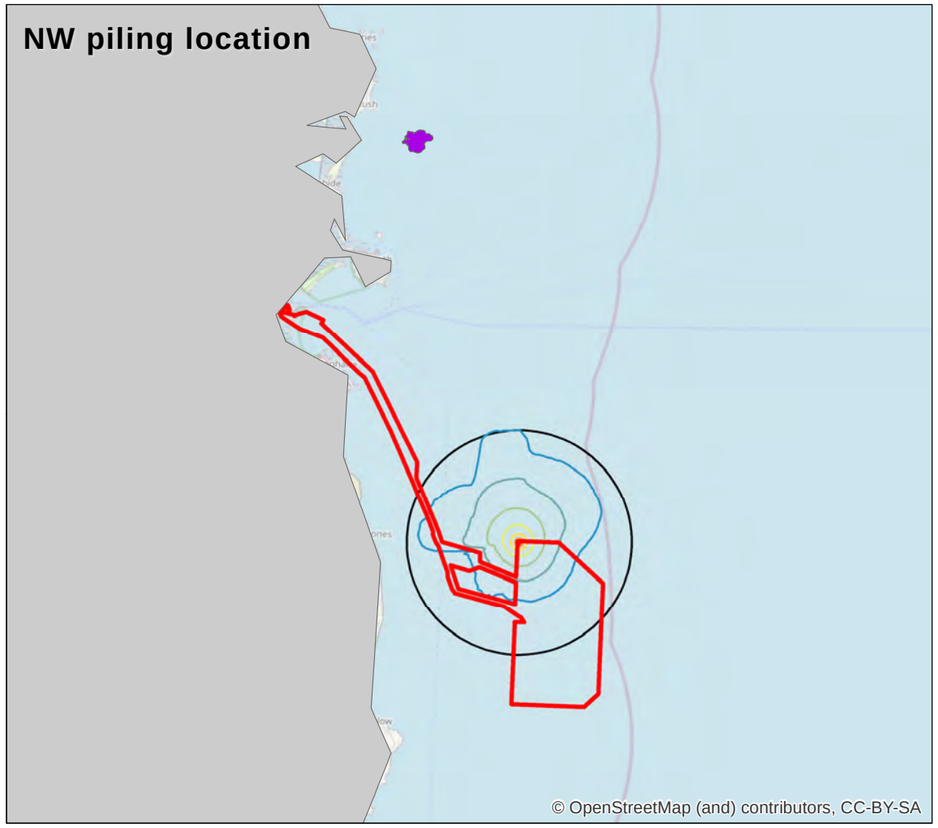
Scale: 1:1,000,000

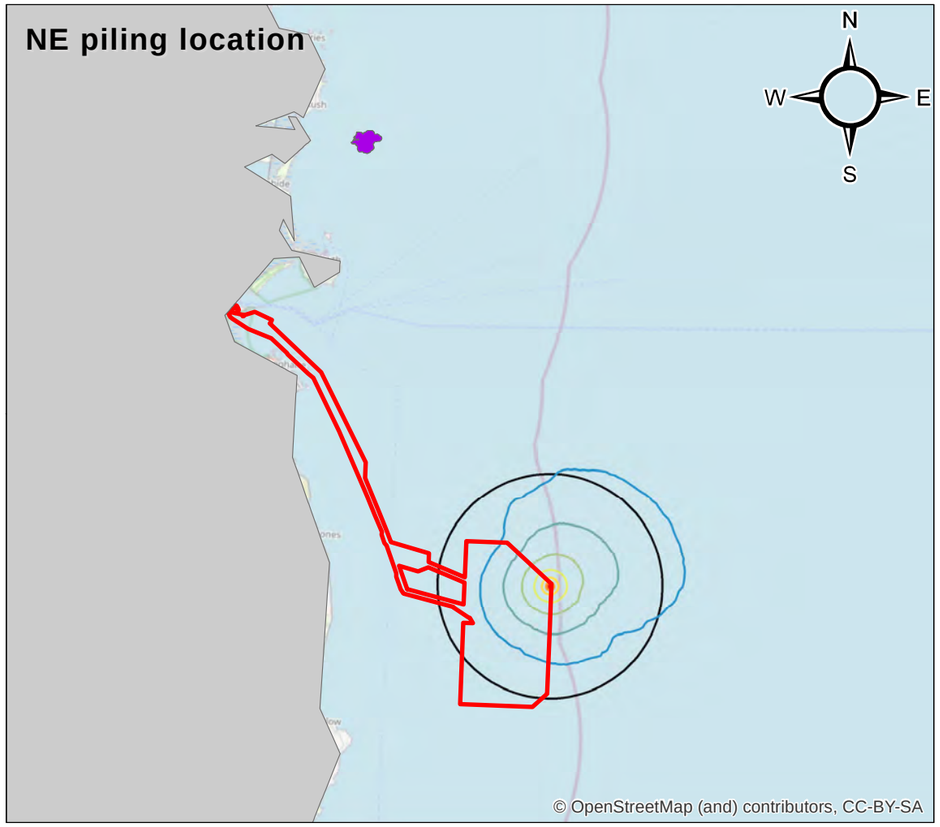
CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

Mitigated piling

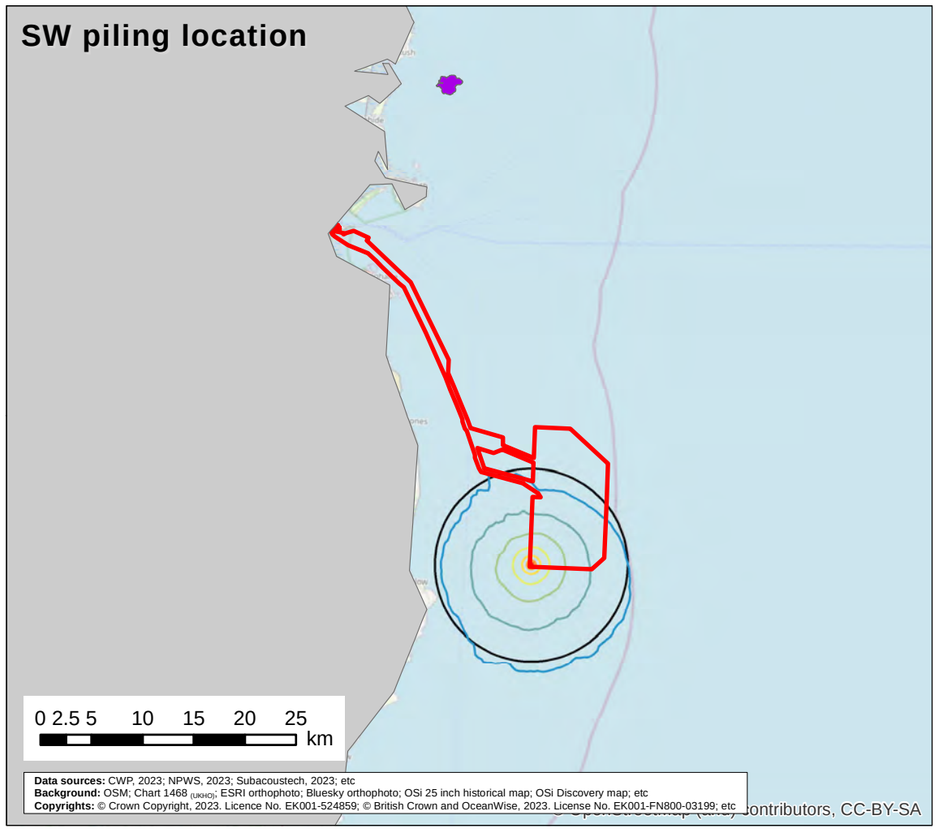
168. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measures applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Lambay Island SAC (**Figure 7**). Similarly, when using the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the Lambay Island SAC. As such, the proposed piling at WTGs will not result in interference or disturbance of a breeding, moulting or resting behaviour of grey and harbour seals at the site. It will also not lead to the permanent exclusion of seals from any part of its range within the site.





Legend

- Planning application boundary
- SEL_{ss} dB re μPa^2s (5dB contours)
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Lambay Island SAC



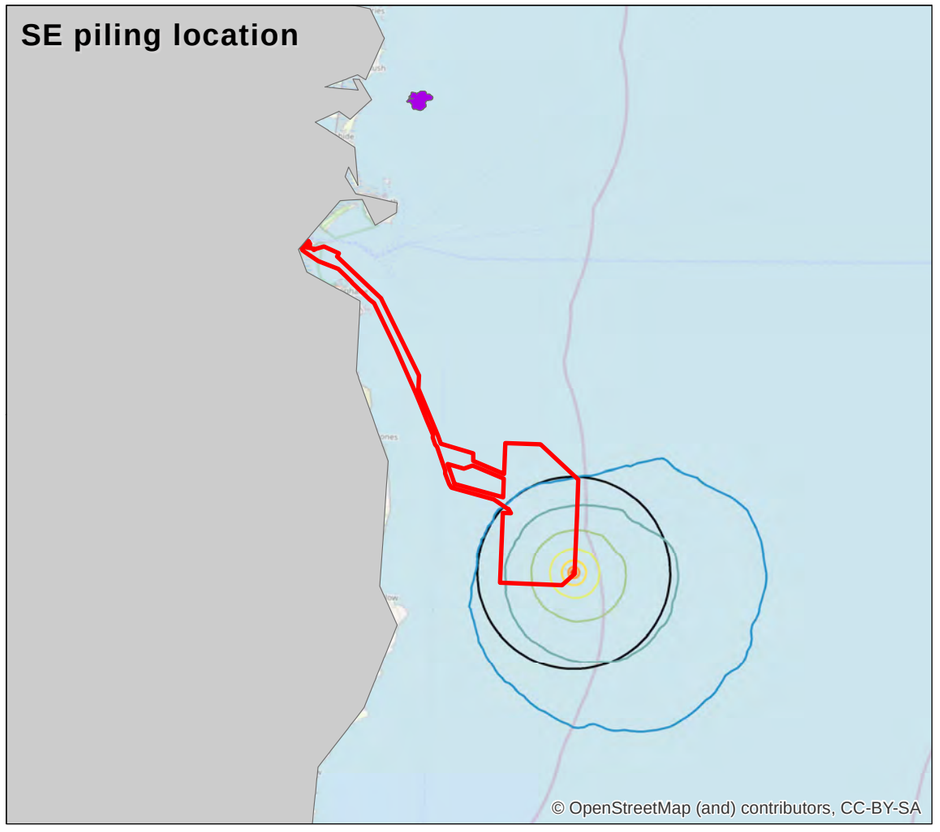


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Figure 7: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Lambay Island SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2085

Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:600,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

169. For *ex situ* disturbance from piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum** (**Part 1**)). Given negligible effects to harbour seals, with less than one individual being disturbed by mitigated piling, the population modelling wasn't carried out for this species. When considering impacts at the MU scale, the dose-response predicted up to 26 grey seals to be disturbed on a single piling day, equating to 0.43% of the East regions of RoI and Northern Ireland MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect on the MU scale and therefore contribute to any negative impact to the grey seal population, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 26 grey seals are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at an increasing trajectory, the same as the un-impacted population (**Plate 5** and **Table 15**).

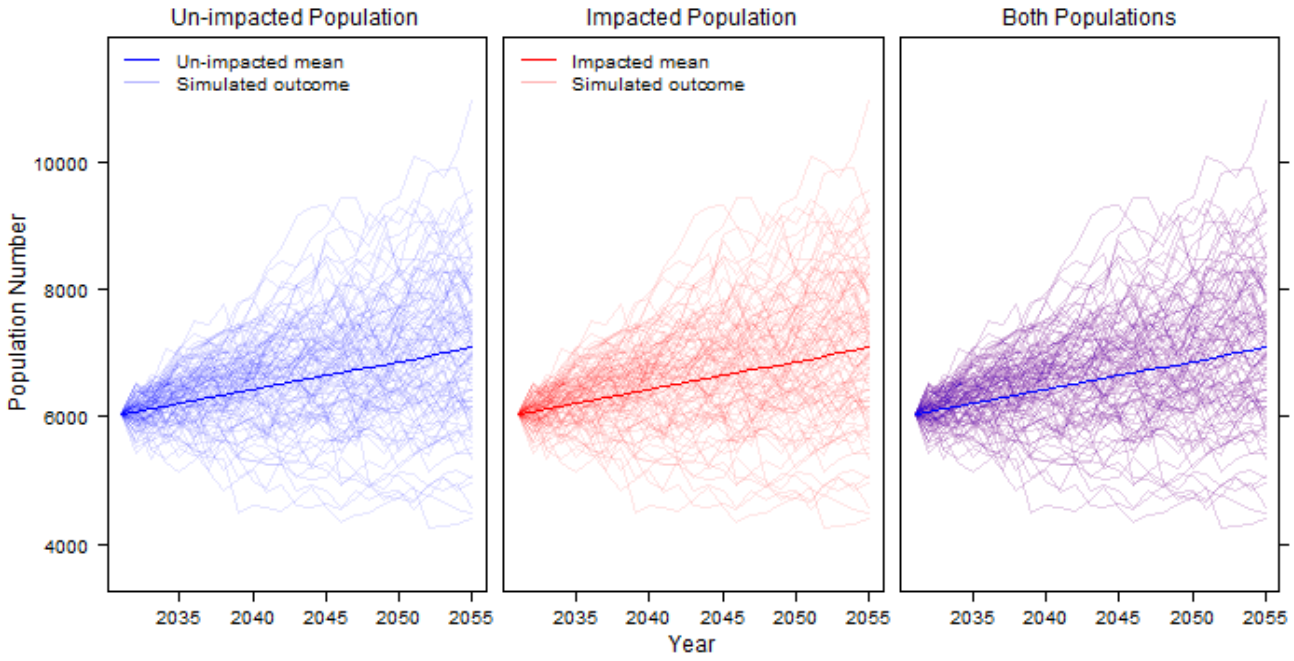


Plate 5 Predicted population trajectories for the un-impacted (baseline) and impacted grey seal iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 26 seals per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

Table 15 Predicted mean population size for the un-impacted (baseline) and impacted grey seal iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 26 seals per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

	Unimpacted population mean size	Unimpacted population mean size	Impacted population size as a proportion of the unimpacted population size
Start 2031 (before piling commences)	6,054	6,054	100%
End 2031 (after piling ends)	6,085	6,085	100%
End 2036 (6 years after piling ends)	6,297	6,297	100%
End 2042 (12 years after piling ends)	6,564	6,564	100%
End 2048 (18 years after piling ends)	6,813	6,813	100%

Conclusion

170. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the grey and harbour seal individuals and community within and outside the site and will not lead to permanent exclusion of seals from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, grey and harbour seal, which undermine the COs of the Lambay Island SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.5.2 Harbour porpoise

Section 2.5.2 remains unchanged. This is because the Lambay Island SAC is primarily on land. It is also located within the Rockabill to Dalkey Island SAC and have the same conservation objectives as this site, for which a full assessment has been provided) in Section 2.2 Rockabill to Dalkey Island SAC (IE003000). Thus, the potential for EAoI is not assessed separately here for harbour porpoise qualifying Annex II marine mammal species.

2.6 North Anglesey Marine SAC (UK0030398)

2.6.1 Harbour porpoise

Section 2.6.1 remains unchanged except for paragraphs 348 through to 370 which are replaced by paragraphs 171 and 194 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;

2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);

3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1).** Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.6.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

171. The CWP Project is located approximately 38 km away from the North Anglesey Marine SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

172. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

173. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

174. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

175. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

176. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the North Anglesey Marine SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

177. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the North Anglesey Marine SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed

for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

178. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

179. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the North Anglesey Marine SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

180. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

181. The maximum mitigated PTS-onset range for harbour porpoise is 140m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

182. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

183. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not restrict the survivability and reproductive potential of harbour porpoise using the site. As such, harbour porpoise will continue to be a viable component of the site. Adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the North Anglesey Marine SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

184. This SAC is located within Wales offshore/inshore region.

Pre-construction geophysical surveys

185. Given that there is no spatial overlap of the CWP Project with the North Anglesey Marine SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from

geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density and 3 km EDR, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

186. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of geophysical surveys.

UXO clearance

187. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

188. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

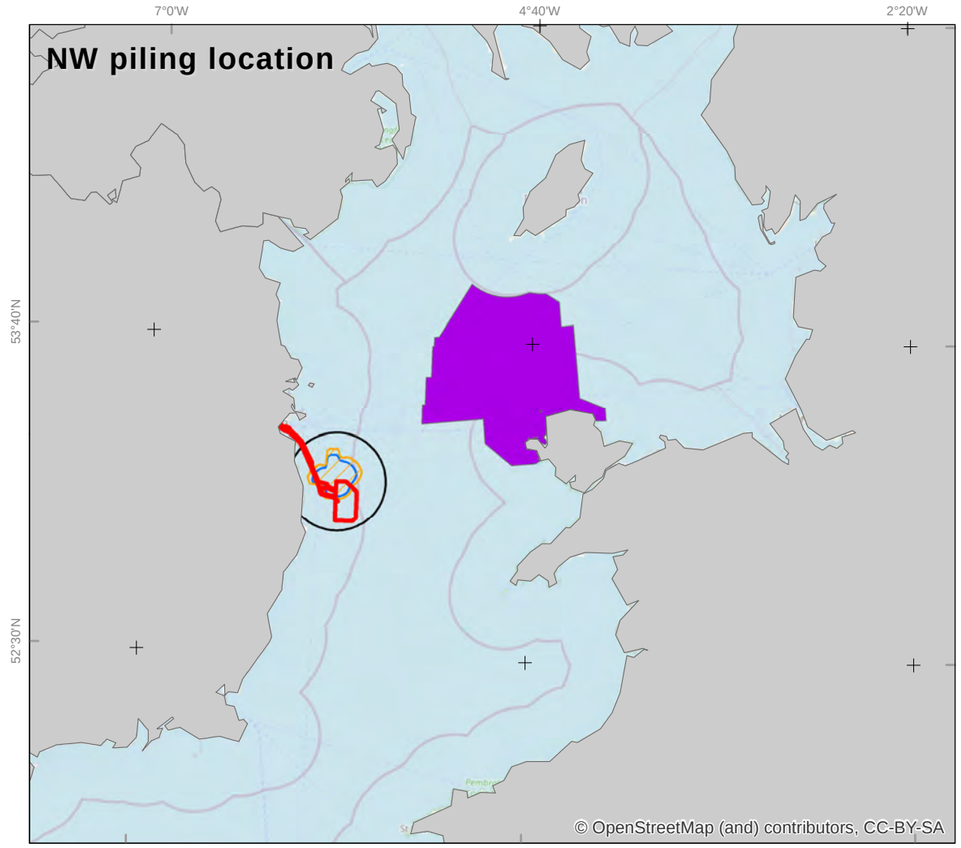
189. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. For TTS as a proxy for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

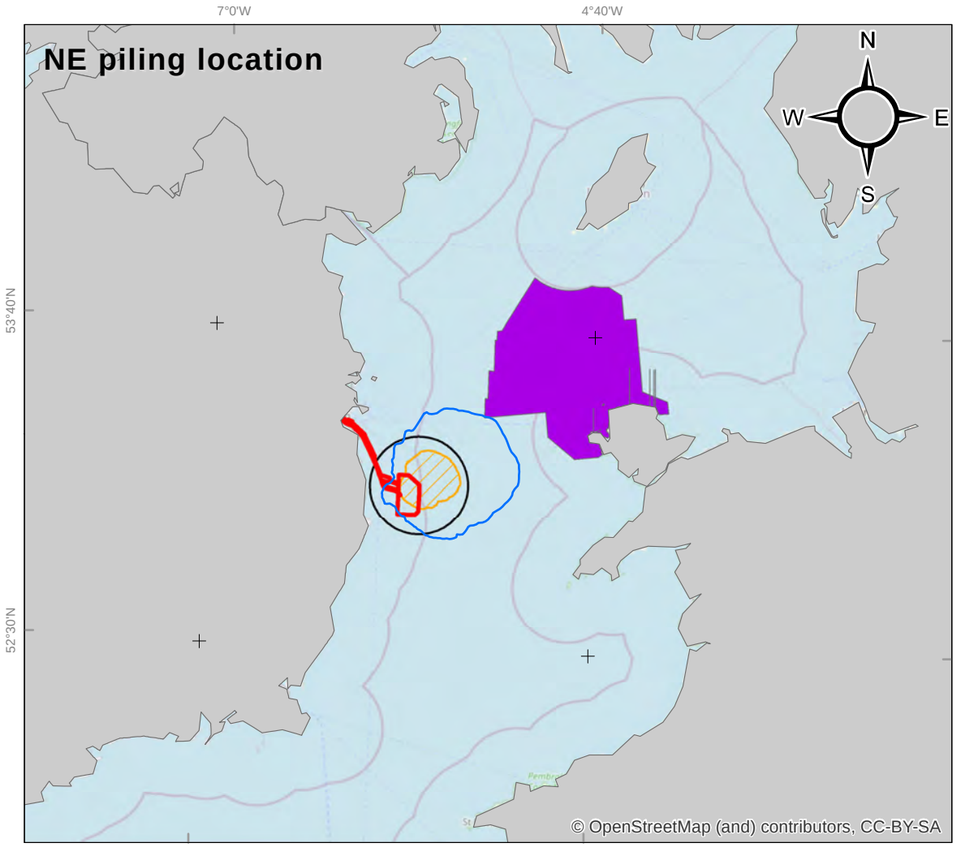
190. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of UXO clearance.

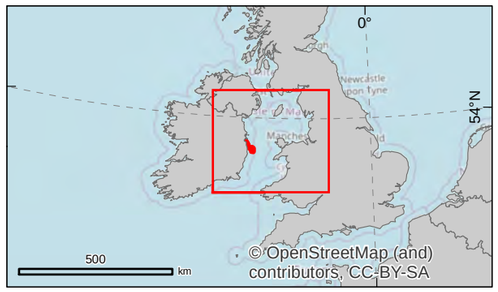
Piling of WTGs

Unmitigated piling

191. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) threshold and the Level B harassment threshold, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all locations do not overlap with the North Anglesey Marine SAC (**Figure 8).**

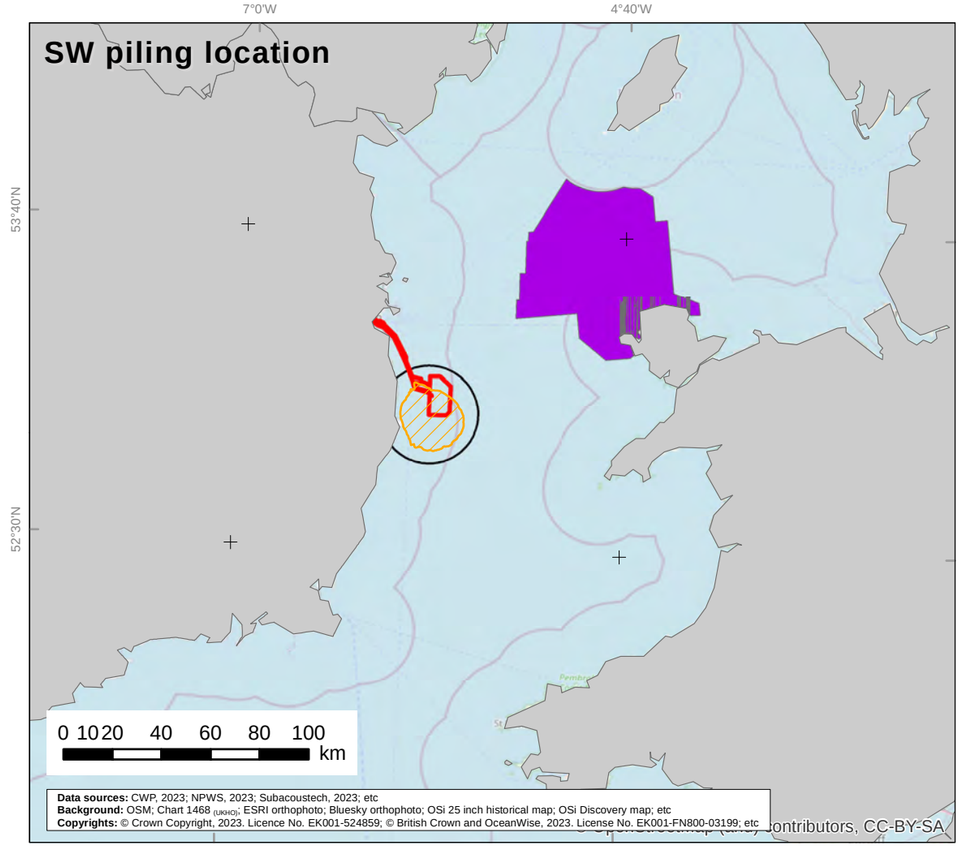






Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 20 km EDR
- North Anglesey Marine SAC



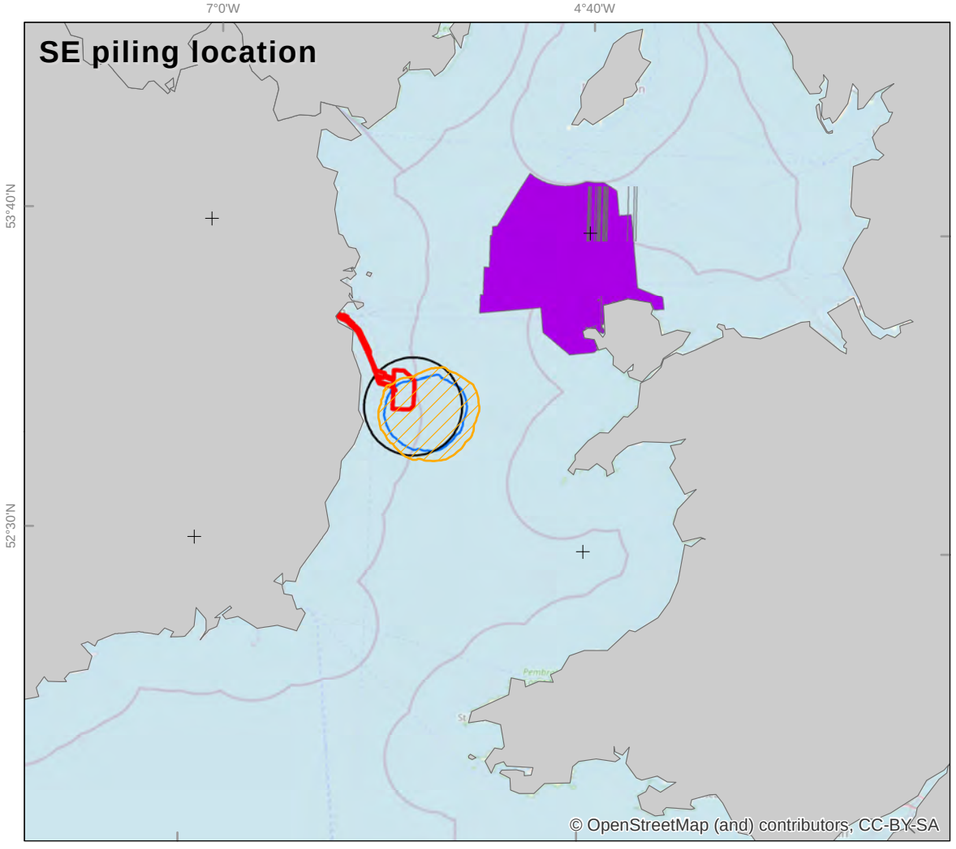


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Figure 8: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the North Anglesey Marine SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2086

Internal descriptive code: N/A

Size: A3

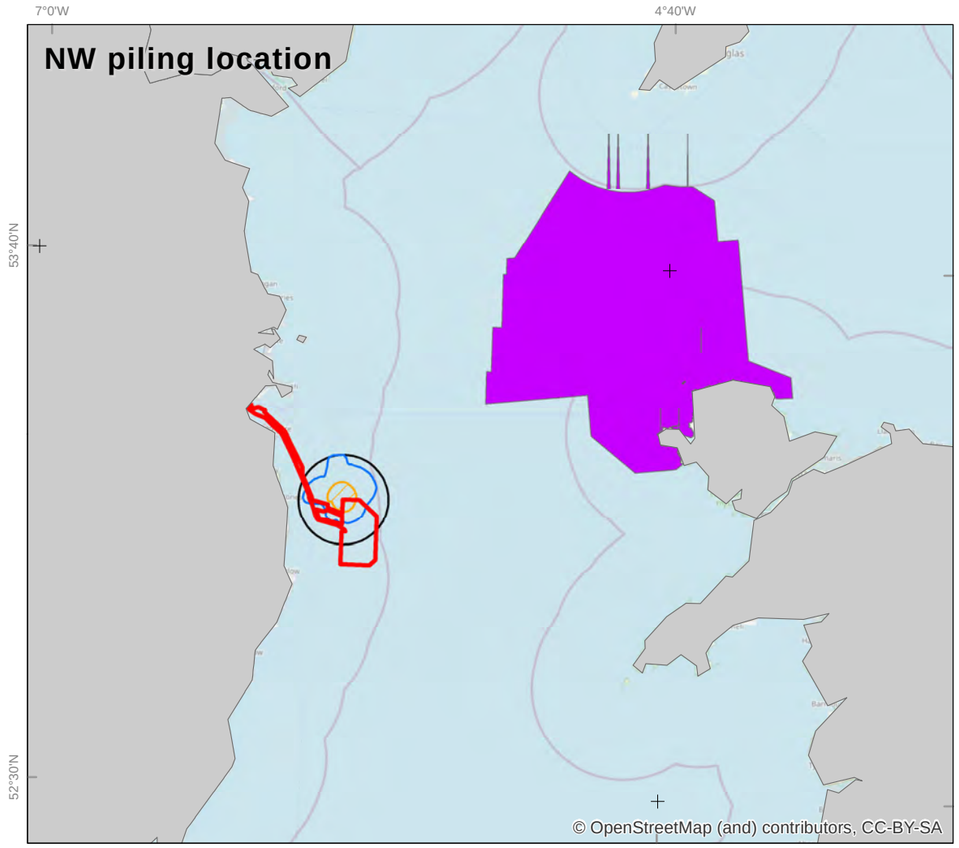
Scale: 1:2,500,000

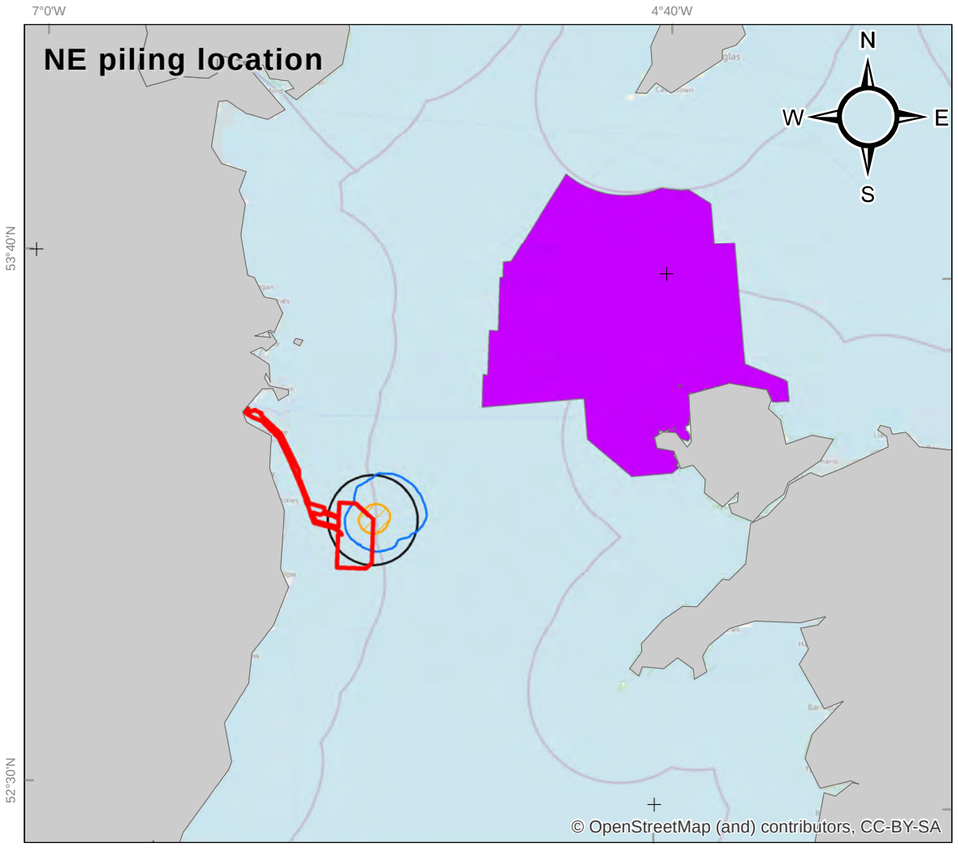
CRS: EPSG 25830

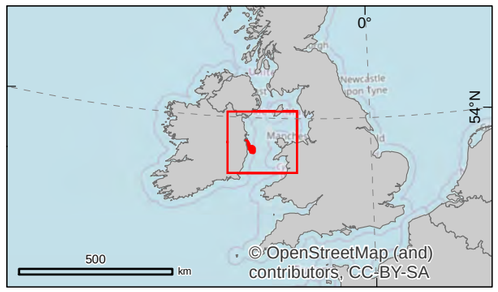
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

Mitigated piling

192. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the North Anglesey Marine SAC (**Figure 9**).

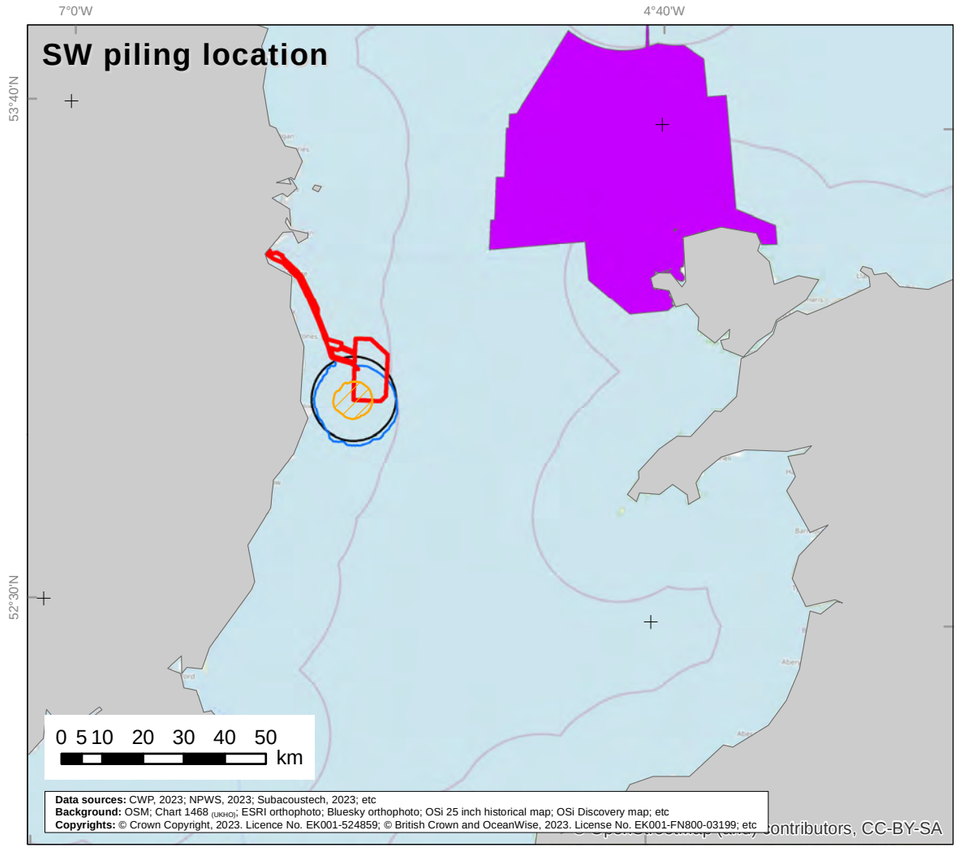






Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 11 km EDR
- North Anglesey Marine SAC



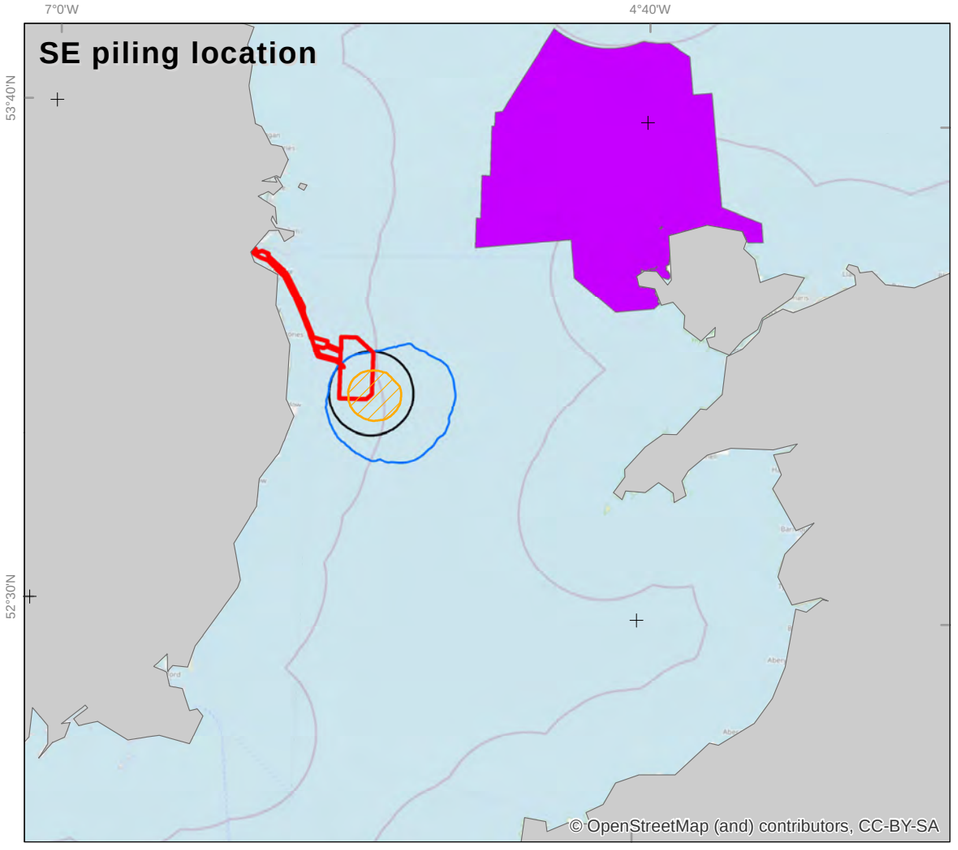


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Figure 9: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the North Anglesey Marine SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2087

Internal descriptive code: N/A

Size: A3

Scale: 1:1,500,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

193. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or 10% of the SAC area over season is considered significant (JNCC, 2020). Given no spatial overlap, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of piling.

Conclusion

194. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may result in significant disturbance. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the North Anglesey SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.7 Blackwater Bank SAC (IE002953)

2.7.1 Harbour porpoise

Section 2.7.1 remains unchanged except for paragraphs 400 through to 423 which are replaced by paragraphs 195 to 221 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1).** Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.7.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

195. The CWP array site is located approximately 55.6 km from the Blackwater Bank SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

196. There is no overlap between the CWP array area or the OECC with the SAC. The underwater noise assessment within the **EIAR Addendum** (**Appendix 9-C Underwater noise modelling assessment**) concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

197. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

198. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

199. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

200. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Blackwater Bank SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

201. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 88 to 92 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Blackwater Bank SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed

for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

202. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

203. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Blackwater Bank SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

204. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

205. The maximum mitigated PTS-onset range for harbour porpoise is 140m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

206. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

207. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not affect the harbour porpoise community at the site. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Blackwater Bank SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

208. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

209. Given that there is no spatial overlap of the CWP Project with the Blackwater Bank SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from

geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

210. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

211. The assessment of the unmitigated UXO clearance is based on the 20 km effective deterrence range (EDR) for high-order UXO clearance (noting that it is based on data collected during detonation of UXO sizes of up to 263 kg) and TTS as a proxy for disturbance. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

212. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

213. As such, in the assessment of mitigated UXO clearance, the following behavioural disturbance thresholds are used: 10 km EDR for high-order UXO clearance using noise abatement, 5 km EDR for low-order UXO clearance and TTS as a proxy for disturbance.

214. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. For TTS as a proxy for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

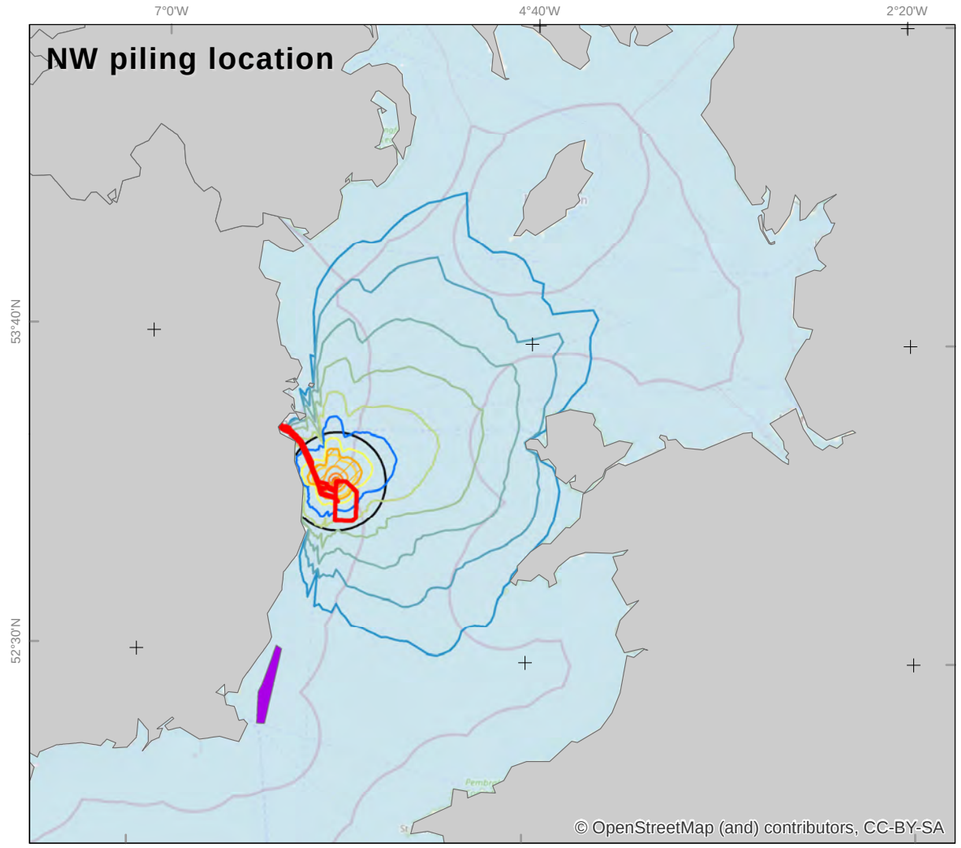
215. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent

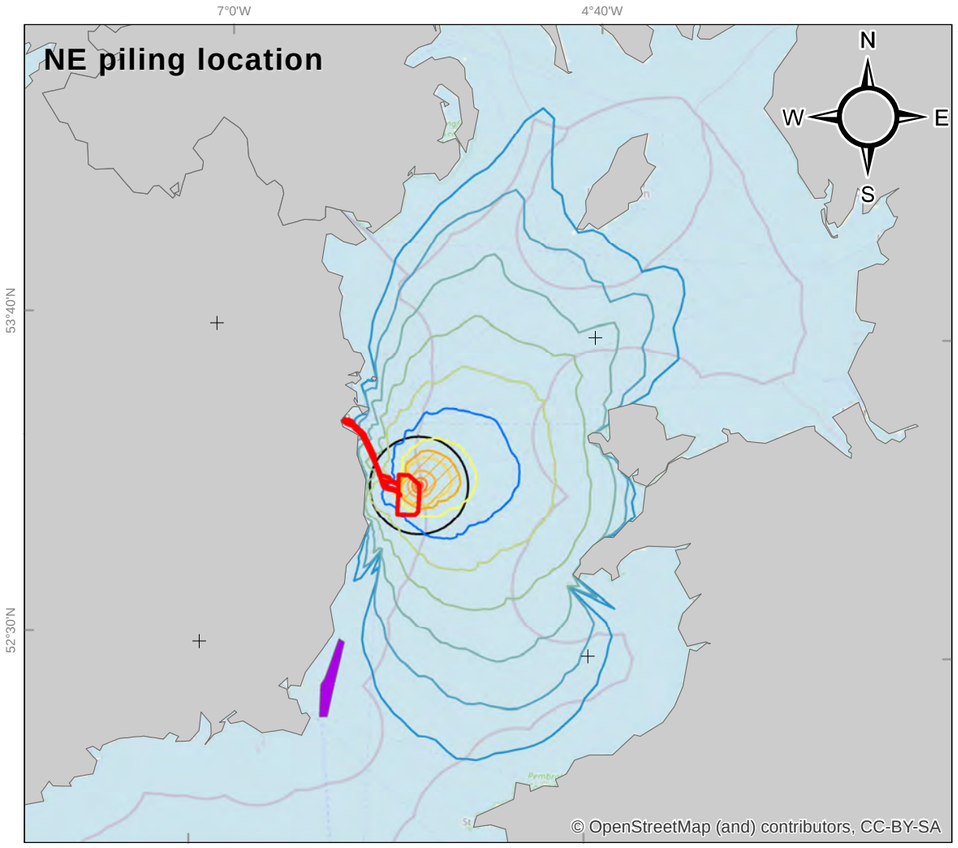
exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

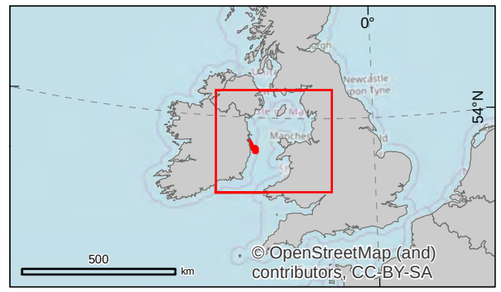
Piling of WTGs

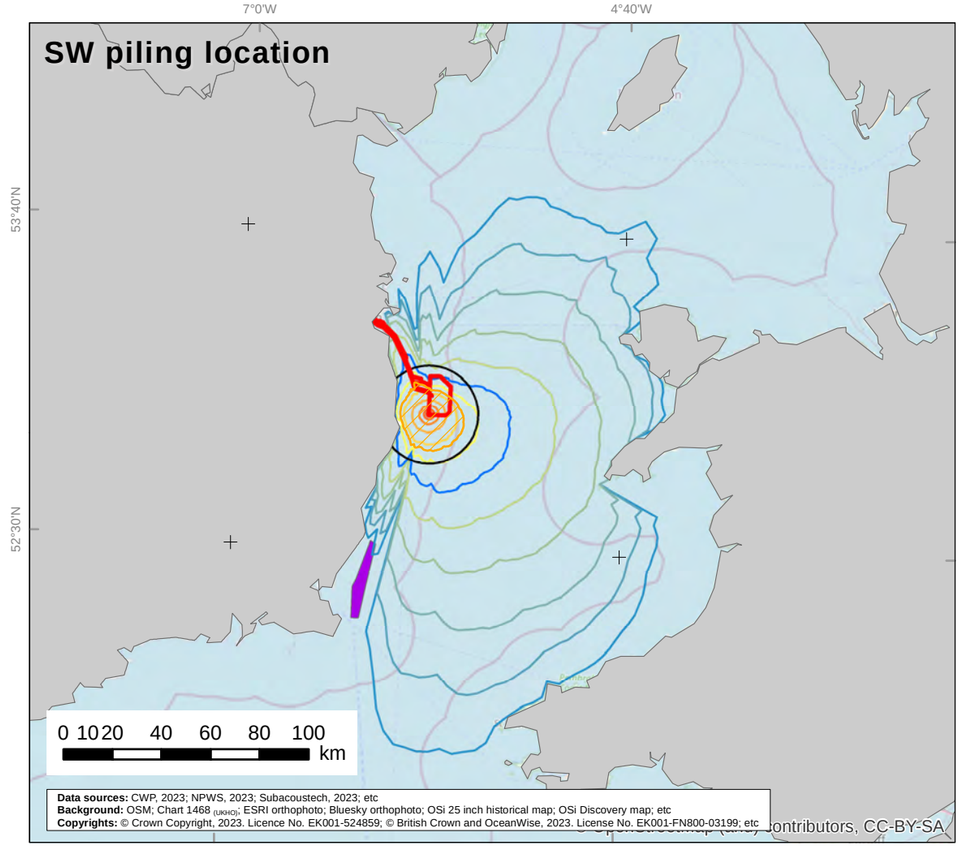
Unmitigated piling

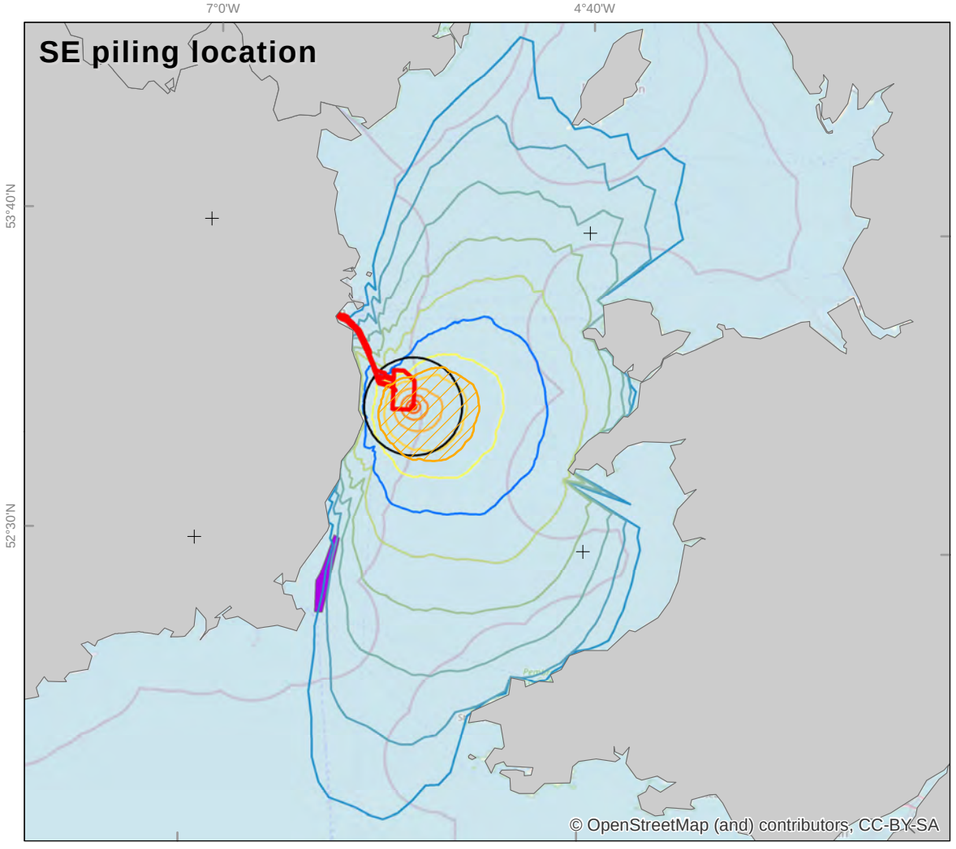
216. For the unmitigated piling using the harbour porpoise dose-response function, a portion of the disturbance contours overlap with the Blackwater Bank SAC boundary (see **Figure 10** and **Table 16**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s threshold

SEL_{ss} dB re μPa^2s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Blackwater Bank SAC

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Figure 10: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Blackwater Bank SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2088

Internal descriptive code: N/A

Size: A3

Scale: 1:2,500,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

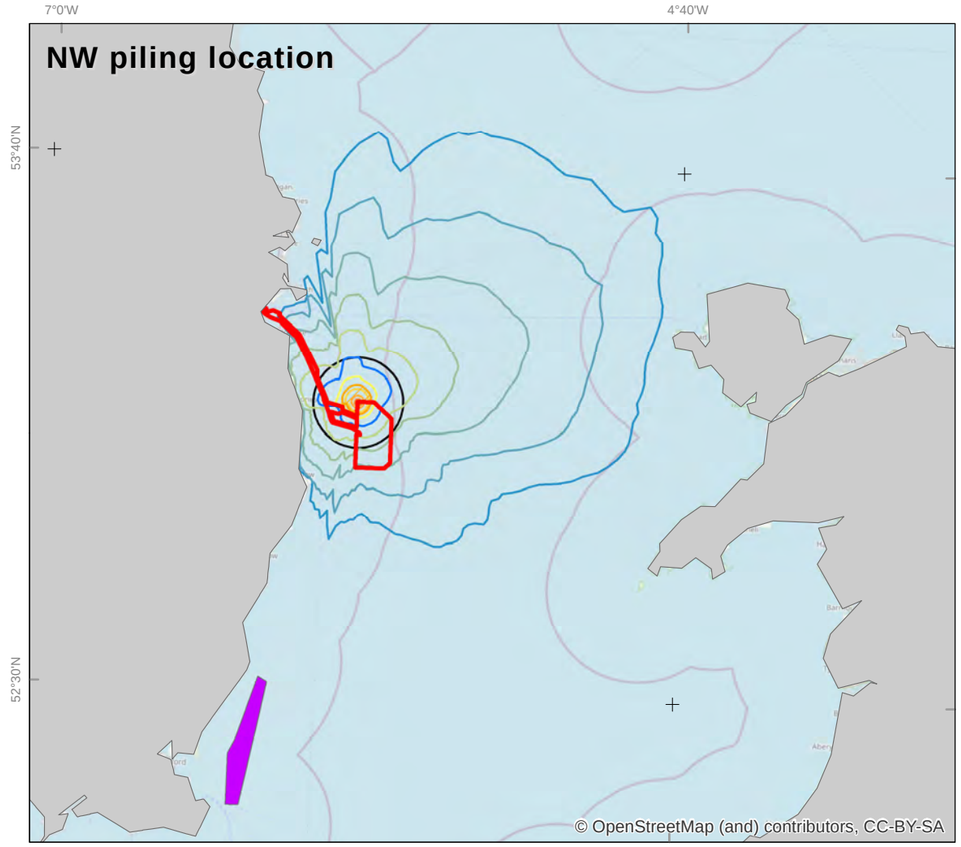
217. Based on the dose-response assumptions, there is effective disturbance to 1.00% of the SAC area from unmitigated piling at the SE location, where <1 harbour porpoise within the SAC are predicted to show a disturbance response (**Table 16**). When using the Lucke *et al.* (2009), 145 dB SEL_{ss} threshold, the 20 km EDR for unmitigated piling (JNCC, 2025b) and the Level B harassment threshold, disturbance impact ranges from piling at any of the locations do not overlap with the Blackwater Bank SAC.

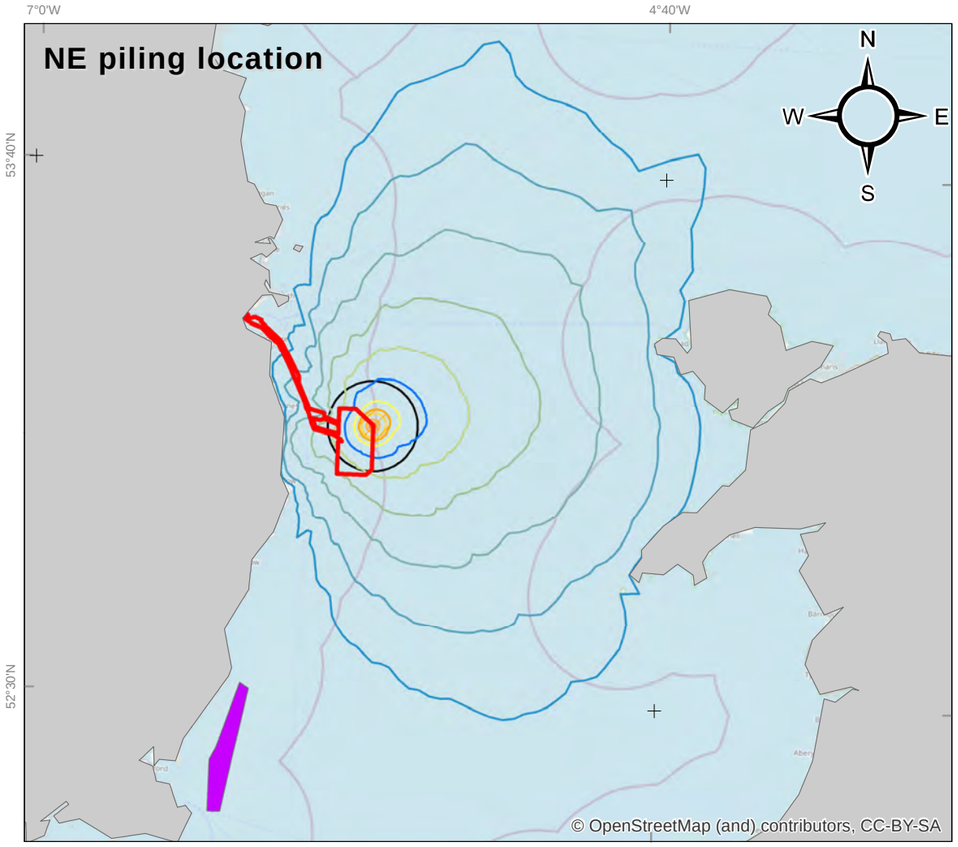
Table 16 Predicted overlap between predicted disturbance contours from unmitigated piling of WTGs at CWP and the Blackwater Bank SAC using a range of approaches and using the SCANS IV block CS-D density estimate.

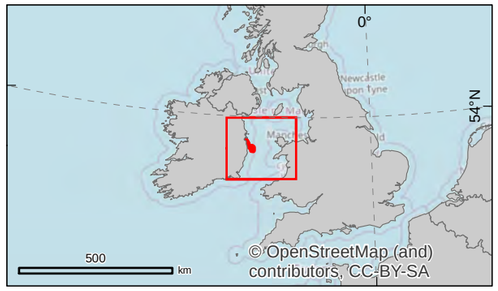
Disturbance Threshold	Model location	Total overlap (% SAC area)	Effective area disturbed (% SAC)	# porpoise disturbed in SAC
Dose-response	NE	0 km^2 (0% SAC)	0 km^2 (0% SAC)	0
	NW	0 km^2 (0% SAC)	0 km^2 (0% SAC)	0
	SE	79.13 km^2 (63.81% SAC)	1.25 km^2 (1.00% SAC)	<1
	SW	2.57 km^2 (2.07% SAC)	0.03 km^2 (0.02% SAC)	<1
145 dB SEL_{ss}	All	0 km^2	NA	0
20 km EDR	All	0 km^2	NA	0
Level B harassment threshold	All	0 km^2	NA	0

Mitigated piling

218. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Blackwater Bank SAC (**Figure 11**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Blackwater Bank SAC.





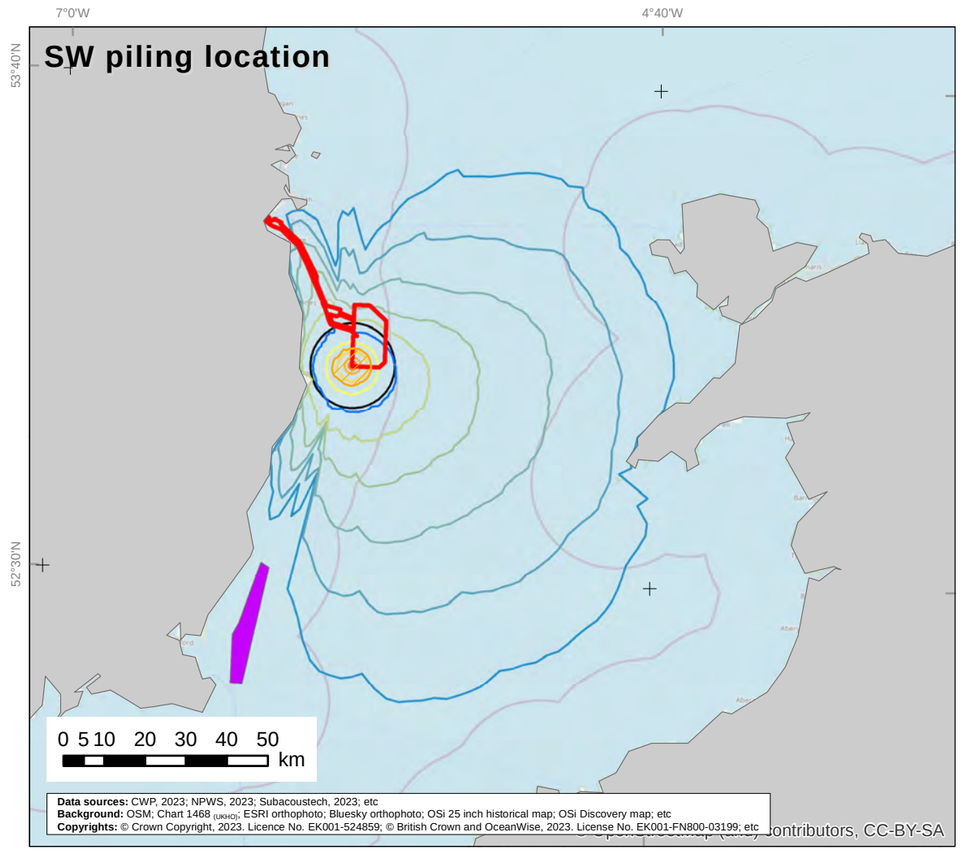


Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Blackwater Bank SAC



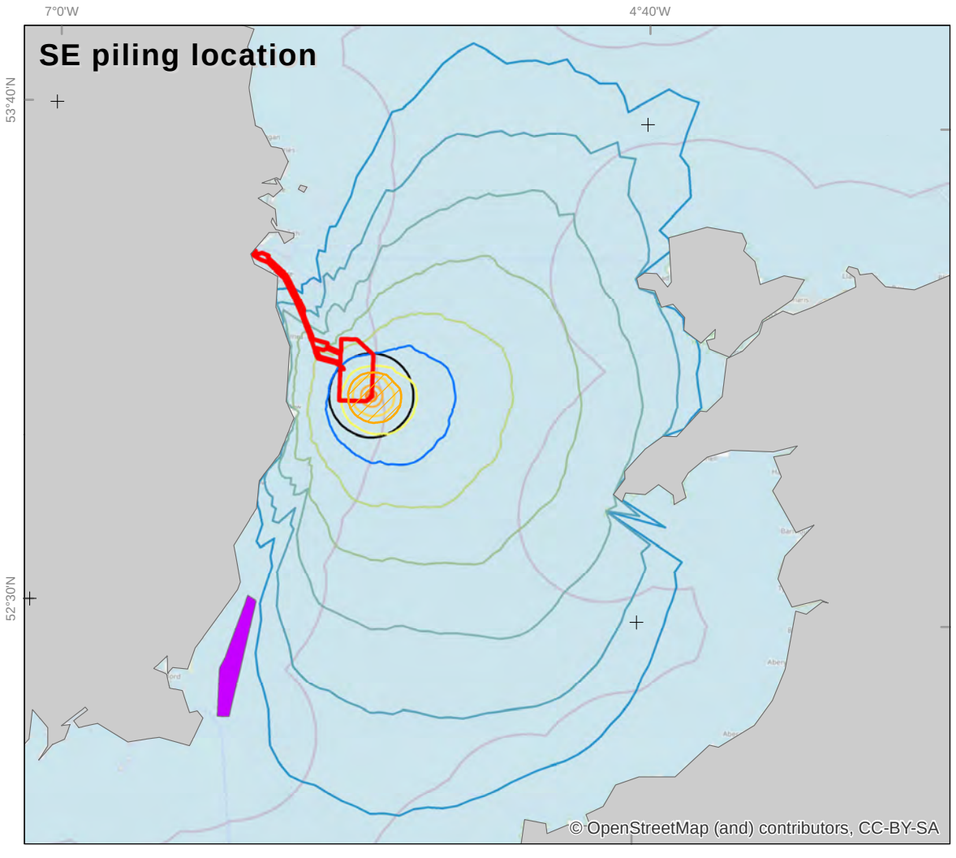


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Figure 11: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Blackwater Bank SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2089

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CRS: EPSG 25830

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A	Final version	03/04/2026	JC	RRS/EA	EA

219. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 4** and **Table 11**).

220. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

221. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Blackwater Bank SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.8 Blasket Islands SAC (IE002172)

2.8.1 Harbour porpoise

Section 2.10.1 remains unchanged except for paragraphs 454 through to 485 which are replaced by paragraphs 222 to 246 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1).** Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.8.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

222. The CWP array site is located approximately 450 km away from the Blasket Islands SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

223. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

224. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

225. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

226. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

227. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Blasket Islands SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

228. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Blasket Islands SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the

nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

229. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

230. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Blasket Islands SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

231. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

232. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

233. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

234. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Blasket Islands SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

235. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

236. Given that there is no spatial overlap of the CWP Project with the Blasket Islands SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from

geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

237. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

238. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

239. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

240. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

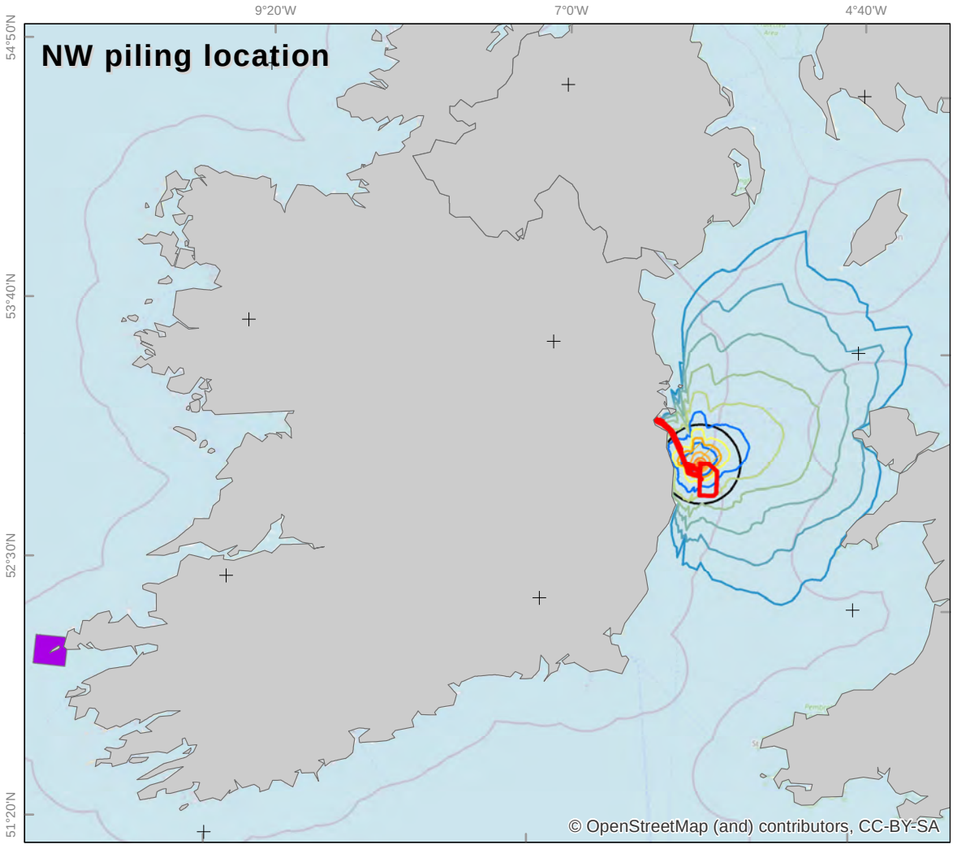
241. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise

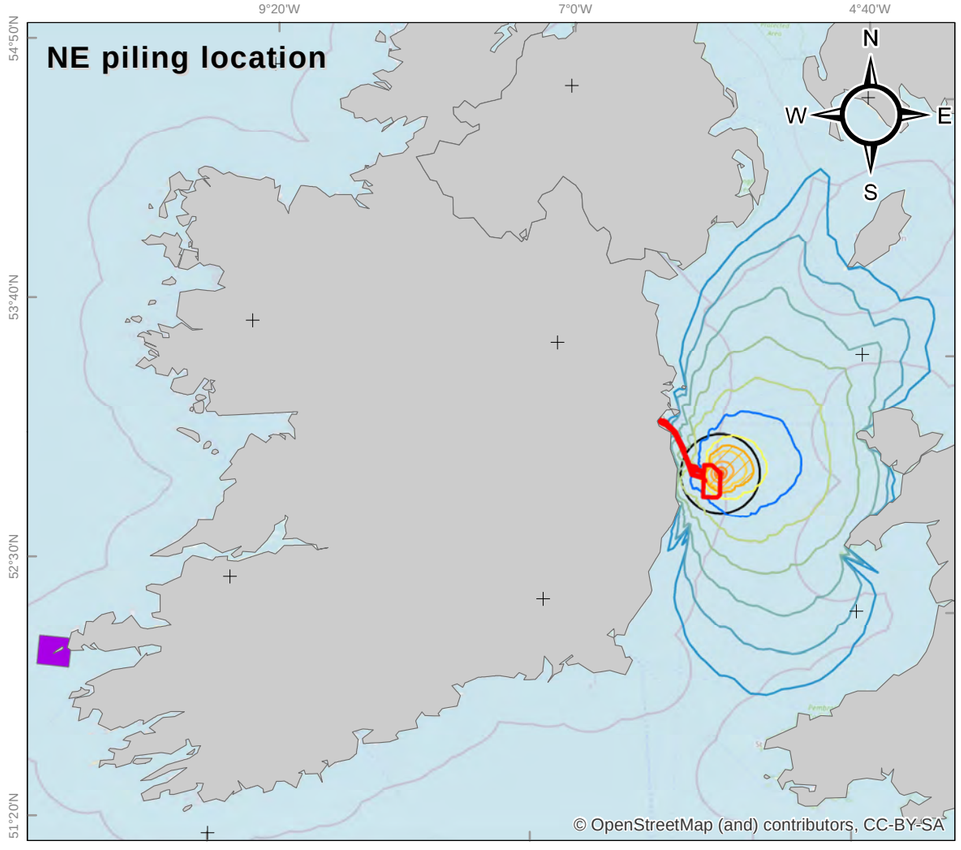
community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

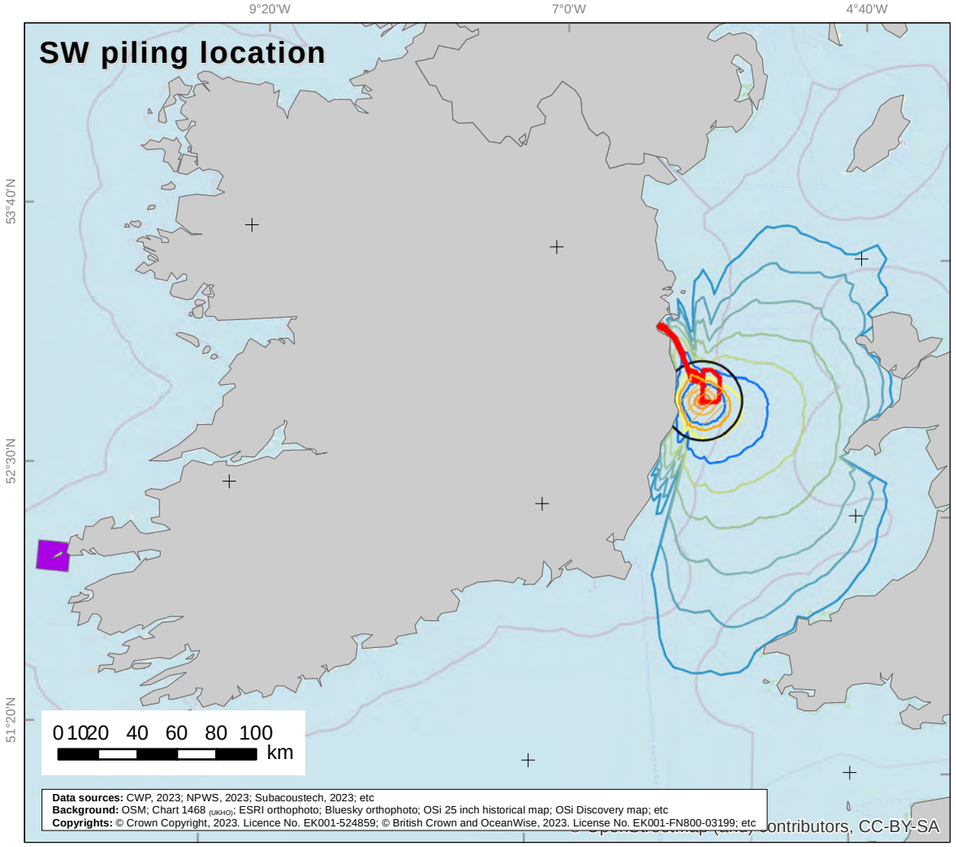
Piling of WTGs

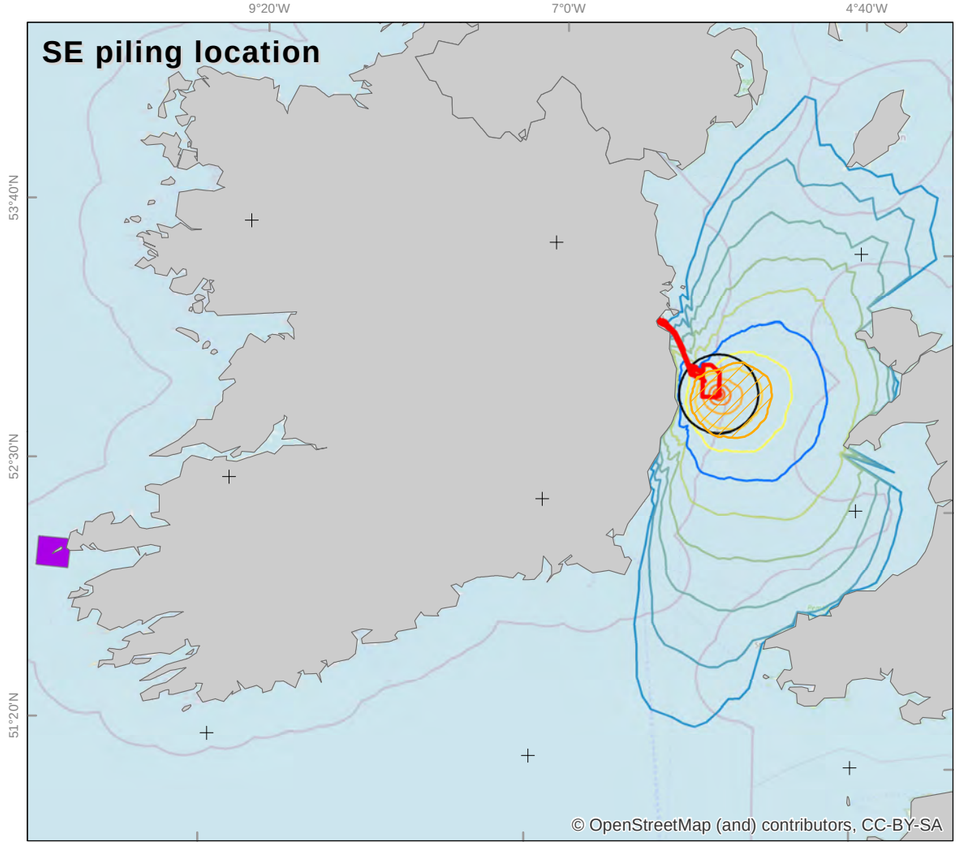
Unmitigated piling

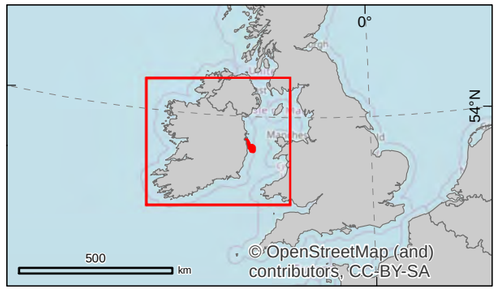
242. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the Blasket Islands SAC (see **Figure 12**).Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the Blasket Islands SAC.











Legend

- Planning application boundary
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SEL_{ss} dB re µPa²s (5dB contours)

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- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Blasket Islands SAC

codling wind park

Project: Codling Wind Park

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Figure 12: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Blasket Islands SAC

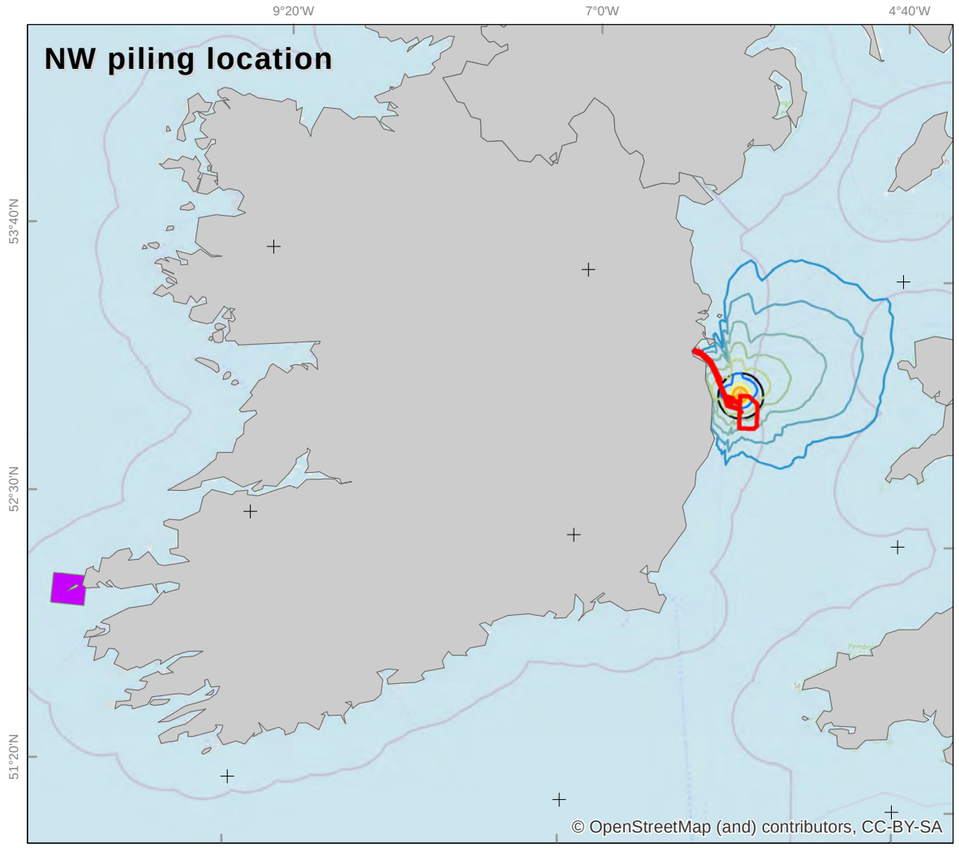
CWP doc. number: CWP-SMR-CON-09-MAP-2096

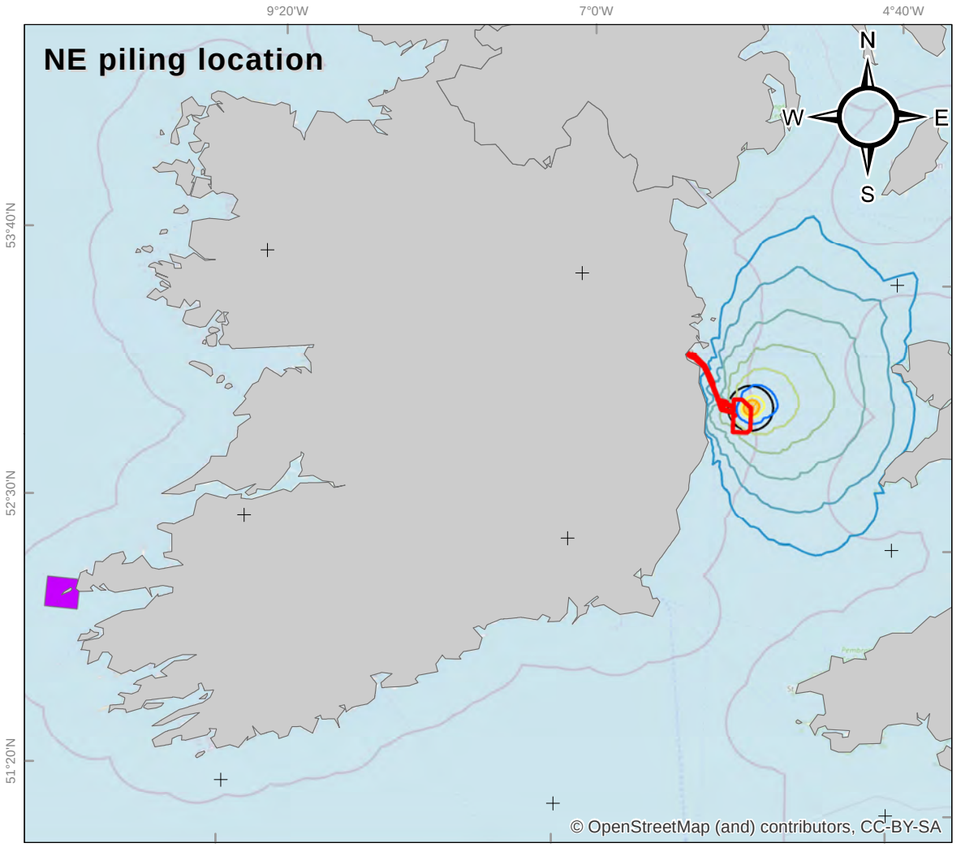
Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:3,100,000	EPSG 25830

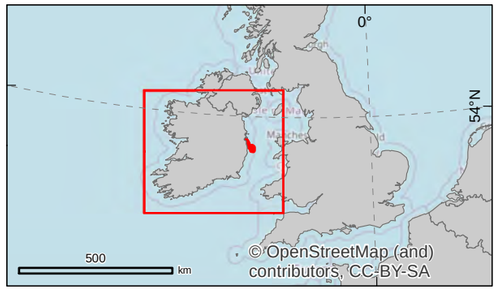
Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

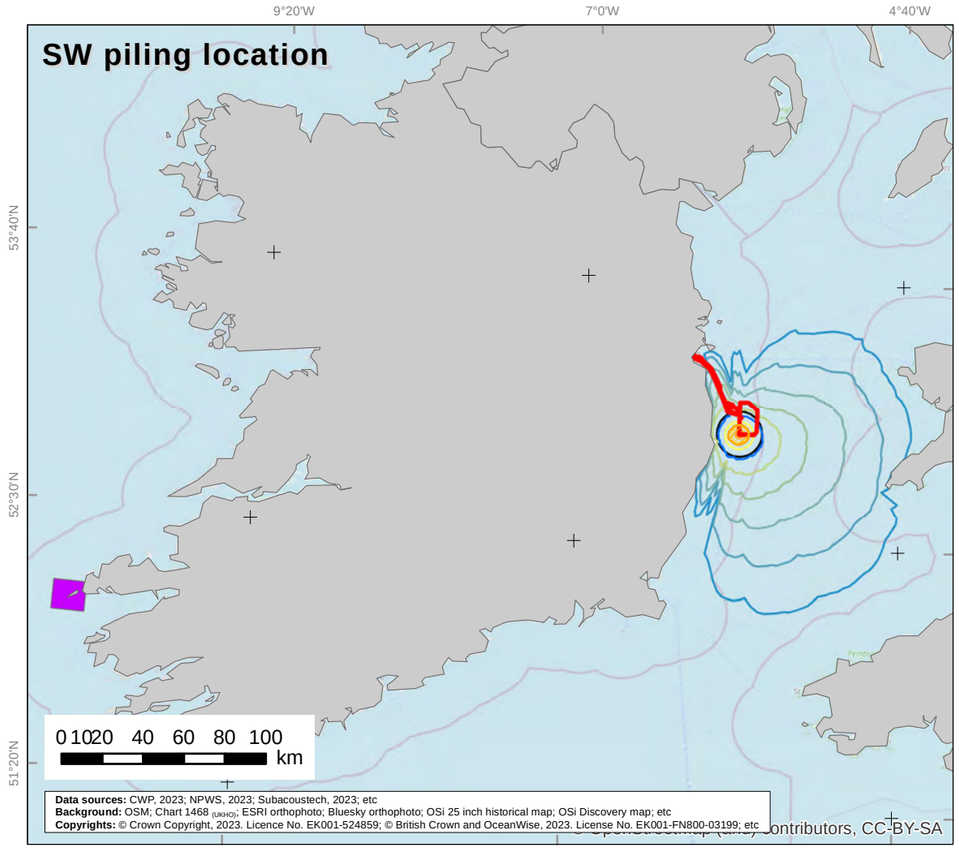
Mitigated piling

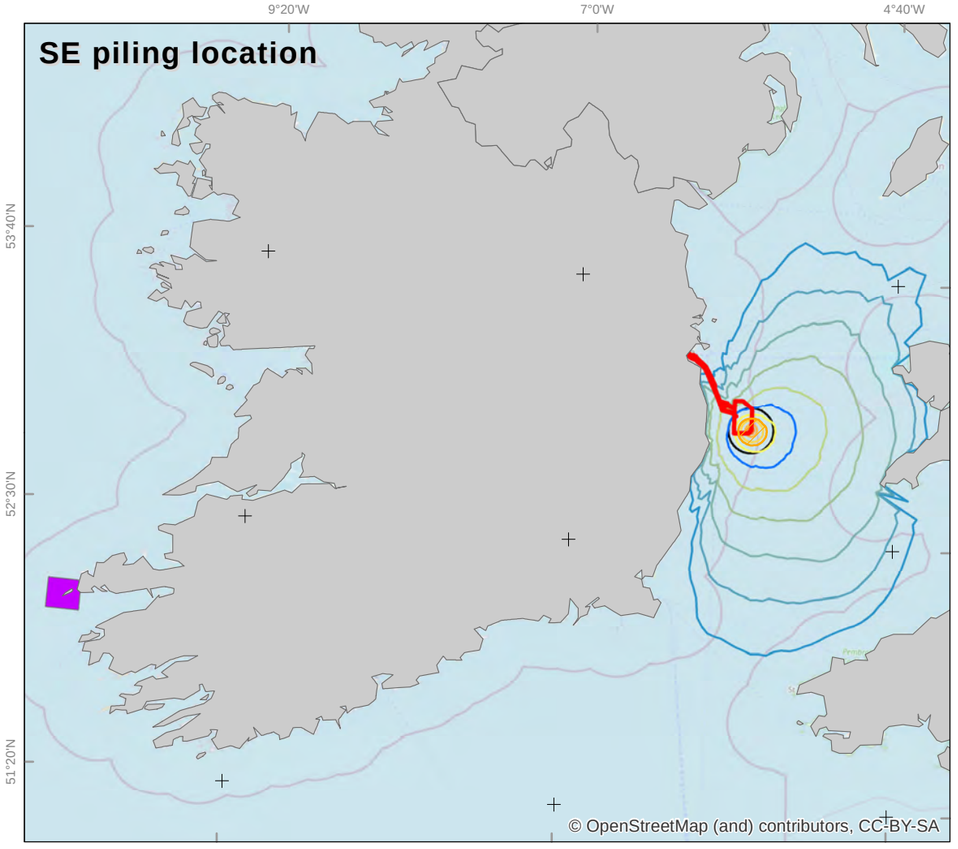
243. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measures applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Blasket Islands SAC (**Figure 13**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Blasket Islands SAC











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Blasket Islands SAC

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Figure 13: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Blasket Islands SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2097

Internal descriptive code: N/A

Size: A3

Scale: 1:3,000,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

244. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population **(**as per **Plate 4** and **Table 11**).

245. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

246. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Blasket Islands SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.9 Carnsore Point SAC (IE002269)

2.9.1 Harbour porpoise

Section 2.8.1 remains unchanged except for paragraphs 507 through to 538 which are replaced by paragraphs 247 to 271 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.9.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

247. The CWP array site is located approximately 87 km away from the Carnsore Point SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

248. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

249. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

250. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

251. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

252. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Carnsore Point SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

253. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Carnsore Point SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the

nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

254. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

255. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Carnsore Point SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

256. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

257. The maximum mitigated PTS-onset range for harbour porpoise is 140m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

258. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

259. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Carnsore Point SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

260. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

261. Given that there is no spatial overlap of the CWP Project with the Carnsore Point SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from

geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

262. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

263. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

264. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

265. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

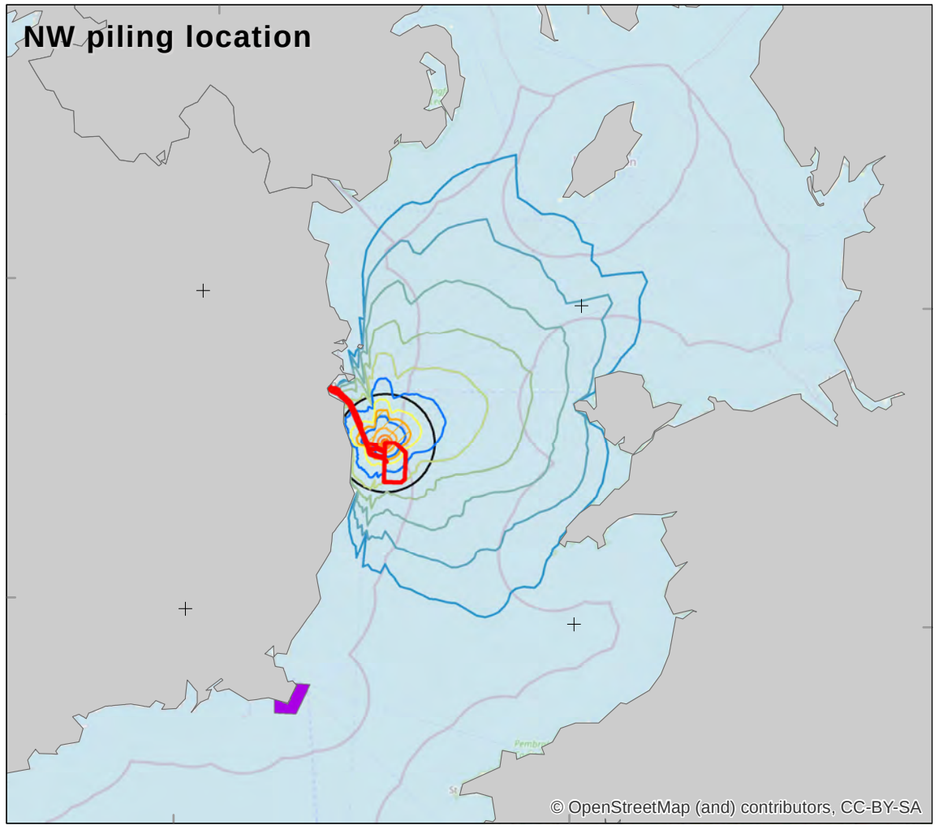
266. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise

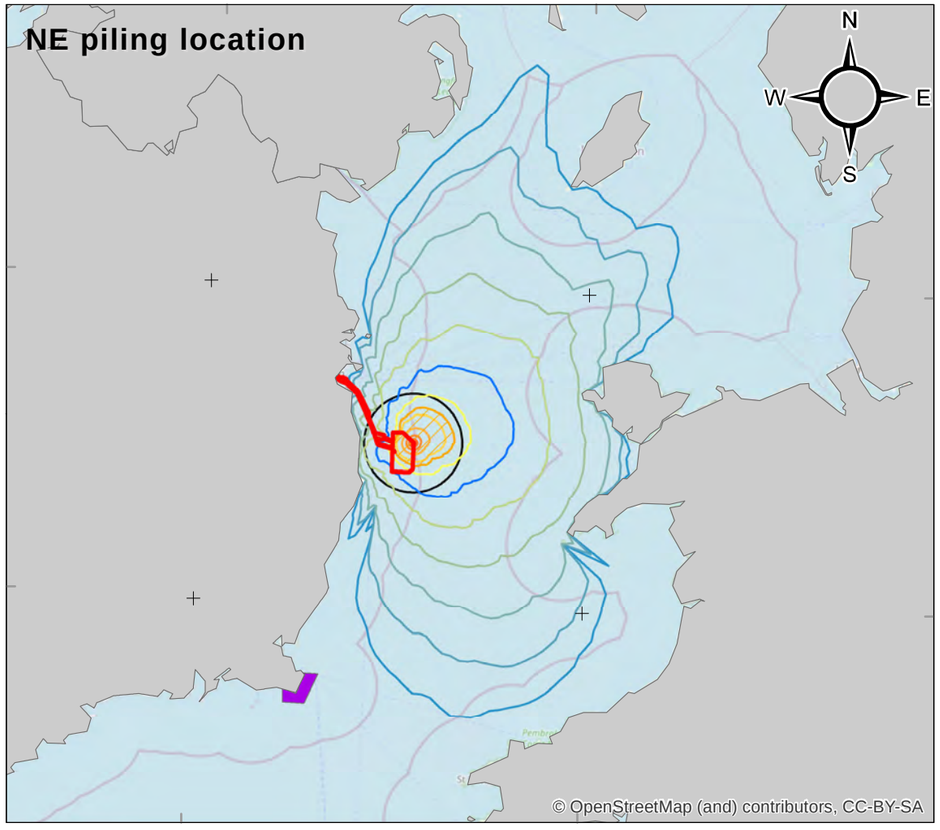
community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

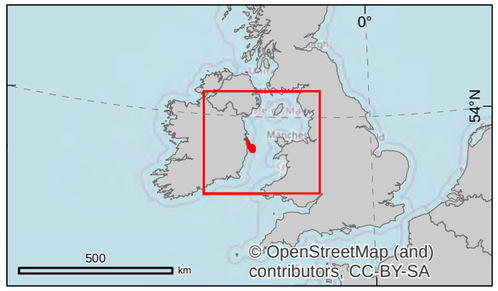
Piling of WTGs

Unmitigated piling

267. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the Carnsore Point SAC (see **Figure 14**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the Carnsore Point SAC.





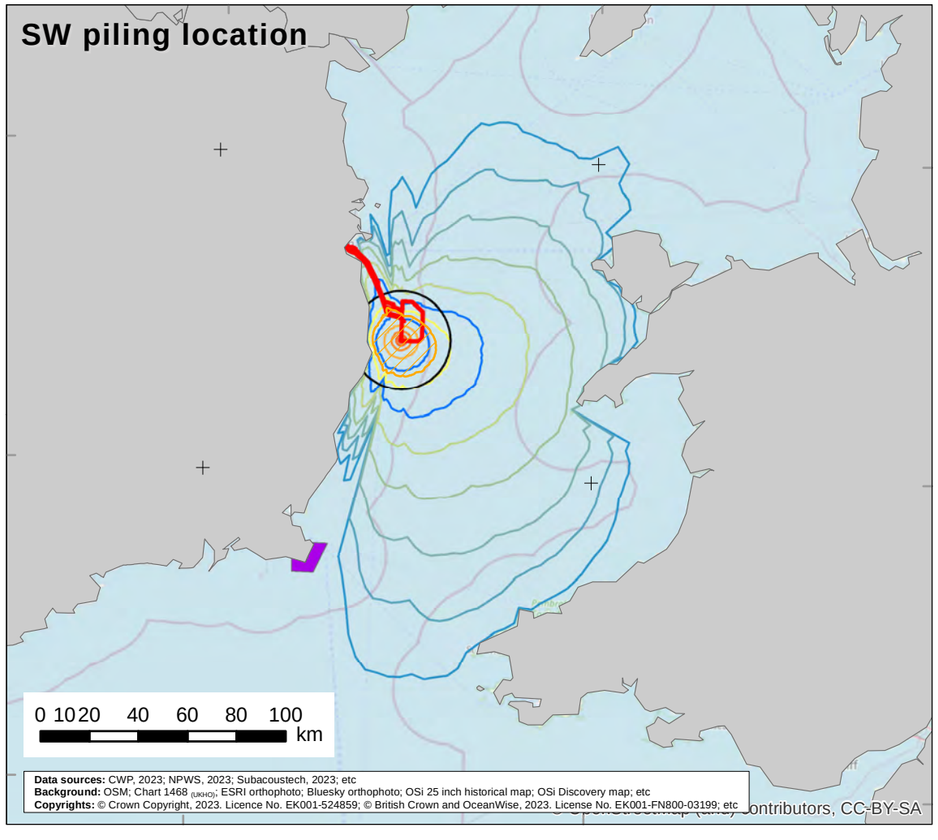


Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Carnsore Point SAC



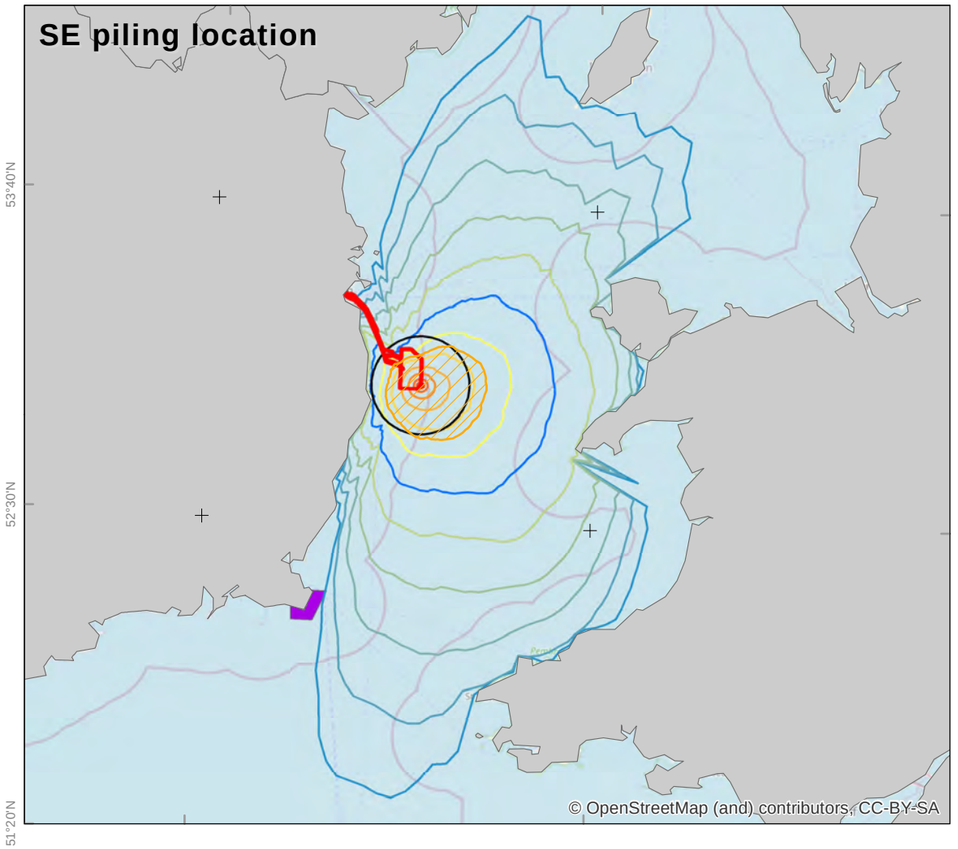


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Figure 14: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Carnsore Point SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2090

Internal descriptive code: N/A

Size: A3

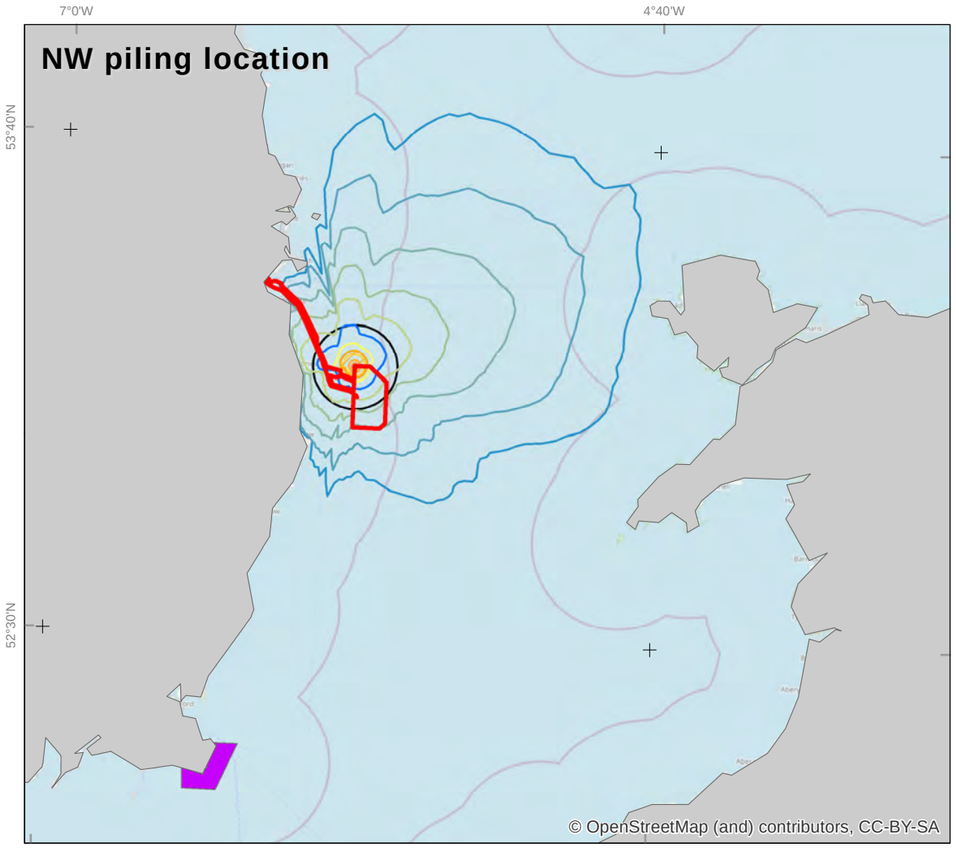
Scale: 1:2,500,000

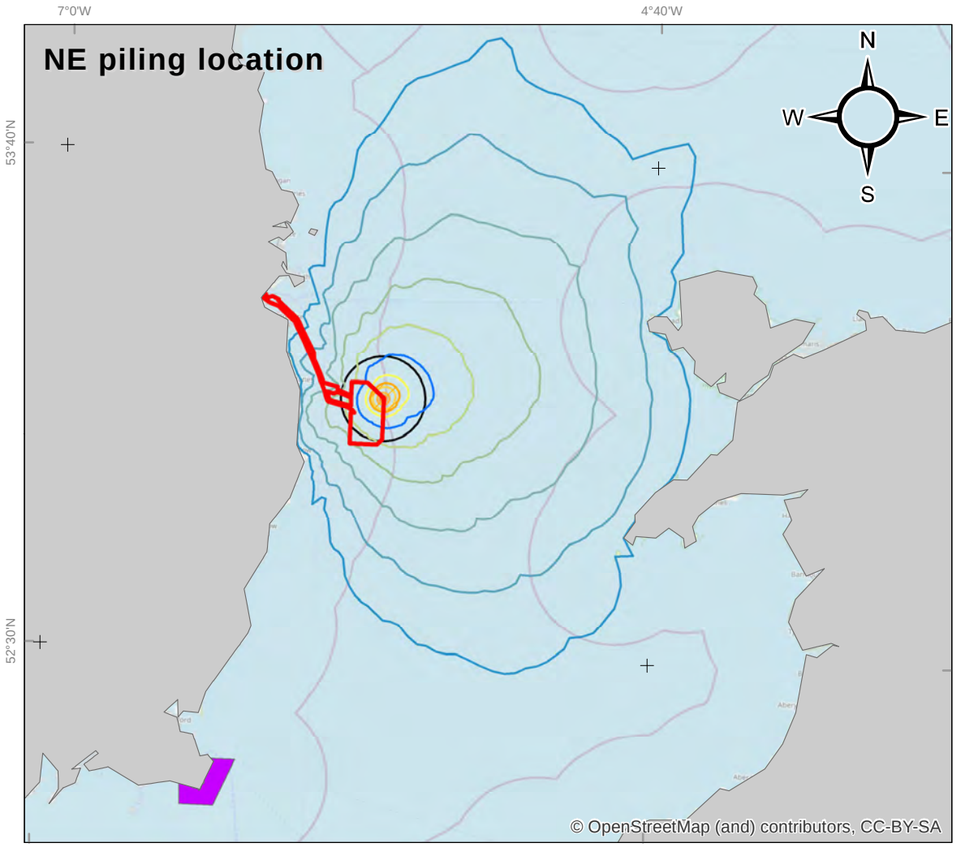
CRS: EPSG 25830

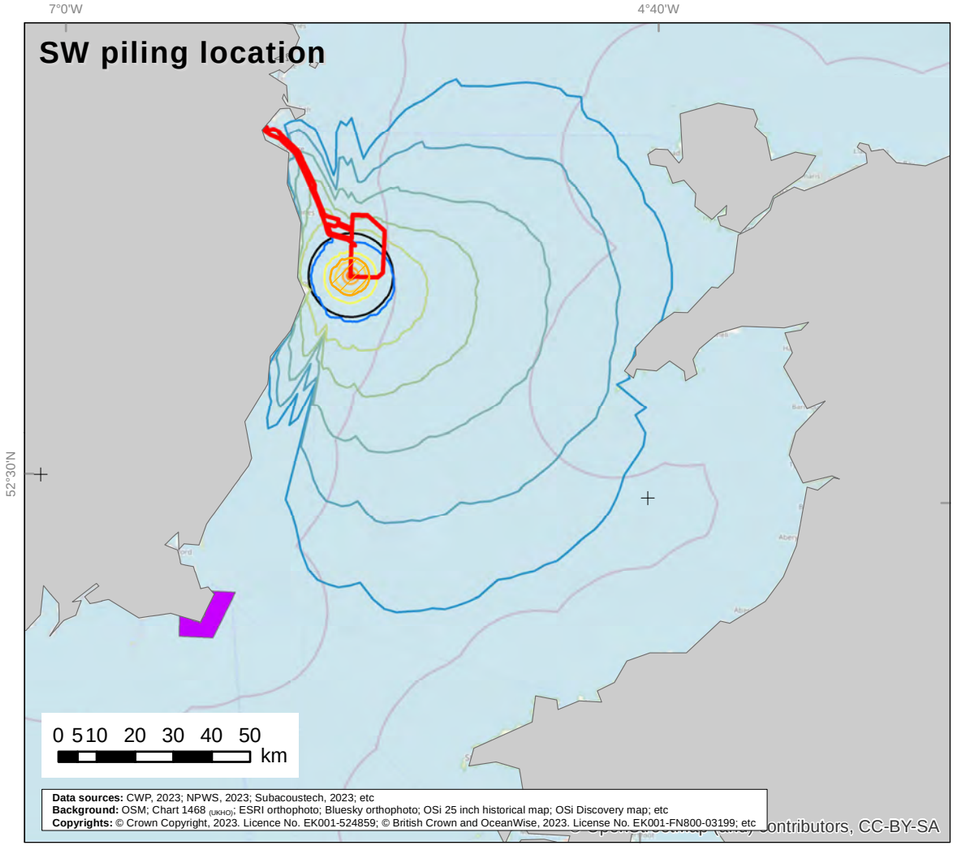
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

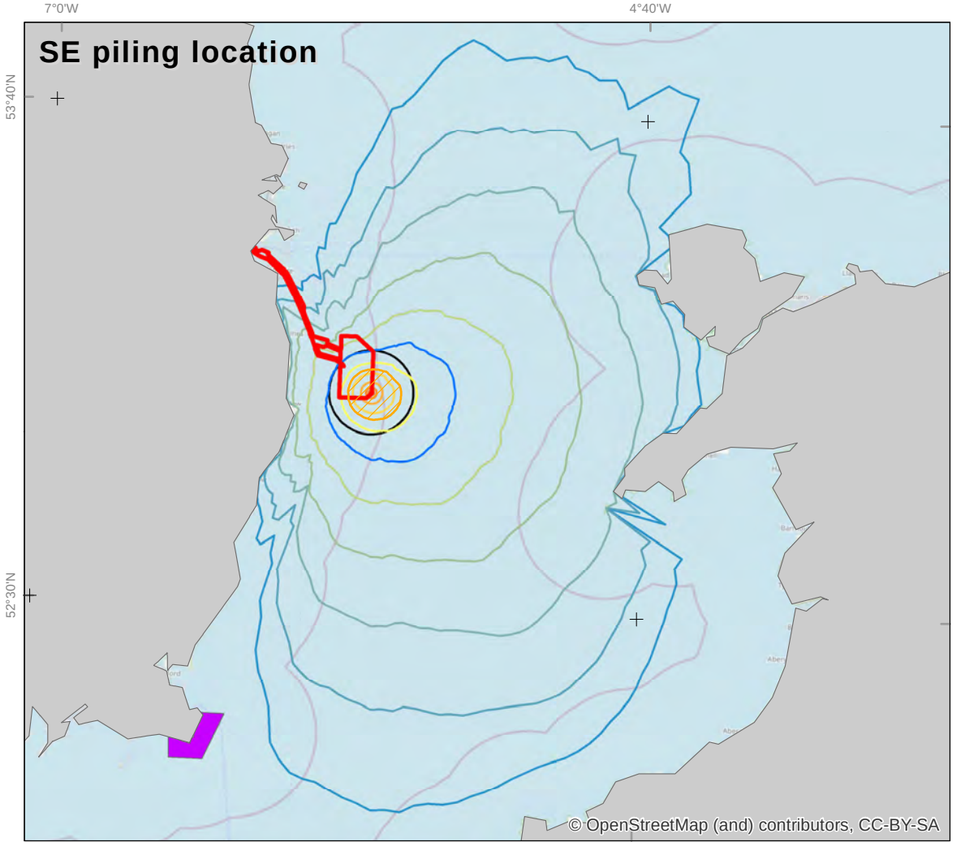
Mitigated piling

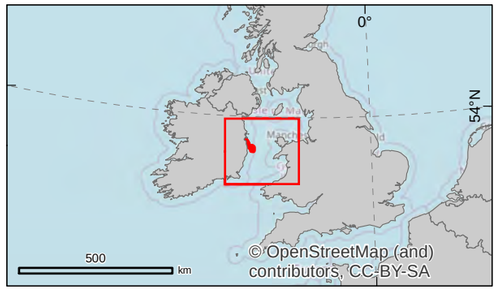
268. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Carnsore Point SAC (**Figure 15)**. Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Carnsore Point SAC.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s threshold

SEL_{ss} dB re μPa^2s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Carnsore Point SAC

codling wind park

Project: Codling Wind Park

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Figure 15: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Carnsore Point SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2091

Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:1,600,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

269. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 4** and **Table 11**).

270. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

271. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Carnsore Point SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.10 Hook Head SAC (IE000764)

2.10.1 Harbour porpoise

Section 2.9.1 remains unchanged except for paragraphs 560 through to 591 which are replaced by paragraphs 272 to 296 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.10.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

272. The CWP array site is located approximately 130 km away from the Hook Head SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

273. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and bottlenose dolphin, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

274. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

275. The MMO watch of the 1 km radius will ensure that no bottlenose dolphin are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to bottlenose dolphin following the mitigation.

276. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

277. The maximum PTS impact range for bottlenose dolphin due to high-order detonation of the largest 750 kg + donor UXO is 830 m. As there is no spatial overlap of the CWP Project with the Hook Head SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

278. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Hook Head SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the

nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

279. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

280. The maximum unmitigated PTS-onset range for bottlenose dolphin is <50 m. As such, there will be no overlap between PTS-onset ranges and the Hook Head SAC

281. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

282. The maximum mitigated PTS-onset range for bottlenose dolphin is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no bottlenose dolphins are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

283. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

284. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Hook Head SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

285. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

286. Given that there is no spatial overlap of the CWP Project with the Hook Head SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

287. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main

beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

288. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

289. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

290. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

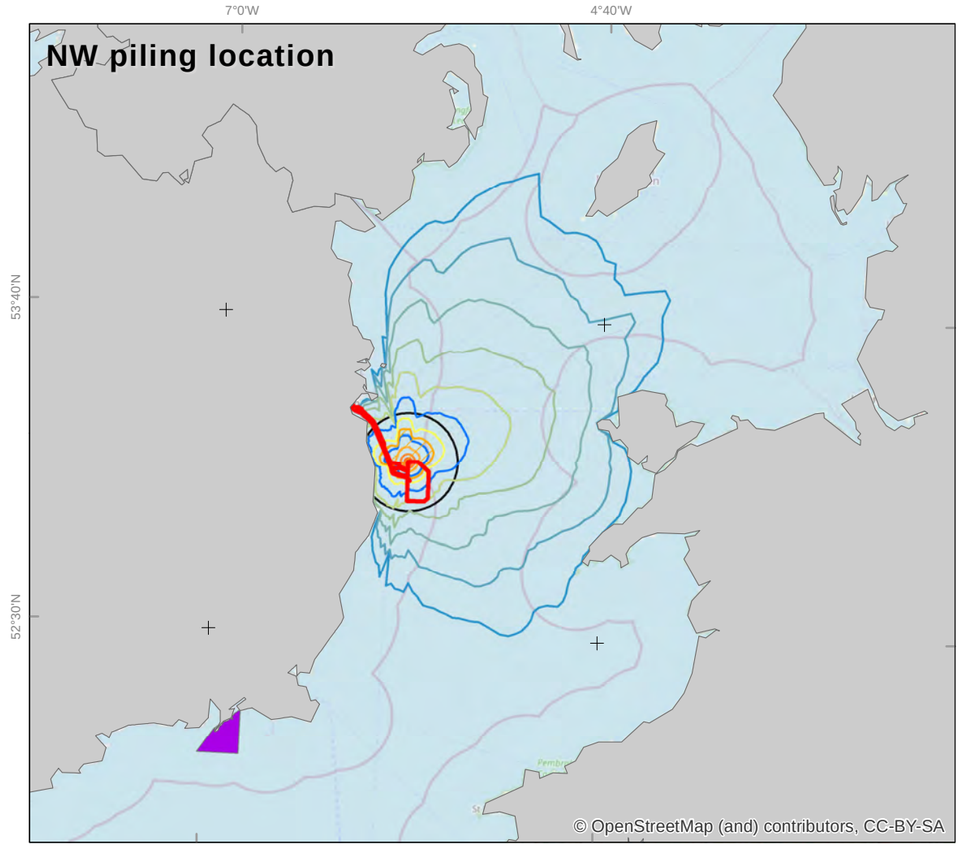
291. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

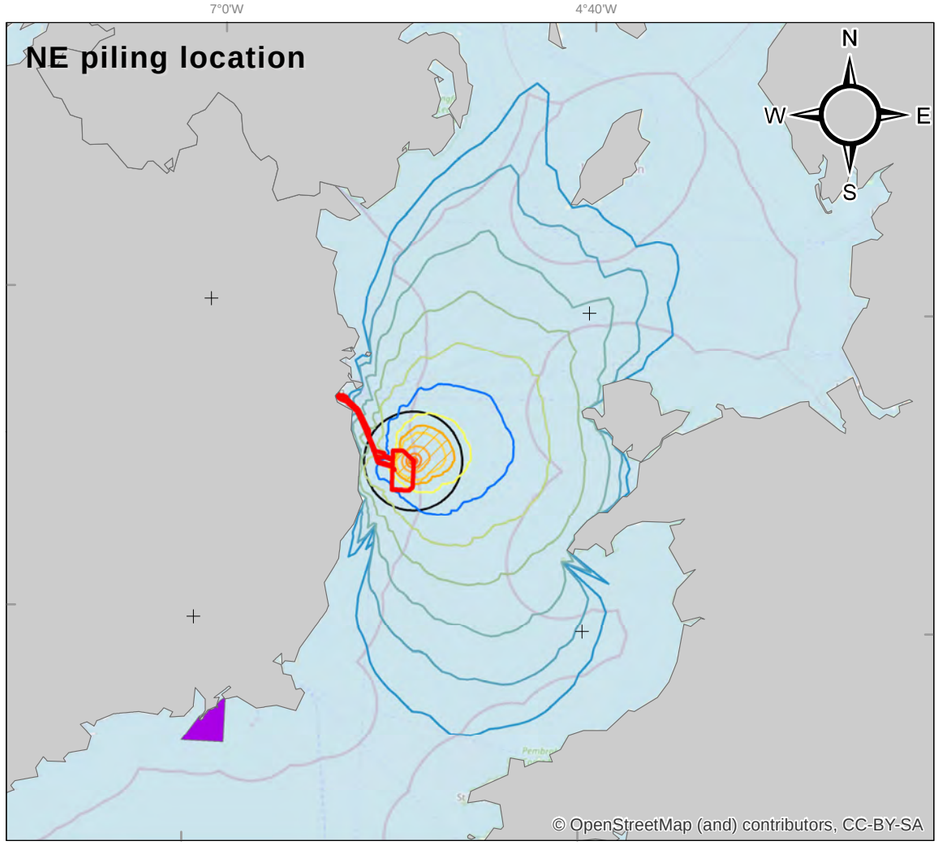
Piling of WTGs

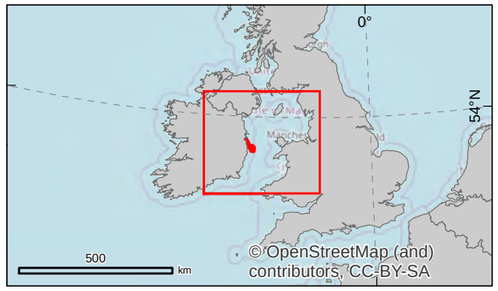
Unmitigated piling

292. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the Hook Head SAC (see **Figure 16**). Similarly when considering the distance

to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the Hook Head SAC.





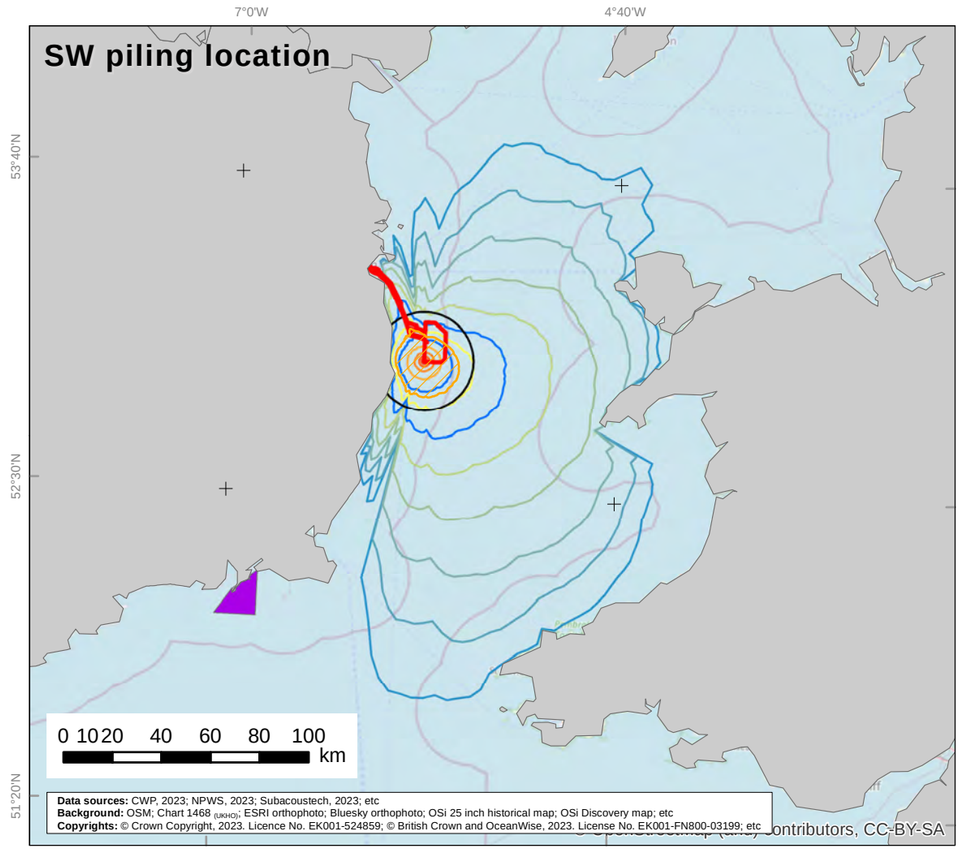


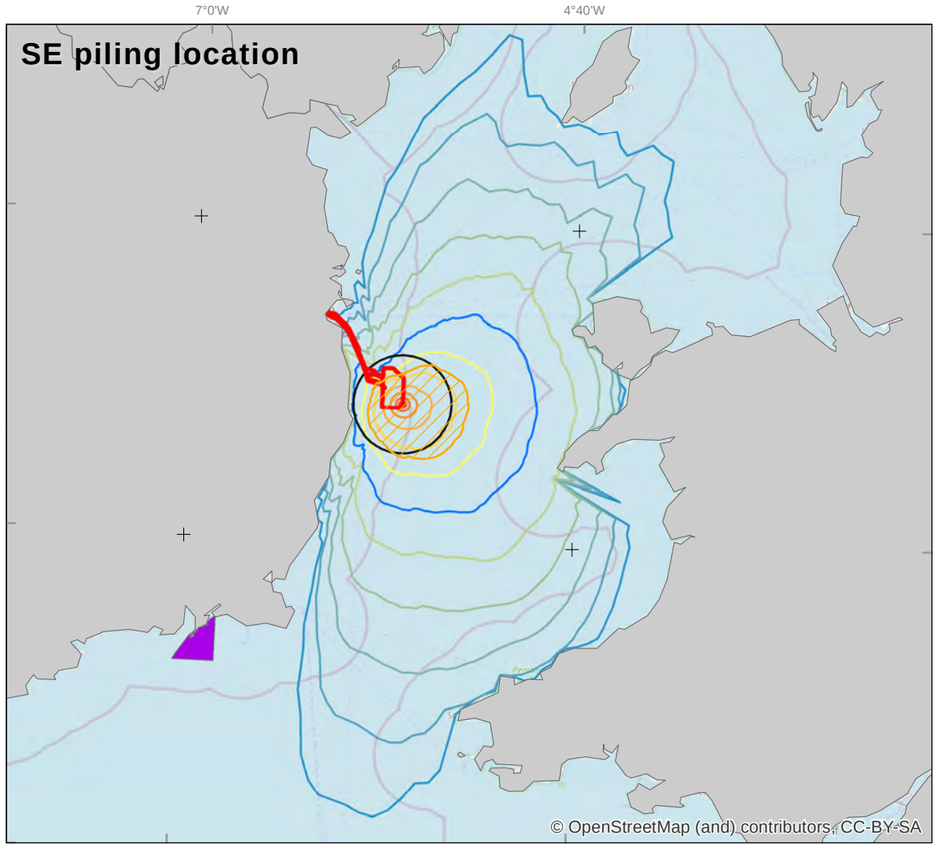
Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Hook Head SAC





codling wind park

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Figure 16: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Hook Head SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2092

Internal descriptive code: N/A

Size: A3

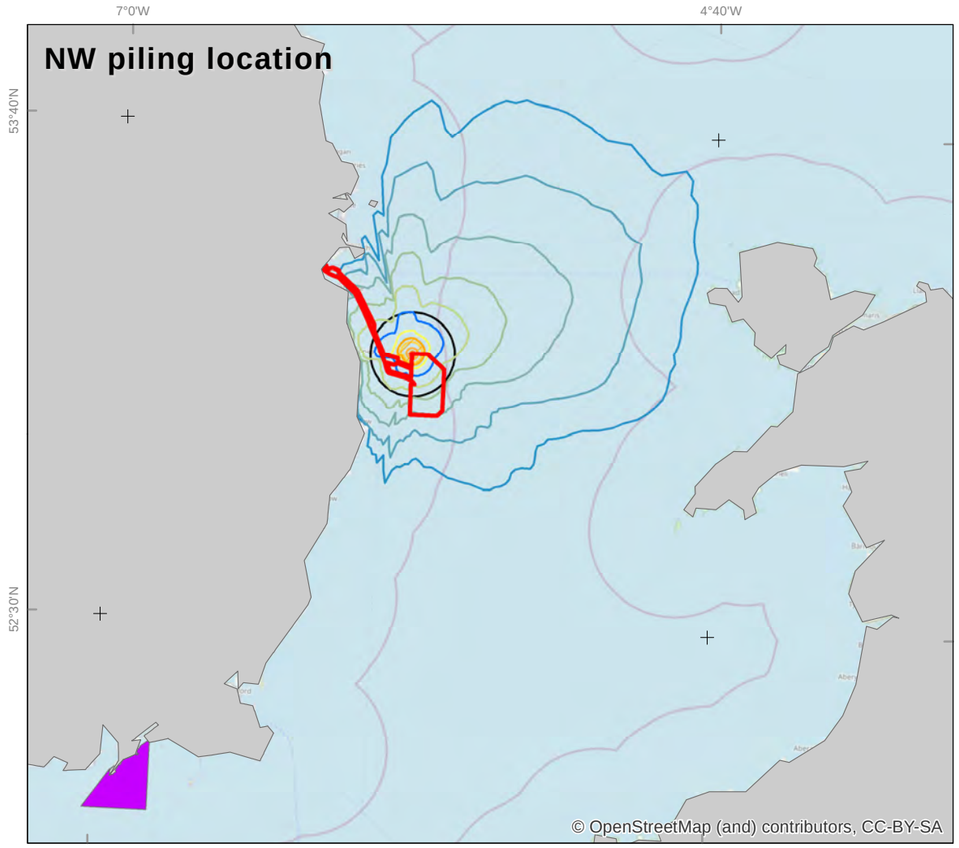
Scale: 1:2,500,000

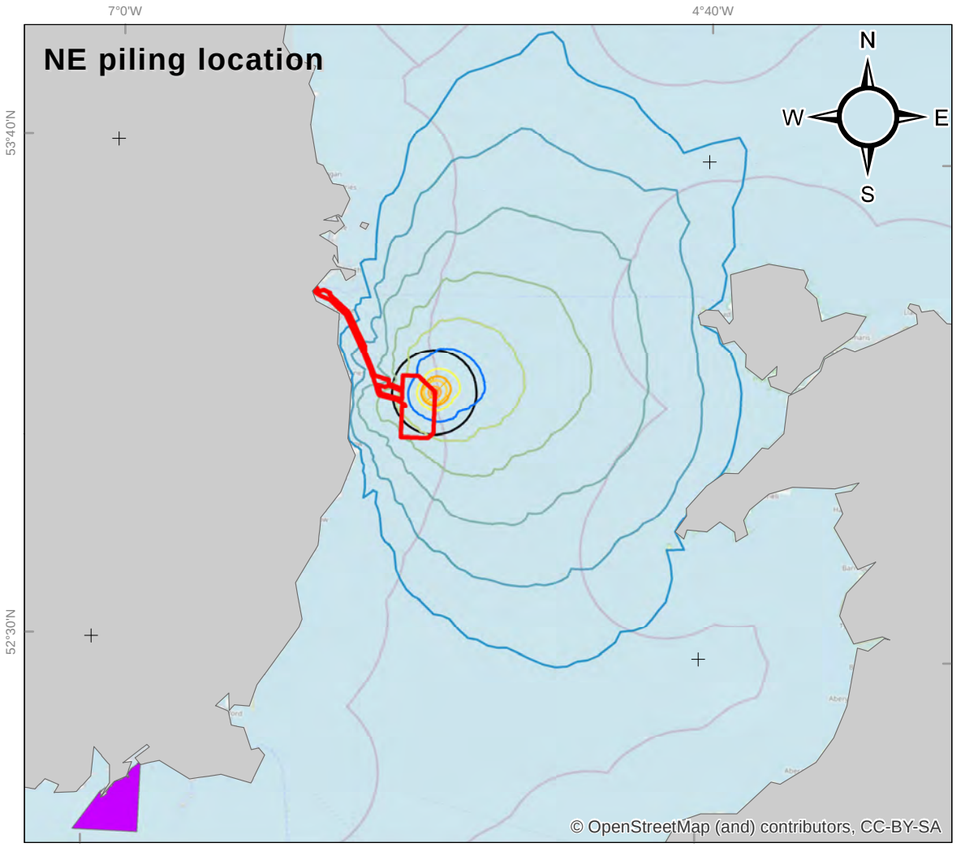
CRS: EPSG 25830

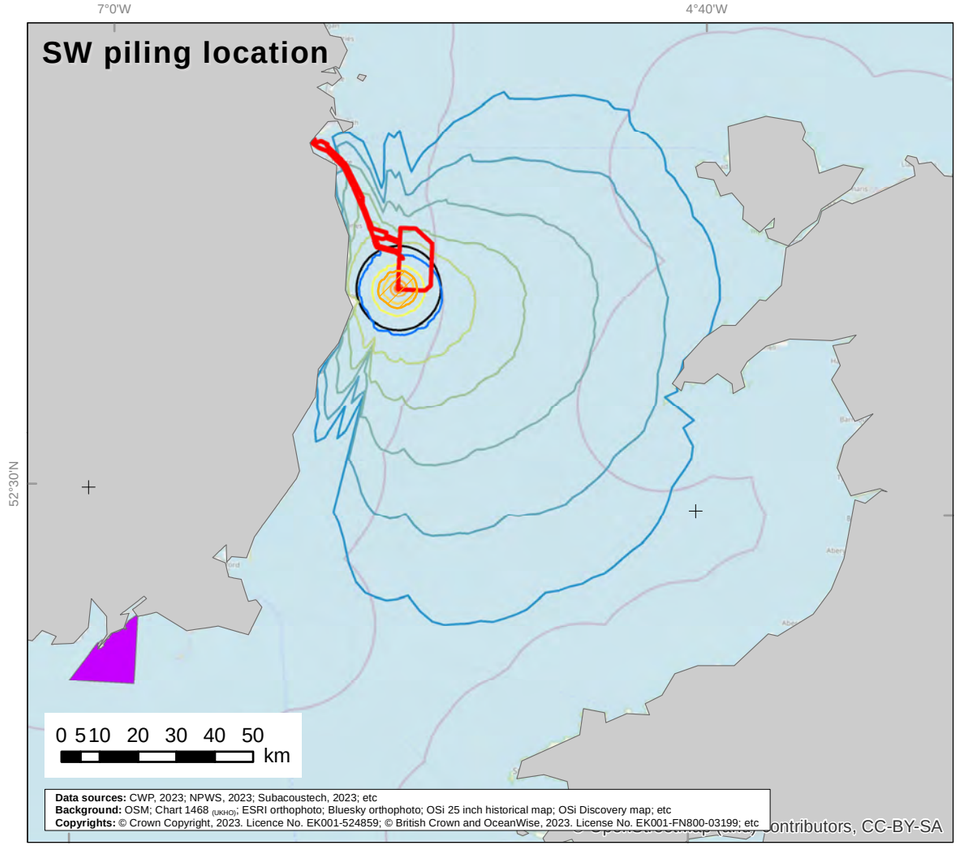
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

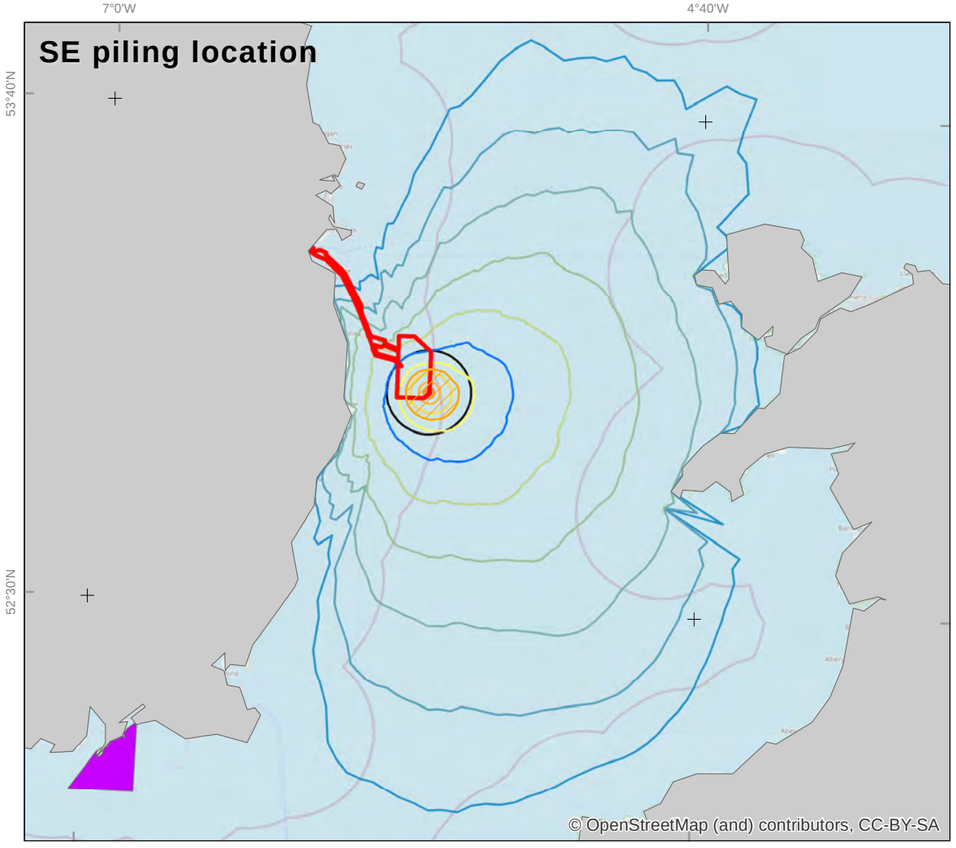
Mitigated piling

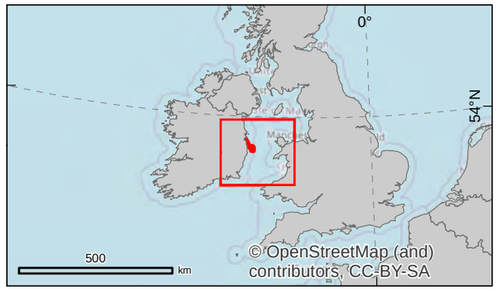
293. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Hook Head SAC (**Figure 17**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Hook Head SAC.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Hook Head SAC

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Figure 17: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Hook Head SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2093

Internal descriptive code:	*Size:* A3	*CRS:*
N/A	*Scale:* 1:1,600,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

294. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 4** and **Table 11**).

295. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

296. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Hook Head SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.10.2 Bottlenose dolphin

Section 2.9.2 remains unchanged except for paragraphs 613 through to 649 which are replaced by paragraphs 296 to 322 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities

and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.10.2.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

297. The CWP array site is located approximately 130 km away from the Hook Head SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

298. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and bottlenose dolphin, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

299. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

300. The MMO watch of the 1 km radius will ensure that no bottlenose dolphins are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to bottlenose dolphin following the mitigation.

301. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

302. The maximum PTS impact range for bottlenose dolphin due to high-order detonation of the largest 750 kg + donor UXO is 830 m. As there is no spatial overlap of the CWP Project with the Hook Head SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

303. To further reduce the risk of injury outside of the SAC, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

304. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for bottlenose dolphin is 60 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 100 m.

305. The MMO watch of the 1 km radius will ensure that no bottlenose dolphins are present within the mitigation zone before the UXO clearance occurs. Given that the maximum injury zone for the mitigated UXO clearance is 100 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

306. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

307. The maximum unmitigated PTS-onset range for bottlenose dolphin is <50 m. As such, there will be no overlap between PTS-onset ranges and the Hook Head SAC.

308. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

309. The maximum mitigated PTS-onset range for bottlenose dolphin is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no bottlenose dolphins are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

310. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

311. Considering the above, following the mitigation measures included in the **updated MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Hook Head SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

312. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

313. Given that there is no spatial overlap of the CWP Project with the Hook Head SAC, there is no risk of behavioural disturbance impacts for bottlenose dolphins *in situ*. For *ex situ* disturbance from

geophysical surveys within the Irish Sea MU, using SCANS IV block density and 3 km EDR, the number of bottlenose dolphin predicted to impacted is 7 individuals (0.08% Irish Sea MU).

314. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the bottlenose dolphin community within the site. They will also not lead to the permanent exclusion of bottlenose dolphin from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the bottlenose dolphin community at the site.

UXO clearance

315. There will be no overlap of the 20 km EDR or 1.5 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 296 bottlenose dolphin individuals (3.55% of the Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 2 bottlenose dolphin individuals (0.02% of the Irish Sea MU) are predicted to be disturbed.

316. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

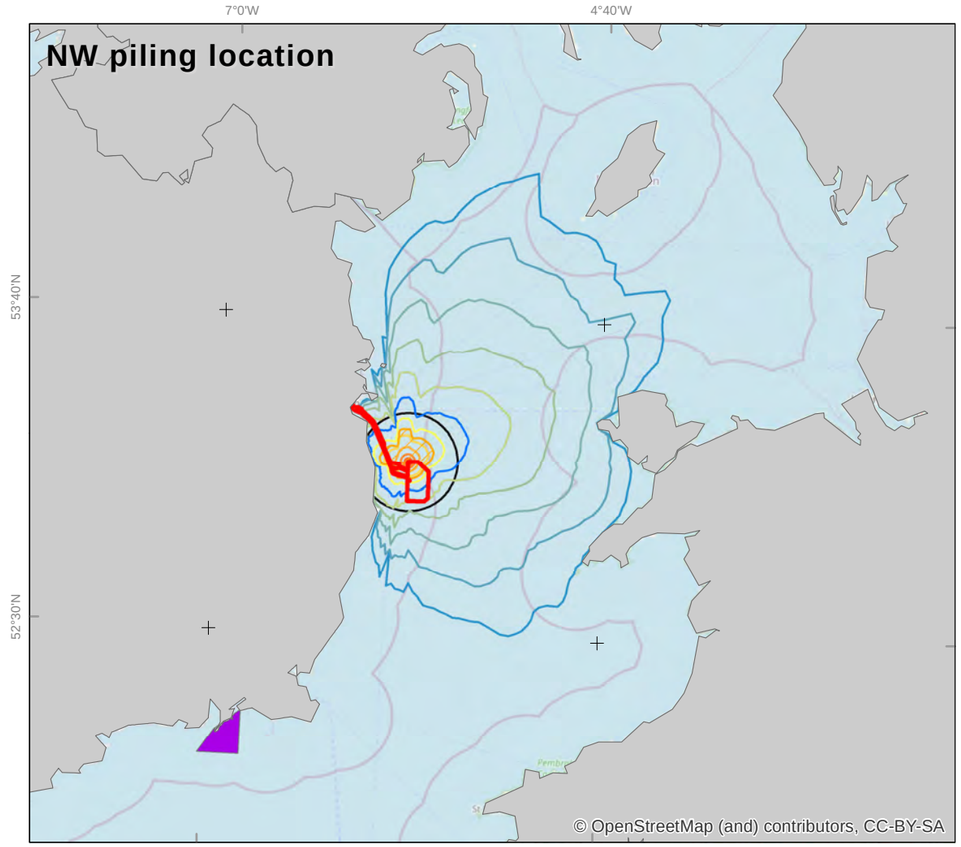
317. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (550 m). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 74 bottlenose dolphin individuals (0.90% of the Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 18 bottlenose dolphin individuals (0.22% of the Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, less than 1 bottlenose dolphin individual (<0.01% of the Irish Sea MU) are predicted to be disturbed.

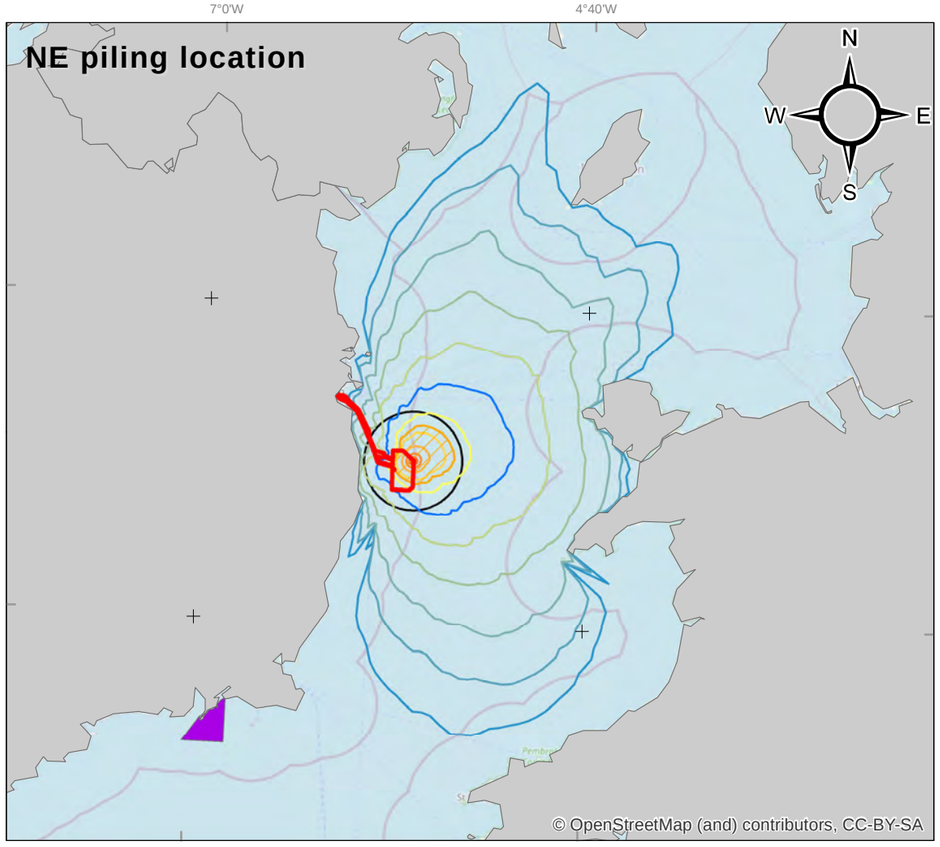
318. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

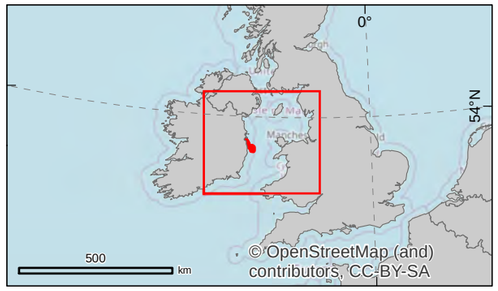
Piling of WTGs

Unmitigated piling

319. For the unmitigated piling using the dose-response function, none of the noise contours overlap with the Hook Head SAC (see **Figure 18**). When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the Hook Head SAC.





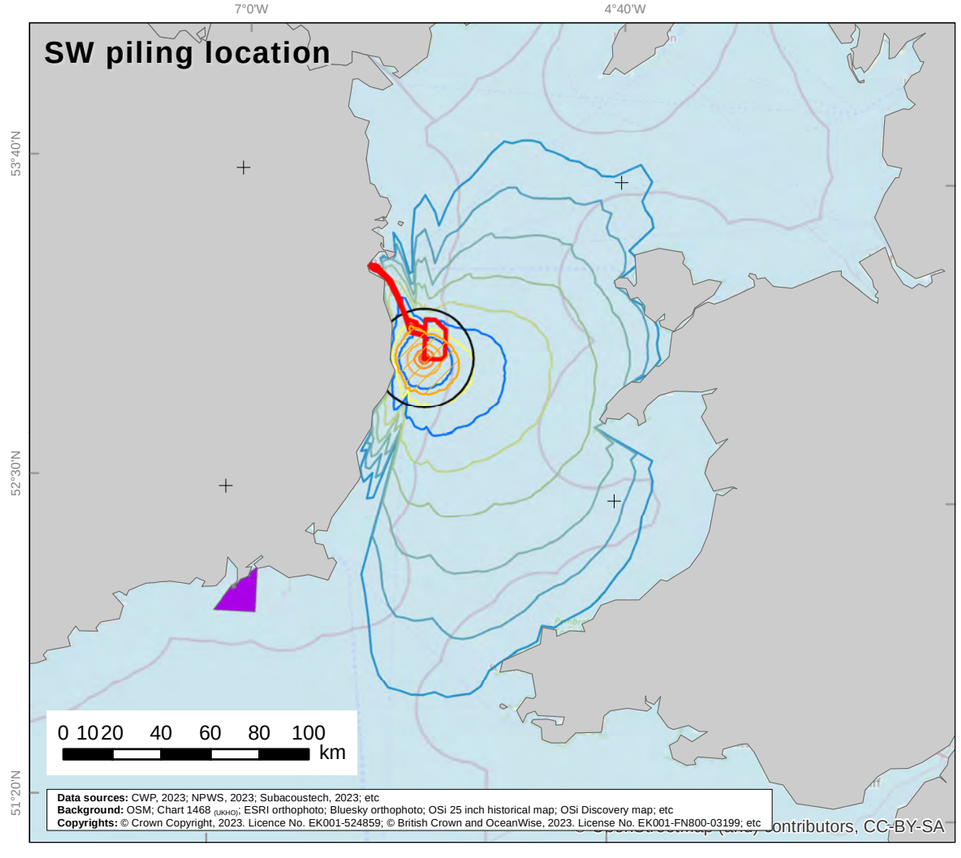


Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s

SEL_{ss} dB re μPa^2s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Hook Head SAC



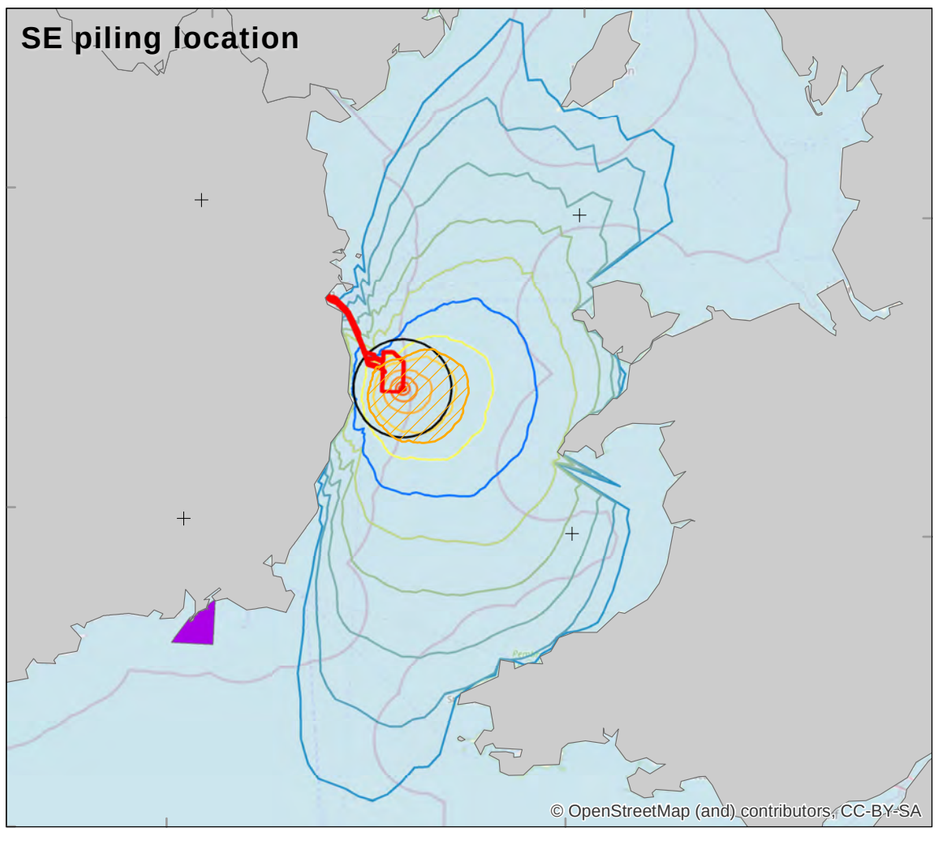


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Figure 18: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the Hook Head SAC

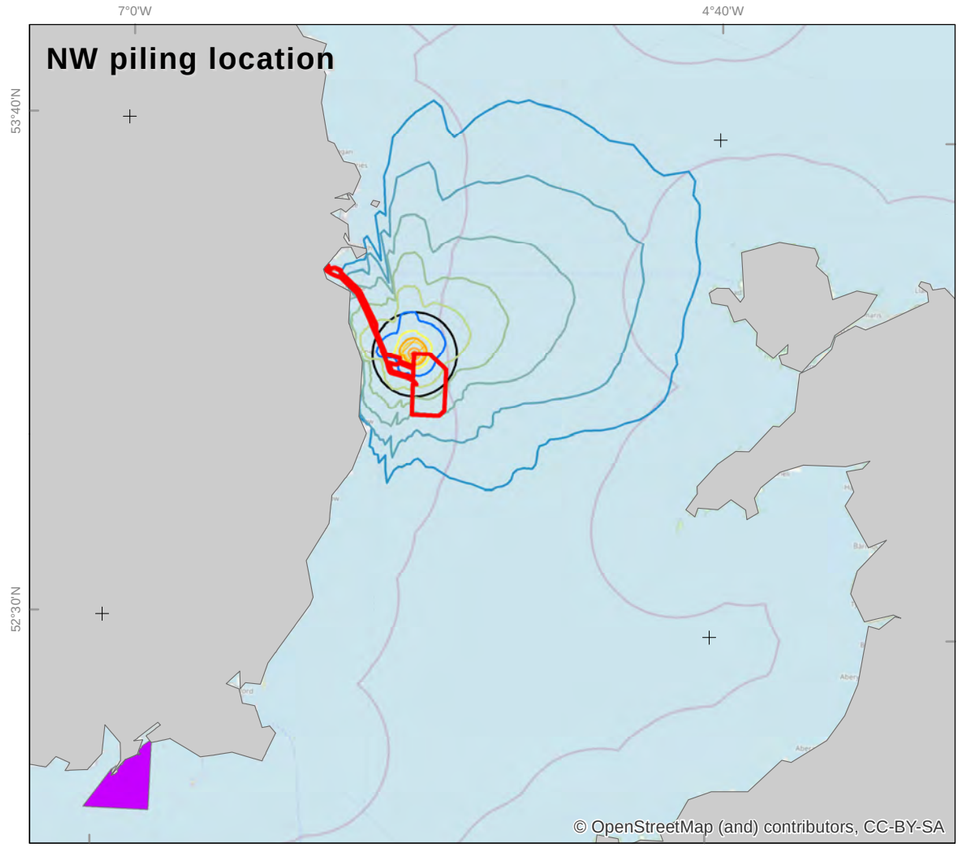
CWP doc. number: CWP-SMR-CON-09-MAP-2094

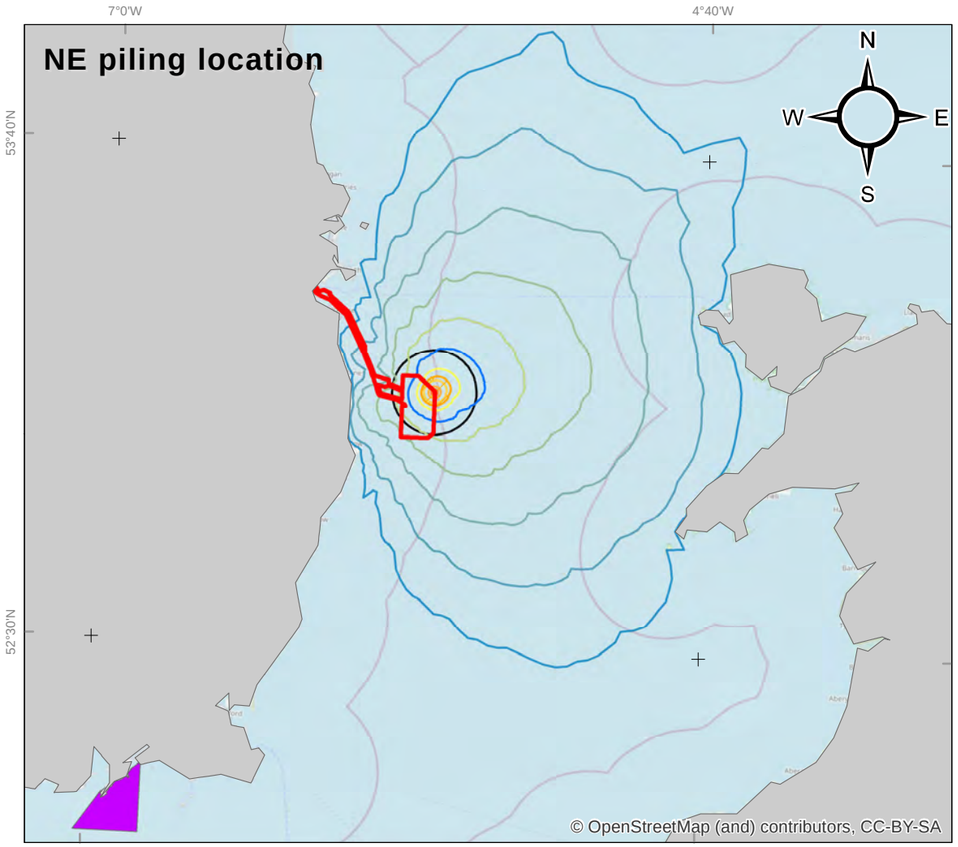
Internal descriptive code:	*Size:*	*CRS:*
N/A	A3 *Scale:* 1:2,500,000	EPSG 25830

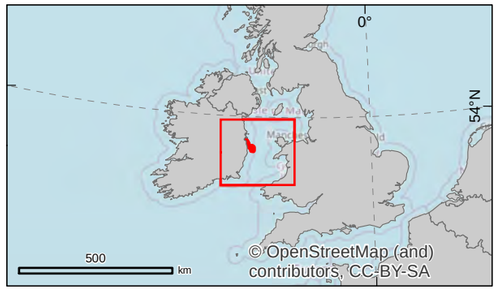
Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

Mitigated piling

320. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Hook Head SAC (**Figure 17**). Similarly, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the Hook Head SAC (**Figure 19**).







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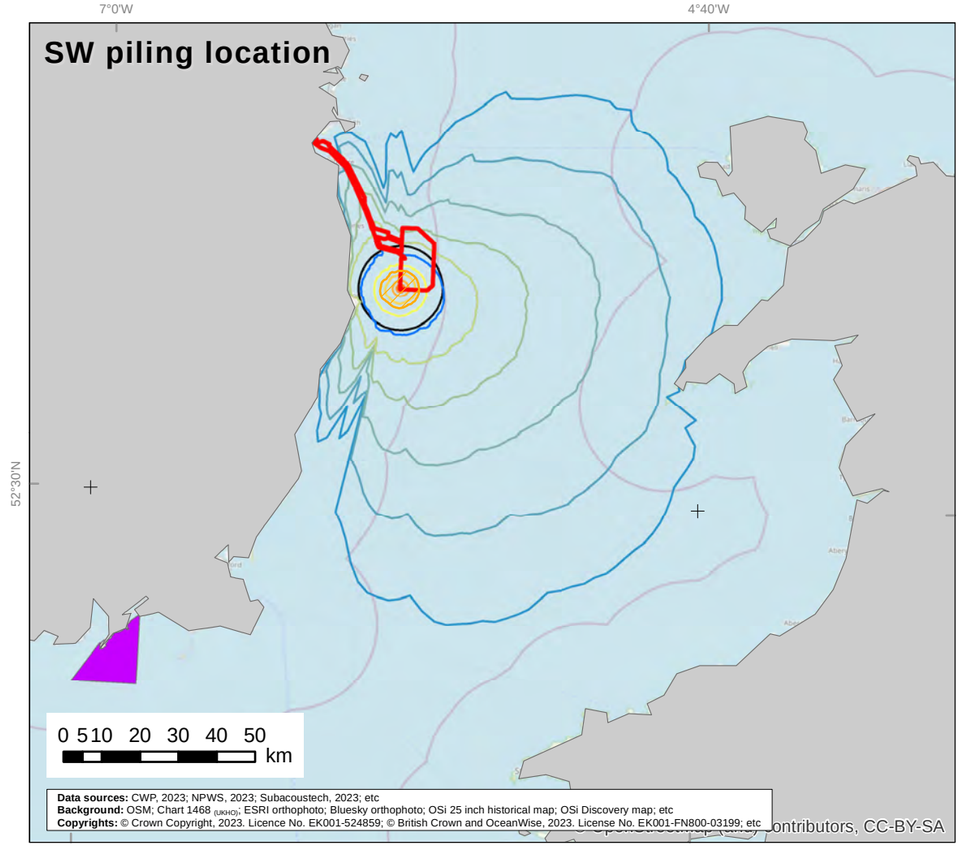

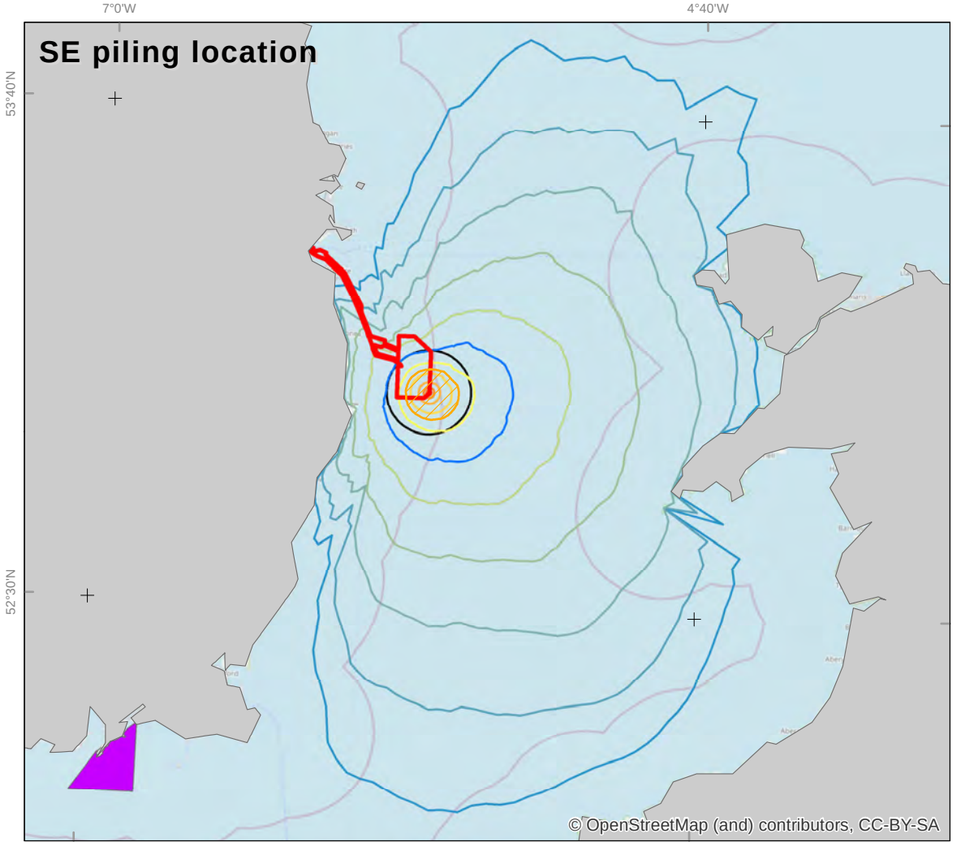

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Figure 19: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the Hook Head SAC

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321. For *ex situ* disturbance from piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale and SCANS IV block density, the dose-response function predicted up to 448 bottlenose dolphins to be disturbed on a single piling day, equating to 5.38 % of the Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale and therefore contribute to any negative impact to the bottlenose dolphin population, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 448 bottlenose dolphins are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 6** and **Table 17**).

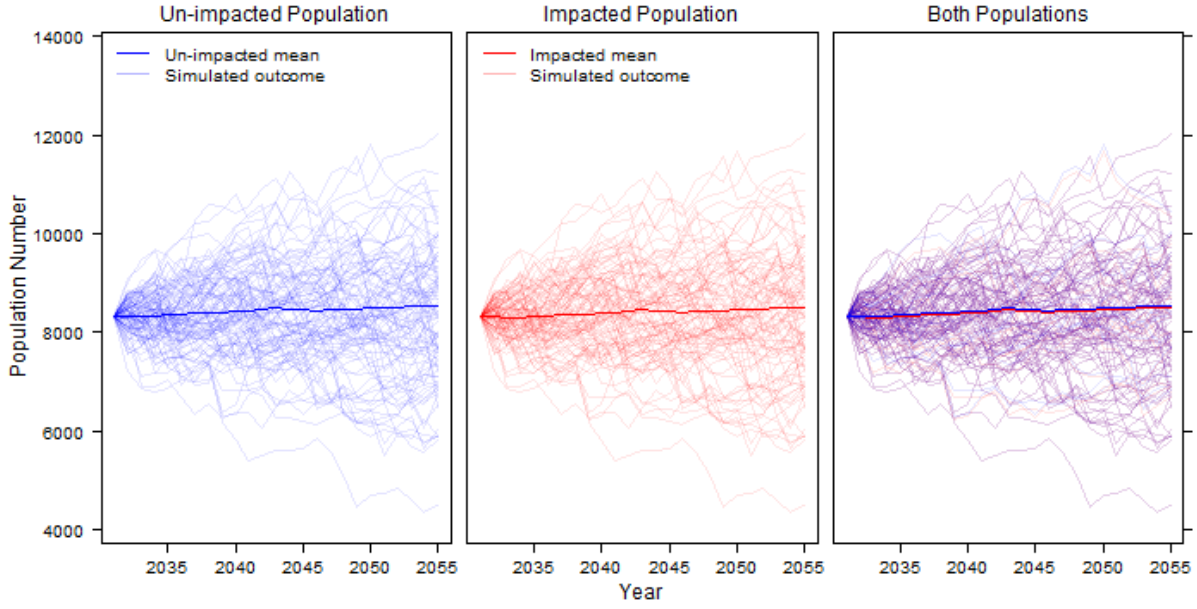


Plate 6 Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 448 dolphins per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

Table 17 Predicted mean population size for the un-impacted (baseline) and impacted bottlenose dolphins iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 448

dolphins per day from mitigated piling (assuming the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events).

	Unimpacted population mean size	Impacted population mean size	Impacted population size as a % of the unimpacted population size
Start 2031 (before piling commences)	8,322	8,322	100.00%
End 2031 (after piling ends)	8,321	8,312	99.89%
End 2036 (6 years after piling ends)	8,381	8,348	99.61%
End 2042 (12 years after piling ends)	8,491	8,458	99.61%
End 2048 (18 years after piling ends)	8,475	8,443	99.62%

322. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the bottlenose dolphin community within and outside the site. It will also not lead to the permanent exclusion of bottlenose dolphin from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the bottlenose dolphin community at the site.

Conclusion

323. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the bottlenose dolphin individuals and community at the site and will not lead to permanent exclusion of bottlenose dolphin from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Hook Head SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.11 West Wales Marine SAC (UK0030397)

2.11.1 Harbour porpoise

Section 2.11.1 remains unchanged except for paragraphs 670 through to 708 which are replaced by paragraphs 324 to 347 below. These updates have been made in consideration with:

6. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;

7. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);

8. The commitment to mitigated pile driving and UXO clearance;
9. Updates to the EIAR Addendum, and
10. In response to FIR Items 10aa and 10bb (see **FIR Response Document)**.

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.11.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

324. The CWP Project is located approximately 58 km away from the West Wales Marine SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

325. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

326. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

327. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

328. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

329. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the West Wales Marine SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

330. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the West Wales Marine SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed

for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

331. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

332. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the West Wales Marine SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

333. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

334. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

335. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

336. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not restrict the survivability and reproductive potential of harbour porpoise using the site. As such, it can be concluded beyond reasonable scientific doubt that harbour porpoise will continue to be a viable component of the site. Adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the West Wales Marine SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

337. This SAC is located within Welsh offshore/inshore region.

Pre-construction geophysical surveys

338. Given that there is no spatial overlap of the CWP Project with the West Wales Marine SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from

geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density and 3 km EDR, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

339. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of geophysical surveys.

UXO clearance

340. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

341. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

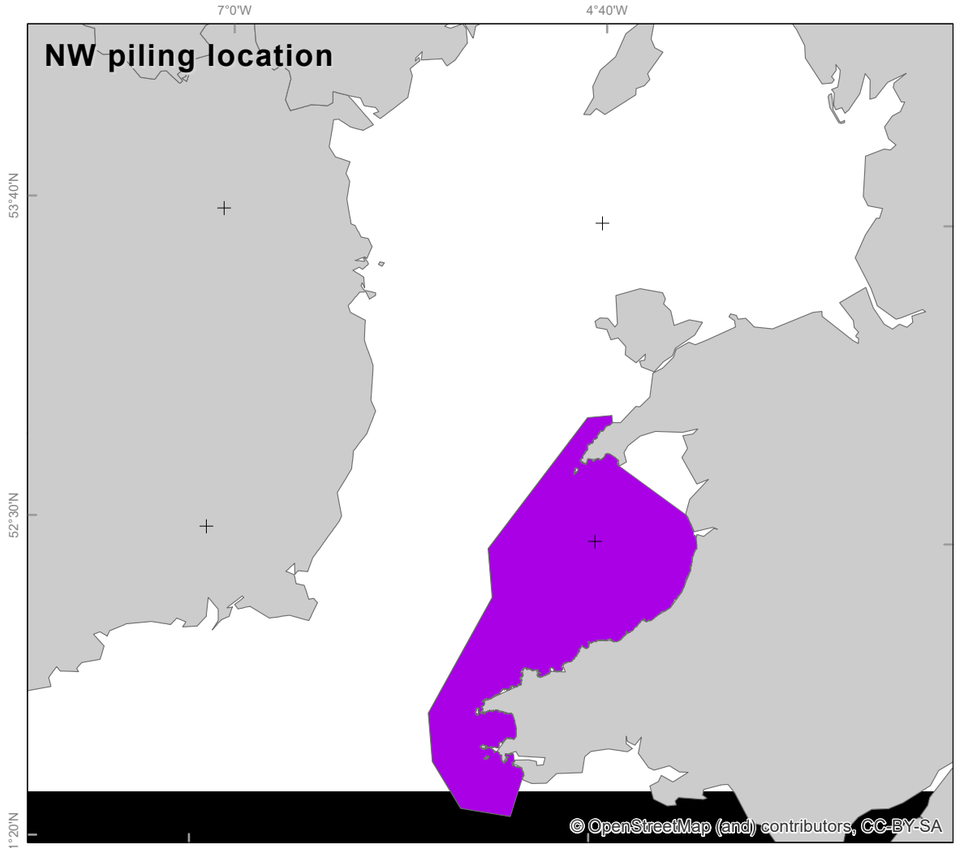
342. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

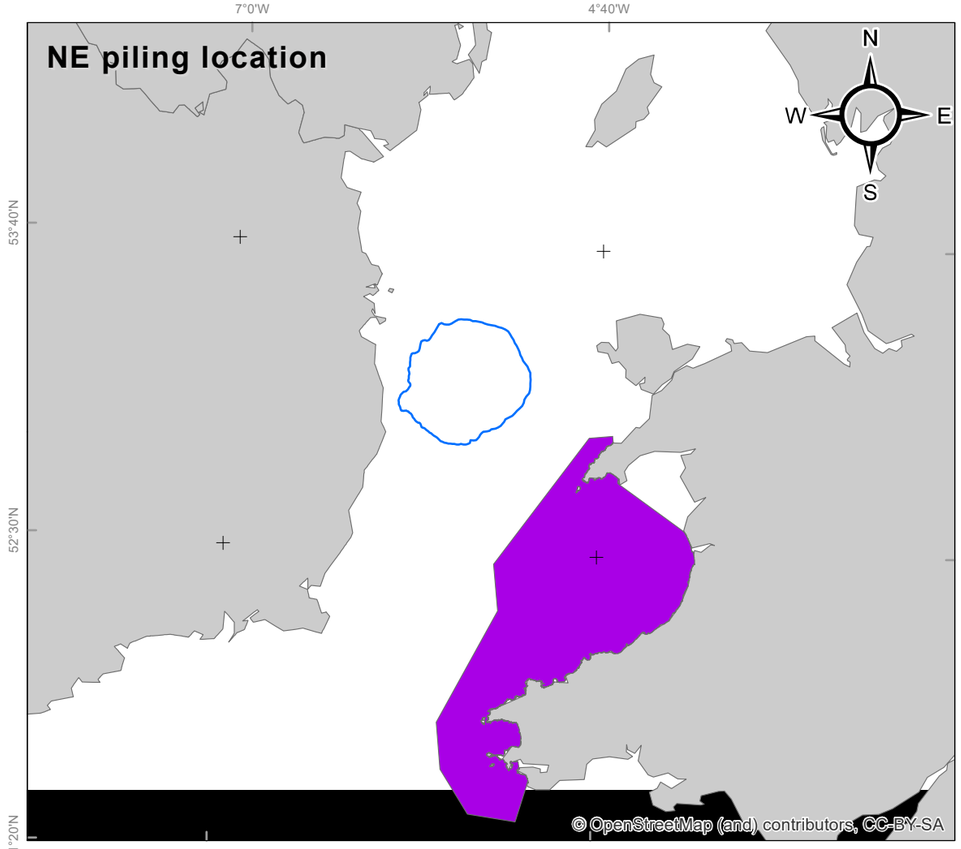
343. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of UXO clearance.

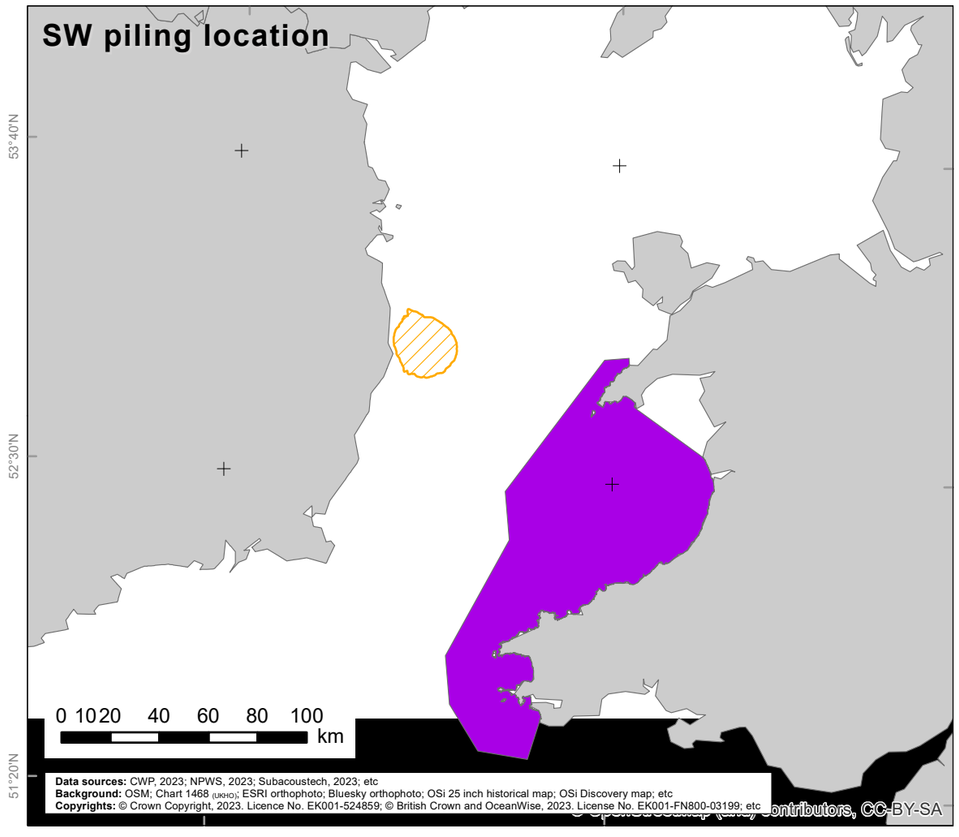
Piling of WTGs

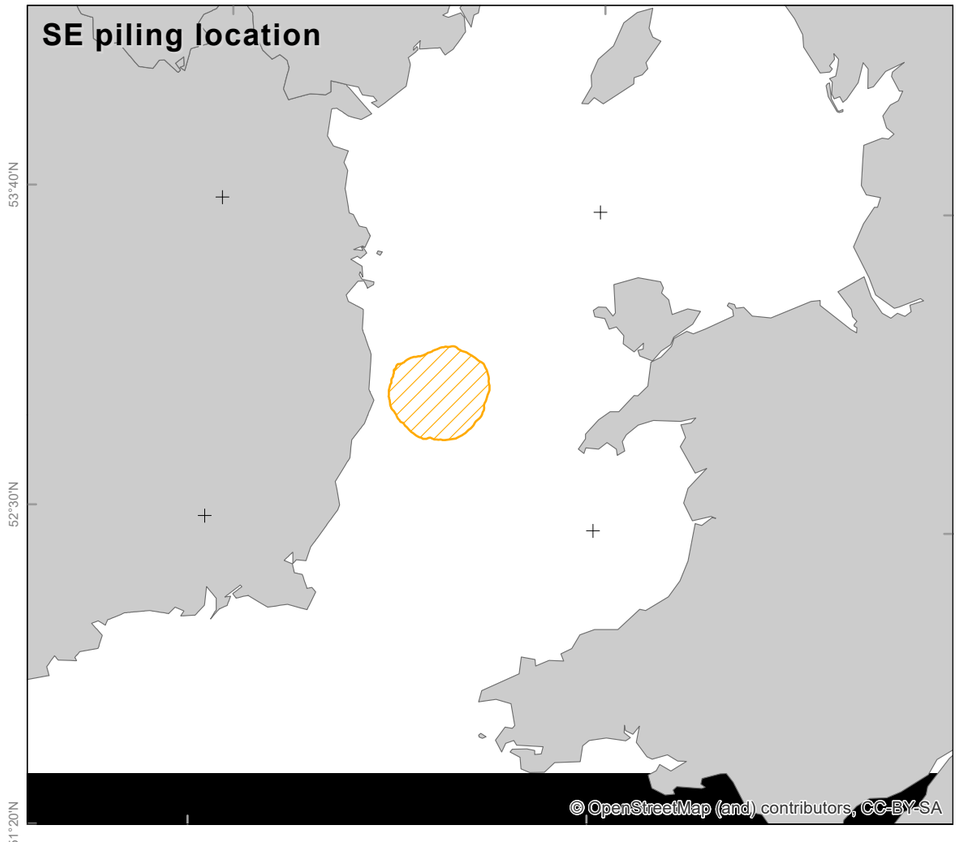
Unmitigated piling

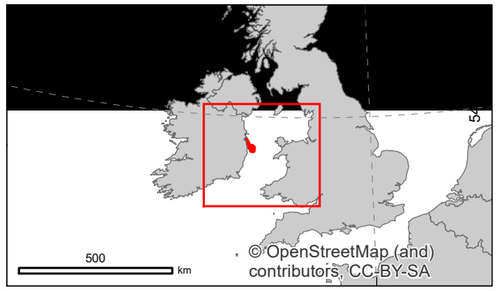
344. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the West Wales Marine SAC (**Figure 20**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s
- 20 km EDR
- West Wales Marine SAC

[redacted]

Project: Codling Wind Park

[redacted]

Figure 20: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the West Wales Marine SAC

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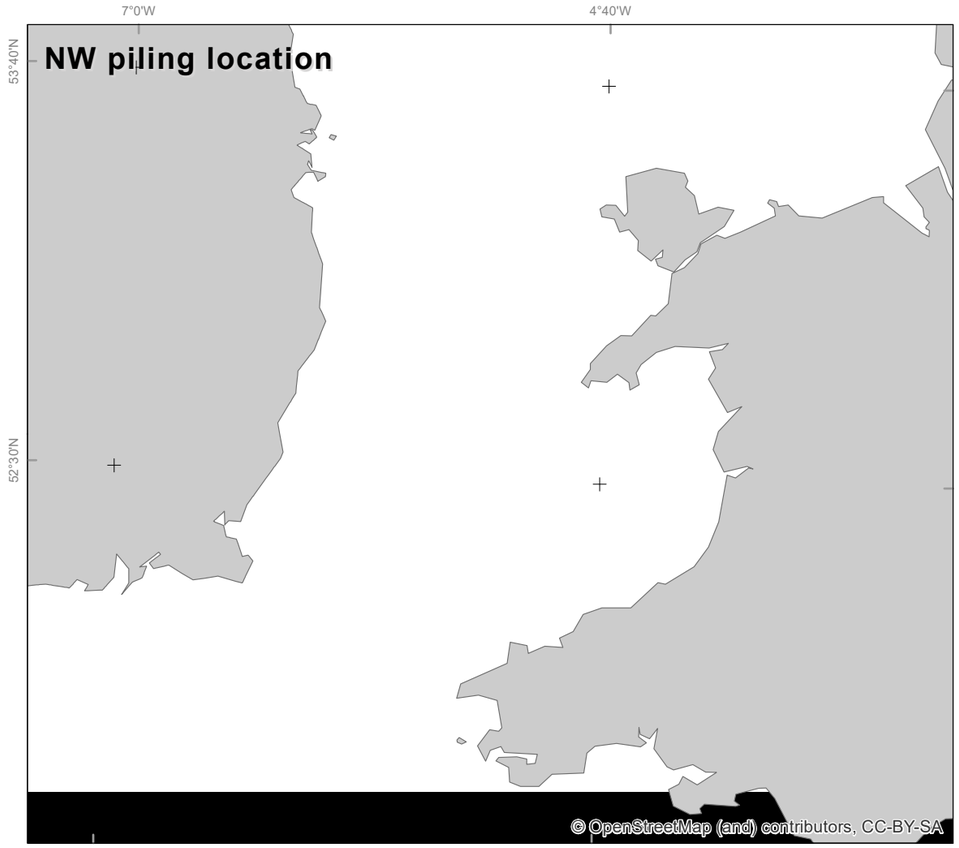
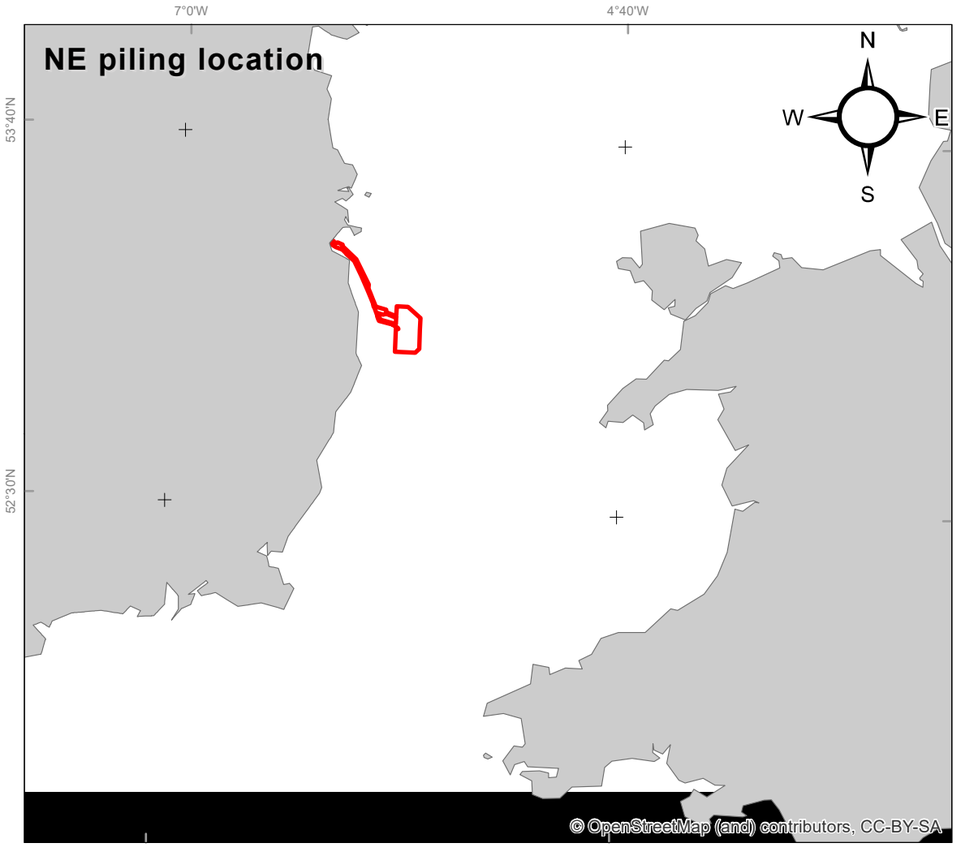
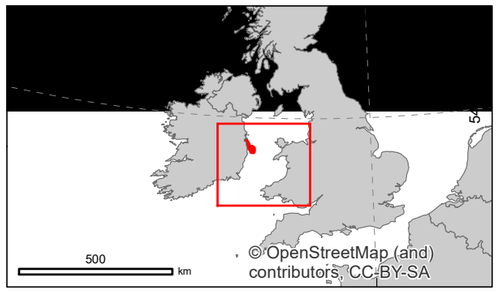
A	Final version	03/04/2026	JC	RRS/EA	EA

Mitigated piling

345. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the West Wales Marine SAC (**Figure 21**).

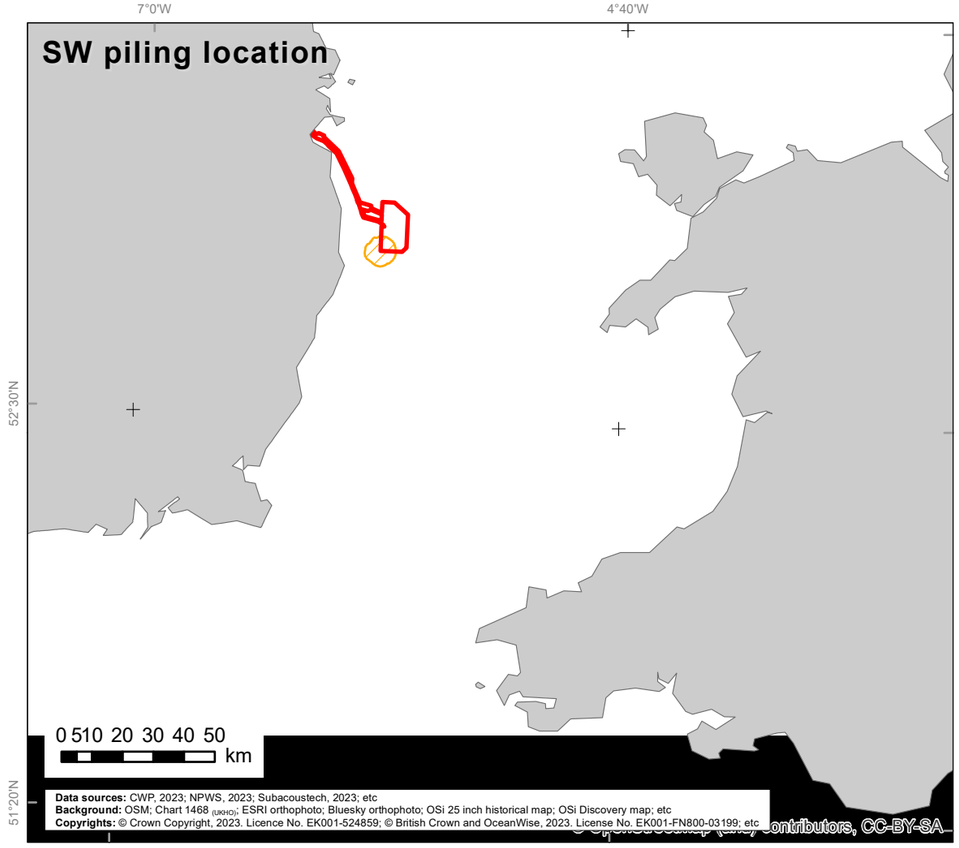


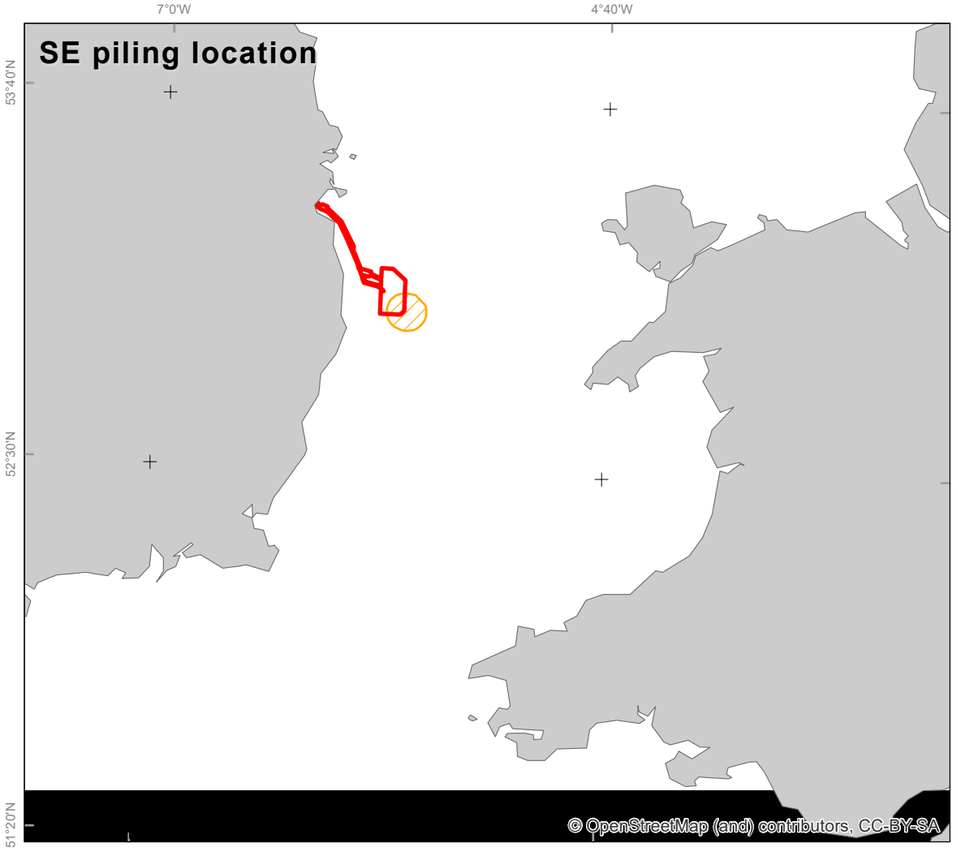




Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s threshold
- 11 km EDR
- West Wales Marine SAC





[redacted] | *Project:* Codling Wind Park | [redacted]

Figure 21: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the West Wales Marine SAC

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346. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or 10% of the SAC area over season is considered significant (JNCC, 2020). Given no spatial overlap, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of piling.

Conclusion

347. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may result in significant disturbance. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the West Wales Marine SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.12 Llŷn Peninsula and the Sarnau SAC (UK0013117)

2.12.1 Bottlenose dolphin

Section 2.12.2 remains unchanged except for paragraphs 728 through to 764 which are replaced by paragraphs 348 to 376 below. These updates have been made in consideration with:

11. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;

12. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);

13. The commitment to mitigated pile driving and UXO clearance;

14. Updates to the EIAR Addendum, and

15. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.12.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

348. The CWP array site is located approximately 62 km away from the Llŷn Peninsula and the Sarnau SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

349. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** that for pre-construction geophysical surveys and bottlenose dolphin, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

350. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

351. The MMO watch of the 1 km radius will ensure that no bottlenose dolphins are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to bottlenose dolphin following the mitigation.

352. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

353. The maximum PTS impact range for bottlenose dolphin due to high-order detonation of the largest 750 kg + donor UXO is 830 m. As there is no spatial overlap of the CWP Project with the Llŷn Peninsula and the Sarnau SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

354. To further reduce the risk of injury outside of the SAC, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

355. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for bottlenose dolphin is 60 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 100 m.

356. The MMO watch of the 1 km radius will ensure that no bottlenose dolphins are present within the mitigation zone before the UXO clearance occurs. Given that the maximum injury zone for the mitigated UXO clearance is 100 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

357. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

358. The maximum unmitigated PTS-onset range for bottlenose dolphin is <50 m. As such, there will be no overlap between PTS-onset ranges and the Llŷn Peninsula and the Sarnau SAC.

359. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

360. The maximum mitigated PTS-onset range for bottlenose dolphin is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no bottlenose dolphins are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

361. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

362. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels.

363. Therefore, the proposed activities will not cause death or injury to individuals and will not affect population demographics such as reproductive success and survival rates. As such, it can be concluded beyond reasonable scientific doubt that, the bottlenose dolphin population that use the SAC will be maintained in favourable condition (NRW, 2025b) and its growth will not be restricted. Adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Llŷn Peninsula and the Sarnau SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

364. This SAC is located within Welsh inshore region.

Pre-construction geophysical surveys

365. Given that there is no spatial overlap of the CWP Project with the Llŷn Peninsula and the Sarnau SAC, there is no risk of behavioural disturbance impacts for bottlenose dolphins *in situ*. For *ex situ* disturbance from geophysical surveys within the Irish Sea MU, using SCANS IV block density and 3

km EDR, the number of bottlenose dolphin predicted to impacted is 7 individuals (0.08% Irish Sea MU).

366. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered.

367. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

UXO clearance

368. There will be no overlap of the 20 km EDR or 1.5 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 296 bottlenose dolphin individuals (3.55% of the Irish Sea MU) are at risk of experiencing disturbance. TTS as a proxy for disturbance, a maximum of 2 bottlenose dolphin individuals (0.02% of the Irish Sea MU) are predicted to be disturbed.

369. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

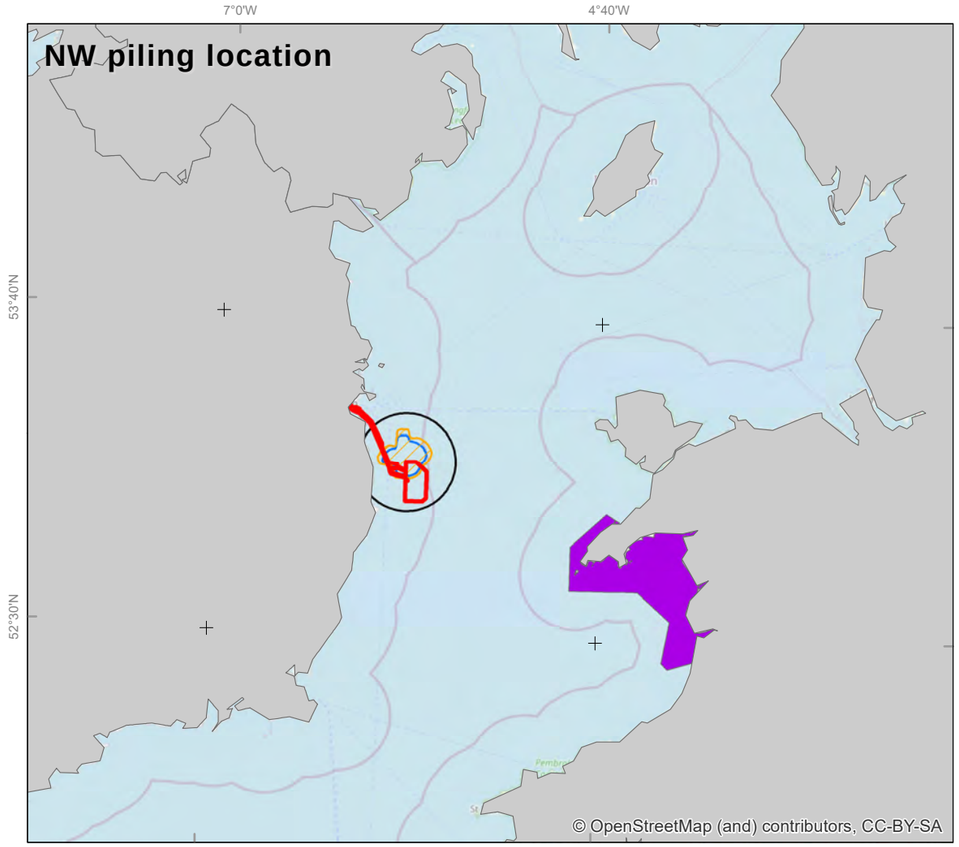
370. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (550 m). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 74 bottlenose dolphin individuals (0.90% of the Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 18 bottlenose dolphin individuals (0.22% of the Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, less than 1 bottlenose dolphin individual (<0.01% of the Irish Sea MU) are predicted to be disturbed.

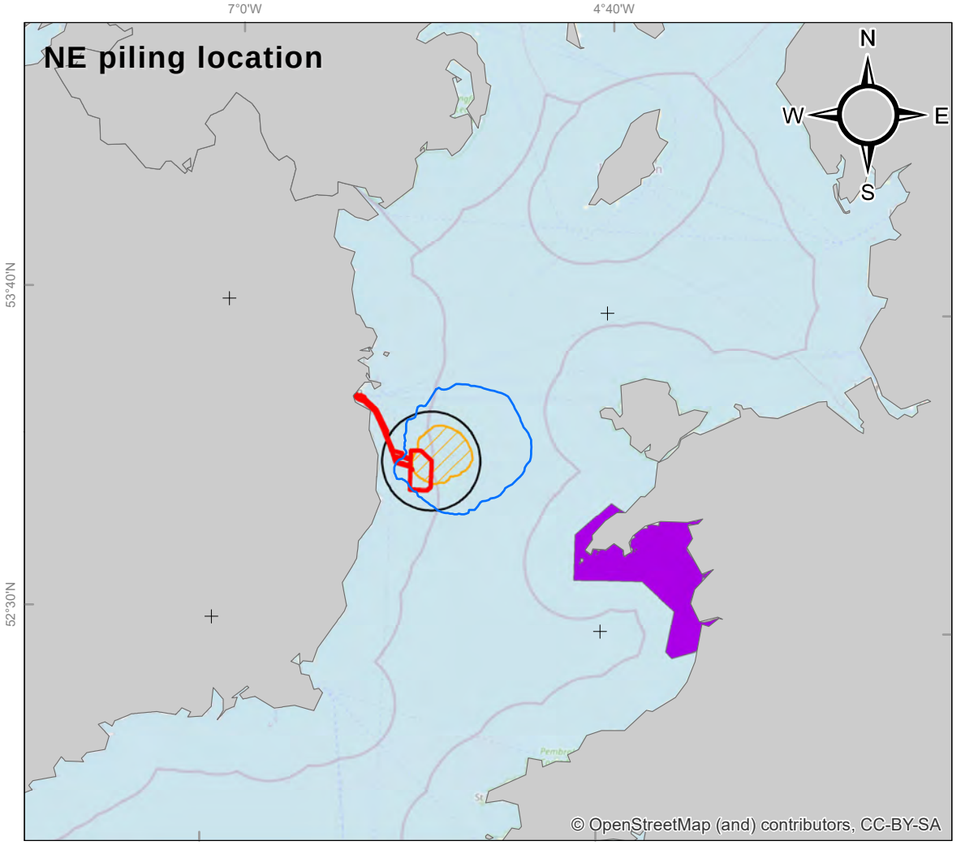
371. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

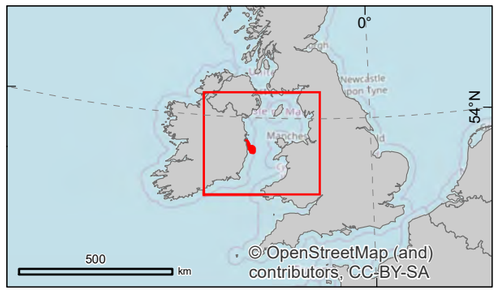
Piling of WTGs

Unmitigated piling

372. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, impact ranges from piling at all piling locations do not overlap with the Llŷn Peninsula and the Sarnau SAC (**Figure 22**).

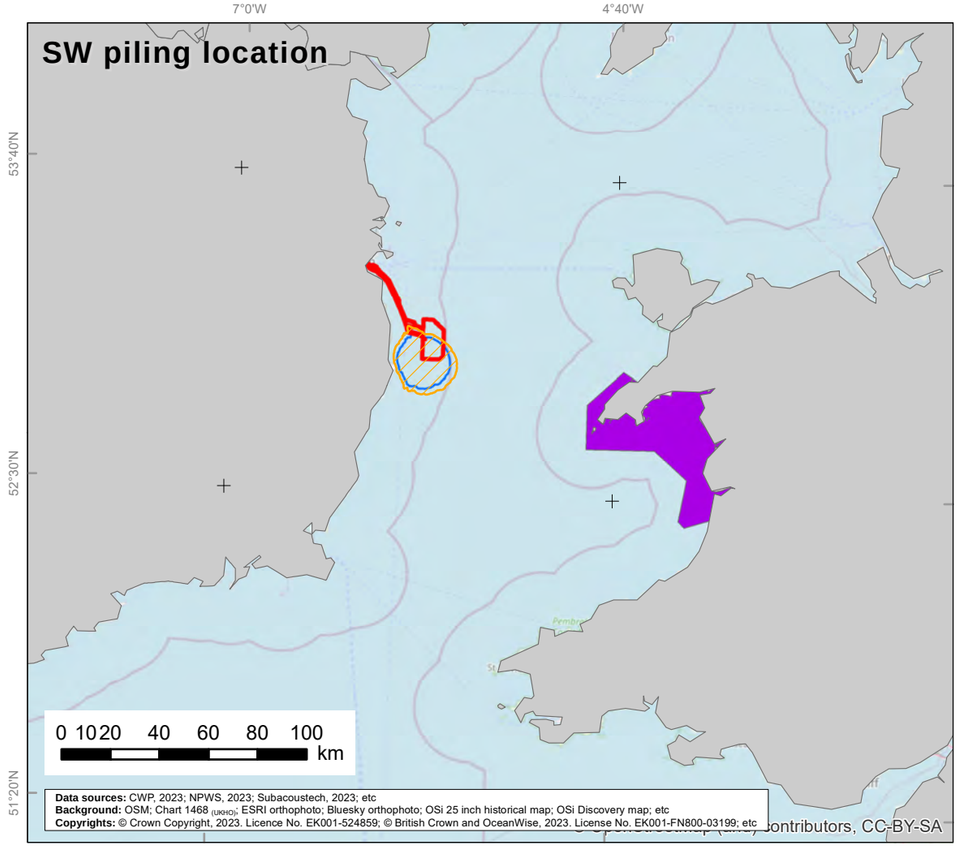


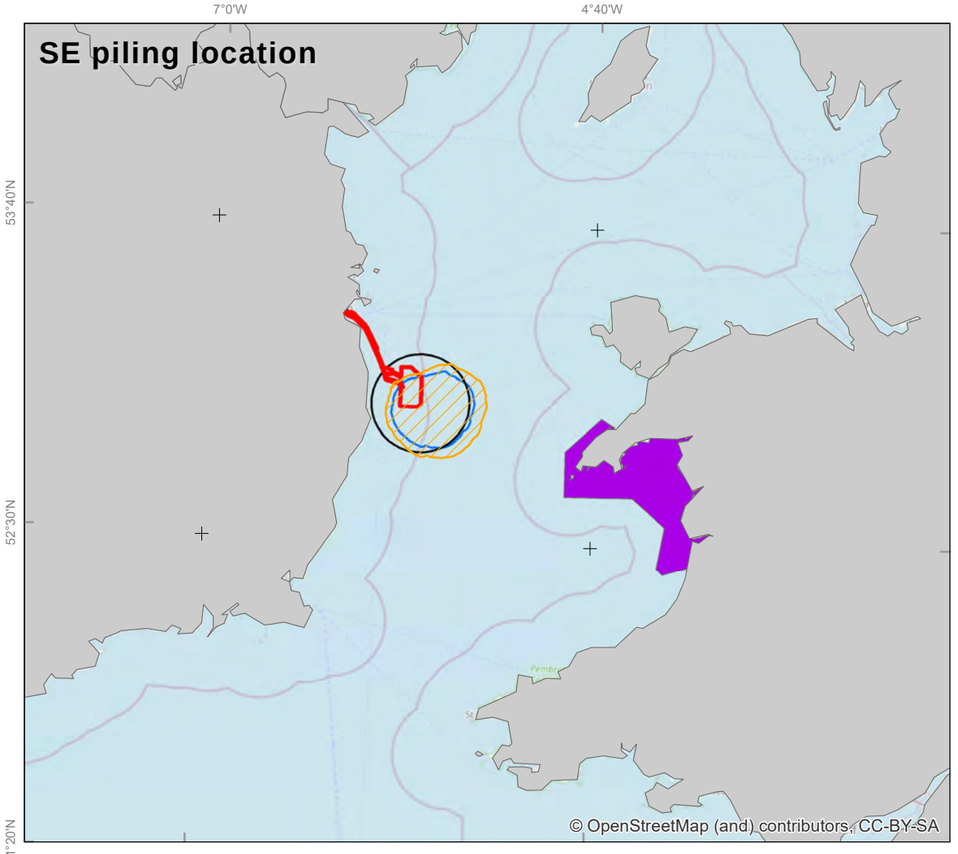




Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 20 km EDR
- Lleyn Peninsula and the Sarnau SAC





codling wind park

Project: Codling Wind Park

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understand • assess • mitigate

Figure 22: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the Llŷn Peninsula and the Sarnau SAC for bottlenose dolphins

CWP doc. number: CWP-SMR-CON-09-MAP-2100

Internal descriptive code: N/A

Size: A3

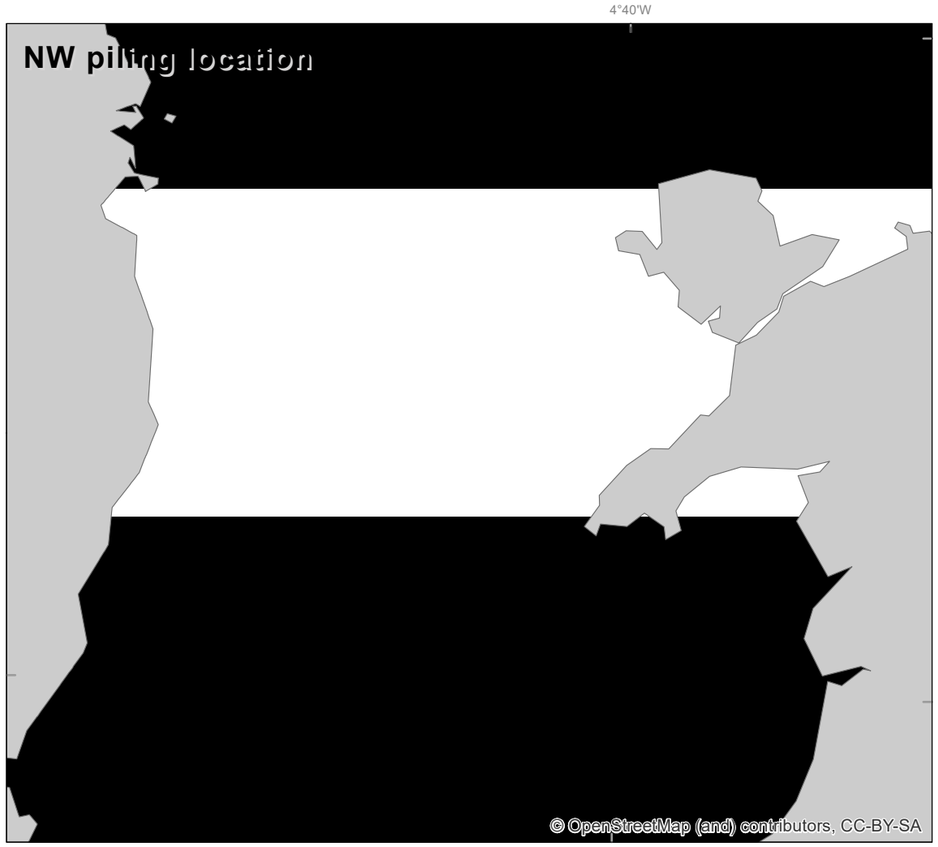
Scale: 1:2,500,000

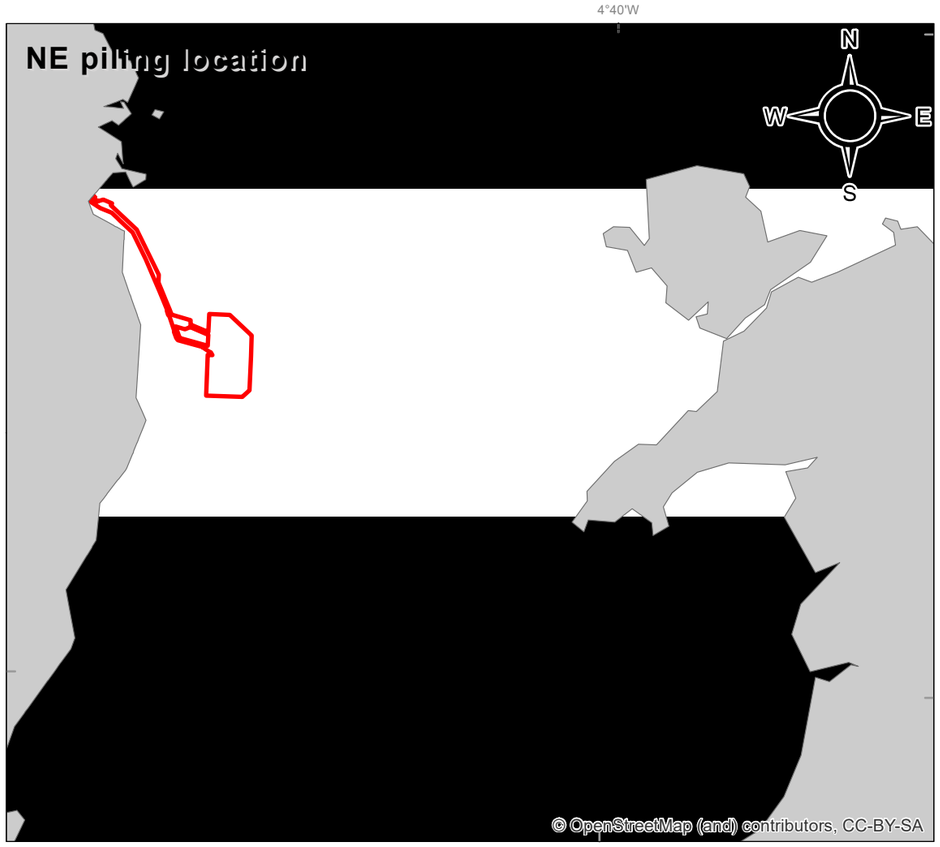
CRS: EPSG 25830

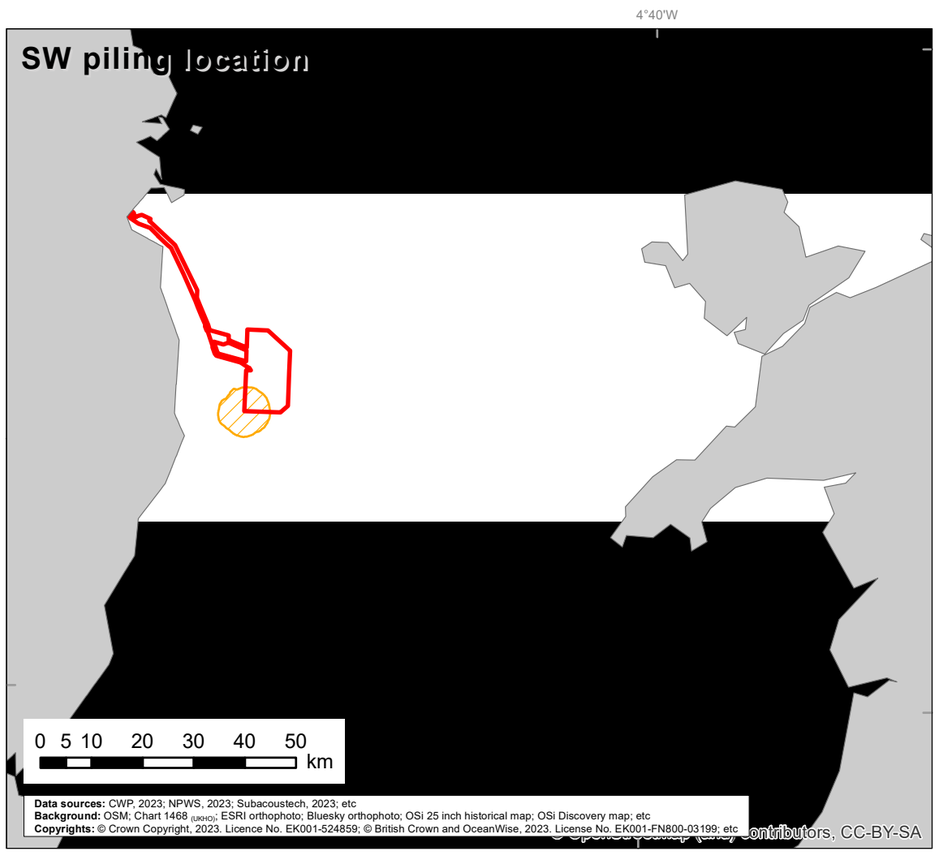
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

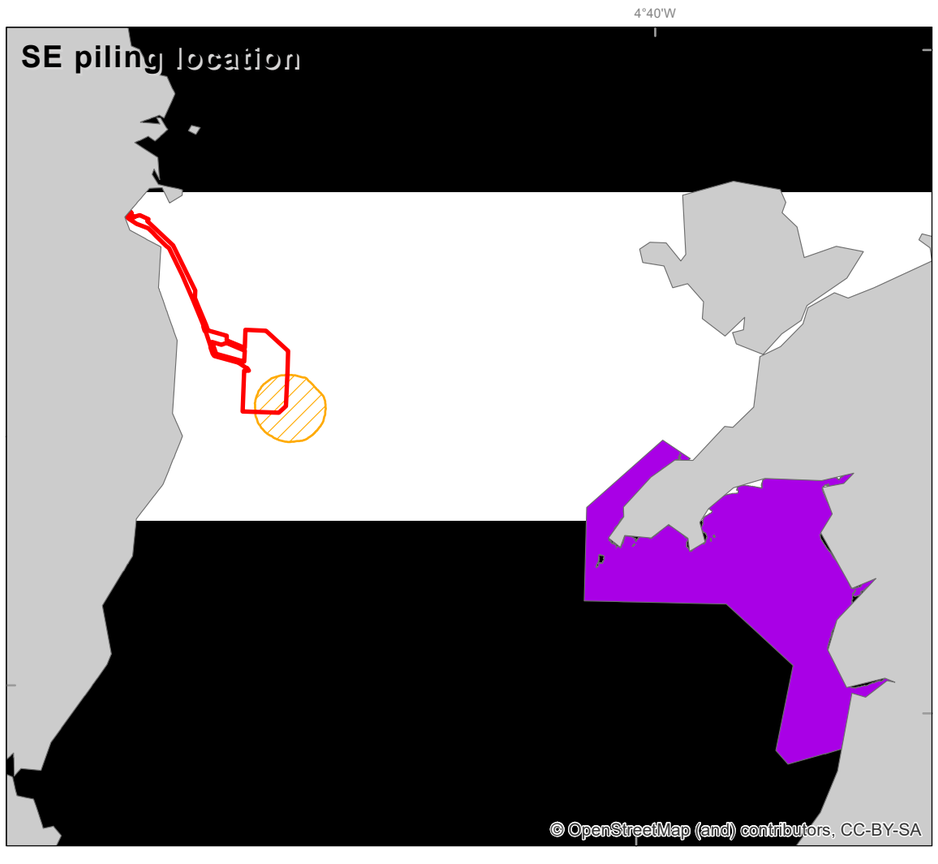
Mitigated piling

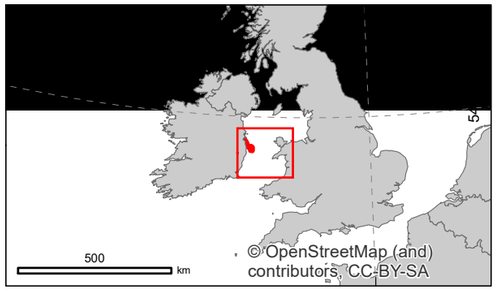
373. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), impact ranges from piling at all piling locations do not overlap with the Llŷn Peninsula and the Sarnau SAC (**Figure 23**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 11 km EDR
- Lleyn Peninsula and the Sarnau SAC

[redacted] | *Project:* Codling Wind Park | [redacted]

Figure 23: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the Llŷn Peninsula and the Sarnau SAC for bottlenose dolphins

CWP doc. number: CWP-SMR-CON-09-MAP-2101

Internal descriptive code: IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL.CONT.WTGs.CORNERS - LLEYN.PENINSULA.SAC.

Size: A3

Scale: 1:1,200,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

374. For *ex situ* impacts from piling of WTGs, to determine if this level of disturbance could have a population-level effect at the MU scale and therefore contribute to any negative impact to the bottlenose dolphin population, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 448 bottlenose dolphins are disturbed on every piling day (based on a dose-response and SCANS IV block density). The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 6** and **Table 17**).

375. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

Conclusion

376. Considering the impact pathways described above, disturbance effects from increased underwater noise will not affect the ability of the bottlenose dolphin population to have access to, and be able to utilise habitats necessary to maintain the population in favourable condition. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Llŷn Peninsula and the Sarnau SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone

2.12.2 Grey seals

Section 2.12.1 remains unchanged except for paragraphs 795 through to 821 which are replaced by paragraphs 377 to 403 below. These updates have been made in consideration with:

6. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
7. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
8. The commitment to mitigated pile driving and UXO clearance;
9. Updates to the EIAR Addendum, and
10. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

Assessment of the Project Alone

377. The CWP Project is located approximately 62 km away from the Llŷn Peninsula and the Sarnau SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

378. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and seals, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset

379. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

380. The MMO watch of the 1 km radius will ensure that no seals are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to seals following the mitigation.

381. Considering the above, geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

382. The maximum PTS impact range for seals due to high-order detonation of the largest 750 kg + donor UXO is 1.6 km. As there is no spatial overlap of the CWP Project with the Llŷn Peninsula and the Sarnau SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

383. To further reduce the risk of injury outside of the SAC, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

384. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for seals is 110 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 610 m.

385. The MMO watch of the 1 km radius will ensure that no seals are present within the mitigation zone before the UXO clearance occurs. Given that the maximum injury zone for the mitigated UXO clearance is 610 m, there will be no residual risk of injury to seals following the mitigation.

386. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

387. The maximum unmitigated PTS-onset range for seals is <50 m. As such, there will be no overlap between PTS-onset ranges and the Llŷn Peninsula and the Sarnau SAC.

388. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

389. The maximum mitigated PTS-onset range for seals is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no seals are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to seals following the mitigation.

390. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

391. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels.

392. Therefore, the proposed activities will not cause death or injury to individuals and will not affect population demographics such as reproductive success and survival rates. As such, it can be concluded beyond reasonable scientific doubt that, the grey seal population that use the SAC will be maintained in favourable condition (NRW, 2025b) and its growth will not be restricted. The same applies to the SAC pop production, given that there is no residual risk of injury to seals, the pup production will not be affected. Adverse effects on the qualifying Annex II marine mammal species, grey seal, which undermine the COs of the Llŷn Peninsula and the Sarnau SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

Pre-construction geophysical surveys

393. Given that there is no spatial overlap of the CWP Project with the Llŷn Peninsula and the Sarnau SAC, there is no risk of behavioural disturbance impacts for seals *in situ*. As such, the proposed geophysical

survey activities will not result in changes to the distribution of grey seal pupping sites within the SAC. They will also not affect the accessibility to habitats used by seals within the SAC.

394. For *ex situ* disturbance from geophysical surveys within the Irish Sea MU, using SCANS IV block density and 3 km EDR, the numbers of grey seals predicted to impacted are 4 individuals (0.07% East regions of RoI and Northern Ireland MU). It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects. As such, the proposed geophysical surveys will not result in significant disturbance and will not affect the accessibility to habitats used by seals outside of the SAC.

UXO clearance

395. In case of the unmitigated UXO clearance there will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC.

396. To reduce the impact to seals *ex situ*, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

397. Following the mitigation measures, similarly to unmitigated UXO clearance, there will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (up to 3.2 km for high-order clearance with noise abatement). As such, the proposed UXO clearance activities will not result in changes to the distribution of grey seal pupping sites within the SAC. They will also not affect the accessibility to habitats used by seals within the SAC.

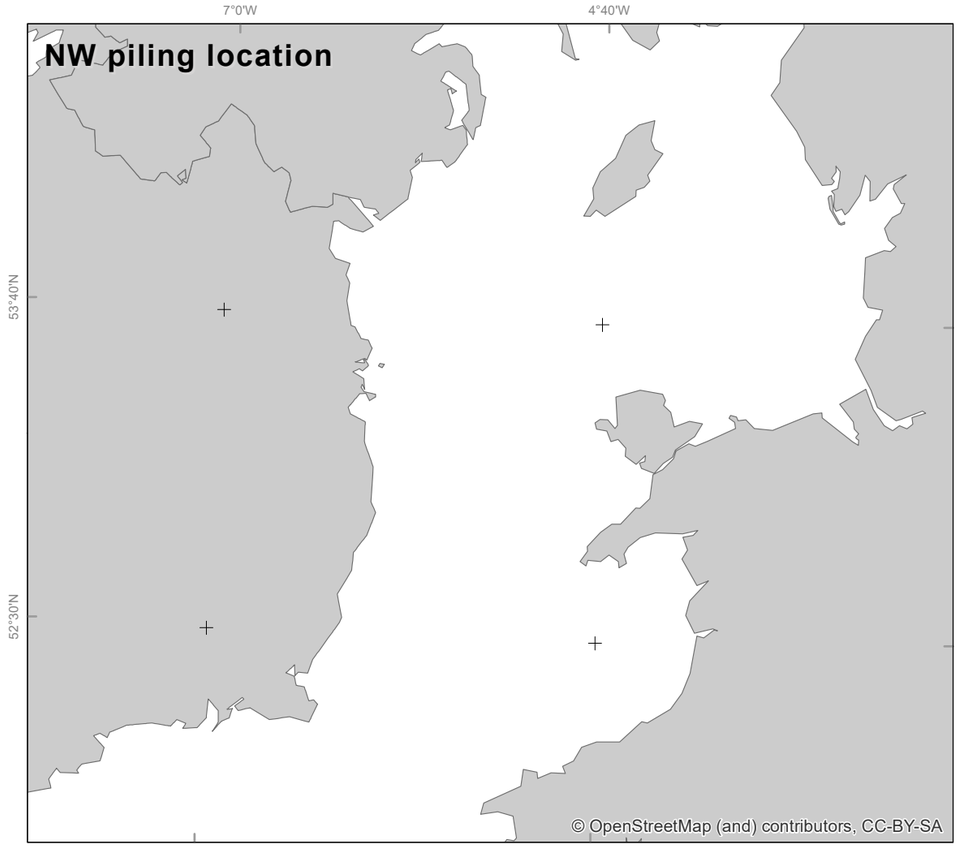
398. When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 49 grey seals (0.81% East regions of RoI and Northern Ireland MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 12 grey seals (0.20% East regions of RoI and Northern Ireland MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, up to 5 grey seals (0.08% East regions of RoI and Northern Ireland MU) are predicted to be disturbed.

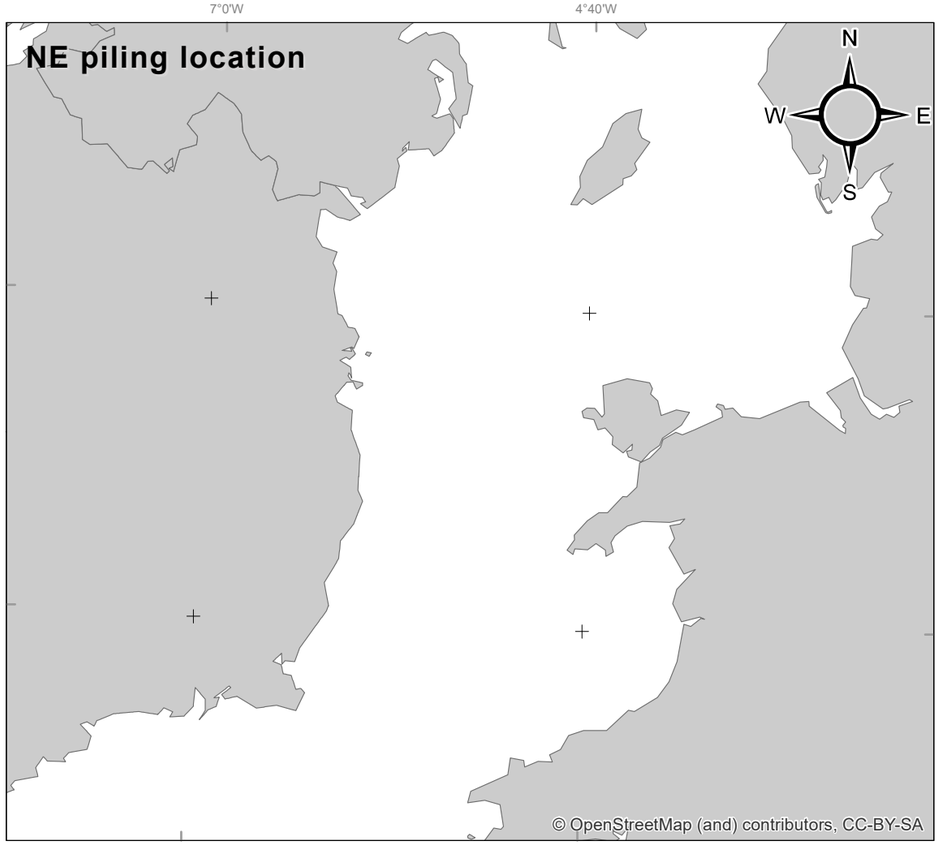
399. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. As such. the proposed UXO clearance will not result in significant disturbance and will not affect the accessibility to habitats used by seals outside of the SAC.

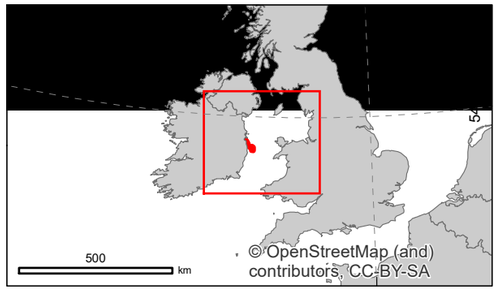
Piling of WTGs

Unmitigated piling

400. When using the 20 km EDR for unmitigated piling, impact ranges from piling at all piling locations do not overlap with the Llŷn Peninsula and the Sarnau SAC (**Figure 24**).

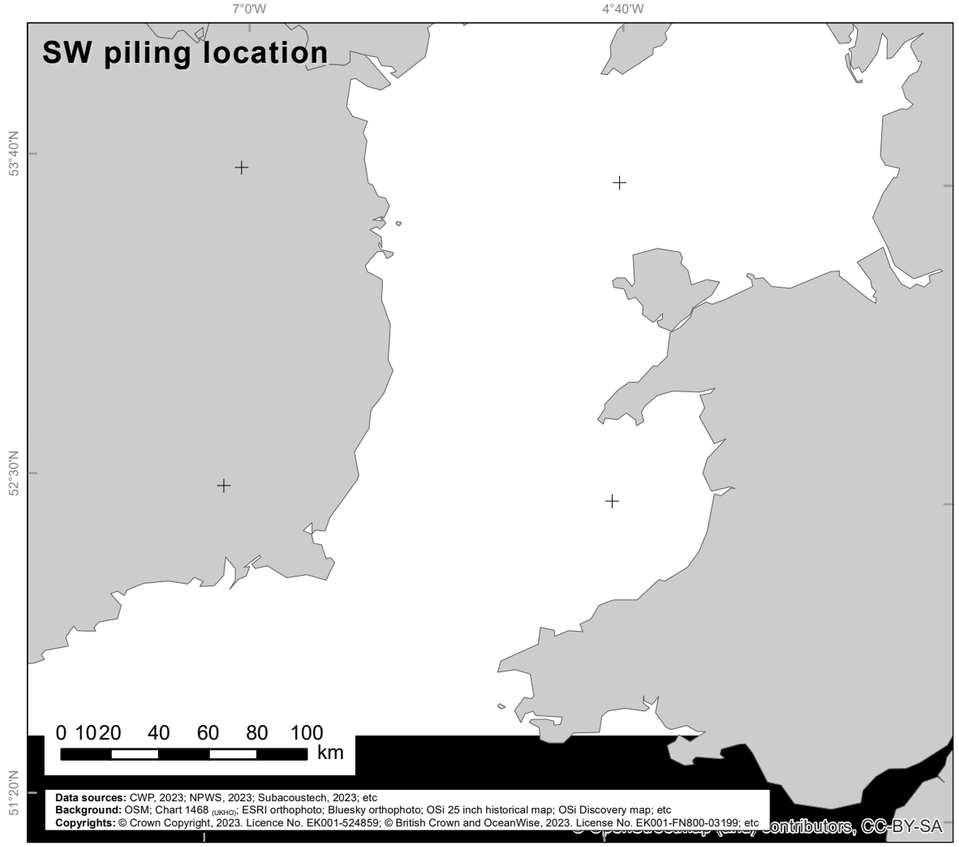


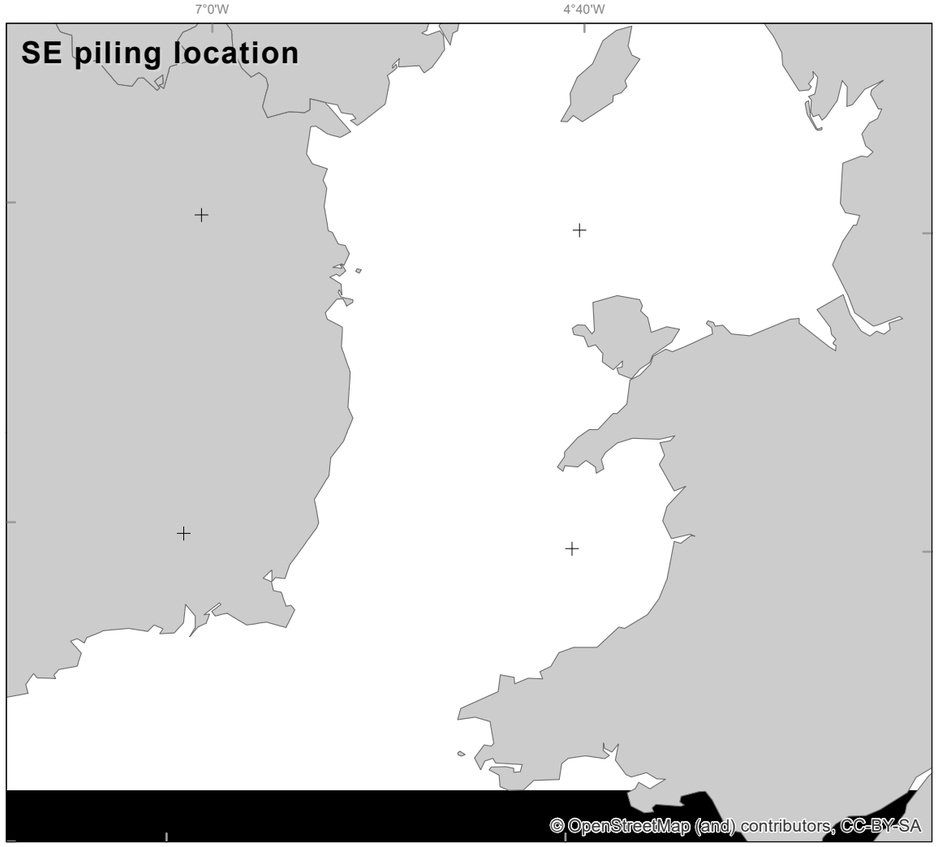




Legend

- Planning application boundary
- 20 km EDR
- Lleyn Peninsula and the Sarnau SAC





[redacted]

Project:
Codling Wind Park

[redacted]

Figure 24: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the Llŷn Peninsula and the Sarnau SAC for grey seals

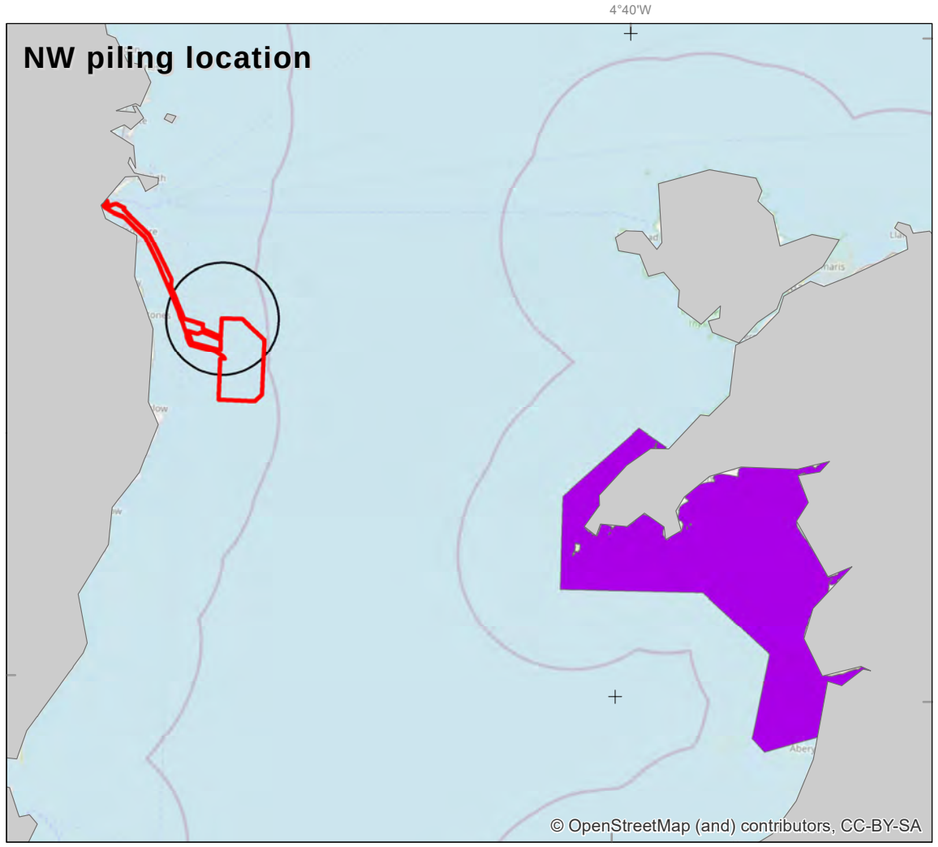
CWP doc. number: CWP-SMR-CON-09-MAP-2102

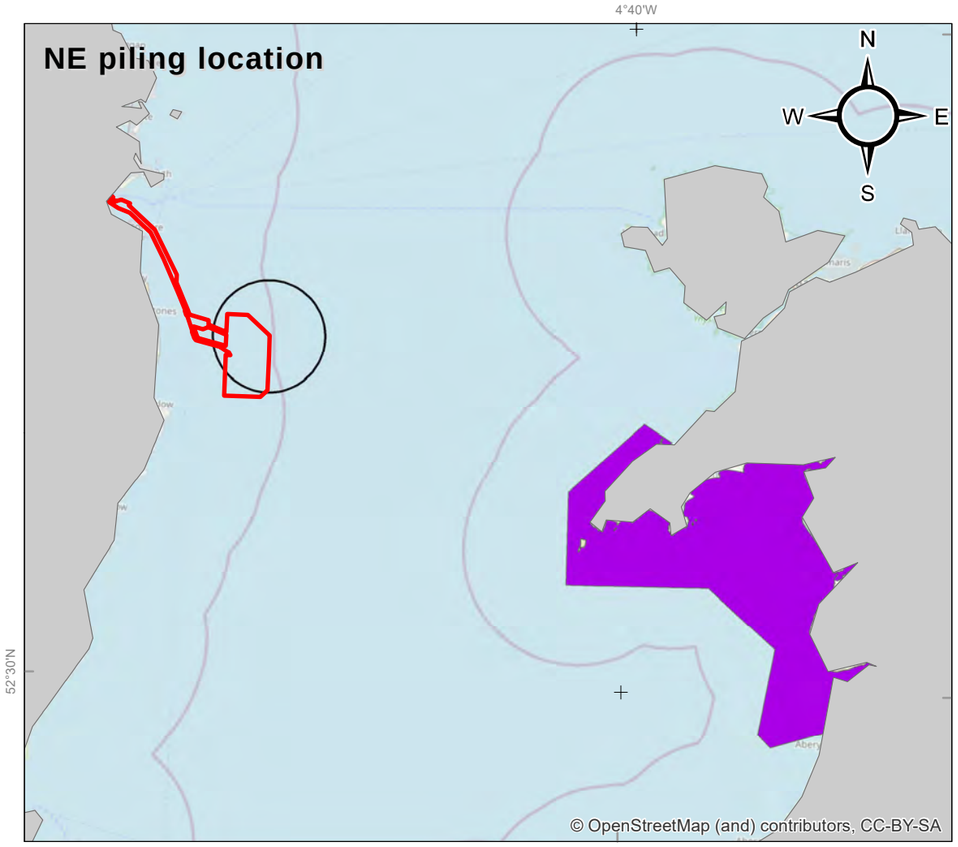
Internal descriptive code:	*Size:*	*CRS:*
IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL.CONT.WTGs.CORNERS - LLEYN.PENINSULA.SAC.	A3 *Scale:* 1:2,500,000	EPSG 25830

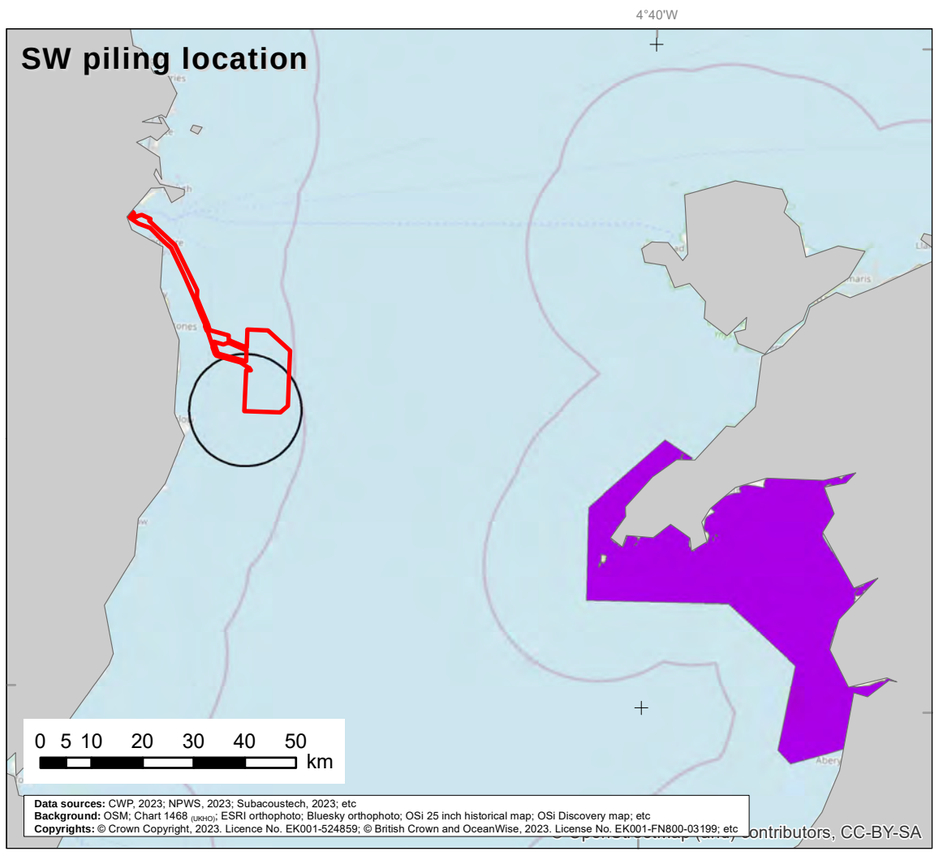
Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

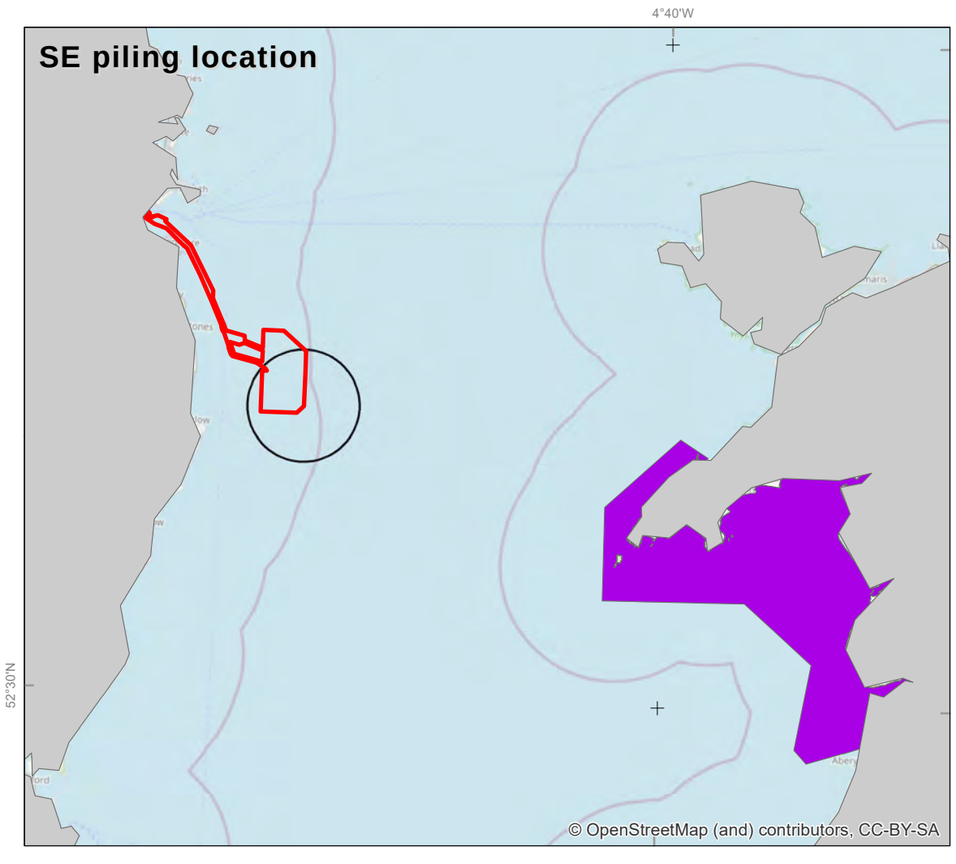
Mitigated piling

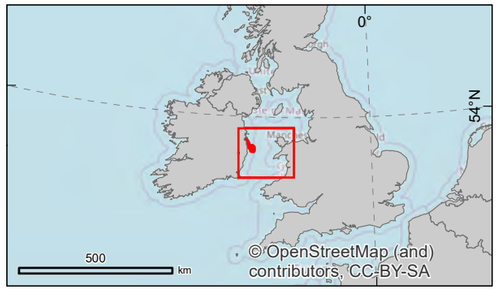
401. To further reduce the impacts from piling *ex situ*, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 11 km EDR for mitigated piling (JNCC, 2025b), impact ranges from piling at all piling locations do not overlap with the Llŷn Peninsula and the Sarnau SAC (**Figure 25**).











Legend

- Planning application boundary
- 11 km EDR
- Lleyn Peninsula and the Sarnau SAC

codling wind park	*Project:* Codling Wind Park	SMRU Consulting understand • assess • mitigate

Figure 25: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the Llŷn Peninsula and the Sarnau SAC for grey seals

CWP doc. number: CWP-SMR-CON-09-MAP-2103

Internal descriptive code:	*Size:*	*CRS:*
IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL. CONT.WTGs.CORNERS - LLEYN.PENINSULA.SAC.	A3	EPSG 25830
	Scale: 1:1,200,000	

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	2024/03/07	JC	RRS/EA	EA

402. For *ex situ* impacts from piling of WTGs, to determine if this level of disturbance could have a population-level effect at the MU scale and therefore contribute to any negative impact to the grey seal population, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 26 grey seals are disturbed on every piling day. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 5** and **Table 15**). Considering the above, the proposed piling of WTGs will not result in significant disturbance and given the distance to the SAC and important habitats outside, it will not affect the accessibility to habitats used by seals outside of the site.

Conclusion

403. Considering the impact pathways described above, disturbance effects from increased underwater noise will not affect the ability of the grey seal population to have access to and be able to utilise habitats necessary to maintain the population in favourable condition. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, grey seal, which undermine the COs of the Llŷn Peninsula and the Sarnau SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.13 Cardigan Bay / Bae Ceredigion SAC (UK0012712)

2.13.1 Bottlenose dolphin

Section 2.13.2 remains unchanged except for paragraphs 847 through to 881 which are replaced by paragraphs 404 to 429 below. These updates have been made in consideration with:

16. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
17. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
18. The commitment to mitigated pile driving and UXO clearance;
19. Updates to the EIAR Addendum, and
20. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.13.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

404. The CWP array site is located approximately 99 km away from the Cardigan Bay SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

405. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the EIAR Addendum) concludes that for pre-construction geophysical surveys and bottlenose dolphin, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

406. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

407. The MMO watch of the 1 km radius will ensure that no bottlenose dolphins are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to bottlenose dolphin following the mitigation.

408. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

409. The maximum PTS impact range for bottlenose dolphin due to high-order detonation of the largest 750 kg + donor UXO is 830 m. As there is no spatial overlap of the CWP Project with the Cardigan Bay SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

410. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 353 to 356 evaluates the impacts of UXO clearance to the Llŷn Peninsula and the Sarnau SAC. Given that the Cardigan Bay SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature bottlenose dolphin will be of equal or lower magnitude than those assessed for the nearest site. To reiterate, there will be no residual risk of injury to bottlenose dolphin following the mitigation and therefore no impacts *ex situ*.

411. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

412. The maximum unmitigated PTS-onset range for bottlenose dolphin is <50 m. As such, there will be no overlap between PTS-onset ranges and the Cardigan Bay SAC.

413. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

414. The maximum mitigated PTS-onset range for bottlenose dolphin is <50 m. The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no bottlenose dolphins are present before the piling occurs. Given that the injury range for the mitigated piling is <50 m, there will be no residual risk of injury to bottlenose dolphin following the mitigation.

415. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

416. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not affect population demographics such as reproductive success and survival rates. As such, it can be concluded beyond reasonable scientific doubt that, the bottlenose dolphin population that use the SAC will be maintained in favourable condition (NRW, 2025a) and its growth will not be restricted. Adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Cardigan Bay SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

417. This SAC is located within Welsh inshore region.

Pre-construction geophysical surveys

418. Given that there is no spatial overlap of the CWP Project with the Cardigan Bay SAC, there is no risk of behavioural disturbance impacts for bottlenose dolphins *in situ*. For *ex situ* disturbance from geophysical surveys within the Irish Sea MU, using SCANS IV block density and 3 km EDR, the number of bottlenose dolphin predicted to impacted is 7 individuals (0.08% Irish Sea MU).

419. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey

campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered.

420. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

UXO clearance

421. There will be no overlap of the 20 km EDR or 1.5 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 296 bottlenose dolphin individuals (3.55% of the Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 2 bottlenose dolphin individuals (0.02% of the Irish Sea MU) are predicted to be disturbed.

422. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

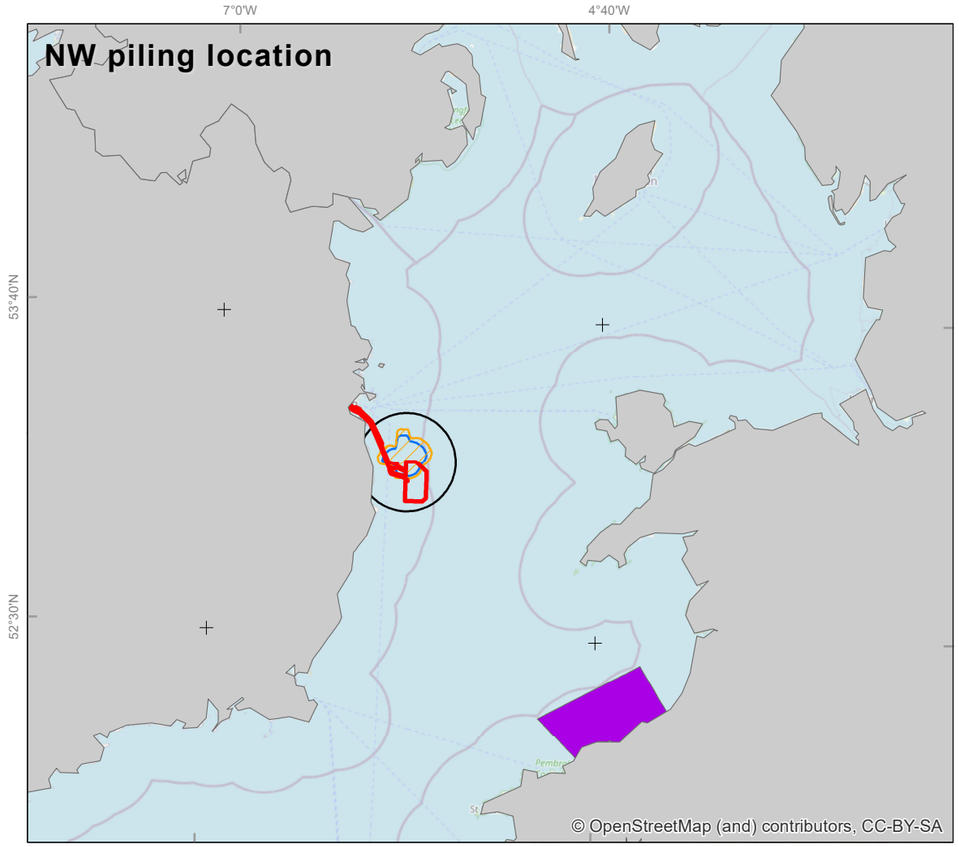
423. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (550 m). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 74 bottlenose dolphin individuals (0.90% of the Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 18 bottlenose dolphin individuals (0.22% of the Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, less than 1 bottlenose dolphin individual (<0.01% of the Irish Sea MU) are predicted to be disturbed.

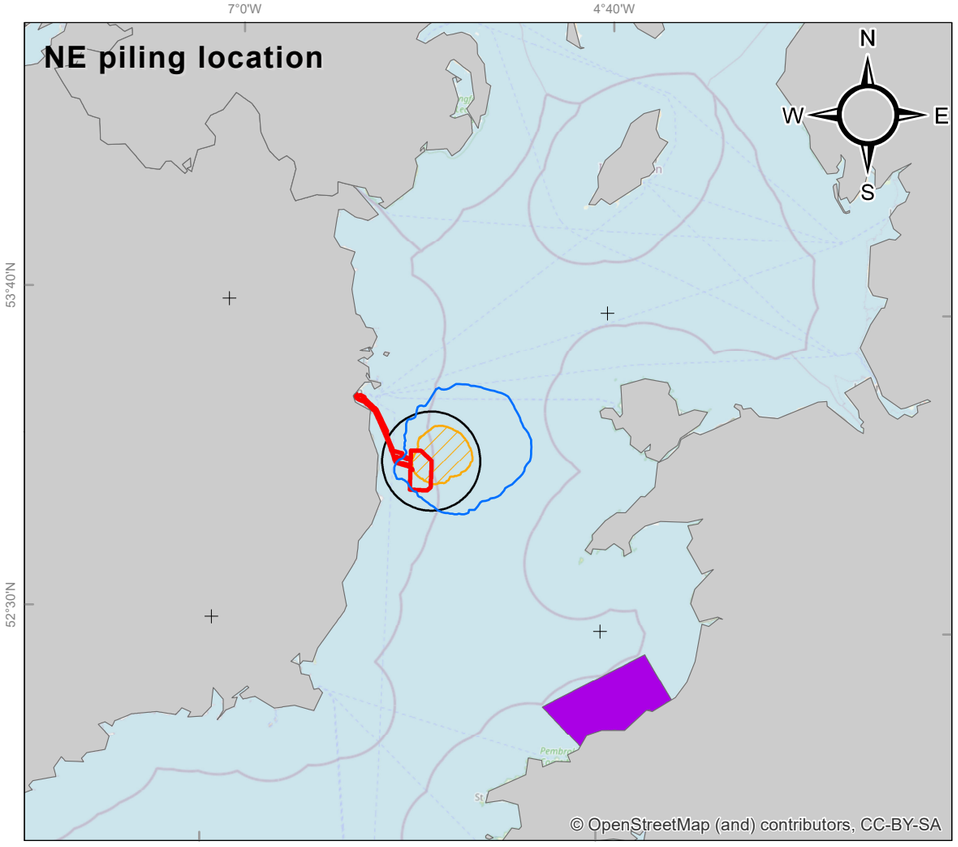
424. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

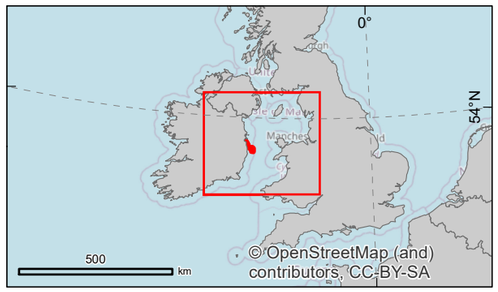
Piling of WTGs

Unmitigated piling

425. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the Cardigan Bay SAC (**Figure 26**).

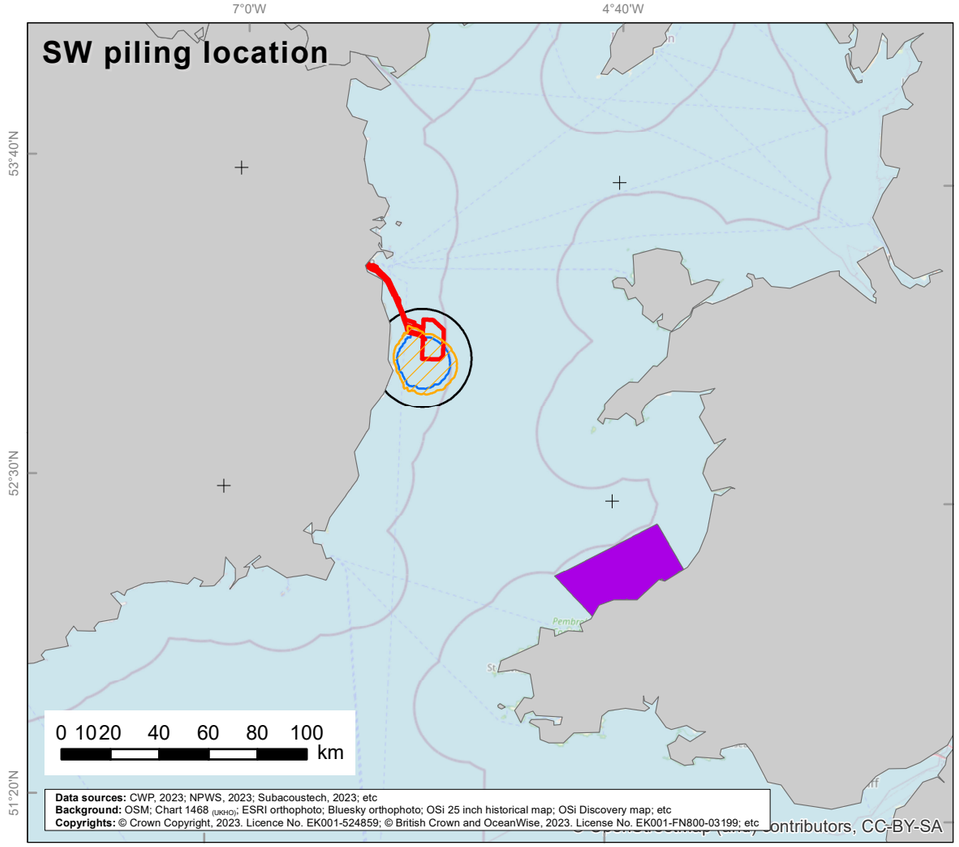


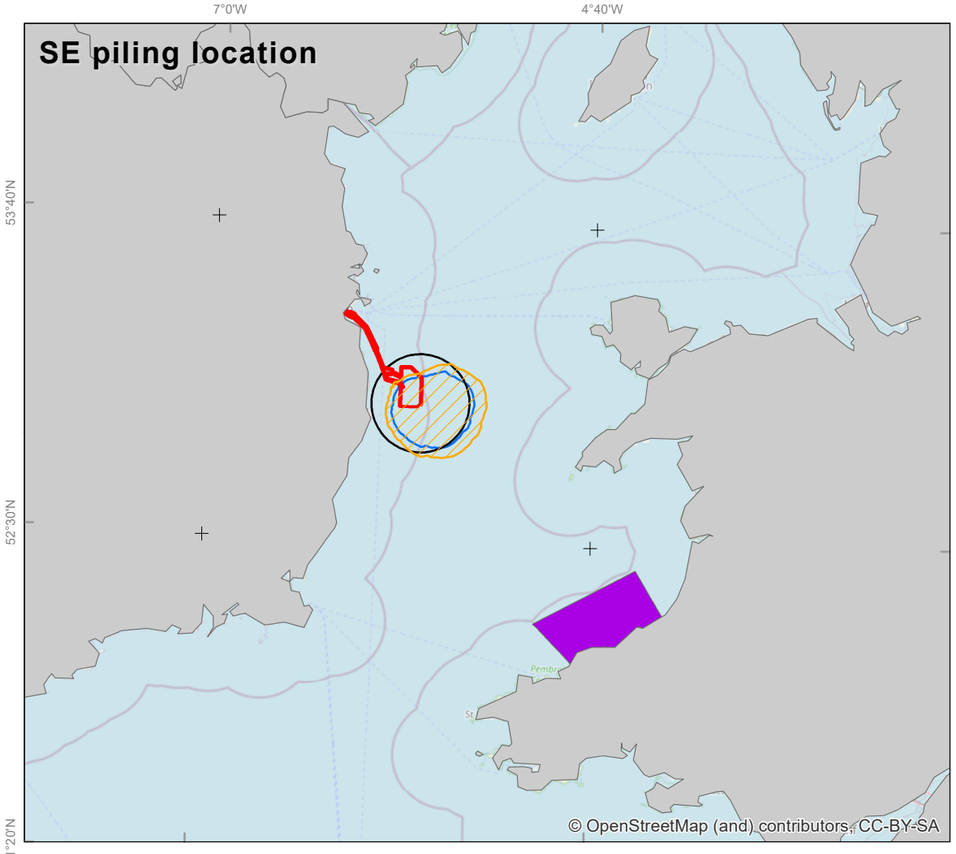




Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold
- 20 km EDR
- Cardigan Bay SAC





codling wind park

Project: Codling Wind Park

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Figure 26: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the Cardigan Bay SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2104

Internal descriptive code: IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL. CONT.WTGs.CORNERS - CARDIGAN.BAY.SAC.

Size: A3

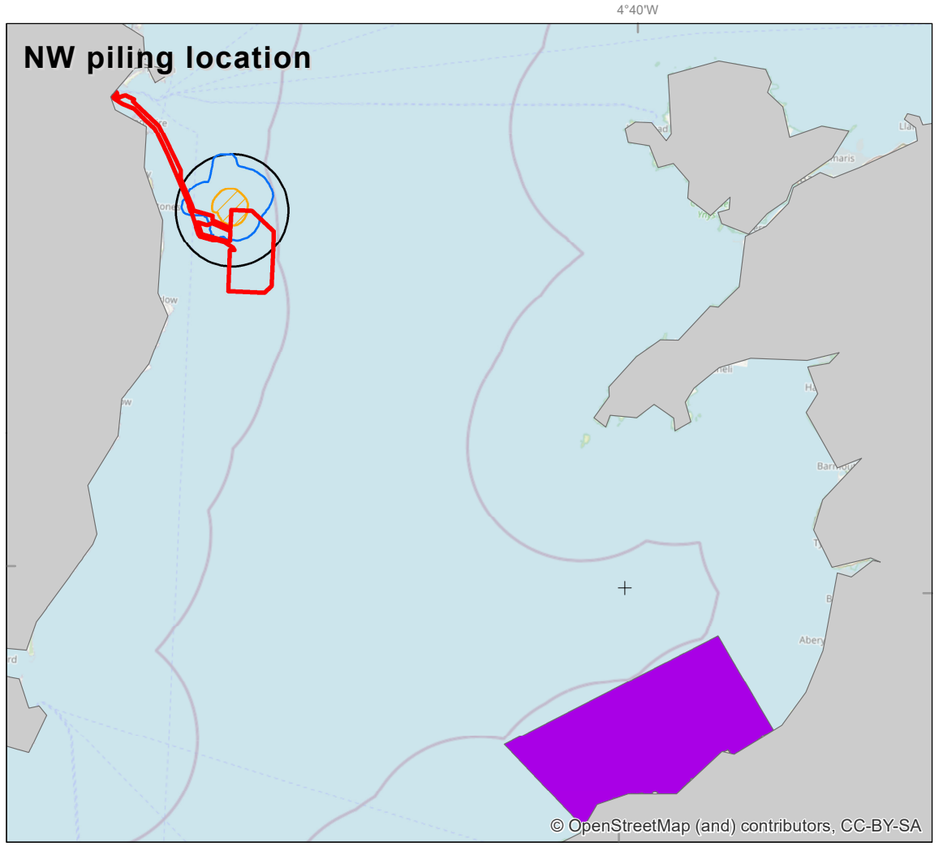
Scale: 1:2,500,000

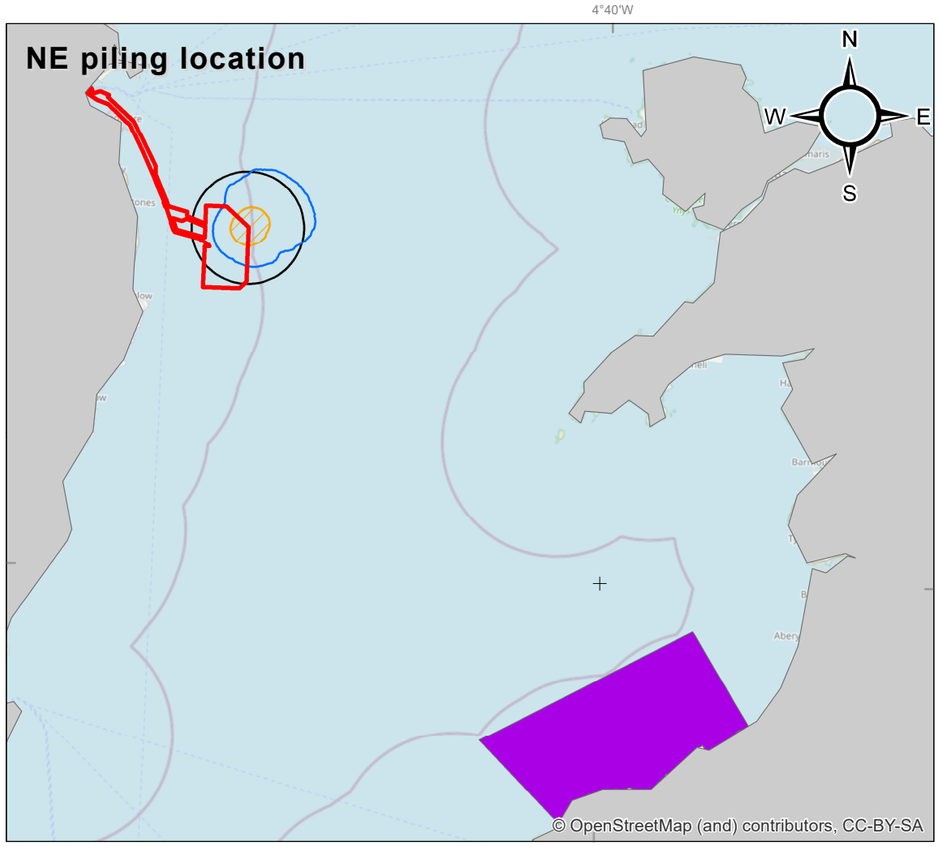
CRS: EPSG 25830

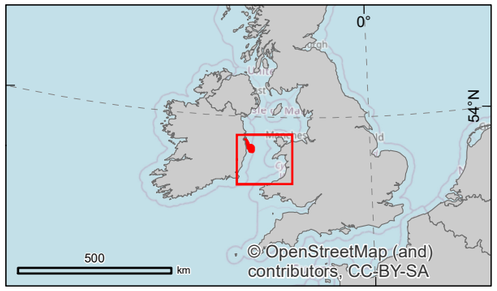
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

Mitigated piling

426. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the Cardigan Bay SAC (**Figure 27**).

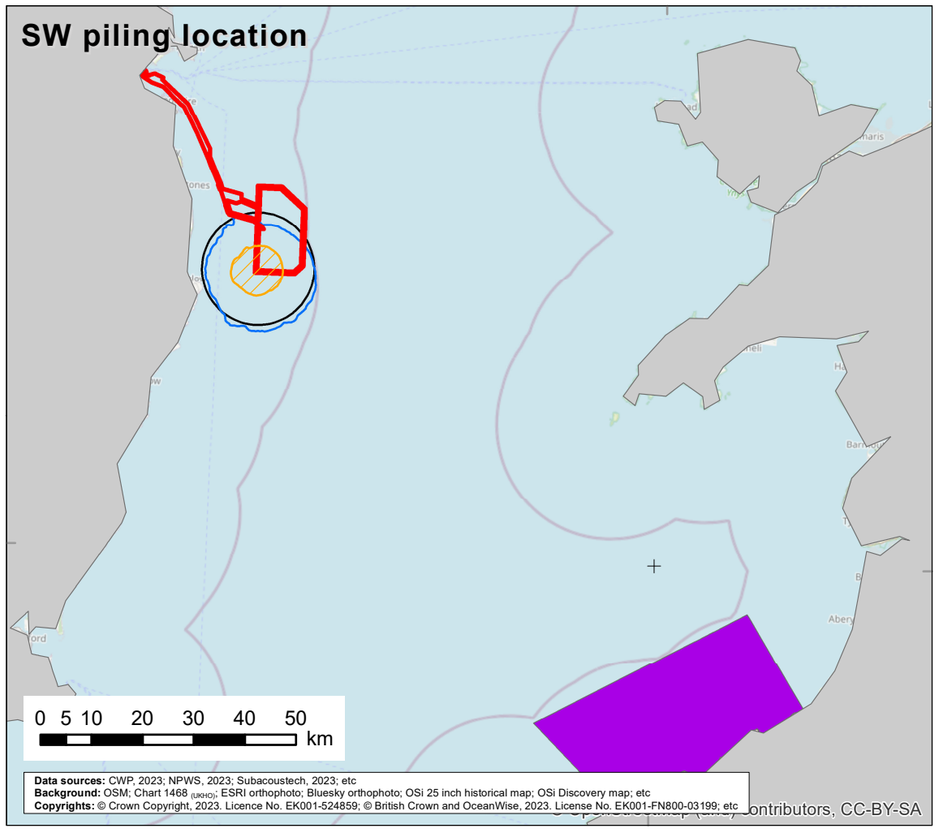


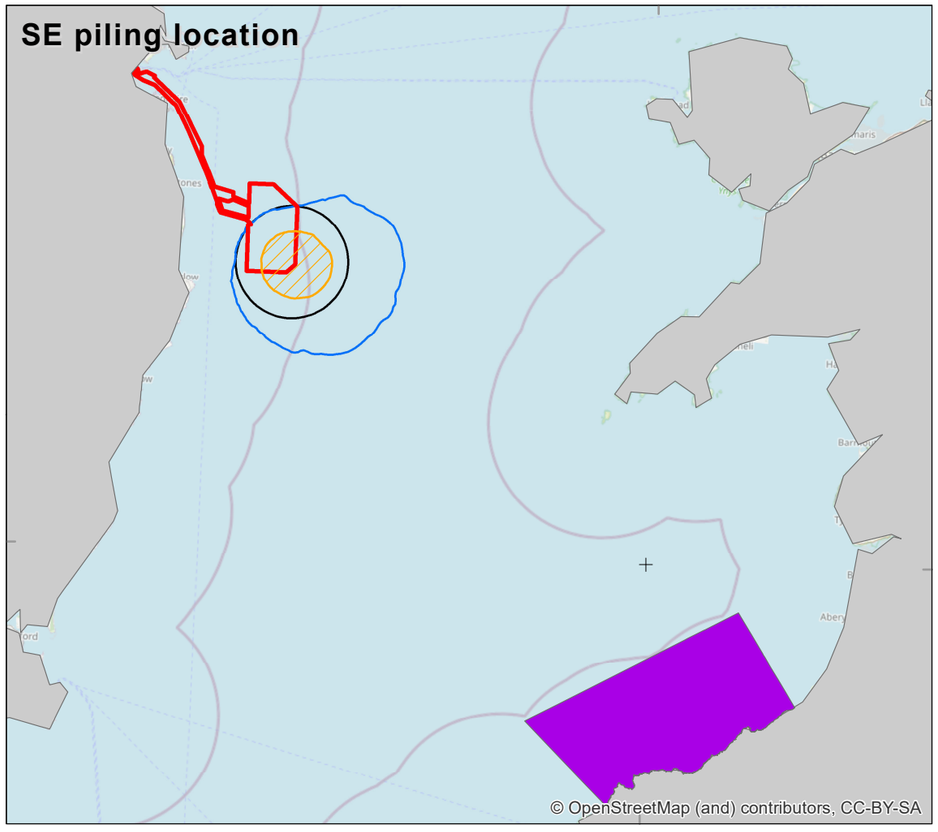




Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s threshold
- 11 km EDR
- Cardigan Bay SAC





codling wind park

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Figure 27: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the Cardigan Bay SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2105

Internal descriptive code: IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL. CONT.WTGs.CORNERS - CARDIGAN.BAY.SAC.

Size: A3

Scale: 1:1,200,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

427. For *ex situ* impacts from piling of WTGs, to determine if this level of disturbance could have a population-level effect at the MU scale and therefore contribute to any negative impact to the bottlenose dolphin population, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 448 bottlenose dolphins are disturbed on every piling day (based on a dose-response and SCANS IV block density). The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population **(Plate 6** and **Table 17**).

428. Considering the above, bottlenose dolphin that use the SAC will not be significantly constrained from accessing necessary habitats within or outside of the site and are highly unlikely to be disturbed in a way that the population that is adversely affected.

Conclusion

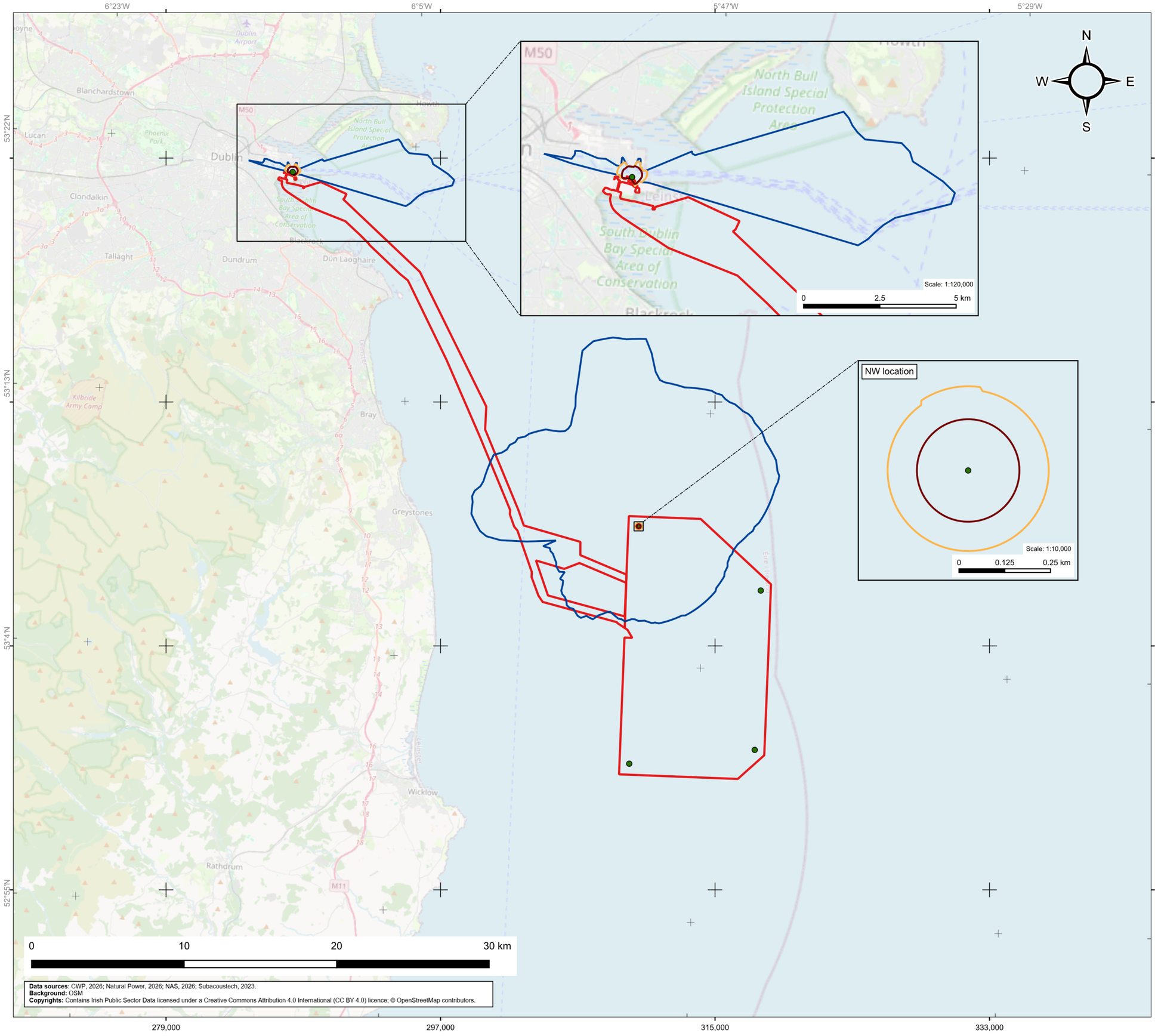
429. Considering the impact pathways described above, disturbance effects from increased underwater noise will not affect the ability of the bottlenose dolphin population to have access to, and be able to utilise habitats necessary to maintain the population in favourable condition. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, bottlenose dolphin, which undermine the COs of the Cardigan Bay SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.13.2 Sea lamprey [1095] and River lamprey [1099]

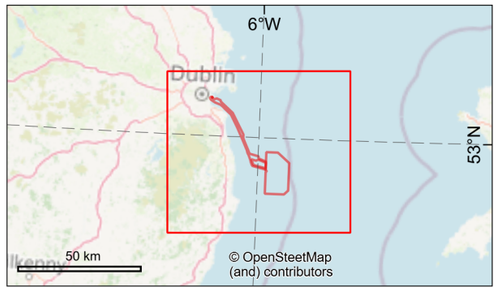
2.13.2.1 Increase in underwater noise and vibration

Section 2.13.2.1 remains unchanged except for paragraph 908 which is replaced by paragraph 430 below. This update has been made in response to FIR Item 11g (see **FIR Response Document**). Also, Figure 2-19 which is replaced by Figure 28 below to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**).

430. Modelled outputs for the various impact thresholds are provided below, and shown in **Figure 28**. Fish are expected to flee from sources of noise when not engaged in active spawning or other life critical behaviours (Popper et al., 2014; McQueen et al., 2022). Considering the distance to the SAC and its estuary, it is expected that individuals are not constrained or engaged in any other behaviour that would prevent them fleeing the source of noise. As such, impacts are only predicted to apply over the fleeing distances described below, noting that the model outputs from the stationary model (which can be considered 'worst case') are also presented (in line with the request to provide a highly precautionary assessment).



Data sources: CWP, 2026; Natural Power, 2026; NAS, 2026; Subacoustech, 2023.
Background: OSM
Copyrights: Contains Irish Public Sector Data licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence; © OpenStreetMap contributors.



Legend

- Planning Application Boundary (PAB)
- Pile driving noise modelling location

North West and Liffey noise modelling contours

- 186 dB
- 216 dB
- 219 dB

codling wind park

Project: Codling Wind Park

Contractor: natural power www.naturalpower.com

Figure 28
Group one mitigated noise modelling (a limit on underwater noise of 169 dB LE,p,ss,05 at 750 m) for species without nursery or spawning habitat

CWP doc. number: CWP-NPC-CON-09-MAP-2114

Internal descriptive code: OFFSH.ALL - PAB..DPNMLs..DPNM.CONT.WTG.SE..DPNM.CONT.SS.PP - FSTESAs.LRN..SNG.G1 - (EIAR.FIG.09.22)

Size: A3

Scale: 1:240,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
01	For FIR submission	2026/05/27	AC	AK/EA	LJ

2.13.2.1.1 Mortality

Section 2.13.2.1.1 remains unchanged except for paragraph 909 which is replaced by paragraphs 431 to 432 and paragraph 911 which is replaced by paragraphs 433 to 434 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

431. To mitigate potential impacts from underwater noise during the construction of the project, CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events. This NIS addendum applies the mitigation to this stage of the assessment and makes reference to mitigated values only. Unmitigated values are presented in **Appendix 9-C** to the **EIAR Addendum**.

432. Piling is a temporary impact of maximum 75 days over the construction period. It is however a reoccurring event which produces sound levels that may result in the mortality of species. Mortality for lamprey species from (mitigated) piling operations under the stationary model may be observed over an area of less than 0.01 km^2 or a maximum distance of less than 50 m from the source for peak sound pressure level, and an area of 0.06 km^2 or a maximum distance of 140 m from the source for cumulative level exposure. These values drop significantly to less than 0.01 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

433. To mitigate potential impacts from underwater noise during the construction of the project a low order technique will be the primary method of UXO clearance, with high order clearance only occurring in exceptional circumstances. CWP commits to the implementation of noise abatement in the event high order UXO clearance is required.

434. Injurious effects from low order UXO clearance are predicted to be observable up to 60 m from the work. Injurious effects from mitigated high order UXO clearance are predicted to be observable at distances between 100–330 m from the work. Considering the low number of expected clearance events, the likelihood of QI individuals being present in the affected area is very low, and the area of impact is considered to be negligible in the context of the wider availability of habitat for the QIs.

2.13.2.1.2 Recoverable injury

Section 2.13.2.1.2 remains unchanged except for paragraph 912 which is replaced by paragraphs 435 to 436 below. Section 2.13.2.1.2 should now be read in conjunction with the additional text provided in paragraph 437 below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

435. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling and UXO clearance.

436. Recoverable injury from (mitigated) piling operations under the stationary model may occur within an area of less than 0.01 km^2 or a maximum distance of less than 50 m from the source for peak sound pressure level, and an area of 0.15 km^2 or a maximum distance of 230 m from the source for cumulative level exposure. These values drop significantly to less than 0.01 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

437. For UXO clearance there is a high relative risk of recoverable injury for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to low in the intermediate (within hundreds of metres of the source) and far (within thousands of metres of the source) fields.

2.13.2.1.3 Temporary threshold shift and behavioural responses

Section 2.13.2.1.3 remains unchanged except for paragraph 914 which is replaced by paragraphs 438 to 439 below. Section 2.13.2.1.3 should now be read in conjunction with the additional text provided in paragraph 440

below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

438. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling and UXO clearance.

439. TTS (based upon cumulative exposure) for all migratory species during the (mitigated) piling operations under the stationary model may occur within an area of approximately 230 km^2 or a maximum distance of 13 km from the source. These values drop significantly to 5.7 km^2 or a maximum of 2.3 km from the source when the more realistic fleeing model is used.

440. For UXO clearance there is a high relative risk of TTS for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to moderate in the intermediate field (i.e., within hundreds of metres of the source) and low in the far field (i.e., within thousands of metres of the source).

2.13.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 920 which is replaced by paragraph 441 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

441. Considering the low likelihood of interaction with QIs of SACs, the negligible distances over which injurious effects may be seen (less than 50 m for piling activities and less than 330 m for high order UXO clearance to which mitigation is applied), rapid recovery or likely habituation in the event of TTS or behavioural effects, and lack of any barrier to migration, it is considered that such impacts arising as a result of the CWP Project will not impede the Conservation Objectives for this SAC. Having regard to these considerations, it is concluded beyond reasonable scientific doubt that there will be no adverse effect on site integrity from increases in underwater noise and vibration.

2.13.2.3 Temporary increase in SSC and contaminated sediments

Section 2.13.2.3. remains unchanged except paragraph 929 which is replaced by the paragraph 442 below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

442. Cable installation, installation of WTGs and associated works such as dredging, the deposit of dredged material, trenching, or O&M activities may result in a temporary increase in SSC (**Appendix 6-A** to the **EIAR Addendum**). Such resuspended sediments may also contain levels of contamination; however, in the baseline site specific survey in 2021 and 2025, contaminated sediment results showed low levels of chemical contaminants at stations sampled within the offshore development area with no exceedance of the upper Irish AL's or Cefas AL2 (**Appendix 8.3 Benthic Baseline Report** of the EIAR, **Appendix 8-A Benthic Subtidal Survey Report 2025** of the **EIAR Addendum)** and **Appendix 8-B Landfall and Intertidal Survey Report 2025** of the **EIAR Addendum)**. The majority of contaminants levels at sampled stations were below the Irish Lower AL and Cefas AL1. Typically, contaminated sediments are only associated with finer sediments as they do not bind effectively with the coarse sands and gravels that are mainly present across the offshore development area. Published marine sediment contaminant data in the area also indicates a general low background level of contamination, with no patterns of consistently high levels of contaminants recorded spatially or temporally (data.gov.ie, 2007). As such, it is considered highly unlikely that high levels of

contamination will arise that may affect this QI and no effects on Conservation Objectives from such contaminated sediments are predicted.

2.13.2.3.1 Dredging and dredge disposal

Section 2.13.2.3.1 is replaced in its entirety by paragraphs 443 to 446 below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

443. Suspended sediment plumes created during dredge disposal operations are predicted to enhance SSC levels in the near field (i.e., to the point of release) and far field (i.e., up to c. 7 km) from the point of release).

444. The predicted transport of sediment plumes and subsequent deposition during dredge disposal activities within the offshore development area can be summarised as follows:

445. Updated modelling of representative scenarios of dredge disposal activities within the array site predicted: a maximum transient increase in SSC of *c*. 250 mg/l, travelling up to 7 km in a north-south / slight east direction resulting in a cumulative sediment deposition thickness of *c*. 3 cm, near the disposal location. For the array site scenarios the time required to return to baseline SSCs was *c*. 11 days (**Appendix 6-A** of the **EIAR Addendum**).

446. Updated modelling of representative scenarios of dredge disposal activities within the OECC predicted: a maximum transient increase in SSC of *c*. 400 mg/l, travelling up to 6 km in a north-south / slight east direction resulting in a cumulative sediment deposition thickness of *c*. 4 cm, near the disposal location. In a final scenario, a maximum transient increase in SSC of *c*. 125 mg/l, travelling up to 4 km in a north-south direction resulting in a cumulative sediment deposition thickness of *c*. 3 cm, near the disposal location. For the OECC scenarios the time required to return to baseline SSCs was *c*. 8 days (**Appendix 6-A** of the **EIAR Addendum**).

2.13.2.3.2 Trenching

Section 2.13.2.3.2 remains unchanged except for paragraphs 937 to 939 which are replaced by paragraphs 447 to 449 below. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

447. The updated modelling of the transport of sediment plumes generated during cable installation activities (trenching) across the array site indicates the finest sediments will potentially be transported north-south / slight east up to 6 km at an increase of 80 mg/l, resulting in a cumulative sediment deposition thickness of c. 1 cm, near the release location. The time required to return to baseline SSCs was c. 11 days (**Appendix 6-A** of the **EIAR Addendum**).

448. The predicted transport of sediment plumes generated during cable installation activities (trenching) across the OECC, within both the zone of greater burial depth and the OECC more broadly, were for an increase in SSC of *c*. 140 mg/l being transported for up to 5 km north-south / slight east resulting in a cumulative sediment deposition thickness of *c*. 1 cm, near the release location. The time required to return to baseline SSCs was *c*. 12 days (**Appendix 6-A** of the **EIAR Addendum**).

449. Therefore, the maximum thickness of the deposit on the seabed away from the trenching activities was predicted to be *c*. 1 cm; deposited sediments would be reworked and rapidly integrated into the prevailing sediment transport regime, and thus would have negligible impact on the prevailing environment. Consequently, enhanced SSC and the predicted deposition thickness would not be discernible above natural variation observed during storm events, with SSCs predicted to reduce to baseline levels within *c*. 12 days following trenching operations (**Appendix 6-A** of the **EIAR Addendum**).

2.14 North Channel SAC (UK0030399)

2.14.1 Harbour porpoise

Section 2.14.1 remains unchanged except for paragraphs 949 through to 980 which are replaced by paragraphs 450 to 473 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this **NIS Addendum (Part 1)**. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.14.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

450. The CWP array site is located approximately 107 km away from the North Channel SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

451. The CWP array site is located approximately 107 km away from the North Channel SAC. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C Underwater Noise Modelling Assessment** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

452. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

453. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone

recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

454. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

455. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the North Channel SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

456. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the North Channel SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

457. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

458. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the North Channel SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

459. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

460. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

461. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

462. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels.

Therefore, the proposed activities will not cause death or injury to individuals and will not restrict the survivability and reproductive potential of harbour porpoise using the site. As such, it can be concluded beyond reasonable scientific doubt that, harbour porpoise will continue to be a viable component of the site. Adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the North Channel SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

463. This SAC is located within Northern Ireland offshore/inshore region.

Pre-construction geophysical surveys

464. Given that there is no spatial overlap of the CWP Project with the North Channel SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

465. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of geophysical surveys.

UXO clearance

466. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

467. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

468. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish

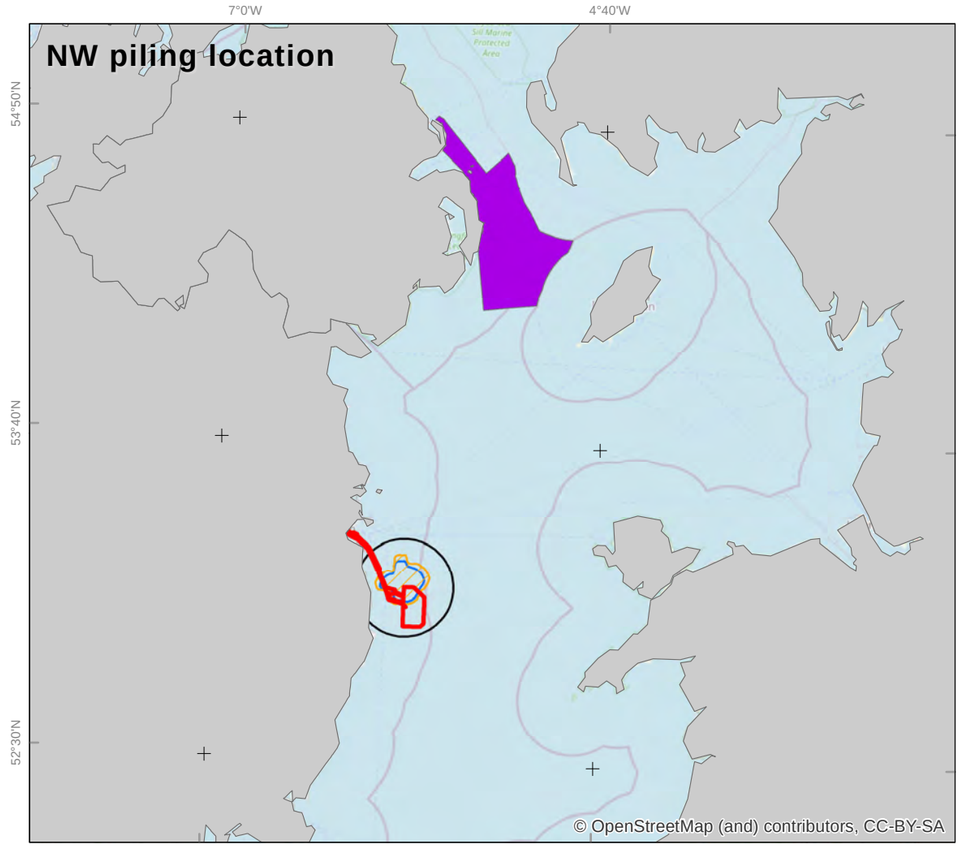
Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

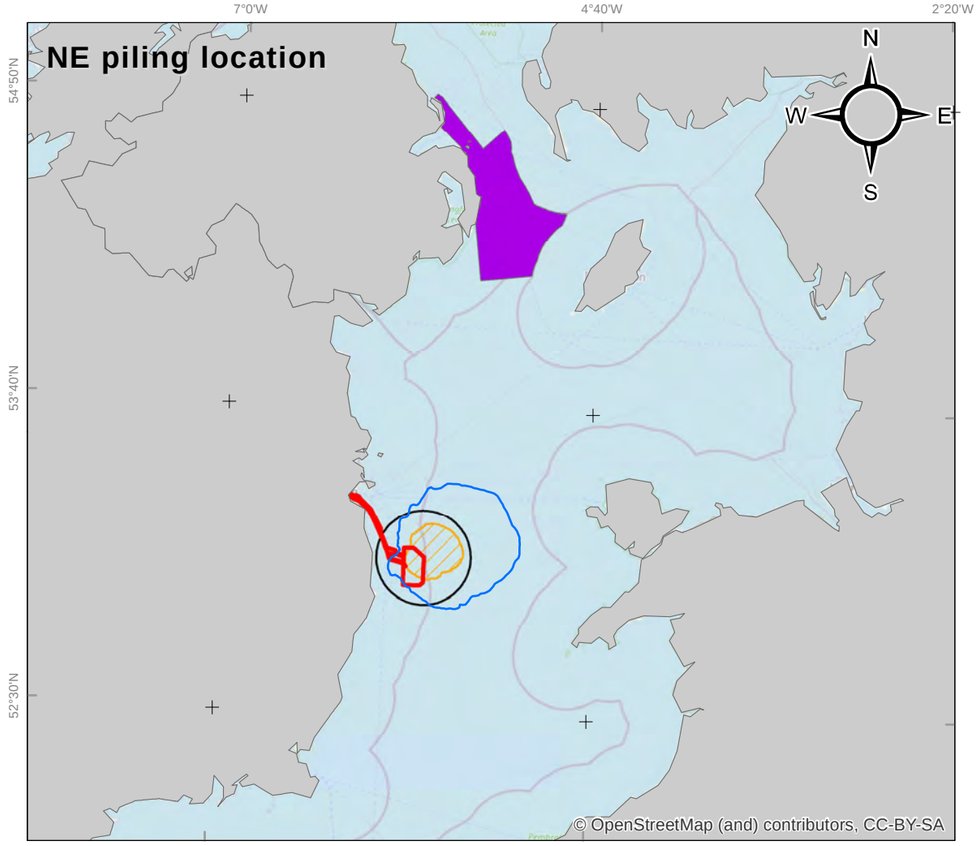
469. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of UXO clearance.

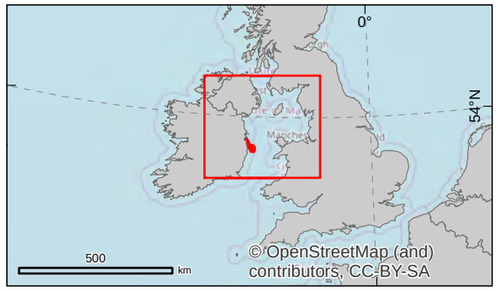
Piling of WTGs

Unmitigated piling

470. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the North Channel SAC (**Figure 29**).

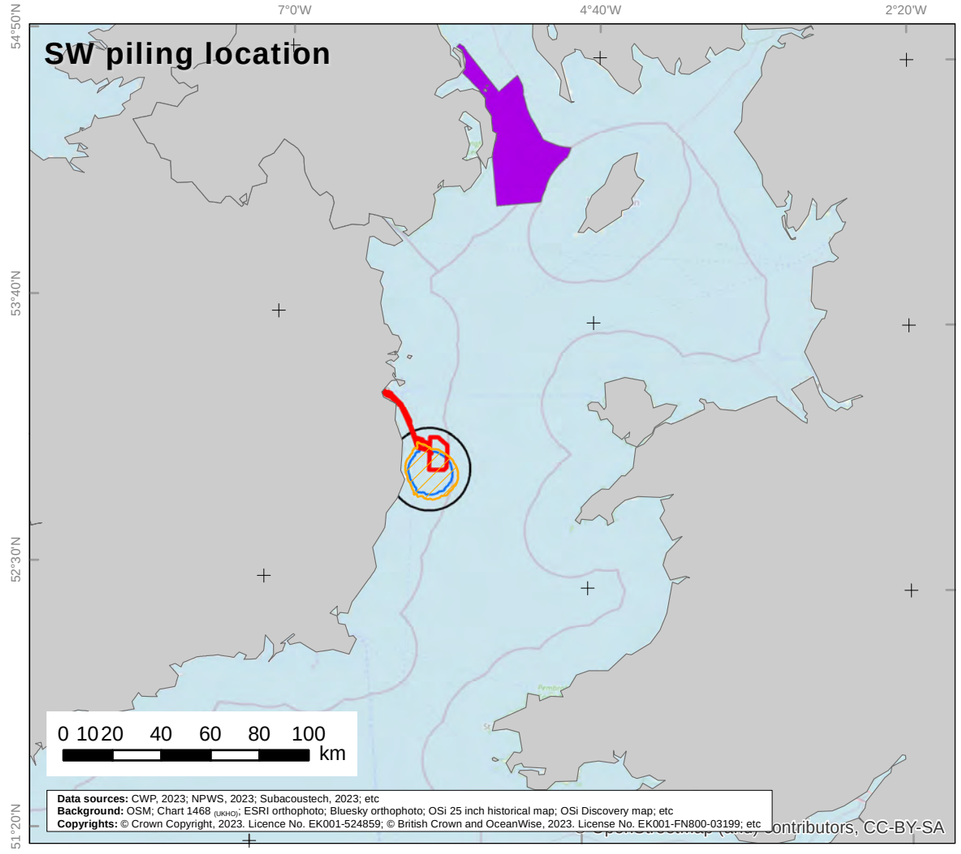






Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s
- 20 km EDR
- North Channel SAC



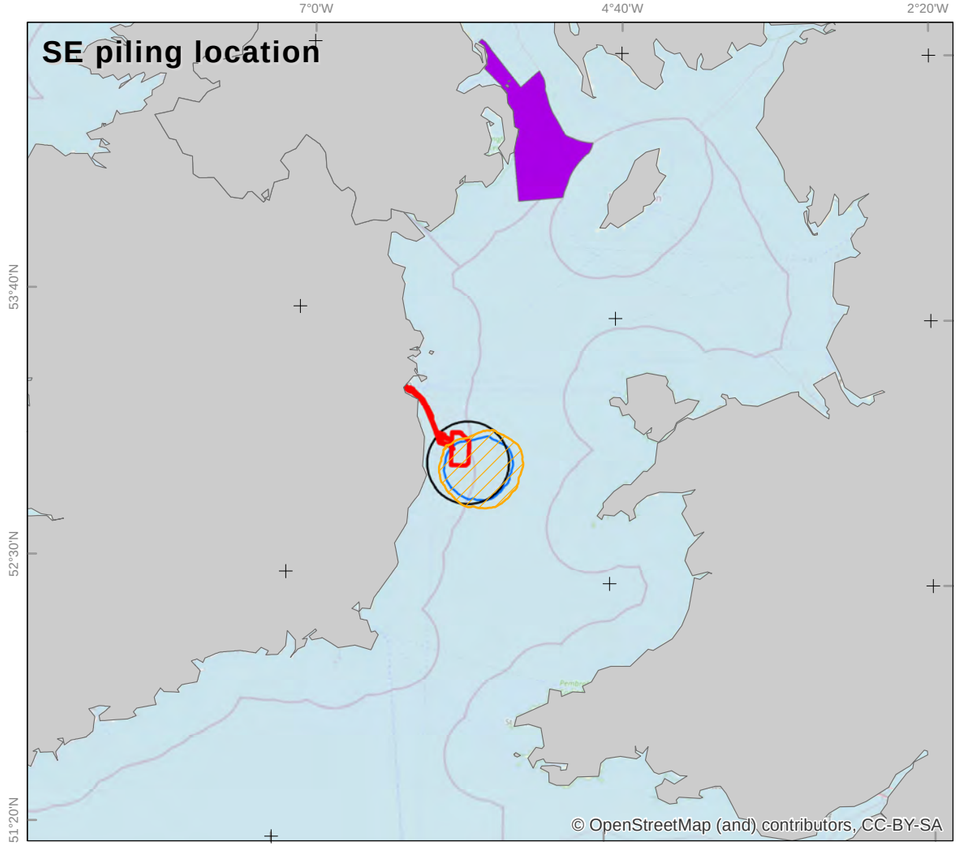


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Figure 29: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the North Channel SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2106

Internal descriptive code: N/A

Size: A3

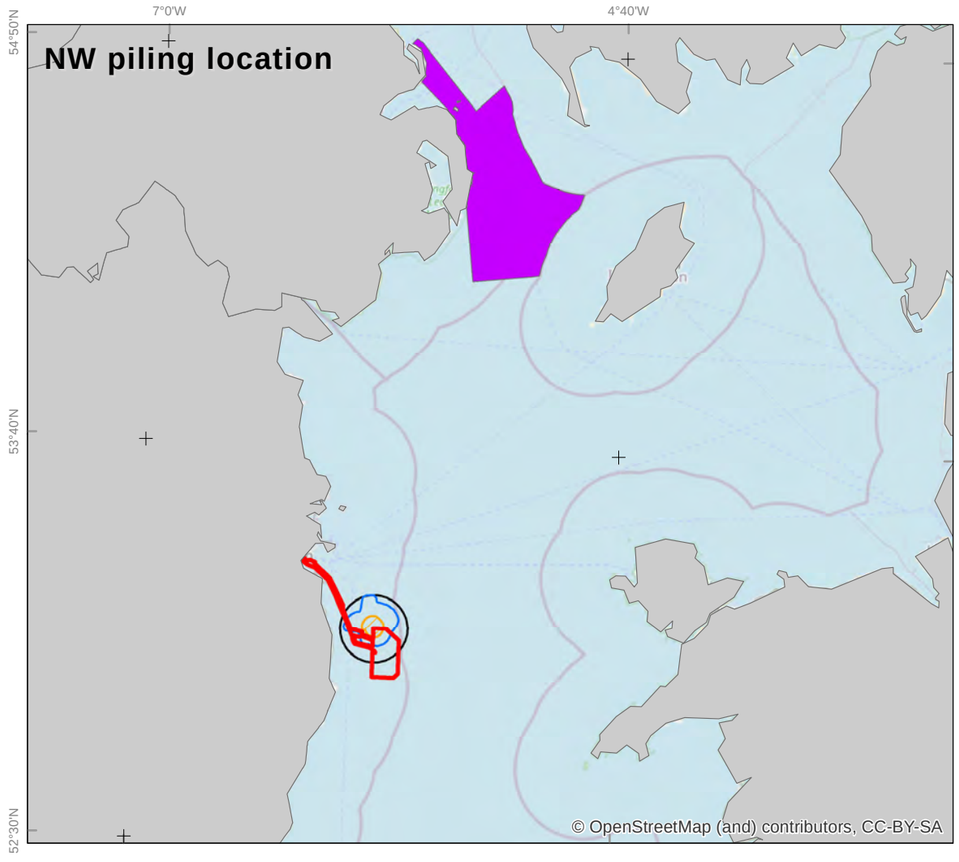
Scale: 1:2,500,000

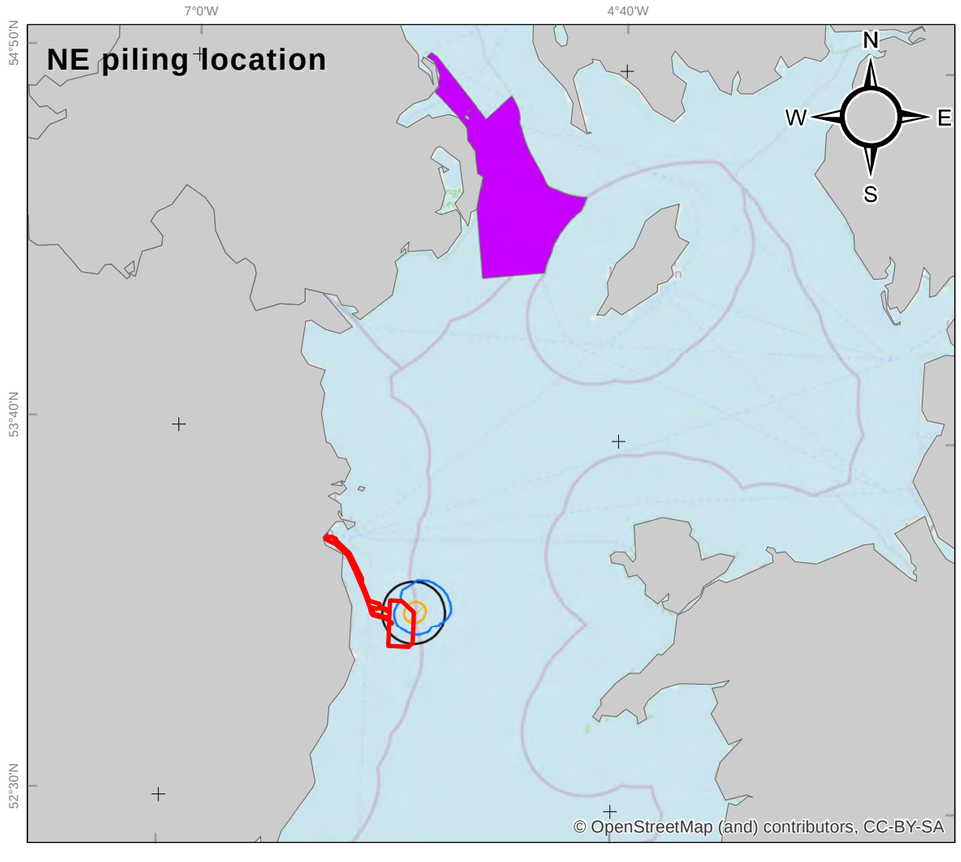
CRS: EPSG 25830

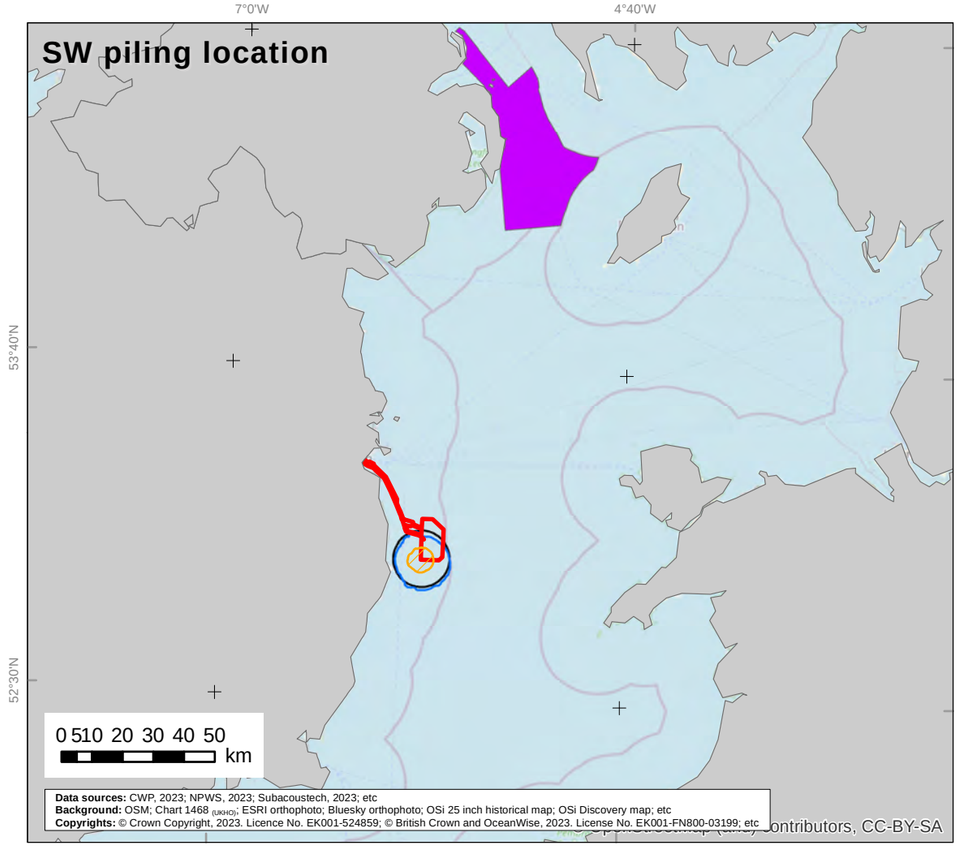
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

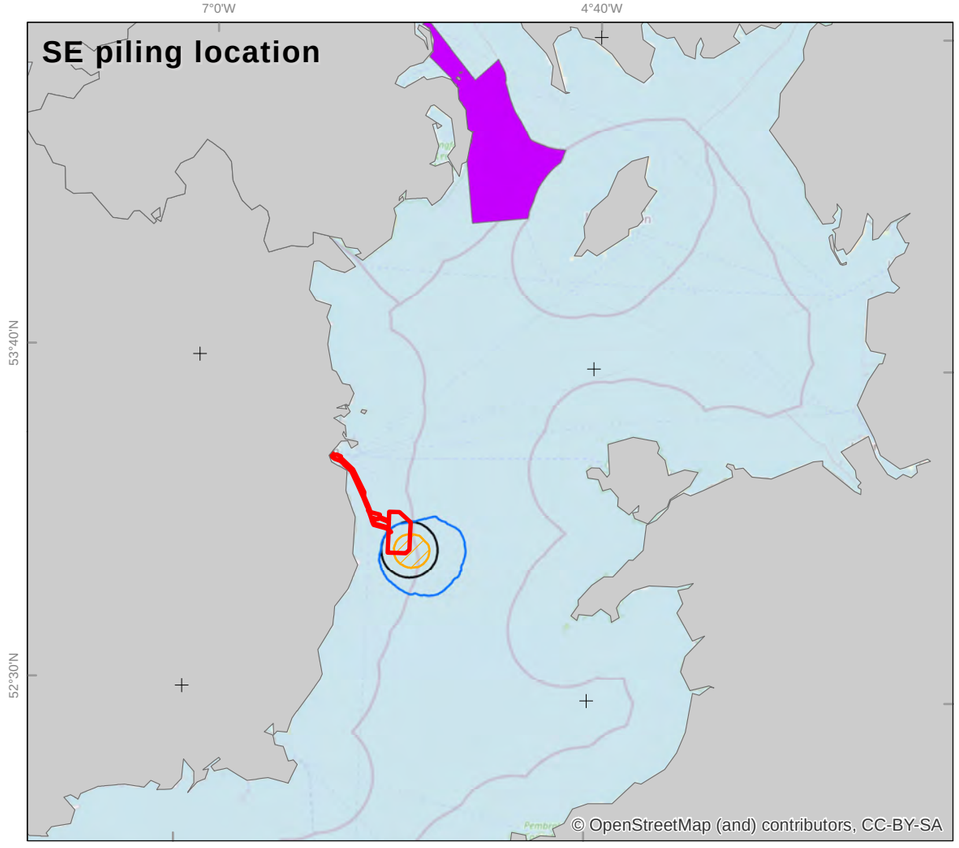
Mitigated piling

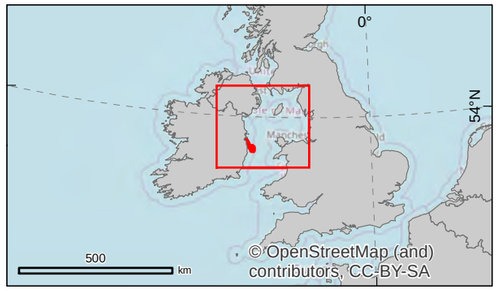
471. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the North Channel SAC (**Figure 30**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 11 km EDR
- North Channel SAC

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Figure 30: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the North Channel SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2107

Internal descriptive code:	*Size:*	*CRS:*
N/A	A3 *Scale:* 1:2,000,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

472. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or 10% of the SAC area over season is considered significant (JNCC, 2020). Given no spatial overlap, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of piling.

Conclusion

473. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may result in significant disturbance. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the North Channel SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.15 Bristol Channel Approaches SAC (UK0030396)

2.15.1 Harbour porpoise

Section 2.15.1 remains unchanged except for paragraphs 1000 through to 1030 which are replaced by paragraphs 474 to 497 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this NIS Addendum. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.15.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

474. The CWP array site is located approximately 107 km away from the Bristol Channel Approaches SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

475. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

476. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

477. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

478. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

UXO clearance

479. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Bristol Channel Approaches SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

480. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 87 to 91 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Bristol Channel Approaches SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

481. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

482. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Bristol Channel Approaches SAC. When considering the

impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

483. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

484. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

485. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

486. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. Therefore, the proposed activities will not cause death or injury to individuals and will not restrict the survivability and reproductive potential of harbour porpoise using the site. As such, it can be concluded beyond reasonable scientific doubt that, harbour porpoise will continue to be a viable component of the site. Adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Bristol Channel Approaches SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

487. This SAC is located within Welsh and English offshore/inshore region.

Pre-construction geophysical surveys

488. Given that there is no spatial overlap of the CWP Project with the Bristol Channel Approaches SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

489. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Considering the above, the harbour

porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of geophysical surveys.

UXO clearance

490. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

491. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

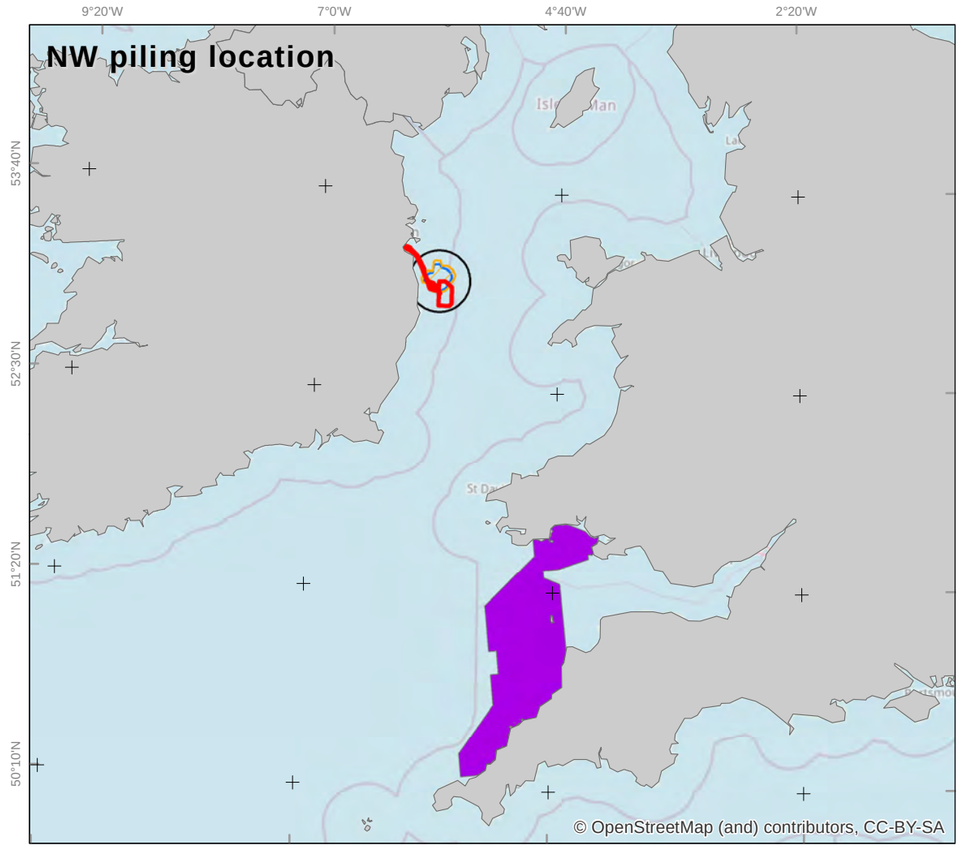
492. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. Using TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

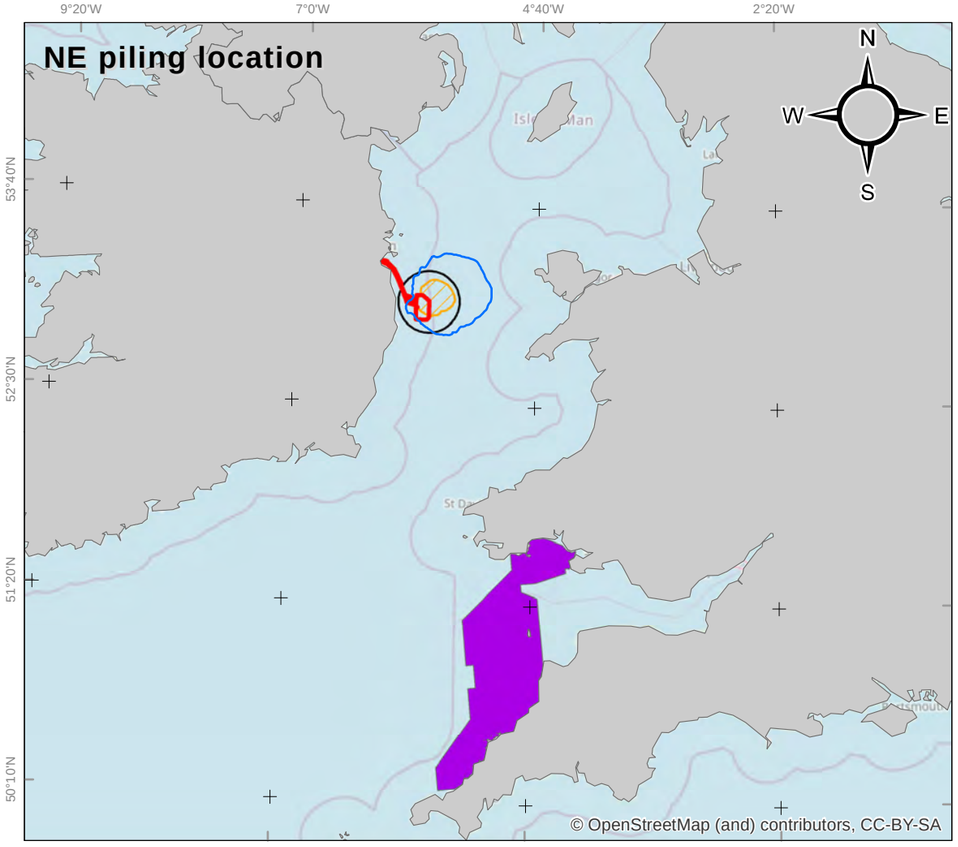
493. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Considering the above, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of UXO clearance.

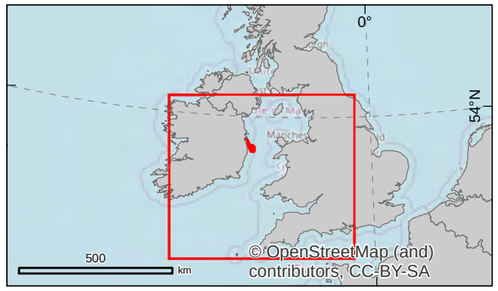
Piling of WTGs

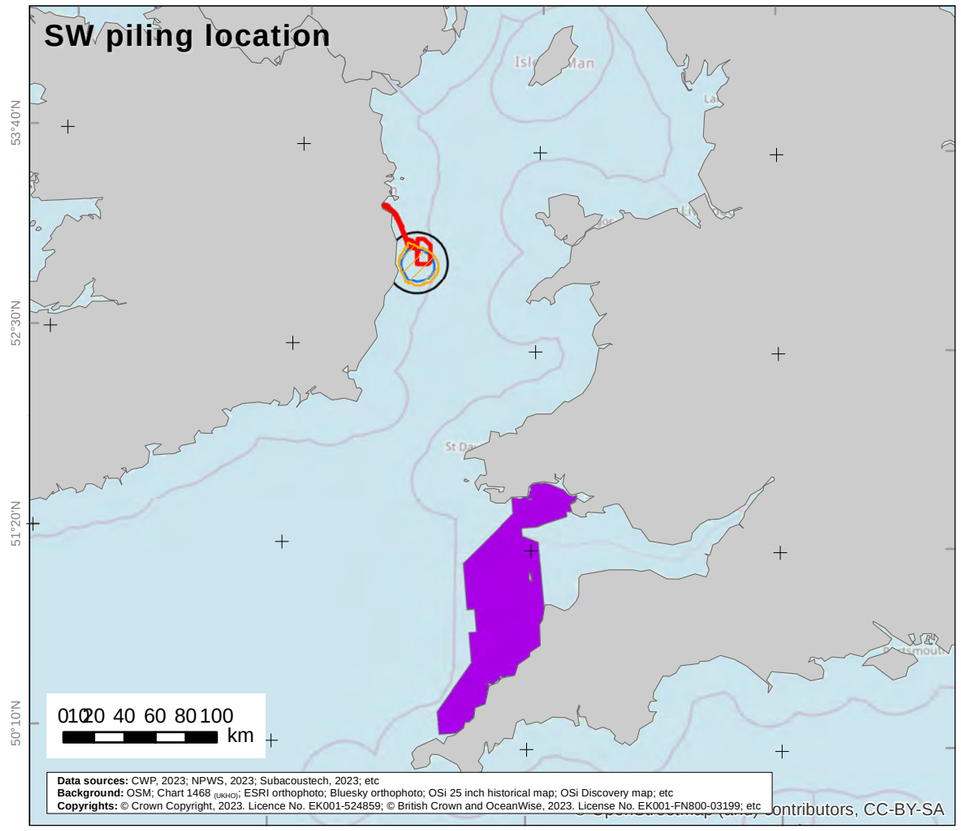
Unmitigated piling

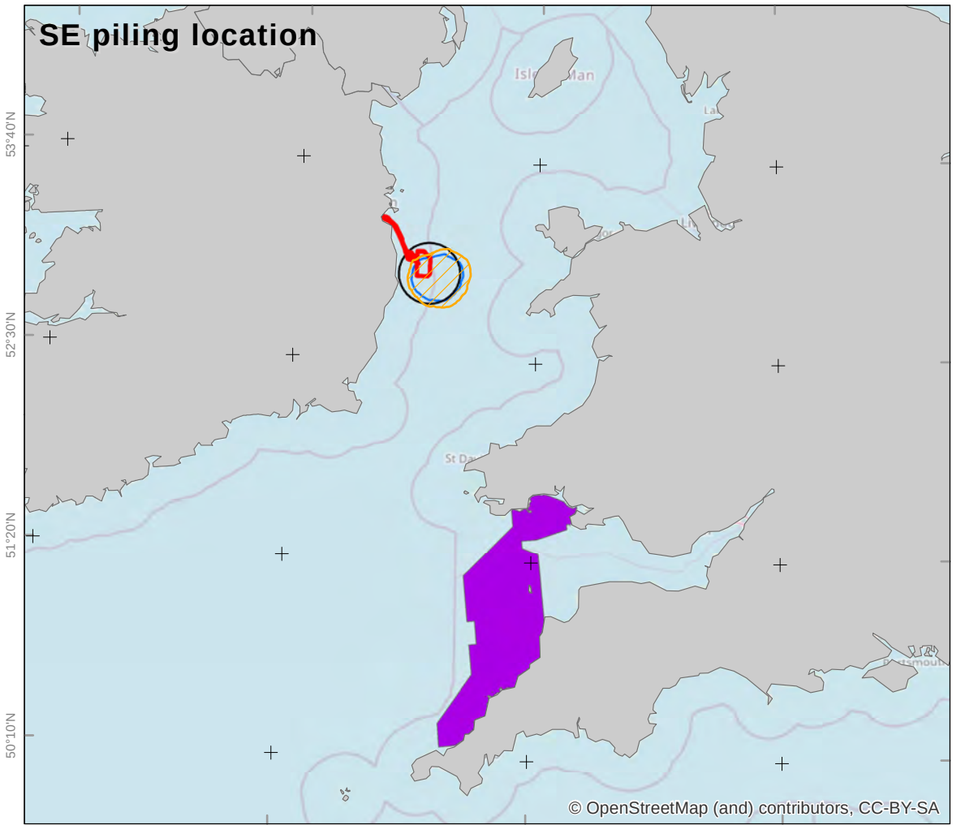
494. When using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds, as well as the 20 km EDR for unmitigated piling, disturbance impact ranges from piling at all piling locations do not overlap with the Bristol Channel Approaches SAC (**Figure 31**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s
- 20 km EDR
- Bristol Channel Approaches

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Figure 31: Predicted overlap between disturbance ranges from unmitigated piling of WTGs at CWP and the Bristol Channel Approaches SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2108

Internal descriptive code: IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL. CONT.WTGs.CORNERS - BRISTOL.CHANNEL.SAC.

Size: A3

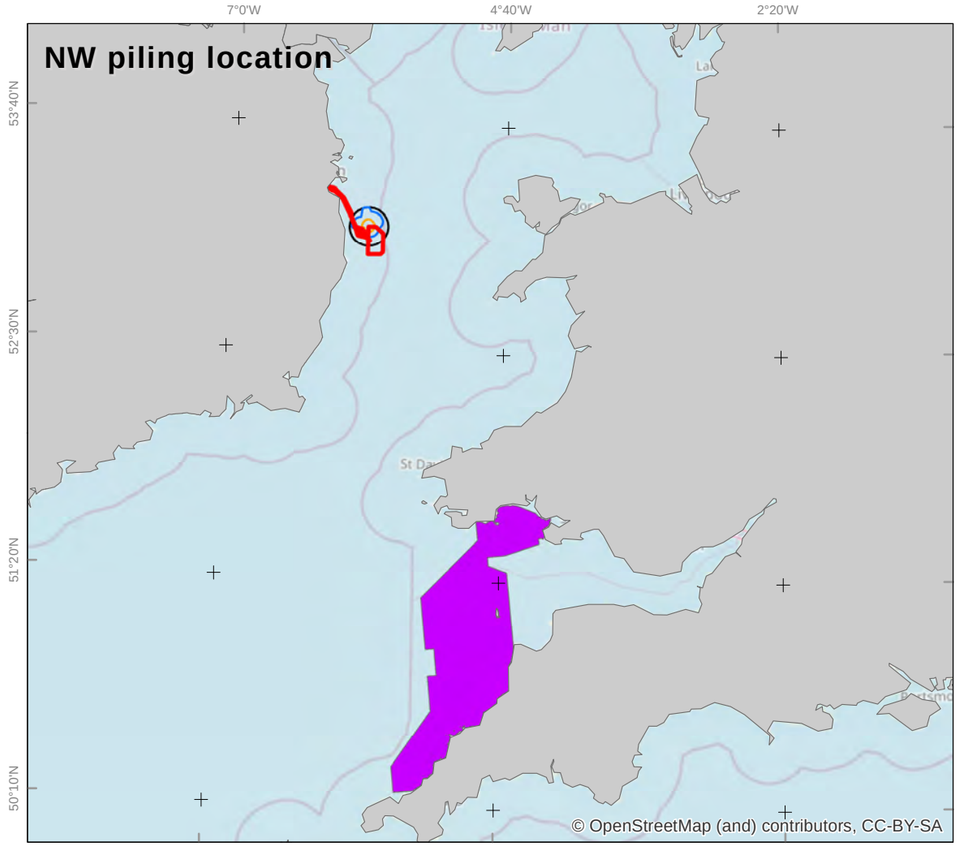
Scale: 1:4,000,000

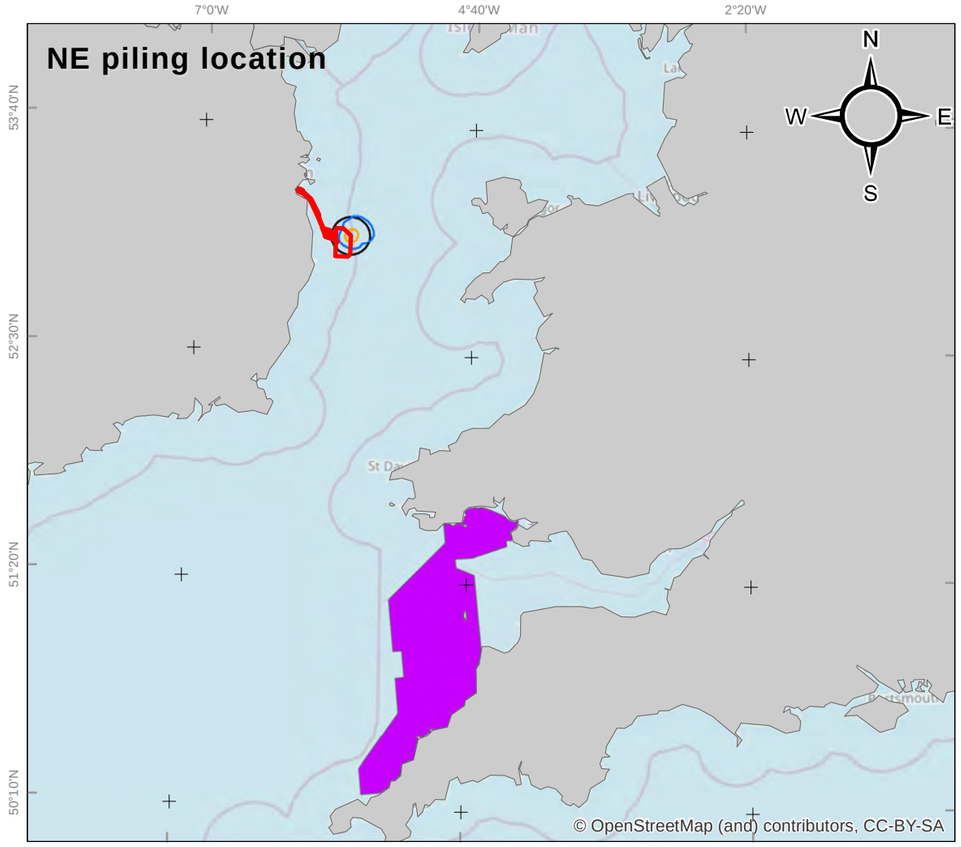
CRS: EPSG 25830

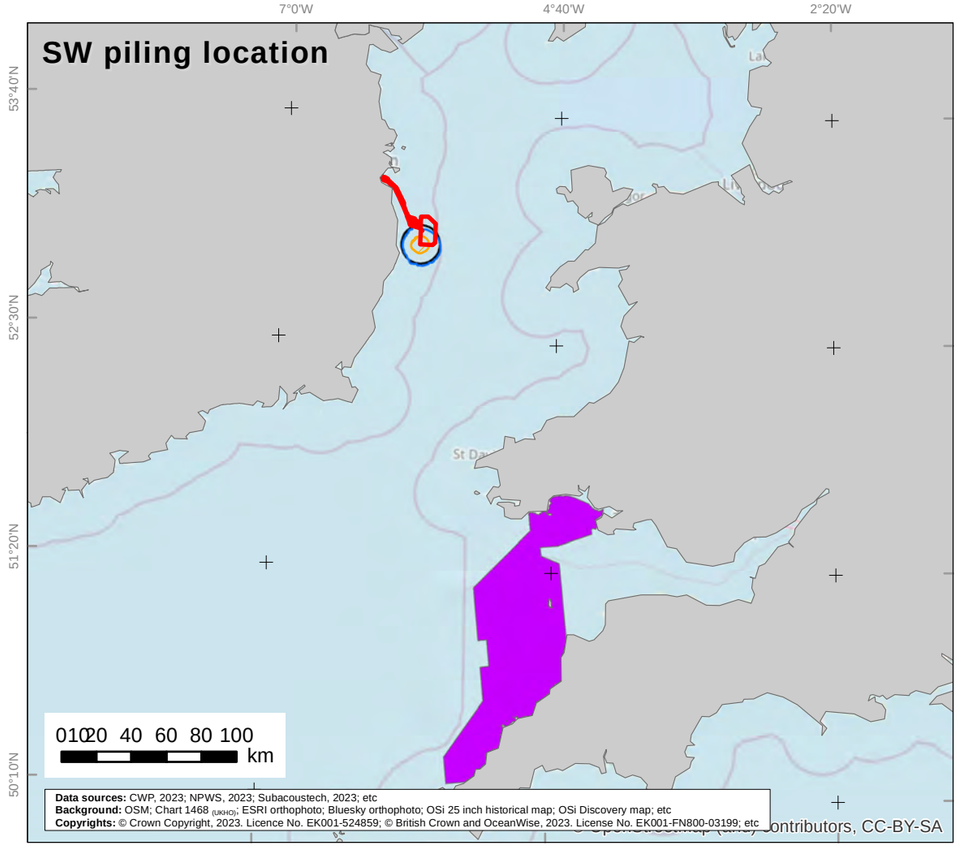
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

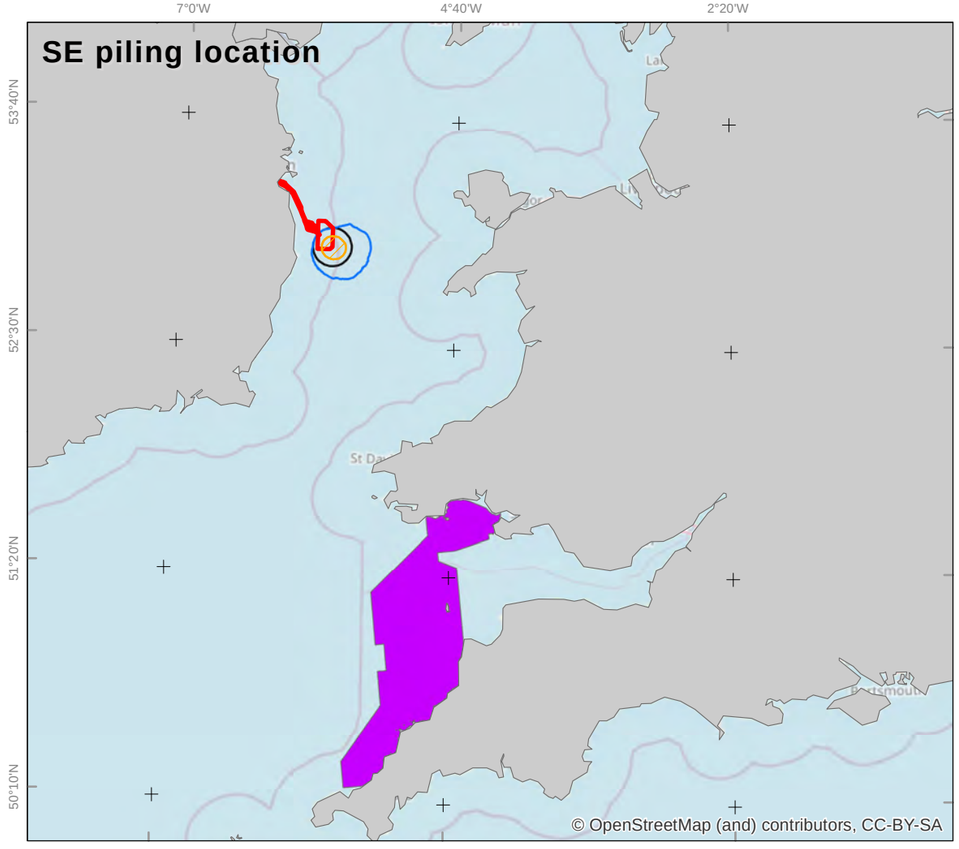
Mitigated piling

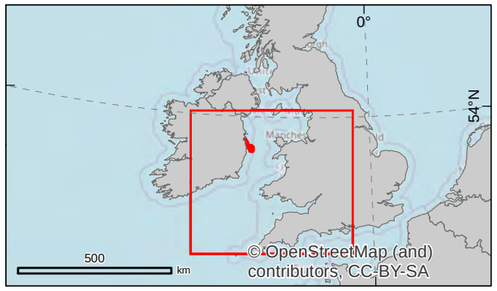
495. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. Similarly to unmitigated piling, when using the 145 dB SEL_{ss} Lucke *et al.* (2009) and the Level B harassment thresholds as well as the 11 km EDR for mitigated piling (JNCC, 2025b), disturbance impact ranges from piling at all piling locations do not overlap with the Bristol Channel Approaches SAC (**Figure 32**).











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold
- 11 km EDR
- Bristol Channel Approaches SAC

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Figure 32: Predicted overlap between disturbance ranges from mitigated piling of WTGs at CWP and the Bristol Channel Approaches SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2109

Internal descriptive code: IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL. CONT.WTGs.CORNERS - BRISTOL.CHANNEL.SAC.

Size: A3

Scale: 1:3,500,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

496. In English, Welsh and Northern Irish harbour porpoise SACs, disturbance to 20% of the SAC area on a single day or 10% of the SAC area over season is considered significant (JNCC, 2020). Given no spatial overlap, the harbour porpoise potential usage of the site will be maintained and there is no risk of significant disturbance of the species as a result of piling

Conclusion

497. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may result in significant disturbance. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Bristol Channel Approaches SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.16 Roaringwater Bay and Islands SAC (IE000101)

2.16.1 Harbour porpoise

Section 2.16.1 remains unchanged except for paragraphs 1051 through to 1082 which are replaced by paragraphs 498 to 522 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
3. The commitment to mitigated pile driving and UXO clearance;
4. Updates to the EIAR Addendum, and
5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this NIS Addendum. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.16.1.1.1 Impact 1: Increased underwater noise

Assessment of the project alone

498. The CWP array site is located approximately 346 km away from the Roaringwater Bay and Islands SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

499. There is no overlap between the CWP array area or the OECC with the SAC. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

500. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

501. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

502. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

503. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with the Roaringwater Bay and Islands SAC, there is no potential for *in situ* overlap between PTS-onset ranges and the SAC for unmitigated UXO clearance activities.

504. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 88 to 92 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Roaringwater Bay and Islands SAC is situated at a greater distance, it is inferred that any resultant effects on its qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than

those assessed for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

505. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

506. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and the Roaringwater Bay and Islands SAC. When considering the impacts of piling of WTGs, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

507. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

508. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

509. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

510. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Roaringwater Bay and Islands SAC will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

511. This SAC is located within the Republic of Ireland inshore region.

Pre-construction geophysical surveys

512. Given that there is no spatial overlap of the CWP Project with the Roaringwater Bay and Islands SAC, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance

from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

513. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

514. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of the SAC When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

515. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

516. There will be no overlap with the SAC for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

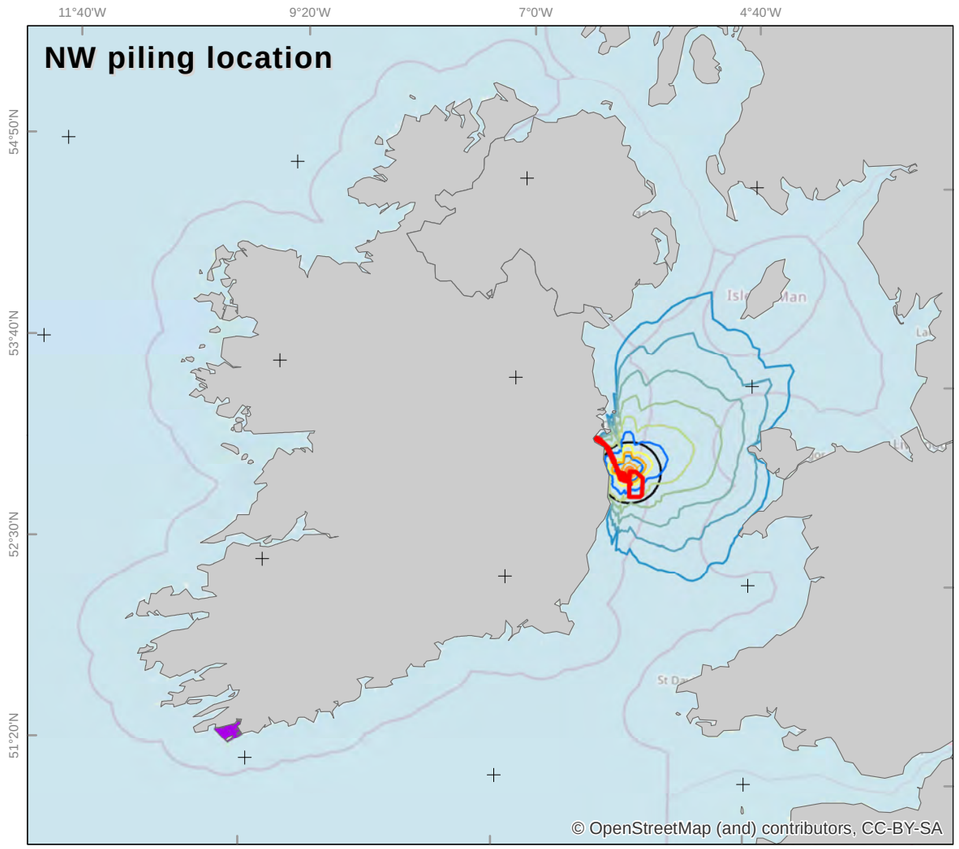
517. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise

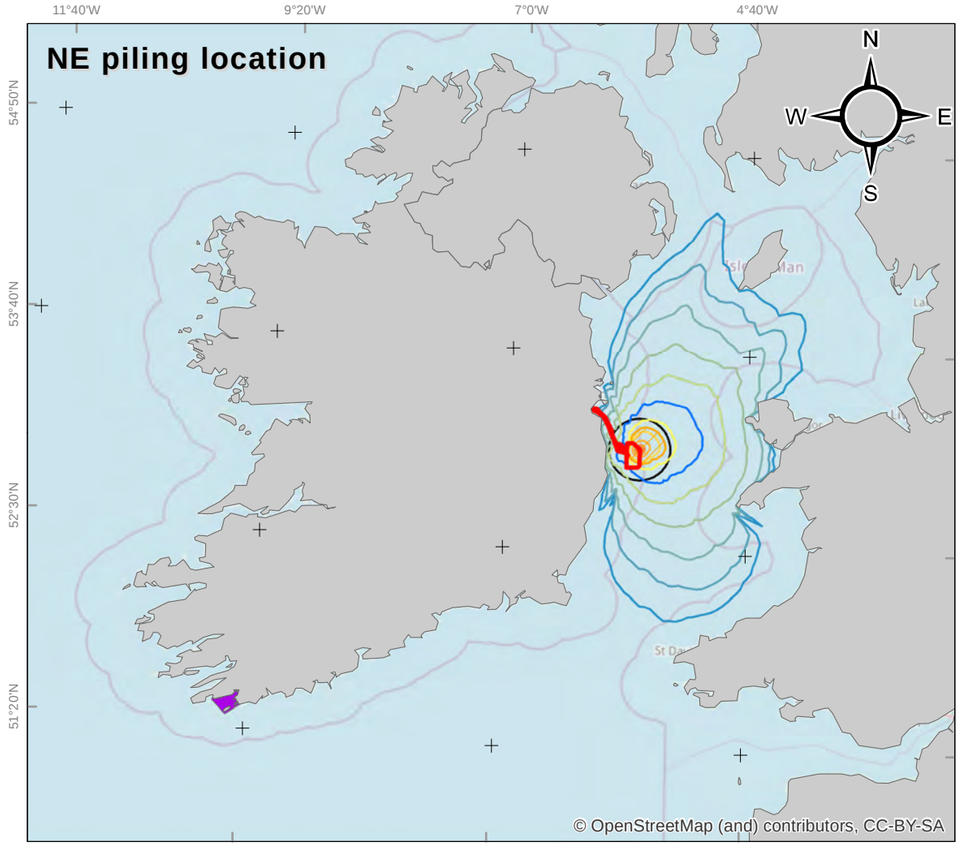
community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

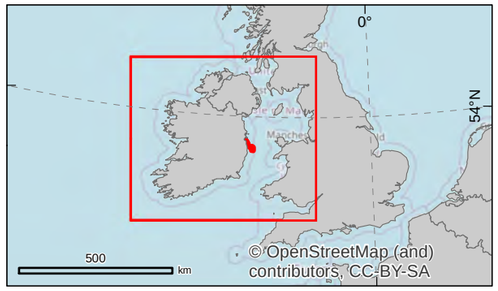
Piling of WTGs

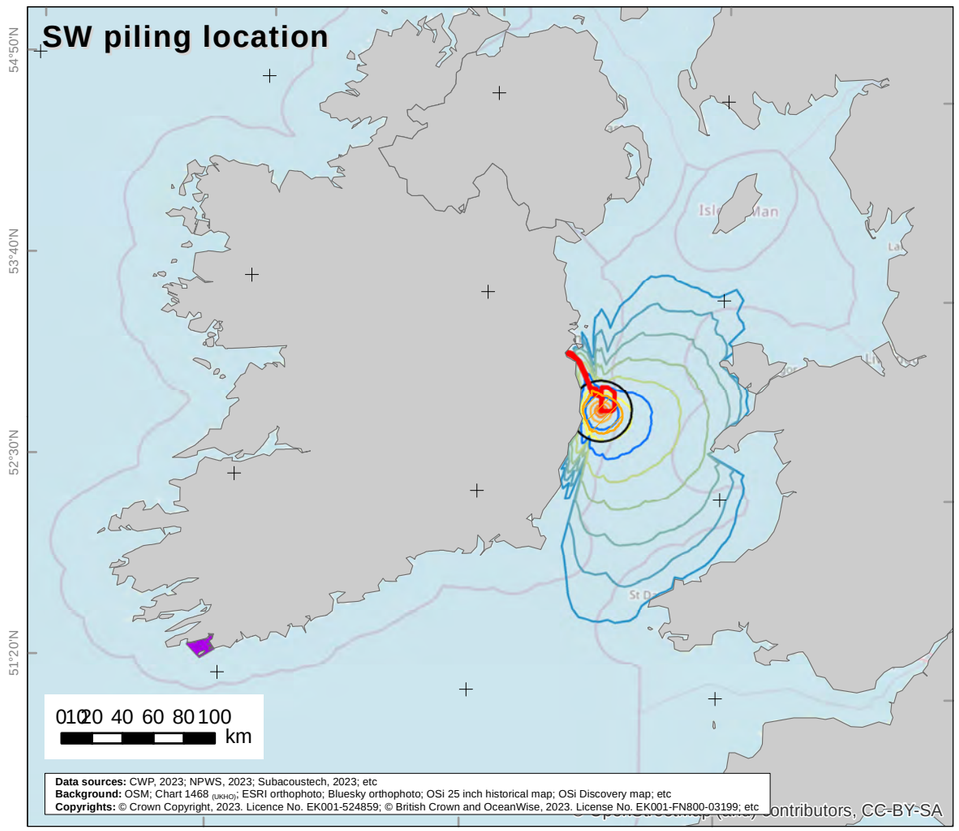
Unmitigated piling

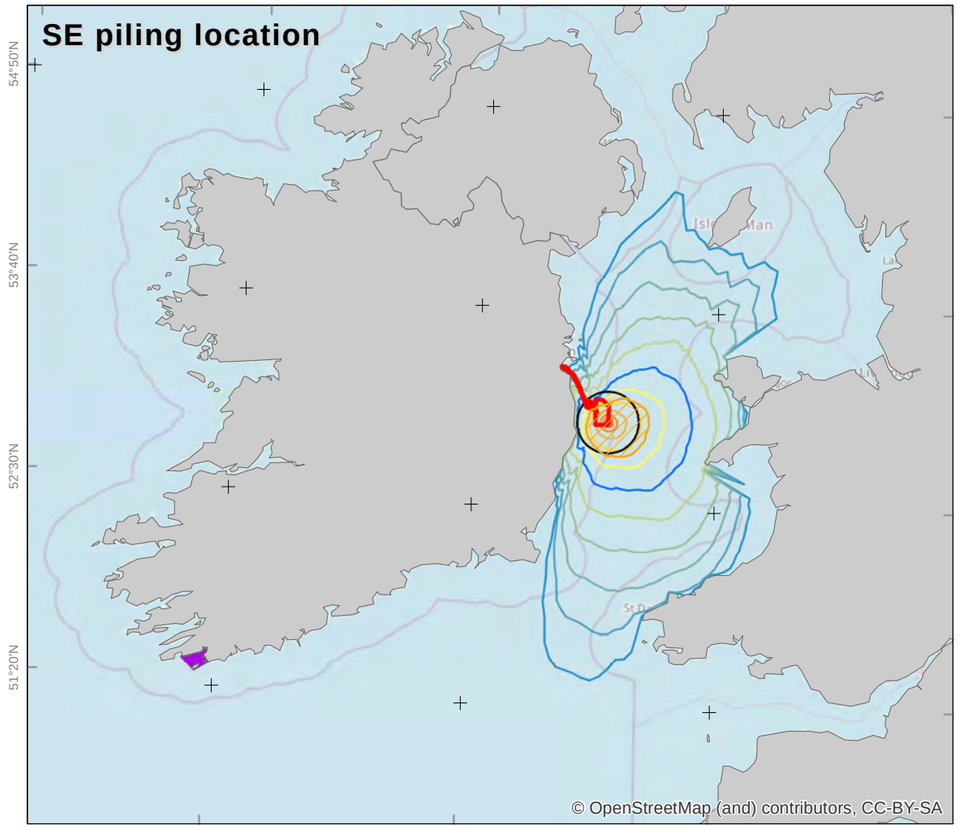
518. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the Roaringwater Bay and Islands SAC (see **Figure 33**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the Roaringwater Bay and Islands SAC.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re μPa^2s

SEL_{ss} dB re μPa^2s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Roaringwater Bay and Islands SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting

Figure 33: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the Roaringwater Bay and Islands SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2110

Internal descriptive code: N/A

Size: A3

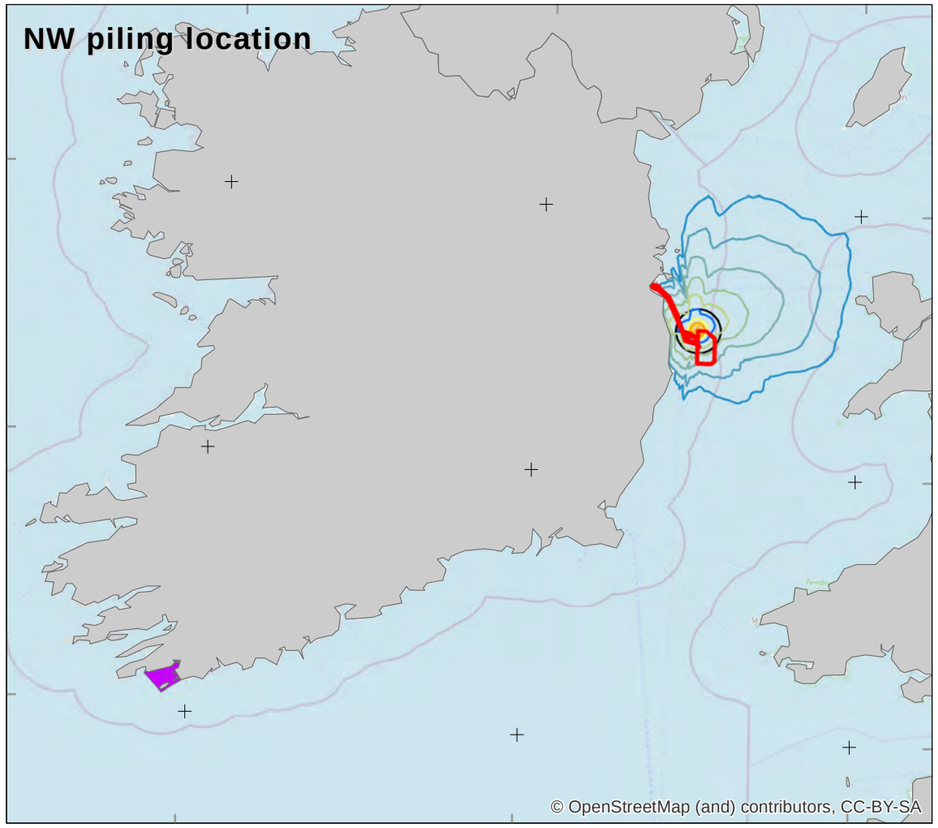
Scale: 1:4,000,000

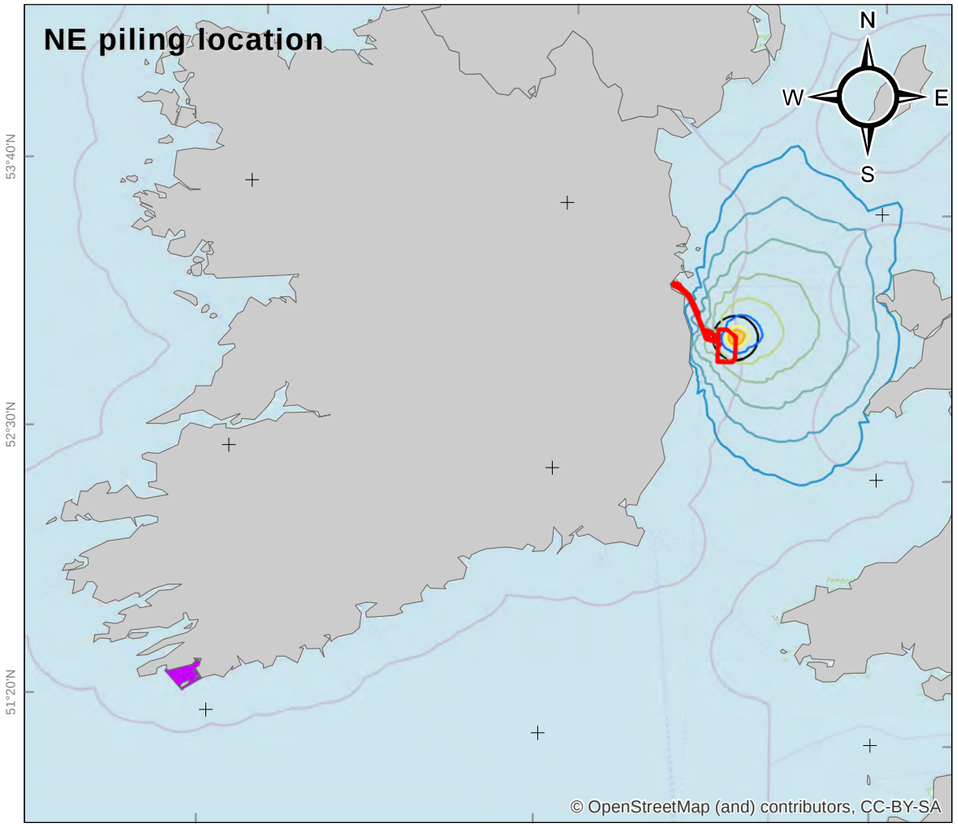
CRS: EPSG 25830

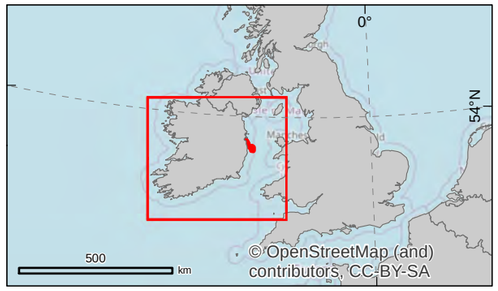
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

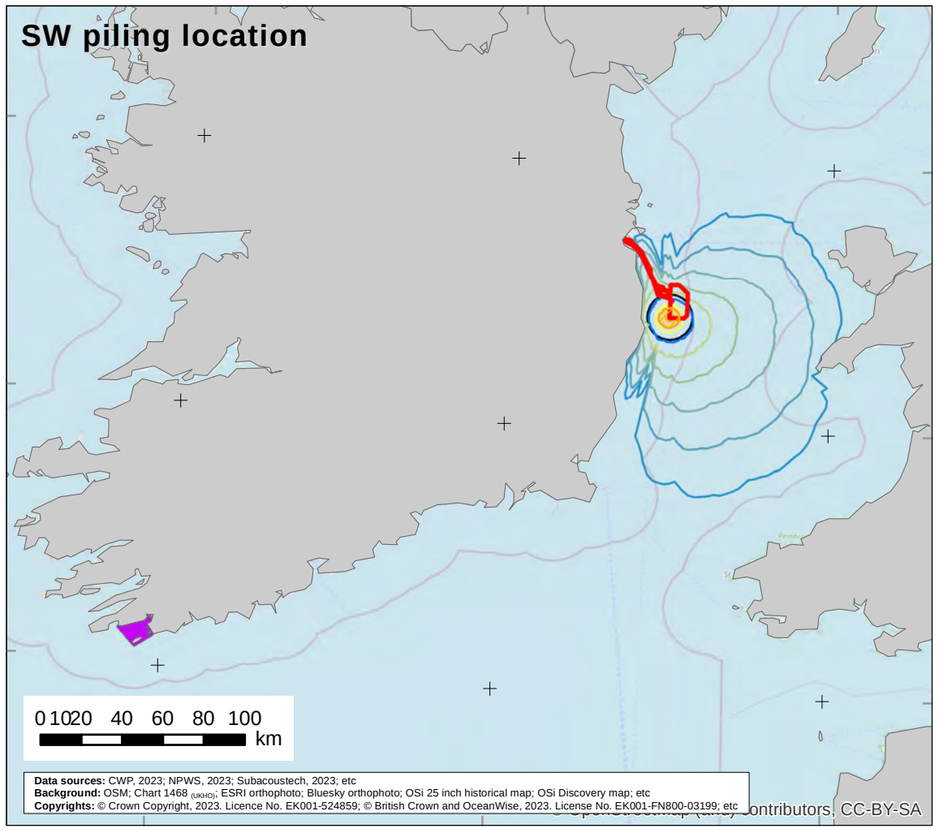
Mitigated piling

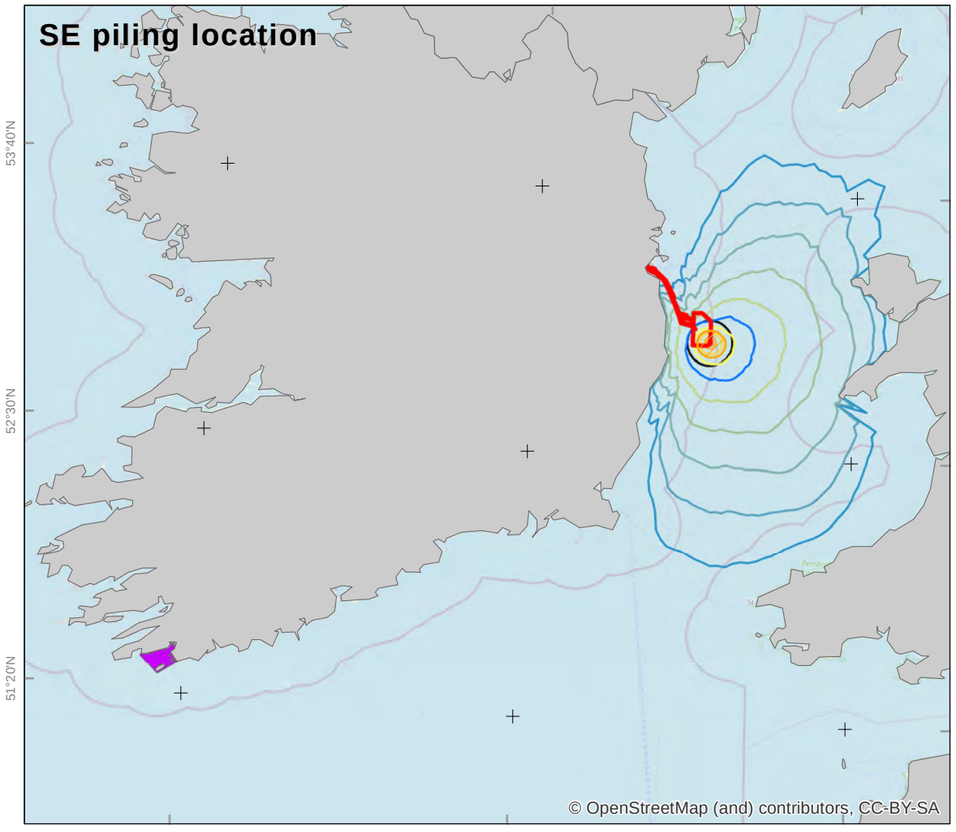
519. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Roaringwater Bay and Islands SAC (**Figure 34**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Roaringwater Bay and Islands SAC.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Roaringwater Bay and Islands SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting understand • assess • mitigate

Figure 34: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the Roaringwater Bay and Islands SAC

CWP doc. number: CWP-SMR-CON-09-MAP-2111

Internal descriptive code:	*Size:*	*CRS:*
N/A	A3 *Scale:* 1:3,000,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
A	Final version	03/04/2026	JC	RRS/EA	EA

520. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population **(Plate 4** and **Table 11).**

521. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

522. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the Roaringwater Bay and Islands SAC will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.17 Irish West Coast SACs

523. The West Coast SACs is a group of SACs, designated for harbour porpoise, located on the west coast of Ireland, including:

- Belgica Mound Province SAC
- Inishmore Island SAC
- Bunduff Lough and Machair/Trawalua/Mullaghmore SAC
- Kilkieran Bay and Islands SAC
- Kenmare River SAC

2.17.1 Harbour porpoise

Section 2.17.1 remains unchanged except for paragraphs 1104 through to 1135 which are replaced by paragraphs 524 to 548 below. These updates have been made in consideration with:

1. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;

2. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);

3. The commitment to mitigated pile driving and UXO clearance;

4. Updates to the EIAR Addendum, and

5. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this NIS Addendum. Where impacts associated with increased underwater noise from vessel presence, other construction activities and operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.17.1.1.1 Impact 1: Increased underwater noise

Assessment of the Project Alone

524. The CWP array site is located approximately >400 km away from the nearest Irish West Coast SAC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

525. There is no overlap between the CWP array area or the OECC with any of the SACs. **Appendix 9-C** of the **EIAR Addendum** concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

526. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

527. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

528. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*

UXO clearance

529. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with any of the Irish

West Coast SACs, there is no potential for *in situ* overlap between PTS-onset ranges and the SACs for unmitigated UXO clearance activities.

530. To further minimise the potential for injury *ex situ*, the Applicant has committed to the implementation of a UXO updated **MMMP**. The assessment provided in paragraphs 88 to 92 evaluates the impacts of UXO clearance to the closest designated site, Rockabill to Dalkey Island SAC. Given that the Irish West Coast SACs are situated at a greater distance, it is inferred that any resultant effects on the qualifying Annex II feature harbour porpoise will be of equal or lower magnitude than those assessed for the nearest site. To reiterate, there will be no residual risk of injury to harbour porpoise following the mitigation and therefore no impacts *ex situ*.

531. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

532. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and any of the Irish West Coast SACs. When considering the impacts of piling of WTGs at the MU scale, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

533. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

534. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

535. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

536. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the West Coast Irish

SACs will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

537. The SACs are located within the Republic of Ireland inshore/offshore regions.

Pre-construction geophysical surveys

538. Given that there is no spatial overlap of the CWP Project with any of the West Coast Irish SACs, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

539. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

540. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of any of the sites. When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

541. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;
- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

542. There will be no overlap with any of the SACs for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish

Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

543. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...*a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement*...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

Piling of WTGs

Unmitigated piling

544. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the West Coast Irish SACs (see **Figure 35**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the Irish West Coast SACs.

NW piling location

NE piling location

SW piling location

SE piling location

11°40'W 9°20'W 7°0'W 4°40'W

54°50'N 53°40'N 52°30'N 51°20'N

N W E S

0° 54°N

500 km

0 10 20 40 60 80 100 km

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Data sources: CWP, 2023; NPWS, 2023; Subacoustech, 2023; etc
Background: OSM; Chart 1468 (UKHO); ESRI orthophoto; Bluesky orthophoto; OSi 25 inch historical map; OSi Discovery map; etc
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Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold

SEL_{ss} dB re µPa^{2}s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- Belgica Mound Province SAC
- Inishmore Island SAC
- Kenmare River SAC
- Porcupine Bank Canyon SAC
- South-West Porcupine Bank SAC
- Kilkeiran Bay and Islands SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting understand • assess • mitigate

Figure 35: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the West Coast Irish SACs

CWP doc. number: CWP-SMR-CON-09-MAP-2112

Internal descriptive code: N/A

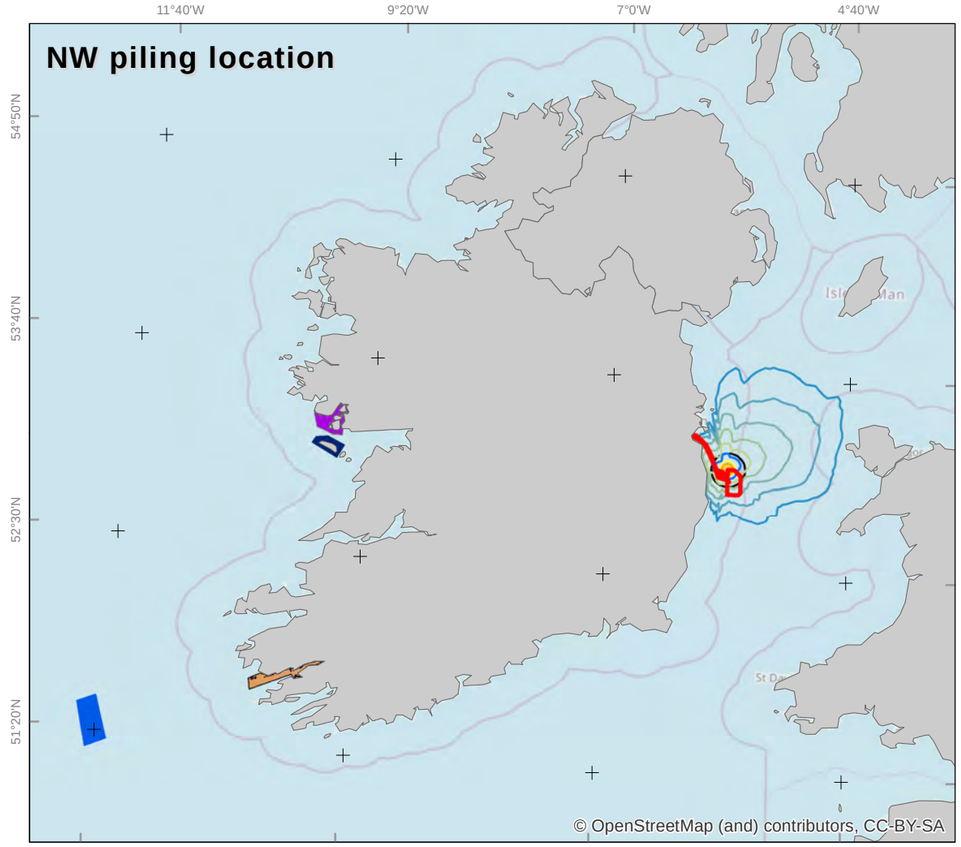
Size: A3
Scale: 1:4,000,000

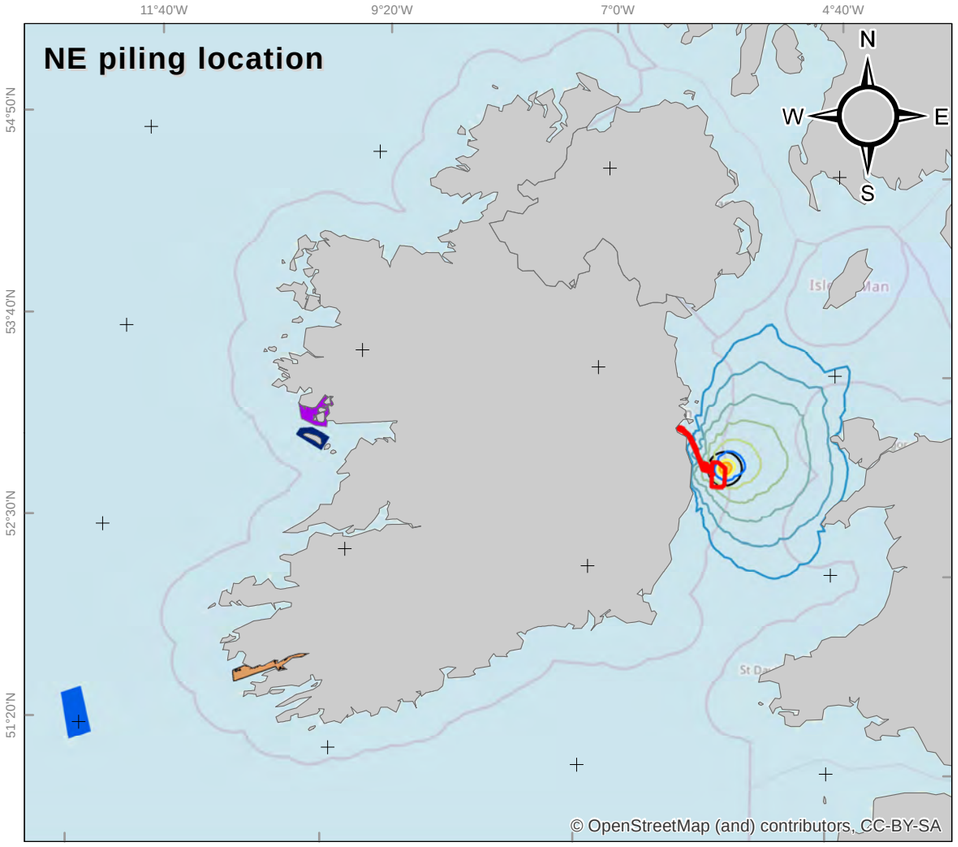
CRS: EPSG 25830

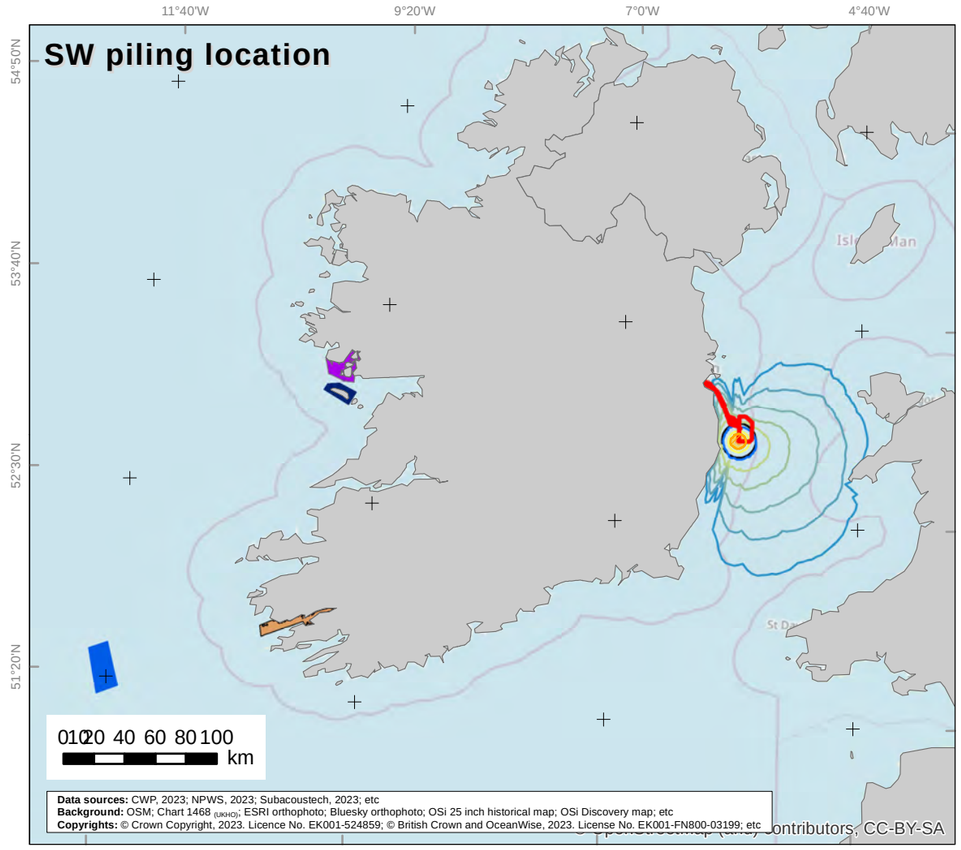
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

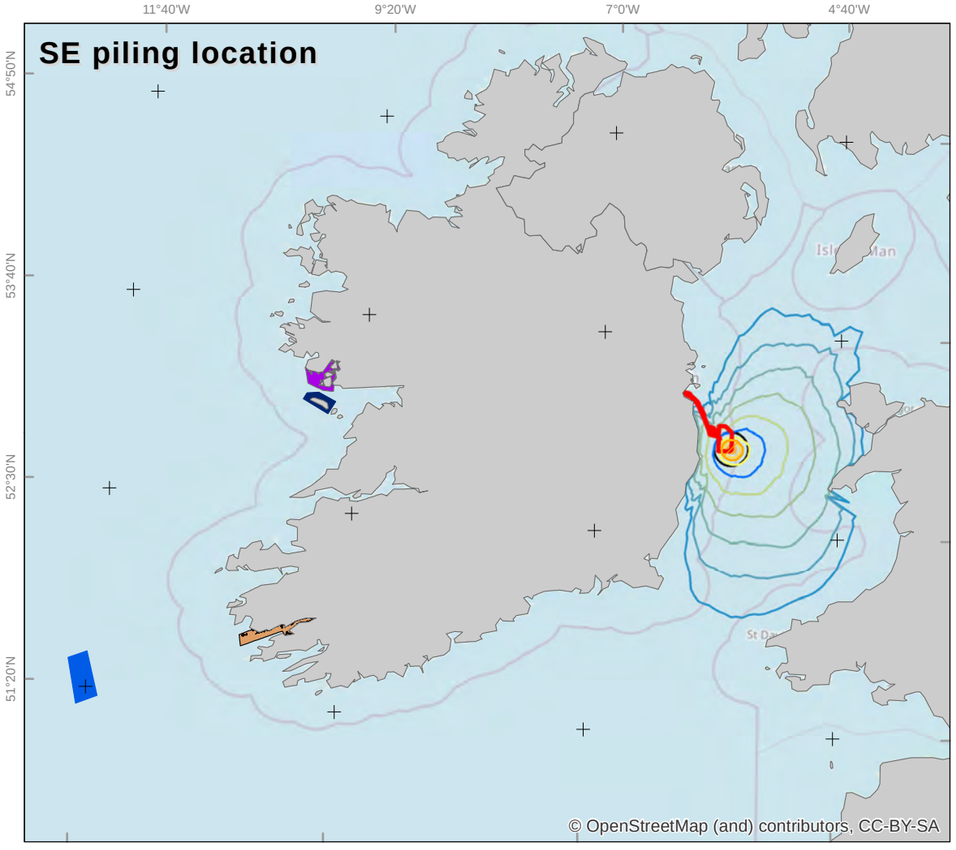
Mitigated piling

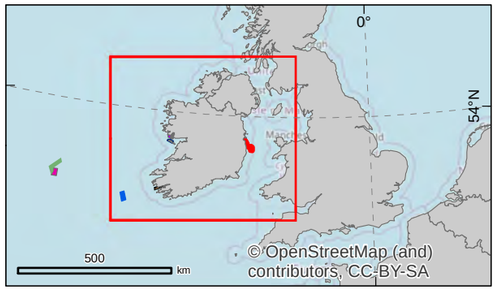
545. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Irish West Coast SACs (**Figure 36**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Irish West Coast SACs.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa^{2}s threshold

SEL_{ss} dB re µPa^{2}s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- Belgica Mound Province SAC
- Inishmore Island SAC
- Kenmare River SAC
- Porcupine Bank Canyon SAC
- South-West Porcupine Bank SAC
- Kilkeiran Bay and Islands SAC

codling wind park

Project: Codling Wind Park

SMRU Consulting understand • assess • mitigate

Figure 36: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the West Coast Irish SACs

CWP doc. number: CWP-SMR-CON-09-MAP-2113

Internal descriptive code: N/A

Size: A3

Scale: 1:4,000,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

546. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (**Plate 4** and **Table 11**).

547. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

548. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the West Coast Irish SACs will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

2.18 Slaney River Valley SAC (IE0000781)

2.18.1 Sea lamprey [1095] and River lamprey [1099]

2.18.1.1 Increase in underwater noise and vibration

Section 2.18.1.1 remains unchanged except for paragraph 1215 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**).

2.18.1.1.1 Mortality

Section 2.18.1.1.1 remains unchanged except for paragraphs 1216 and 1218 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made

to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.18.1.1.2 Recoverable injury

Section 2.18.1.1.2 remains unchanged except for paragraph 1219 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.18.1.1.3 Temporary threshold shift and behavioural responses

Section 2.18.1.1.3 remains unchanged except for paragraph 1221 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.18.1.1.4 Conclusions relating to underwater noise impacts

Section 2.18.1.1.4 remains unchanged except for paragraph 1227 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.18.1.3 Temporary increase in SSC and contaminated sediments

Section 2.18.1.3. remains unchanged except paragraph 1236 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.1.3.1 Dredging and dredge disposal

Section 2.18.1.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.1.3.2 Trenching

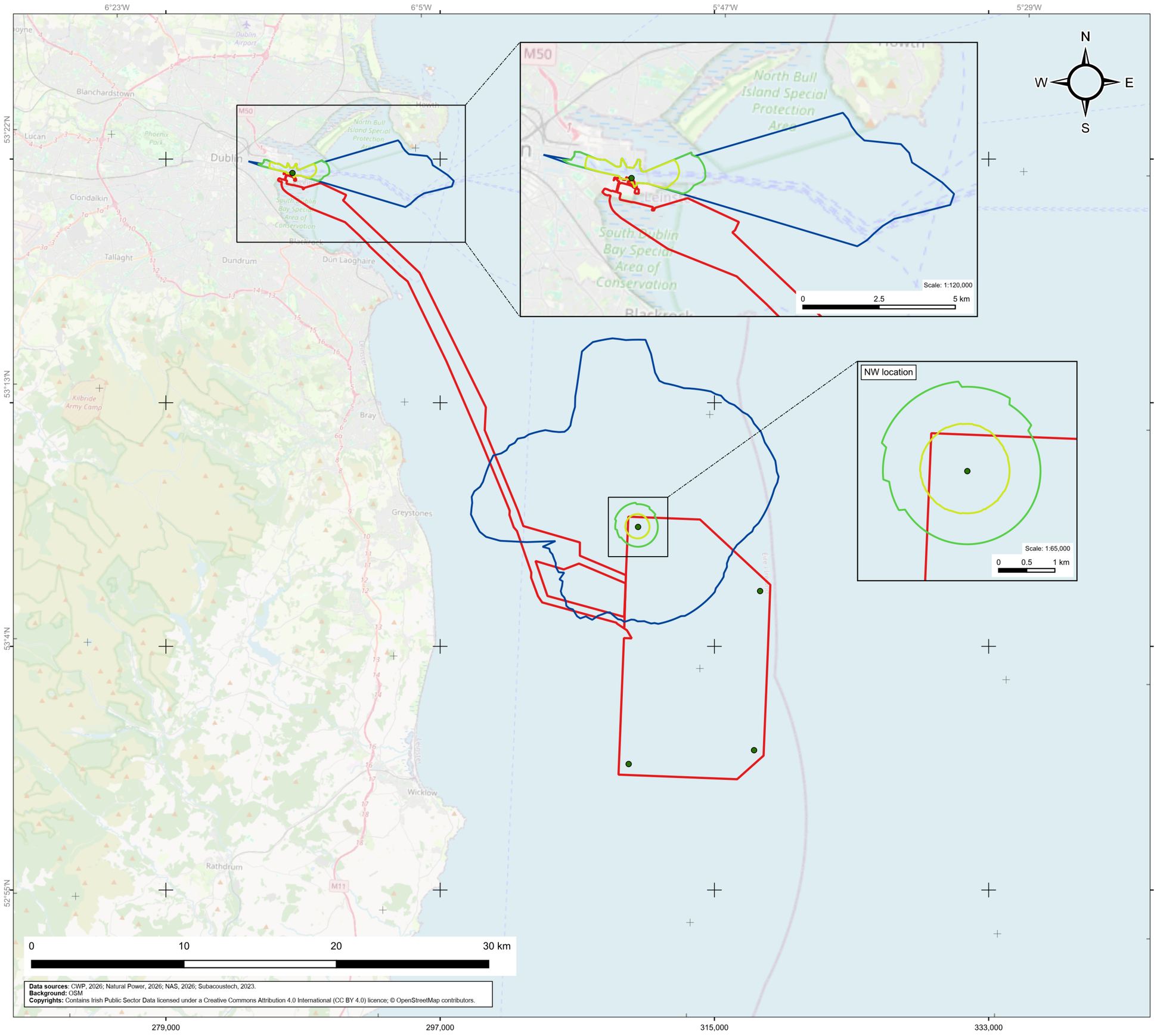
Section 2.18.1.3.2 remains unchanged except for paragraphs 1244 to 1246 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

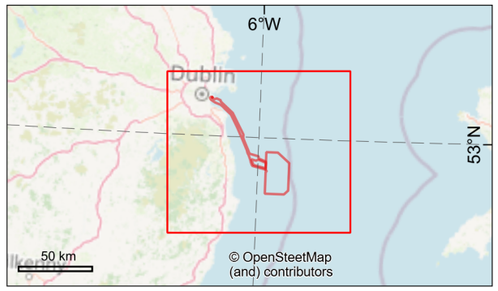
2.18.2 Twaite shad [1103]

2.18.2.1 Increase in underwater noise and vibration

Section 2.18.2.1 remains unchanged except for paragraph 1265 which is replaced by paragraph 549 below. This update has been made in response to FIR Item 11g (see **FIR Response Document**). Also, Figure 2-20 which is replaced by Figure 37 below to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**).

549. Modelled outputs for the various impact thresholds are provided below, and shown in **Figure 37**. Fish are expected to flee from sources of noise when not engaged in active spawning or other life critical behaviours (Popper et al., 2014; McQueen et al., 2022). Considering the distance to the SAC and its estuary, it is expected that individuals are not constrained or engaged in any other behaviour that would prevent them fleeing the source of noise. As such, impacts are only predicted to apply over the fleeing distances described below, noting that the model outputs from the stationary model (which can be considered 'worst case') are also presented (in line with the request to provide a highly precautionary assessment).





Legend

- Planning Application Boundary (PAB)
- Pile driving noise modelling location

North West and Liffey noise modelling contours

- 186 dB
- 203 dB
- 207 dB

Data sources: CWP, 2026; Natural Power, 2026; NAS, 2026; Subacoustech, 2023.
Background: OSM
Copyrights: Contains Irish Public Sector Data licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence; © OpenStreetMap contributors.

codling wind park

Project: Codling Wind Park

Contractor: natural power www.naturalpower.com

Figure 37
Group three mitigated noise modelling (a limit on underwater noise of 169 dB LE,p,ss,05 at 750 m) for species without nursery or spawning habitat

CWP doc. number: CWP-NPC-CON-09-MAP-2115

Internal descriptive code: OFFSH.ALL - PAB..DPNMLs..DPNM.CONT.WTG.SE..DPNM.CONT.SS.PP - FSTESEAs.LRN..SNG.G3 - (EIAR.FIG.09.36)

Size: A3
Scale: 1:240,000
CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
01	For FIR submission	2026/05/27	AC	AK/EA	LJ

2.18.2.1.1 Mortality

Section 2.18.2.1.1 remains unchanged except for paragraph 1266 which is replaced by paragraphs 550 to 551 and paragraph 1268 which is replaced by paragraphs 552 to 553 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

550. To mitigate potential impacts from underwater noise during the construction of the project, CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events. This NIS addendum applies the mitigation to this stage of the assessment and makes reference to mitigated values only. Unmitigated values are presented in **Appendix 9-C** to the **EIAR Addendum**.

551. Piling is a temporary impact of maximum 75 days over the construction period. It is however a reoccurring event which produces sound levels that may result in the mortality of species. Mortality from (mitigated) piling operations under the stationary model is predicted to occur within an area of approximately 0.02 km^2 or a maximum distance of 70 m from the source for peak sound pressure level, and an area of 2 km^2 or a maximum distance of 860 m from the source for cumulative level exposure. These values drop significantly to less than 0.01 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

552. To mitigate potential impacts from underwater noise during the construction of the project a low order technique will be the primary method of UXO clearance, with high order clearance only occurring in exceptional circumstances. CWP commits to the implementation of noise abatement in the event high order UXO clearance is required.

553. Injurious effects from low order UXO clearance are predicted to be observable up to 60 m from the work. Injurious effects from mitigated high order UXO clearance are predicted to be observable at distances between 100–330 m from the work. Considering the low number of expected clearance events, the likelihood of QI individuals being present in the affected area is very low, and the area of impact is considered to be negligible in the context of the wider availability of habitat for the QIs.

2.18.2.1.2 Recoverable injury

Section 2.18.2.1.2 remains unchanged except for paragraph 1269 which is replaced by paragraphs 554 to 555 below. Section 2.18.2.1.2 should now be read in conjunction with the additional text provided in paragraph 556 below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

554. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling and UXO clearance.

555. Recoverable injury from (mitigated) piling operations under the stationary model are predicted to occur within an area of approximately 0.02 km^2 or a maximum distance of 70 m from the source for peak sound pressure level, and an area of 6.2 km^2 or a maximum distance of 1600 m from the source for cumulative level exposure. These values drop significantly to less than 0.01 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

556. For UXO clearance there is a high relative risk of recoverable injury for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to low in the intermediate (within hundreds of metres of the source) and far (within thousands of metres of the source) fields.

2.18.2.1.3 Temporary threshold shift and behavioural responses

Section 2.18.2.1.3 remains unchanged except for paragraph 1271 which is replaced by paragraphs 557 to 558 below. Section 2.18.2.1.3 should now be read in conjunction with the additional text provided in paragraph 559

below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

557. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling.

558. TTS during the (mitigated) piling operations under the stationary model is predicted to occur within an area of approximately 230 km^2 or a maximum distance of 13 km from the source from cumulative level exposure. These values drop significantly to 5.7 km^2 or a maximum of 2.3 km from the source when the more realistic fleeing model is used.

559. For UXO clearance there is a high relative risk of TTS for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to low in the intermediate (within hundreds of metres of the source) and far (within thousands of metres of the source) fields.

2.18.2.1.4 Conclusions relating to underwater noise impacts

Section 2.18.2.1.4 remains unchanged except for paragraph 1277 which is replaced by paragraph 560 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

560. Considering the low likelihood of interaction with QIs of SACs, the negligible distances over which injurious effects may be seen (less than 50 m for piling activities on fleeing receptors and less than 330 m for high order UXO clearance to which mitigation is applied), rapid recovery or likely habituation in the event of TTS or behavioural effects, and lack of any barrier to migration, it is considered that increases in underwater noise and vibration arising as a result of the CWP Project will not impede the Conservation Objectives for the SAC. Having regard to these factors, it is concluded beyond reasonable scientific doubt that there will be no AESI from increases in underwater noise and vibration.

2.18.2.3 Temporary increase in SSC and contaminated sediments

Section 2.18.1.3. remains unchanged except paragraph 1286 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.2.3.1 Dredging and dredge disposal

Section 2.18.1.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.2.3.2 Trenching

Section 2.18.2.3.2 remains unchanged except for paragraphs 1294 to 1296 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.18.3 Atlantic salmon [1106]

2.18.3.1 Increase in underwater noise and vibration

Section 2.18.3.1 remains unchanged except for paragraph 1315 which is replaced by paragraph 561 below. This update has been made in response to FIR Item 11g (see **FIR Response Document**). Also, Figure 2-21 which is replaced by Figure 38 below to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events, and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**).

561. Modelled outputs for the various impact thresholds are provided below, and shown in **Figure 38**. Fish are expected to flee from sources of noise when not engaged in active spawning or other life critical behaviours (Popper et al., 2014; McQueen et al., 2022). Considering the distance to the SAC and its estuary, it is expected that individuals are not constrained or engaged in any other behaviour that would prevent them fleeing the source of noise. As such, impacts are only predicted to apply over the fleeing distances described below, noting that the model outputs from the stationary model (which can be considered 'worst case') are also presented (in line with the request to provide a highly precautionary assessment).

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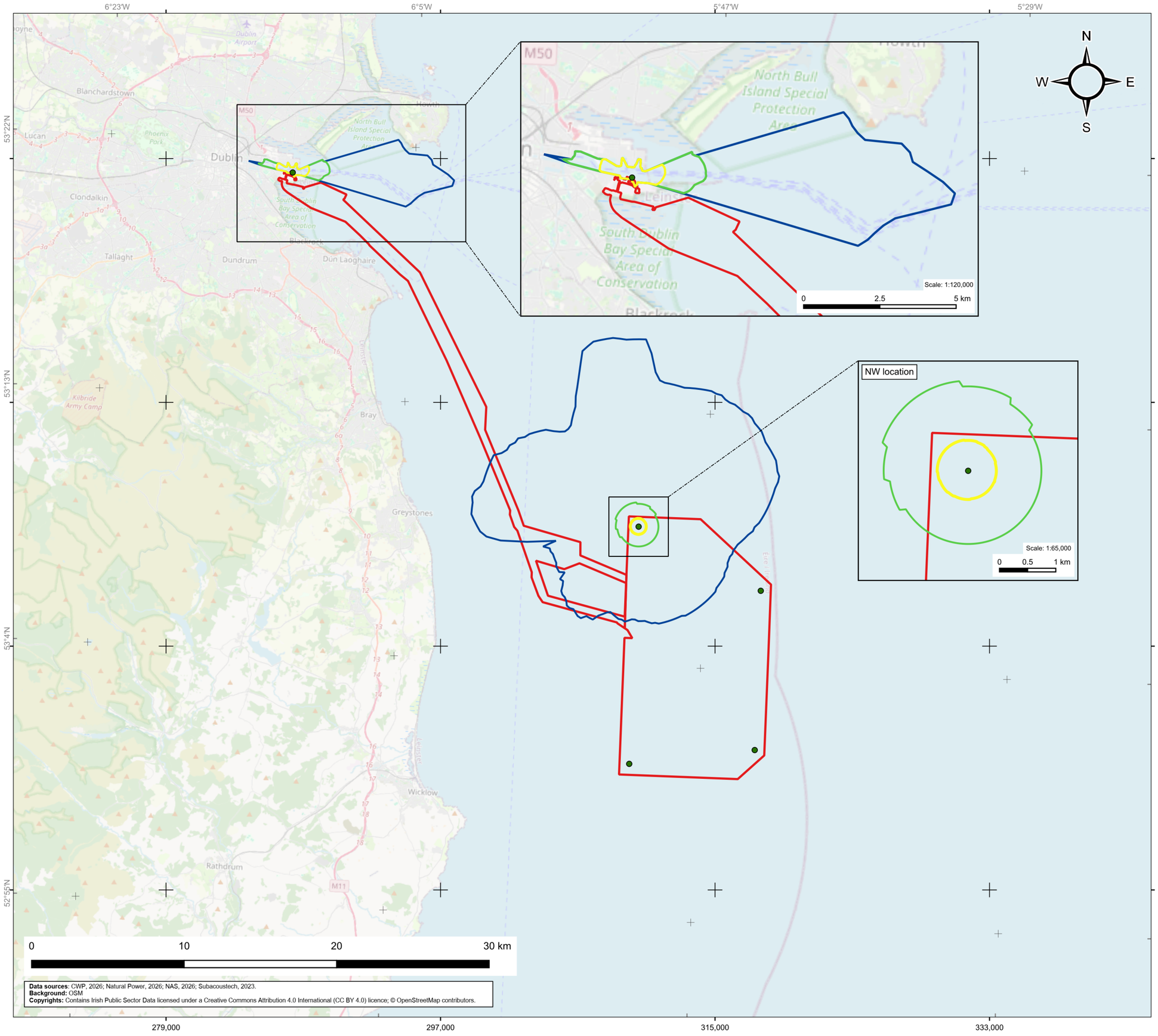
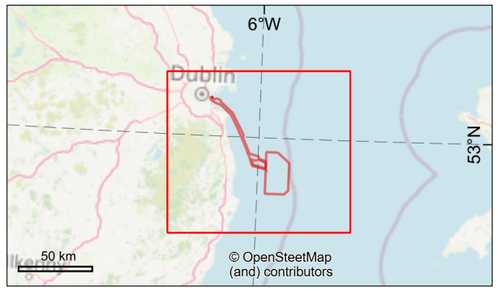


Data sources: CWP, 2026; Natural Power, 2026; NAS, 2026; Subacoustech, 2023.
Background: OSM
Copyrights: Contains Irish Public Sector Data licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence; © OpenStreetMap contributors.



Legend

- Planning Application Boundary (PAB)
- Pile driving noise modelling location

North West and Liffey noise modelling contours

- 186 dB
- 203 dB
- 210 dB

codling wind park

Project: Codling Wind Park

Contractor: www.naturalpower.com

Figure 38
Group two mitigated noise modelling (a limit on underwater noise of 169 dB LE,p,ss,05 at 750 m) for species without nursery or spawning habitat

CWP doc. number: CWP-NPC-CON-09-MAP-2116

Internal descriptive code: OFFSH.ALL - PAB..DPNMLs..DPNM.CONT.WTG.SE..DPNM.CONT.SS.PP - FSTESAs.LRN..SNG.GZ - (EIAR.FIG.09.30)

Size: A3

Scale: 1:240,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
01	For FIR submission	2026/05/27	AC	AK/EA	LJ

2.18.3.1.1 Mortality

Section 2.18.3.1.1 remains unchanged except for paragraph 1316 which is replaced by paragraphs 562 to 563 and paragraph 1318 which is replaced by paragraphs 564 to 565 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

562. To mitigate potential impacts from underwater noise during the construction of the project, CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events. This NIS addendum applies the mitigation to this stage of the assessment and makes reference to mitigated values only. Unmitigated values are presented in **Appendix 9-C** to the **EIAR Addendum**.

563. Piling is a temporary impact of maximum 75 days over the construction period. It is however a reoccurring event which produces sound levels that may result in the mortality of species. Mortality for salmon from (mitigated) piling operations under the stationary model may occur within an area of approximately 0.02 km^2 or a maximum distance of 70 m from the source for peak sound pressure level, and an area of 0.86 km^2 or a maximum distance of 550 m from the source for cumulative level exposure. These values drop significantly to less than 0.1 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

564. To mitigate potential impacts from underwater noise during the construction of the project a low order technique will be the primary method of UXO clearance, with high order clearance only occurring in exceptional circumstances. CWP commits to the implementation of noise abatement in the event high order UXO clearance is required.

565. Injurious effects from low order UXO clearance are predicted to be observable up to 60 m from the work. Injurious effects from mitigated high order UXO clearance are predicted to be observable at distances between 100–330 m from the work. Considering the low number of expected clearance events, the likelihood of QI individuals being present in the affected area is very low, and the area of impact is considered to be negligible in the context of the wider availability of habitat for the QIs.

2.18.3.1.2 Recoverable injury

Section 2.18.3.1.2 remains unchanged except for paragraph 1319 which is replaced by paragraphs 566 to 567 below. Section 2.18.3.1.2 should now be read in conjunction with the additional text provided in paragraph 568 below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

566. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling and UXO clearance.

567. Recoverable injury from (mitigated) piling operations under the stationary model may occur within an area of approximately 0.02 km^2 or a maximum distance of 70 m from the source for peak sound pressure level, and an area of 6.2 km^2 or a maximum distance of 1600 m from the source for cumulative level exposure. These values drop significantly to less than 0.01 km^2 or less than 50 m from the source when the more realistic fleeing model is used.

568. For UXO clearance there is a high relative risk of recoverable injury for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to low in the intermediate (within hundreds of metres of the source) and far (within thousands of metres of the source) fields.

2.18.3.1.3 Temporary threshold shift and behavioural responses

Section 2.18.3.1.3 remains unchanged except for paragraph 1321 which is replaced by paragraphs 569 to 570 below. Section 2.18.3.1.3 should now be read in conjunction with the additional text provided in paragraph 571

below. These updates have been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

569. As noted in 2.13.2.1.1 CWP has committed to underwater noise mitigation for WTG/OSS piling and UXO clearance.

570. TTS (based upon cumulative exposure) for all migratory species during the (mitigated) piling operations under the stationary model may occur within an area of approximately 230 km^2 or a maximum distance of 13 km from the source. These values drop significantly to 5.7 km^2 or a maximum of 2.3 km from the source when the more realistic fleeing model is used.

571. For UXO clearance there is a high relative risk of TTS for individuals occurring within tens of metres of the source (i.e., in the near field). The relative risk reduces to moderate in the intermediate field (i.e., within hundreds of metres of the source) and low in the far field (i.e., within thousands of metres of the source).

2.18.3.1.4 Conclusions relating to underwater noise impacts

Section 2.18.3.1.4 remains unchanged except for paragraph 1327 which is replaced by paragraph 572 below. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR Item 10a and 10t (see **FIR Response Document**).

572. Considering the low likelihood of interaction with QIs of SACs, the negligible distances over which injurious effects may be seen (less than 50 m for piling activities for fleeing receptors, and less than 330 m for high order UXO clearance to which mitigation is applied), rapid recovery or likely habituation in the event of TTS or behavioural effects, and lack of any barrier to migration, it is considered that increases in underwater noise and vibration arising as a result of the CWP Project will not impede the Conservation Objectives for the SAC. Having regard to these factors, it is concluded beyond reasonable scientific doubt that there will be no AESI from increases in underwater noise and vibration.

2.18.3.3 Temporary increase in SSC and contaminated sediments

Section 2.18.3.3. remains unchanged except paragraph 1336 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.3.3.1 Dredging and dredge disposal

Section 2.18.3.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.18.3.3.2 Trenching

Section 2.18.3.3.2 remains unchanged except for paragraphs 1344 to 1346 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.19 River Barrow and River Nore SAC (IE0002162)

2.19.1 Sea lamprey [1095] and River lamprey [1099]

2.19.1.1 Increase in underwater noise and vibration

Section 2.19.1.1 remains unchanged except for paragraph 1367 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.19.1.1.1 Mortality

Section 2.19.1.1.1 remains unchanged except for paragraphs 1368 and 1370 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.1.1.2 Recoverable injury

Section 2.19.1.1.2 remains unchanged except for paragraph 1371 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.1.1.3 Temporary threshold shift and behavioural responses

Section 2.19.1.1.3 remains unchanged except for paragraph 1373 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.1.1.4 Conclusions relating to underwater noise impacts

Section 2.19.1.1.4 remains unchanged except for paragraph 1379 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.1.3 Temporary increase in SSC and contaminated sediments

Section 2.19.1.3. remains unchanged except paragraph 1388 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.19.1.3.1 Dredging and dredge disposal

Section 2.19.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.19.1.3.2 Trenching

Section 2.19.1.3.2 remains unchanged except for paragraphs 1396 to 1398 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.19.2 Twaite shad [1103]

2.19.2.1 Increase in underwater noise and vibration

Section 2.19.2.1 remains unchanged except for paragraph 1417 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $_{LE,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.19.2.1.1 Mortality

Section 2.19.2.1.1 remains unchanged except for paragraphs 1418 and 1420 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.2.1.2 Recoverable injury

Section 2.19.2.1.2 remains unchanged except for paragraph 1421 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.2.1.3 Temporary threshold shift and behavioural responses

Section 2.19.2.1.3 remains unchanged except for paragraph 1423 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.2.1.4 Conclusions relating to underwater noise impacts

Section 2.19.2.1.4 remains unchanged except for paragraph 1429 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.2.3 Temporary increase in SSC and contaminated sediments

Section 2.19.2.3. remains unchanged except paragraph 1438 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.19.2.3.1 Dredging and dredge disposal

Section 2.19.2.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.19.2.3.2 Trenching

Section 2.19.2.3.2 remains unchanged except for paragraphs 1446 to 1448 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.19.3 Atlantic salmon [1106]

2.19.3.1 Increase in underwater noise and vibration

Section 2.19.3.1 remains unchanged except for paragraph 1467 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.19.3.1.1 Mortality

Section 2.19.3.1.1 remains unchanged except for paragraphs 1468 and 1470 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.3.1.2 Recoverable injury

Section 2.19.3.1.2 remains unchanged except for paragraph 1471 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.3.1.3 Temporary threshold shift and behavioural responses

Section 2.19.3.1.3 remains unchanged except for paragraph 1473 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.3.1.4 Conclusions relating to underwater noise impacts

Section 2.19.3.1.4 remains unchanged except for paragraph 1479 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.19.3.3 Temporary increase in SSC and contaminated sediments

Section 2.19.3.3. remains unchanged except paragraph 1488 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.19.3.3.1 Dredging and dredge disposal

Section 2.19.3.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see FIR Response Document).

2.19.3.3.2 Trenching

Section 2.19.3.3.2 remains unchanged except for paragraphs 1498 to 1498 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.20 Lower River Suir SAC (IE0002137)

2.20.1 Sea lamprey [1095] and River lamprey [1099]

2.20.1.1 Increase in underwater noise and vibration

Section 2.20.1.1 remains unchanged except for paragraph 1519 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.20.1.1.1 Mortality

Section 2.20.1.1.1 remains unchanged except for paragraph 1520 and 1522 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.1.1.2 Recoverable injury

Section 2.20.1.1.2 remains unchanged except for paragraph 1523 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.1.1.3 Temporary threshold shift and behavioural responses

Section 2.20.1.1.3 remains unchanged except for paragraph 1525 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.1.1.4 Conclusions relating to underwater noise impacts

Section 2.20.1.1.4 remains unchanged except for paragraph 1531 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.1.3 Temporary increase in SSC and contaminated sediments

Section 2.20.1.3. remains unchanged except paragraph 1540 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.20.1.3.1 Dredging and dredge disposal

Section 2.20.1.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**)

2.20.1.3.2 Trenching

Section 2.20.1.3.2 remains unchanged except for paragraphs 1548 to 1550 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.20.2 Twaite shad [1103]

2.20.2.1 Increase in underwater noise and vibration

Section 2.20.2.1 remains unchanged except for paragraph 1569 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.20.2.1.1 Mortality

Section 2.20.2.1.1 remains unchanged except for paragraph 1570 and 1572 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.2.1.2 Recoverable injury

Section 2.20.2.1.2 remains unchanged except for paragraph 1573 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.2.1.3 Temporary threshold shift and behavioural responses

Section 2.20.2.1.3 remains unchanged except for paragraph 1575 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.2.1.4 Conclusions relating to underwater noise impacts

Section 2.20.2.1.4 remains unchanged except for paragraph 1581 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.2.3 Temporary increase in SSC and contaminated sediments

Section 2.20.2.3. remains unchanged except paragraph 1590 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.20.2.3.1 Dredging and dredge disposal

Section 2.20.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.20.2.3.2 Trenching

Section 2.20.2.3.2 remains unchanged except for paragraphs 1598 to 1600 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.20.3 Atlantic salmon [1106]

2.20.3.1 Increase in underwater noise and vibration

Section 2.20.3.1 remains unchanged except for paragraph 1619 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.20.3.1.1 Mortality

Section 2.20.3.1.1 remains unchanged except for paragraph 1620 and 1622 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.3.1.2 Recoverable injury

Section 2.20.3.1.2 remains unchanged except for paragraph 1623 which is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.3.1.3 Temporary threshold shift and behavioural responses

Section 2.20.3.1.3 remains unchanged except for paragraph 1625 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.3.1.4 Conclusions relating to underwater noise impacts

Section 2.20.3.1.4 remains unchanged except for paragraph 1631 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.20.3.3 Temporary increase in SSC and contaminated sediments

Section 2.20.3.3. remains unchanged except paragraph 1640 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.20.3.3.1 Dredging and dredge disposal

Section 2.20.3.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.20.3.3.2 Trenching

Section 2.20.3.3.2 remains unchanged except for paragraphs 1648 to 1650 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.21 Blackwater River (Cork / Waterford) SAC (IE0002170)

2.21.1 Sea lamprey [1095] and River lamprey [1099]

2.21.1.1 Increase in underwater noise and vibration

Section 2.21.1.1 remains unchanged except for paragraph 1671 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.21.1.1.1 Mortality

Section 2.21.1.1.1 remains unchanged except for paragraphs 1672 and 1674 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.1.1.2 Recoverable injury

Section 2.21.1.1.2 remains unchanged except for paragraph 1675 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.1.1.3 Temporary threshold shift and behavioural responses

Section 2.21.1.1.3 remains unchanged except for paragraph 1677 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.1.1.4 Conclusions relating to underwater noise impacts

Section 2.21.1.1.4 remains unchanged except for paragraph 1683 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.1.3 Temporary increase in SSC and contaminated sediments

Section 2.21.1.3. remains unchanged except paragraph 1692 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.1.3.1 Dredging and dredge disposal

Section 2.21.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.1.3.2 Trenching

Section 2.21.1.3.2 remains unchanged except for paragraphs 1700 to 1702 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.21.2 Twaite shad [1103]

2.21.2.1 Increase in underwater noise and vibration

Section 2.21.2.1 remains unchanged except for paragraph 1721 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and

OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.21.2.1.1 Mortality

Section 2.21.2.1.1 remains unchanged except for paragraph 1722 and 1724 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.2.1.2 Recoverable injury

Section 2.21.2.1.2 remains unchanged except for paragraph 1725 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.2.1.3 Temporary threshold shift and behavioural responses

Section 2.21.2.1.3 remains unchanged except for paragraph 1727 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.2.1.4 Conclusions relating to underwater noise impacts

Section 2.21.2.1.4 remains unchanged except for paragraph 1733 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.2.3 Temporary increase in SSC and contaminated sediments

Section 2.21.2.3. remains unchanged except paragraph 1742 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.2.3.1 Dredging and dredge disposal

Section 2.21.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.18.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.2.3.2 Trenching

Section 2.21.2.3.2 remains unchanged except for paragraphs 1750 to 1752 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.21.3 Atlantic salmon [1106]

2.21.3.1 Increase in underwater noise and vibration

Section 2.21.3.1 remains unchanged except for paragraph 1771 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.21.3.1.1 Mortality

Section 2.21.3.1.1 remains unchanged except for paragraph 1772 and 1774 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.3.1.2 Recoverable injury

Section 2.21.3.1.2 remains unchanged except for paragraph 1775 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.3.1.3 Temporary threshold shift and behavioural responses

Section 2.21.3.1.3 remains unchanged except for paragraph 1777 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.3.1.4 Conclusions relating to underwater noise impacts

Section 2.21.3.1.4 remains unchanged except for paragraph 1783 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.21.3.3 Temporary increase in SSC and contaminated sediments

Section 2.21.3.3. remains unchanged except paragraph 1792 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.3.3.1 Dredging and dredge disposal

Section 2.21.3.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.21.3.3.2 Trenching

Section 2.21.3.3.2 remains unchanged except for paragraphs 1800 to 1802 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update

has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.22 River Boyne and River Blackwater SAC (IE0002299)

2.22.1 River lamprey [1099]

2.22.1.1 Increase in underwater noise and vibration

Section 2.22.1.1 remains unchanged except for paragraph 1821 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.22.1.1.1 Mortality

Section 2.22.1.1.1 remains unchanged except for paragraph 1822 and 1824 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.1.1.2 Recoverable injury

Section 2.22.1.1.2 remains unchanged except for paragraph 1825 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.1.1.3 Temporary threshold shift and behavioural responses

Section 2.22.1.1.3 remains unchanged except for paragraph 1827 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.1.1.4 Conclusions relating to underwater noise impacts

Section 2.22.1.1.4 remains unchanged except for paragraph 1833 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.1.3 Temporary increase in SSC and contaminated sediments

Section 2.22.1.3. remains unchanged except paragraph 1842 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.22.1.3.1 Dredging and dredge disposal

Section 2.22.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.22.1.3.2 Trenching

Section 2.22.1.3.2 remains unchanged except for paragraphs 1850 to 1852 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.22.2 Atlantic salmon [1106]

2.22.2.1 Increase in underwater noise and vibration

Section 2.22.2.1 remains unchanged except for paragraph 1871 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.22.2.1.1 Mortality

Section 2.22.2.1.1 remains unchanged except for paragraph 1872 and 1874 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.2.1.2 Recoverable injury

Section 2.22.2.1.2 remains unchanged except for paragraph 1875 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.2.1.3 Temporary threshold shift and behavioural responses

Section 2.22.1.1.3 remains unchanged except for paragraph 1877 which is replaced by paragraph 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.2.1.4 Conclusions relating to underwater noise impacts

Section 2.22.2.1.4 remains unchanged except for paragraph 1883 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.22.2.3 Temporary increase in SSC and contaminated sediments

Section 2.22.2.3. remains unchanged except paragraph 1892 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.22.2.3.1 Dredging and dredge disposal

Section 2.22.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.22.2.3.2 Trenching

Section 2.22.2.3.2 remains unchanged except for paragraphs 1900 to 1902 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

Section 2.23 remains unchanged

2.24 Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE0000365)

2.24.1 Sea lamprey [1095] and River lamprey [1099]

2.24.1.1 Increase in underwater noise and vibration

Section 2.24.1.1 remains unchanged except for paragraph 1924 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.24.1.1.1 Mortality

Section 2.24.1.1.1 remains unchanged except for paragraph 1925 and 1927 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.1.1.2 Recoverable injury

Section 2.24.1.1.2 remains unchanged except for paragraph 1928 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.1.1.3 Temporary threshold shift and behavioural responses

Section 2.24.1.1.3 remains unchanged except for paragraph 1930 which is replaced by paragraphs 438 to 440 in in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.1.1.4 Conclusions relating to underwater noise impacts

Section 2.24.1.1.4 remains unchanged except for paragraph 1936 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.1.3 Temporary increase in SSC and contaminated sediments

Section 2.24.1.3. remains unchanged except paragraph 1945 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.24.1.3.1 Dredging and dredge disposal

Section 2.24.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.24.1.3.2 Trenching

Section 2.24.1.3.2 remains unchanged except for paragraphs 1953 to 1955 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.24.2 Atlantic salmon [1106]

2.24.2.1 Increase in underwater noise and vibration

Section 2.24.2.1 remains unchanged except for paragraph 1974 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.24.2.1.1 Mortality

Section 2.24.2.1.1 remains unchanged except for paragraphs 1975 and 1977 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.2.1.2 Recoverable injury

Section 2.24.2.1.2 remains unchanged except for paragraph 1978 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.2.1.3 Temporary threshold shift and behavioural responses

Section 2.24.2.1.3 remains unchanged except for paragraph 1980 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.2.1.4 Conclusions relating to underwater noise impacts

Section 2.24.2.1.4 remains unchanged except for paragraph 1986 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.24.2.3 Temporary increase in SSC and contaminated sediments

Section 2.24.2.3. remains unchanged except paragraph 1995 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.24.2.3.1 Dredging and dredge disposal

Section 2.24.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above . This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.24.2.3.2 Trenching

Section 2.24.2.3.2 remains unchanged except for paragraphs 2003 to 2005 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.25 Killala Bay / Moy Estuary SAC (IE0000458)

2.25.1 Sea lamprey [1095]

2.25.1.1 Increase in underwater noise and vibration

Section 2.25.1.1 remains unchanged except for paragraph 2024 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.25.1.1.1 Mortality

Section 2.25.1.1.1 remains unchanged except for paragraphs 2025 and which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.25.1.1.2 Recoverable injury

Section 2.25.1.1.2 remains unchanged except for paragraph 2028 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.25.1.1.3 Temporary threshold shift and behavioural responses

Section 2.25.1.1.3 remains unchanged except for paragraph 2030 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.25.1.1.4 Conclusions relating to underwater noise impacts

Section 2.25.1.1.4 remains unchanged except for paragraph 2036 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.25.1.3 Temporary increase in SSC and contaminated sediments

Section 2.25.1.3. remains unchanged except paragraph 2045 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.25.1.3.1 Dredging and dredge disposal

Section 2.25.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.25.1.3.2 Trenching

Section 2.25.1.3.2 remains unchanged except for paragraphs 2053 to 2055 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.26 Lough Gill SAC (IE0001976)

2.26.1 Sea lamprey [1095] and River lamprey [1099]

2.26.1.1 Increase in underwater noise and vibration

Section 2.26.1.1 remains unchanged except for paragraph 2076 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.26.1.1.1 Mortality

Section 2.26.1.1.1 remains unchanged except for paragraphs 2077 and 2079 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.1.1.2 Recoverable injury

Section 2.26.1.1.2 remains unchanged except for paragraph 2080 which is replaced by 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.1.1.3 Temporary threshold shift and behavioural responses

Section 2.26.1.1.3 remains unchanged except for paragraph 2082 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.1.1.4 Conclusions relating to underwater noise impacts

Section 2.26.1.1.4 remains unchanged except for paragraph 2088 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.1.3 Temporary increase in SSC and contaminated sediments

Section 2.26.1.3. remains unchanged except paragraph 2097 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.26.1.3.1 Dredging and dredge disposal

Section 2.26.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.26.1.3.2 Trenching

Section 2.26.1.3.2 remains unchanged except for paragraphs 2105 to 2107 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.26.2 Atlantic salmon [1106]

2.26.2.1 Increase in underwater noise and vibration

Section 2.26.2.1 remains unchanged except for paragraph 2126 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.26.2.1.1 Mortality

Section 2.26.2.1.1 remains unchanged except for paragraphs 2127 and 2129 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.2.1.2 Recoverable injury

Section 2.26.2.1.2 remains unchanged except for paragraph 2130 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.2.1.3 Temporary threshold shift and behavioural responses

Section 2.26.2.1.3 remains unchanged except for paragraph 2132 which is replaced by paragraphs 569 to 571in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.2.1.4 Conclusions relating to underwater noise impacts

Section 2.26.2.1.4 remains unchanged except for paragraph 2138 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.26.2.3 Temporary increase in SSC and contaminated sediments

Section 2.26.2.3. remains unchanged except paragraph 2147 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.26.2.3.1 Dredging and dredge disposal

Section 2.26.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.26.2.3.2 Trenching

Section 2.26.2.3.2 remains unchanged except for paragraphs 2155 to 2157 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.27 River Moy SAC (IE0002298)

2.27.1 Sea lamprey [1095]

2.27.1.1 Increase in underwater noise and vibration

Section 2.27.1.1 remains unchanged except for paragraph 2176 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.27.1.1.1 Mortality

Section 2.27.1.1.1 remains unchanged except for paragraphs 2177 and 2179 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.1.1.2 Recoverable injury

Section 2.27.1.1.2 remains unchanged except for paragraph 2180 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.1.1.3 Temporary threshold shift and behavioural responses

Section 2.27.1.1.3 remains unchanged except for paragraph 2182 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.1.1.4 Conclusions relating to underwater noise impacts

Section 2.27.1.1.4 remains unchanged except for paragraph 2188 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.1.3 Temporary increase in SSC and contaminated sediments

Section 2.27.1.3. remains unchanged except paragraph 2197 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.27.1.3.1 Dredging and dredge disposal

Section 2.27.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.27.1.3.2 Trenching

Section 2.27.1.3.2 remains unchanged except for paragraphs 2205 to 2207 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.27.2 Atlantic salmon [1106]

2.27.2.1 Increase in underwater noise and vibration

Section 2.27.2.1 remains unchanged except for paragraph 2226 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.27.2.1.1 Mortality

Section 2.27.2.1.1 remains unchanged except for paragraphs 2227 and 2229 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.2.1.2 Recoverable injury

Section 2.27.2.1.2 remains unchanged except for paragraph 2230 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.2.1.3 Temporary threshold shift and behavioural responses

Section 2.27.2.1.3 remains unchanged except for paragraph 2232 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.2.1.4 Conclusions relating to underwater noise impacts

Section 2.27.2.1.4 remains unchanged except for paragraph 2238 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.27.2.3 Temporary increase in SSC and contaminated sediments

Section 2.27.2.3. remains unchanged except paragraph 2247 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.27.2.3.1 Dredging and dredge disposal

Section 2.27.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above . This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.27.2.3.2 Trenching

Section 2.27.2.3.2 remains unchanged except for paragraphs 2255 to 2257 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.28 Castlemaine Harbour SAC (IE0000343)

2.28.1 Sea lamprey [1095] and River lamprey [1099]

2.28.1.1 Increase in underwater noise and vibration

Section 2.28.1.1 remains unchanged except for paragraph 2278 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.28.1.1.1 Mortality

Section 2.28.1.1.1 remains unchanged except for paragraphs 2279 and 2281 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.1.1.2 Recoverable injury

Section 2.28.1.1.2 remains unchanged except for paragraph 2282 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.1.1.3 Temporary threshold shift and behavioural responses

Section 2.28.1.1.3 remains unchanged except for paragraph 2284 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.1.1.4 Conclusions relating to underwater noise impacts

Section 2.28.1.1.4 remains unchanged except for paragraph 2290 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.1.3 Temporary increase in SSC and contaminated sediments

Section 2.28.1.3. remains unchanged except paragraph 2299 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.28.1.3.1 Dredging and dredge disposal

Section 2.28.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.28.1.3.2 Trenching

Section 2.28.1.3.2 remains unchanged except for paragraphs 2307 to 2309 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.28.2 Atlantic salmon [1106]

2.28.2.1 Increase in underwater noise and vibration

Section 2.28.2.1 remains unchanged except for paragraph 2328 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.28.2.1.1 Mortality

Section 2.28.2.1.1 remains unchanged except for paragraphs 2329 and 2331 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.2.1.2 Recoverable injury

Section 2.28.2.1.2 remains unchanged except for paragraph 2332 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.2.1.3 Temporary threshold shift and behavioural responses

Section 2.28.2.1.3 remains unchanged except for paragraph 2334 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**)

2.28.2.1.4 Conclusions relating to underwater noise impacts

Section 2.28.2.1.4 remains unchanged except for paragraph 2340 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.28.2.3 Temporary increase in SSC and contaminated sediments

Section 2.28.2.3. remains unchanged except paragraph 2349 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.28.2.3.1 Dredging and dredge disposal

Section 2.28.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.28.2.3.2 Trenching

Section 2.28.2.3.2 remains unchanged except for paragraphs 2357 to 2359 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.29 Lower River Shannon SAC (IE0002165)

2.29.1 Sea lamprey [1095] and River lamprey [1099]

2.29.1.1 Increase in underwater noise and vibration

Section 2.29.1.1 remains unchanged except for paragraph 2380 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.29.1.1.1 Mortality

Section 2.29.1.1.1 remains unchanged except for paragraphs 2381 and 1370 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.1.1.2 Recoverable injury

Section 2.29.1.1.2 remains unchanged except for paragraph 2384 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.1.1.3 Temporary threshold shift and behavioural responses

Section 2.29.1.1.3 remains unchanged except for paragraph 2386 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.1.1.4 Conclusions relating to underwater noise impacts

Section 2.29.1.1.4 remains unchanged except for paragraph 2392 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.1.3 Temporary increase in SSC and contaminated sediments

Section 2.29.1.3. remains unchanged except paragraph 2401 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.29.1.3.1 Dredging and dredge disposal

Section 2.29.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.29.1.3.2 Trenching

Section 2.29.1.3.2 remains unchanged except for paragraphs 2409 to 2411 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.29.2 Atlantic salmon [1106]

2.29.2.1 Increase in underwater noise and vibration

Section 2.29.2.1 remains unchanged except for paragraph 2430 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and

OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.29.2.1.1 Mortality

Section 2.29.2.1.1 remains unchanged except for paragraphs 2431 and 2433 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.2.1.2 Recoverable injury

Section 2.29.2.1.2 remains unchanged except for paragraph 2434 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.2.1.3 Temporary threshold shift and behavioural responses

Section 2.29.2.1.3 remains unchanged except for paragraph 2436 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.2.1.4 Conclusions relating to underwater noise impacts

Section 2.29.2.1.4 remains unchanged except for paragraph 2442 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.29.2.3 Temporary increase in SSC and contaminated sediments

Section 2.29.2.3. remains unchanged except paragraph 2451 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.29.2.3.1 Dredging and dredge disposal

Section 2.29.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.29.2.3.2 Trenching

Section 2.29.2.3.2 remains unchanged except for paragraphs 2459 to 2461 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.30 Lough Corrib SAC (IE0000297)

2.30.1 Sea lamprey [1095]

2.30.1.1 Increase in underwater noise and vibration

Section 2.30.1.1 remains unchanged except for paragraph 2480 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.30.1.1.1 Mortality

Section 2.30.1.1.1 remains unchanged except for paragraphs 2481 and 2483 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.1.1.2 Recoverable injury

Section 2.30.1.1.2 remains unchanged except for paragraph 2484 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.1.1.3 Temporary threshold shift and behavioural responses

Section 2.30.1.1.3 remains unchanged except for paragraph 2486 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.1.1.4 Conclusions relating to underwater noise impacts

Section 2.30.1.1.4 remains unchanged except for paragraph 2492 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.1.3 Temporary increase in SSC and contaminated sediments

Section 2.30.1.3. remains unchanged except paragraph 2501 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.30.1.3.1 Dredging and dredge disposal

Section 2.30.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.30.1.3.2 Trenching

Section 2.30.1.3.2 remains unchanged except for paragraphs 2509 to 2511 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.30.2 Atlantic salmon [1106]

2.30.2.1 Increase in underwater noise and vibration

Section 2.30.2.1 remains unchanged except for paragraph 2530 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.30.2.1.1 Mortality

Section 2.30.2.1.1 remains unchanged except for paragraphs 2531 and 2533 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.2.1.2 Recoverable injury

Section 2.30.2.1.2 remains unchanged except for paragraph 2534 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.2.1.3 Temporary threshold shift and behavioural responses

Section 2.30.2.1.3 remains unchanged except for paragraph 2536 which is replaced by paragraphs 569 to 571in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.2.1.4 Conclusions relating to underwater noise impacts

Section 2.30.2.1.4 remains unchanged except for paragraph 2542 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.30.2.3 Temporary increase in SSC and contaminated sediments

Section 2.30.2.3. remains unchanged except paragraph 2551 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.30.2.3.1 Dredging and dredge disposal

Section 2.30.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.30.2.3.2 Trenching

Section 2.30.2.3.2 remains unchanged except for paragraphs 2559 to 2561 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.31 Pembrokeshire Marine / Sir Benfro Forol SAC (UK0013116)

2.31.1 Sea lamprey [1095] and River lamprey [1099]

2.31.1.1 Increase in underwater noise and vibration

Section 2.31.1.1 remains unchanged except for paragraph 2582 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.31.1.1.1 Mortality

Section 2.31.1.1.1 remains unchanged except for paragraphs 2583 and 2585 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.1.1.2 Recoverable injury

Section 2.31.1.1.2 remains unchanged except for paragraph 2586 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.1.1.3 Temporary threshold shift and behavioural responses

Section 2.31.1.1.3 remains unchanged except for paragraph 2588 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.1.1.4 Conclusions relating to underwater noise impacts

Section 2.31.1.1.4 remains unchanged except for paragraph 2594 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.1.3 Temporary increase in SSC and contaminated sediments

Section 2.31.1.3. remains unchanged except paragraph 2605 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.31.1.3.1 Dredging and dredge disposal

Section 2.31.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.31.1.3.2 Trenching

Section 2.31.1.3.2 remains unchanged except for paragraphs 2613 to 2615 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.31.2 Twaite shad [1103] and Allis shad [1102]

2.31.2.1 Increase in underwater noise and vibration

Section 2.31.2.1 remains unchanged except for paragraph 2636 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.31.2.1.1 Mortality

Section 2.31.2.1.1 remains unchanged except for paragraphs 2637 and 2639 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.2.1.2 Recoverable injury

Section 2.31.2.1.2 remains unchanged except for paragraph 2640 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.2.1.3 Temporary threshold shift and behavioural responses

Section 2.31.2.1.3 remains unchanged except for paragraph 2642 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.2.1.4 Conclusions relating to underwater noise impacts

Section 2.31.2.1.4 remains unchanged except for paragraph 2648 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.31.2.3 Temporary increase in SSC and contaminated sediments

Section 2.31.2.3. remains unchanged except paragraph 2657 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.31.2.3.1 Dredging and dredge disposal

Section 2.31.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.31.2.3.2 Trenching

Section 2.31.2.3.2 remains unchanged except for paragraphs 2665 to 2667 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

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

2.32.1 Sea lamprey [1095] and River lamprey [1099]

2.32.1.1 Increase in underwater noise and vibration

Section 2.32.1.1 remains unchanged except for paragraph 2688 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.32.1.1.1 Mortality

Section 2.32.1.1.1 remains unchanged except for paragraphs 2689 and 2691 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.1.1.2 Recoverable injury

Section 2.32.1.1.2 remains unchanged except for paragraph 2692 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.1.1.3 Temporary threshold shift and behavioural responses

Section 2.32.1.1.3 remains unchanged except for paragraph 2694 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.1.1.4 Conclusions relating to underwater noise impacts

Section 2.32.1.1.4 remains unchanged except for paragraph 2700 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.1.3 Temporary increase in SSC and contaminated sediments

Section 2.32.1.3. remains unchanged except paragraph 2709 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.32.1.3.1 Dredging and dredge disposal

Section 2.32.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.32.1.3.2 Trenching

Section 2.32.1.3.2 remains unchanged except for paragraphs 2717 to 2719 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.32.2 Twaite shad [1103] and Allis shad [1102]

2.32.2.1 Increase in underwater noise and vibration

Section 2.32.2.1 remains unchanged except for paragraph 2740 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.32.2.1.1 Mortality

Section 2.32.2.1.1 remains unchanged except for paragraphs 2741 and 2743 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.2.1.2 Recoverable injury

Section 2.32.2.1.2 remains unchanged except for paragraph 2744 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.2.1.3 Temporary threshold shift and behavioural responses

Section 2.32.2.1.3 remains unchanged except for paragraph 2746 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 2752 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.32.2.3 Temporary increase in SSC and contaminated sediments

Section 2.32.2.3. remains unchanged except paragraph 2761 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.32.2.3.1 Dredging and dredge disposal

Section 2.32.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.32.2.3.2 Trenching

Section 2.32.2.3.2 remains unchanged except for paragraphs 2769 to 2771 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.33 Afon Tywi / River Tywi SAC (UK0013010)

2.33.1 Sea lamprey [1095] and River lamprey [1099]

2.33.1.1 Increase in underwater noise and vibration

Section 2.33.1.1 remains unchanged except for paragraph 2792 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.33.1.1.1 Mortality

Section 2.33.1.1.1 remains unchanged except for paragraphs 2793 and 2793 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.1.1.2 Recoverable injury

Section 2.33.1.1.2 remains unchanged except for paragraph 2796 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.1.1.3 Temporary threshold shift and behavioural responses

Section 2.33.1.1.3 remains unchanged except for paragraph 2798 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.1.1.4 Conclusions relating to underwater noise impacts

Section 2.33.1.1.4 remains unchanged except for paragraph 2804 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**)..

2.33.1.3 Temporary increase in SSC and contaminated sediments

Section 2.33.1.3. remains unchanged except paragraph 2813 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.33.1.3.1 Dredging and dredge disposal

Section 2.33.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.33.1.3.2 Trenching

Section 2.33.1.3.2 remains unchanged except for paragraphs 2821 to 2823 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.33.2 Twaite shad [1103] and Allis shad [1102]

2.33.2.1 Increase in underwater noise and vibration

Section 2.33.2.1 remains unchanged except for paragraph 2844 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and

OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.33.2.1.1 Mortality

Section 2.33.2.1.1 remains unchanged except for paragraphs 2845 and 2847 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.2.1.2 Recoverable injury

Section 2.33.2.1.2 remains unchanged except for paragraph 2848 which is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.2.1.3 Temporary threshold shift and behavioural responses

Section 2.33.2.1.3 remains unchanged except for paragraph 2850 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 2856 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.33.2.3 Temporary increase in SSC and contaminated sediments

Section 2.33.2.3. remains unchanged except paragraph 2865 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.33.2.3.1 Dredging and dredge disposal

Section 2.33.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.33.2.3.2 Trenching

Section 2.33.2.3.2 remains unchanged except for paragraphs 2873 to 2875 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.34 Severn Estuary / Môr Hafren SAC (UK0013030)

2.34.1 Sea lamprey [1095] and River lamprey [1099]

2.34.1.1 Increase in underwater noise and vibration

Section 2.34.1.1 remains unchanged except for paragraph 2896 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.34.1.1.1 Mortality

Section 2.34.1.1.1 remains unchanged except for paragraphs 2897 and 2899 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.1.1.2 Recoverable injury

Section 2.34.1.1.2 remains unchanged except for paragraph 2900 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.1.1.3 Temporary threshold shift and behavioural responses

Section 2.34.1.1.3 remains unchanged except for paragraph 2902 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.1.1.4 Conclusions relating to underwater noise impacts

Section 2.34.1.1.4 remains unchanged except for paragraph 2908 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.1.3 Temporary increase in SSC and contaminated sediments

Section 2.34.1.3. remains unchanged except paragraph 2917 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.34.1.3.1 Dredging and dredge disposal

Section 2.34.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.34.1.3.2 Trenching

Section 2.34.1.3.2 remains unchanged except for paragraphs 2925 to 2927 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.34.2 Twaite shad [1103]

2.34.2.1 Increase in underwater noise and vibration

Section 2.34.2.1 remains unchanged except for paragraph 2946 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.34.2.1.1 Mortality

Section 2.34.2.1.1 remains unchanged except for paragraphs 2947 and 2949 are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.2.1.2 Recoverable injury

Section 2.34.2.1.2 remains unchanged except for paragraph 2950 is replaced by paragraphs 554 to 556 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.2.1.3 Temporary threshold shift and behavioural responses

Section 2.34.2.1.3 remains unchanged except for paragraph 2952 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 2958 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.34.2.3 Temporary increase in SSC and contaminated sediments

Section 2.34.2.3. remains unchanged except paragraph 2967 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.34.2.3.1 Dredging and dredge disposal

Section 2.34.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.34.2.3.2 Trenching

Section 2.34.2.3.2 remains unchanged except for paragraphs 2975 to 2977 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.35 River Usk / Afon Wysg SAC (UK0013007)

Section 2.35 remains unchanged except for Table 2-56 which is replaced by Table 18 below and the updates specified in the following subsections. The updates to Table 18 include the addition of sea lamprey and twaite shad as qualifying features. The Conservation Objectives for these species were not included in the NIS however they are identical to those presented for the other fish qualifying features and are added here for completeness. The conclusions of the assessment remain valid for all qualifying features of the SAC.

Table 18 Conservation Objectives, Attributes and Targets for River Usk / Afon Wysg SAC and summary of associated assessment (Natural Resources Wales, 2022b)

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
[1099] River lamprey (*Lampetra fluviatilis*) Conservation Objective*: To restore the favourable conservation condition of the Qualifying Feature in the SAC, which is defined by the following list of attributes and targets:*				
The population of the feature in the SAC is stable or increasing over the long term	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation. See **Section 2.35.1** of this document	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
	Direct impacts on habitats Presence of structures and predator aggregation. See **Section 2.35.1** of this document			the project alone.
Maintain a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis	No direct or indirect impact on SAC habitats and thus no impact on this attribute and target	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
[1095] Sea lamprey (*Petromyzon marinus*) Conservation Objective*: To restore the favourable conservation condition of the Qualifying Feature in the SAC, which is defined by the following list of attributes and targets:*				
The population of the feature in the SAC is stable or increasing over the long term	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
	Presence of structures and predator aggregation. See **Section 2.35.1** of this document			
The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation. See **Section 2.35.1** of this document	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
Maintain a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis	No direct or indirect impact on SAC habitats and thus no impact on this attribute and target	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
[1102] Allis shad *(Alosa alosa)* Conservation Objective*: To restore the favourable conservation condition of the Qualifying Feature in the SAC, which is defined by the following list of attributes and targets:*				
The population of the feature in the SAC is stable or increasing over the long term	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation. See **Section 2.35.2** of this document	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation.	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
	See **Section 2.35.2** of this document			
Maintain a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis	No direct or indirect impact on SAC habitat, and therefore no impact on this attribute and target	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
[1103] Twaite shad (*Alosa fallax*) Conservation Objective*: To restore the favourable conservation condition of the Qualifying Feature in the SAC, which is defined by the following list of attributes and targets:*				
The population of the feature in the SAC is stable or increasing over the long term	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation.	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.

Attributes and Targets	Predicted Effect	Mitigation	Residual Effect	Conclusion
	See **Section 2.35.2** of this document			
The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future	Increase in underwater noise and vibration Presence of EMF Temporary increase in SSC and contaminated sediments Direct impacts on habitats Presence of structures and predator aggregation. See **Section 2.35.2** of this document	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.
Maintain a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis	No direct or indirect impact on SAC habitat, and therefore no impact on this attribute and target	None required	N/A	No impediment to the Conservation Objective being met, and no adverse effect on site integrity predicted from the project alone.

2.35.1 Sea lamprey [1095] and River lamprey [1099]

Section 2.35.1 remains unchanged noting that the section is now titled Sea lamprey [1095] and River lamprey [1099]. The conclusions of the original assessment remain true for all designated features of this SAC.

2.35.1.1 Increase in underwater noise and vibration

Section 2.35.1.1 remains unchanged except for paragraph 2996 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $_{LE,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.35.1.1.1 Mortality

Section 2.35.1.1.1 remains unchanged except for paragraphs 2997 and 2999 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.1.1.2 Recoverable injury

Section 2.35.1.1.2 remains unchanged except for paragraph 3000 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.1.1.3 Temporary threshold shift and behavioural responses

Section 2.35.1.1.3 remains unchanged except for paragraph 3002 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.1.1.4 Conclusions relating to underwater noise impacts

Section 2.35.1.1.4 remains unchanged except for paragraph 3008 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.1.3 Temporary increase in SSC and contaminated sediments

Section 2.35.1.3. remains unchanged except paragraph 3017 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.35.1.3.1 Dredging and dredge disposal

Section 2.35.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.35.1.3.2 Trenching

Section 2.35.1.3.2 remains unchanged except for paragraphs 3025 to 3027 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.35.2 Twaite shad [1103] and Allis shad [1102]

Section 2.35.2 remains unchanged noting that the section is now titled Twaite shad [1103] and Allis shad [1102]. The conclusions of the original assessment remain true for all designated features of this SAC.

2.35.2.1 Increase in underwater noise and vibration

Section 2.35.2.1 remains unchanged except for paragraph 3046 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.35.2.1.1 Mortality

Section 2.35.2.1.1 remains unchanged except for paragraphs 3047 and 3049 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.2.1.2 Recoverable injury

Section 2.35.2.1.2 remains unchanged except for paragraph 3050 is replaced by paragraphs 554 to 556in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.2.1.3 Temporary threshold shift and behavioural responses

Section 2.35.2.1.3 remains unchanged except for paragraph 3052 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.2.1.4 Conclusions relating to underwater noise impacts

Section 2.35.2.1.4 remains unchanged except for paragraph 3058 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.35.2.3 Temporary increase in SSC and contaminated sediments

Section 2.35.2.3. remains unchanged except paragraph 3067 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.35.2.3.1 Dredging and dredge disposal

Section 2.35.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.35.2.3.2 Trenching

Section 2.35.2.3.2 remains unchanged except for paragraphs 3075 to 3077 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.36 River Wye / Afon Gwy SAC (UK0012642)

2.36.1 Sea lamprey [1095] and River lamprey [1099]

2.36.1.1 Increase in underwater noise and vibration

Section 2.36.1.1 remains unchanged except for paragraph 3098 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.36.1.1.1 Mortality

Section 2.36.1.1.1 remains unchanged except for paragraphs 3099 and 3101 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.1.1.2 Recoverable injury

Section 2.36.1.1.2 remains unchanged except for paragraph 3102 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.1.1.3 Temporary threshold shift and behavioural responses

Section 2.36.1.1.3 remains unchanged except for paragraph 3104 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.1.1.4 Conclusions relating to underwater noise impacts

Section 2.36.1.1.4 remains unchanged except for paragraph 3110 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.1.3 Temporary increase in SSC and contaminated sediments

Section 2.36.1.3. remains unchanged except paragraph 3119 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.1.3.1 Dredging and dredge disposal

Section 2.36.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.1.3.2 Trenching

Section 2.36.1.3.2 remains unchanged except for paragraphs 3127 to 3129 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.36.2 Twaite shad [1103] and Allis shad [1102]

2.36.2.1 Increase in underwater noise and vibration

Section 2.36.2.1 remains unchanged except for paragraph 3150 which is replaced by paragraph 549 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.36.2.1.1 Mortality

Section 2.36.2.1.1 remains unchanged except for paragraphs 3151 and 3153 which are replaced by paragraphs 550 to 551 and 552 to 553 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.2.1.2 Recoverable injury

Section 2.36.2.1.2 remains unchanged except for paragraph 3154 which is replaced by paragraphs 554 to 556in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.2.1.3 Temporary threshold shift and behavioural responses

Section 2.36.2.1.3 remains unchanged except for paragraph 3156 which is replaced by paragraphs 557 to 559 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 3162 which is replaced by paragraph 560 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.2.3 Temporary increase in SSC and contaminated sediments

Section 2.36.2.3. remains unchanged except paragraph 3171 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.2.3.1 Dredging and dredge disposal

Section 2.36.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.2.3.2 Trenching

Section 2.36.2.3.2 remains unchanged except for paragraphs 3179 to 3181 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.36.3 Atlantic salmon [1106]

2.36.3.1 Increase in underwater noise and vibration

Section 2.36.3.1 remains unchanged except for paragraph 3200 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.36.3.1.1 Mortality

Section 2.36.3.1.1 remains unchanged except for paragraphs 3201 and 3203 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively n section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.3.1.2 Recoverable injury

Section 2.36.3.1.2 remains unchanged except for paragraph 3204 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.3.1.3 Temporary threshold shift and behavioural responses

Section 2.36.3.1.3 remains unchanged except for paragraph 3206 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.3.1.4 Conclusions relating to underwater noise impacts

Section 2.36.3.1.4 remains unchanged except for paragraph 3212 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.36.3.3 Temporary increase in SSC and contaminated sediments

Section 2.36.3.3. remains unchanged except paragraph 3221 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.3.3.1 Dredging and dredge disposal

Section 2.36.3.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.36.3.3.2 Trenching

Section 2.36.3.3.2 remains unchanged except for paragraphs 3229 to 3231 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.37 Afon Teifi / River Teifi SAC (UK0012670)

2.37.1 Sea lamprey [1095] and River lamprey [1099]

2.37.1.1 Increase in underwater noise and vibration

Section 2.37.1.1 remains unchanged except for paragraph 3252 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.37.1.1.1 Mortality

Section 2.37.1.1.1 remains unchanged except for paragraphs 3253 and 3255 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.1.1.2 Recoverable injury

Section 2.37.1.1.2 remains unchanged except for paragraph 3256 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.1.1.3 Temporary threshold shift and behavioural responses

Section 2.37.1.1.3 remains unchanged except for paragraph 3258 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.1.1.4 Conclusions relating to underwater noise impacts

Section 2.37.1.1.4 remains unchanged except for paragraph 3264 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.1.3 Temporary increase in SSC and contaminated sediments

Section 2.37.1.3. remains unchanged except paragraph 3273 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.37.1.3.1 Dredging and dredge disposal

Section 2.37.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.37.1.3.2 Trenching

Section 2.37.1.3.2 remains unchanged except for paragraphs 3281 to 3283 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.37.2 Atlantic salmon [1106]

2.37.2.1 Increase in underwater noise and vibration

Section 2.37.2.1 remains unchanged except for paragraph 3302 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.37.2.1.1 Mortality

Section 2.37.2.1.1 remains unchanged except for paragraphs 3303 and 3305 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the

results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.2.1.2 Recoverable injury

Section 2.37.2.1.2 remains unchanged except for paragraph 3306 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.2.1.3 Temporary threshold shift and behavioural responses

Section 2.37.2.1.3 remains unchanged except for paragraph 3308 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.2.1.4 Conclusions relating to underwater noise impacts

Section 2.37.2.1.4 remains unchanged except for paragraph 3314 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.37.2.3 Temporary increase in SSC and contaminated sediments

Section 2.37.2.3. remains unchanged except paragraph 3323 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.37.2.3.1 Dredging and dredge disposal

Section 2.37.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.37.2.3.2 Trenching

Section 2.37.2.3.2 remains unchanged except for paragraphs 3331 to 3333 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.38 Dee Estuary / Aber Dyfrdwy SAC (UK0030131)

2.38.1 Sea lamprey [1095] and River lamprey [1099]

2.38.1.1 Increase in underwater noise and vibration

Section 2.38.1.1 remains unchanged except for paragraph 3354 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB LE,p,ss,05 at 750 m at WTG

and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.38.1.1.1 Mortality

Section 2.38.2.1.1 remains unchanged except for paragraphs 3355 and 3357 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.38.1.1.2 Recoverable injury

Section 2.38.2.1.2 remains unchanged except for paragraph 3358 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.38.1.1.3 Temporary threshold shift and behavioural responses

Section 2.38.2.1.3 remains unchanged except for paragraph 3360 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.38.1.1.4 Conclusions relating to underwater noise impacts

Section 2.38.2.1.4 remains unchanged except for paragraph 3366 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.38.1.3 Temporary increase in SSC and contaminated sediments

Section 2.38.1.3. remains unchanged except paragraph 3375 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.38.1.3.1 Dredging and dredge disposal

Section 2.38.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.38.1.3.2 Trenching

Section 2.38.1.1.2 remains unchanged except for paragraphs 3383 to 3385 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.39 Afonydd Cleddau / Cleddau Rivers SAC (UK0030074)

2.39.1 Sea lamprey [1095] and River lamprey [1099]

2.39.1.1 Increase in underwater noise and vibration

Section 2.39.1.1 remains unchanged except for paragraph 3406 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.39.1.1.1 Mortality

Section 2.39.1.1.1 remains unchanged except for paragraphs 3407 and 3409which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.39.1.1.2 Recoverable injury

Section 2.39.1.1.2 remains unchanged except for paragraph 3410 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.39.1.1.3 Temporary threshold shift and behavioural responses

Section 2.39.1.1.3 remains unchanged except for paragraph 3412 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.39.1.1.4 Conclusions relating to underwater noise impacts

Section 2.39.1.1.4 remains unchanged except for paragraph 3418 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.39.1.3 Temporary increase in SSC and contaminated sediments

Section 2.39.1.3. remains unchanged except paragraph 3427 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.39.1.3.1 Dredging and dredge disposal

Section 2.39.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.39.1.3.2 Trenching

Section 2.39.1.1.2 remains unchanged except for paragraphs 3435 to 3437 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.40 River Dee and Bala Lake / Afon Dyfrdwy a Llŷn Tegid SAC (UK0030252)

2.40.1 Sea lamprey [1095] and River lamprey [1099]

2.40.1.1 Increase in underwater noise and vibration

Section 2.40.1.1 remains unchanged except for paragraph 3458 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.40.1.1.1 Mortality

Section 2.40.1.1.1 remains unchanged except for paragraph 3459 and 3461 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.1.1.2 Recoverable injury

Section 2.40.1.1.2 remains unchanged except for paragraph 3462 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.1.1.3 Temporary threshold shift and behavioural responses

Section 2.40.1.1.3 remains unchanged except for paragraph 3464 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.1.1.4 Conclusions relating to underwater noise impacts

Section 2.40.1.1.4 remains unchanged except for paragraph 3470 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.1.3 Temporary increase in SSC and contaminated sediments

Section 2.40.1.3. remains unchanged except paragraph 3479 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.40.1.3.1 Dredging and dredge disposal

Section 2.40.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.40.1.3.2 Trenching

Section 2.40.1.3.2 remains unchanged except for paragraphs 3487 to 3489 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.40.2 Atlantic salmon [1106]

2.40.2.1 Increase in underwater noise and vibration

Section 2.40.2.1 remains unchanged except for paragraph 3508 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.40.2.1.1 Mortality

Section 2.40.2.1.1 remains unchanged except for paragraphs 3509 and 3511 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.2.1.2 Recoverable injury

Section 2.40.2.1.2 remains unchanged except for paragraph 3512 which is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.2.1.3 Temporary threshold shift and behavioural responses

Section 2.40.2.1.3 remains unchanged except for paragraph 3514 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.2.1.4 Conclusions relating to underwater noise impacts

Section 2.40.2.1.4 remains unchanged except for paragraph 3520 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.40.2.3 Temporary increase in SSC and contaminated sediments

Section 2.40.2.3. remains unchanged except paragraph 3529 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.40.2.3.1 Dredging and dredge disposal

Section 2.40.2.3.1 is replaced in its entirety by paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.40.2.3.2 Trenching

Section 2.40.2.3.2 remains unchanged except for paragraphs 3537 to 3539 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.41 River Derwent and Bassenthwaite Lake SAC (UK0030032)

2.41.1 Sea lamprey [1095] and River lamprey [1099]

2.41.1.1 Increase in underwater noise and vibration

Section 2.41.1.1 remains unchanged except for paragraph 3560 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.41.1.1.1 Mortality

Section 2.41.1.1.1 remains unchanged except for paragraphs 3561 and 3563 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.1.1.2 Recoverable injury

Section 2.41.1.1.2 remains unchanged except for paragraph 3564 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.1.1.3 Temporary threshold shift and behavioural responses

Section 2.41.1.1.3 remains unchanged except for paragraph 3566 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.1.1.4 Conclusions relating to underwater noise impacts

Section 2.41.1.1.4 remains unchanged except for paragraph 3572 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.1.3 Temporary increase in SSC and contaminated sediments

Section 2.41.1.3. remains unchanged except paragraph 3581 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.41.1.3.1 Dredging and dredge disposal

Section 2.41.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.41.1.3.2 Trenching

Section 2.41.1.3.2 remains unchanged except for paragraphs 3589 to 3591 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.41.2 Atlantic salmon [1106]

2.41.2.1 Increase in underwater noise and vibration

Section 2.41.2.1 remains unchanged except for paragraph 3610 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.41.2.1.1 Mortality

Section 2.41.2.1.1 remains unchanged except for paragraphs 3611 and 3613 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.2.1.2 Recoverable injury

Section 2.41.2.1.2 remains unchanged except for paragraph 3614 is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.2.1.3 Temporary threshold shift and behavioural responses

Section 2.41.2.1.3 remains unchanged except for paragraph 3616 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.2.1.4 Conclusions relating to underwater noise impacts

Section 2.41.2.1.4 remains unchanged except for paragraph 3622 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.41.2.3 Temporary increase in SSC and contaminated sediments

Section 2.41.2.3. remains unchanged except paragraph 1388 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.41.2.3.1 Dredging and dredge disposal

Section 2.41.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.41.2.3.2 Trenching

Section 2.41.2.3.2 remains unchanged except for paragraphs 3639 to 3641 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.42 Solway Firth SAC (UK0013025)

2.42.1 Sea lamprey [1095] and River lamprey [1099]

2.42.1.1 Increase in underwater noise and vibration

Section 2.42.1.1 remains unchanged except for paragraph 3662 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.42.1.1.1 Mortality

Section 2.42.1.1.1 remains unchanged except for paragraphs 3663 and 3665 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.42.1.1.2 Recoverable injury

Section 2.42.1.1.2 remains unchanged except for paragraph 3666 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.42.1.1.3 Temporary threshold shift and behavioural responses

Section 2.42.1.1.3 remains unchanged except for paragraph 3668 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.42.1.1.4 Conclusions relating to underwater noise impacts

Section 2.42.1.1.4 remains unchanged except for paragraph 3674 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.42.1.3 Temporary increase in SSC and contaminated sediments

Section 2.42.1.3. remains unchanged except paragraph 3683 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.42.2.3.1 Dredging and dredge disposal

Section 2.42.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.42.2.3.2 Trenching

Section 2.42.1.1.2 remains unchanged except for paragraphs 3691 to 3693 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.43 River Eden SAC (UK0012643)

2.43.1 Sea lamprey [1095] and River lamprey [1099]

2.43.1.1 Increase in underwater noise and vibration

Section 2.43.1.1 remains unchanged except for paragraph 3716 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.43.1.1.1 Mortality

Section 2.43.1.1.1 remains unchanged except for paragraphs 3715 and 3717 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.1.1.2 Recoverable injury

Section 2.43.1.1.2 remains unchanged except for paragraph 3718 which is replaced by paragraphs 435 to 437in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.1.1.3 Temporary threshold shift and behavioural responses

Section 2.43.1.1.3 remains unchanged except for paragraph 3720 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.1.1.4 Conclusions relating to underwater noise impacts

Section 2.43.1.1.4 remains unchanged except for paragraph 3726 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.1.3 Temporary increase in SSC and contaminated sediments

Section 2.43.1.3. remains unchanged except paragraph 3735 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.43.1.3.1 Dredging and dredge disposal

Section 2.43.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.43.1.3.2 Trenching

Section 2.43.1.3.2 remains unchanged except for paragraphs 3743 to 3745 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.43.2 Atlantic salmon [1106]

2.43.2.1 Increase in underwater noise and vibration

Section 2.43.2.1 remains unchanged except for paragraph 3764 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and

OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.43.2.1.1 Mortality

Section 2.43.2.1.1 remains unchanged except for paragraphs 3765 and 3767 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.2.1.2 Recoverable injury

Section 2.43.2.1.2 remains unchanged except for paragraph 3768 which is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.2.1.3 Temporary threshold shift and behavioural responses

Section 2.43.2.1.3 remains unchanged except for paragraph 3770 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.2.1.4 Conclusions relating to underwater noise impacts

Section 2.43.2.1.4 remains unchanged except for paragraph 3776 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.43.2.3 Temporary increase in SSC and contaminated sediments

Section 2.43.2.3. remains unchanged except paragraph 3785 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.43.2.3.1 Dredging and dredge disposal

Section 2.43.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.43.2.3.2 Trenching

Section 2.43.2.3.2 remains unchanged except for paragraphs 3793 to 3795 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.44 River Axe SAC (UK0030248)

2.44.1 Sea lamprey [1095]

2.44.1.1 Increase in underwater noise and vibration

Section 2.44.1.1 remains unchanged except for paragraph 3814 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**).

2.44.1.1.1 Mortality

Section 2.44.1.1.1 remains unchanged except for paragraphs 3815 and 3817 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.44.1.1.2 Recoverable injury

Section 2.44.1.1.2 remains unchanged except for paragraph 3818 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.44.1.1.3 Temporary threshold shift and behavioural responses

Section 2.44.1.1.3 remains unchanged except for paragraph 3820 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.44.1.1.4 Conclusions relating to underwater noise impacts

Section 2.44.1.1.4 remains unchanged except for paragraph 3826 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.44.1.3 Temporary increase in SSC and contaminated sediments

Section 2.44.1.3. remains unchanged except paragraph 3835 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.44.1.3.1 Dredging and dredge disposal

Section 2.44.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.44.1.3.2 Trenching

Section 2.44.1.3.2 remains unchanged except for paragraphs 3843 to 3845 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.45 River Avon SAC (UK0013016)

2.45.1 Sea lamprey [1095]

2.45.1.1 Increase in underwater noise and vibration

Section 2.45.1.1 remains unchanged except for paragraph 3864 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.45.1.1.1 Mortality

Section 2.45.1.1.1 remains unchanged except for paragraphs 3865 and 3867 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.1.1.2 Recoverable injury

Section 2.45.1.1.2 remains unchanged except for paragraph 3868 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.1.1.3 Temporary threshold shift and behavioural responses

Section 2.45.1.1.3 remains unchanged except for paragraph 3870 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.1.1.4 Conclusions relating to underwater noise impacts

Section 2.45.1.1.4 remains unchanged except for paragraph 3876 which is replaced by paragraph 441 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.1.3 Temporary increase in SSC and contaminated sediments

Section 2.45.1.3. remains unchanged except paragraph 3885 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.45.1.3.1 Dredging and dredge disposal

Section 2.45.1.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.45.1.3.2 Trenching

Section 2.45.1.3.2 remains unchanged except for paragraphs 3893 to 3895 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.45.2 Atlantic salmon [1106]

2.45.2.1 Increase in underwater noise and vibration

Section 2.45.2.1 remains unchanged except for paragraph 3914 which is replaced by paragraph 561 from Section 2.18.3.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.45.2.1.1 Mortality

Section 2.45.2.1.1 remains unchanged except for paragraphs 3915 and 3917 which are replaced by paragraphs 562 to 563 and 564 to 565 respectively in section 2.18.3.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.2.1.2 Recoverable injury

Section 2.45.2.1.2 remains unchanged except for paragraph 3918 which is replaced by paragraphs 566 to 568 in section 2.18.3.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.2.1.3 Temporary threshold shift and behavioural responses

Section 2.45.2.1.3 remains unchanged except for paragraph 3920 which is replaced by paragraphs 569 to 571 in section 2.18.3.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.2.1.4 Conclusions relating to underwater noise impacts

Section 2.45.2.1.4 remains unchanged except for paragraph 3926 which is replaced by paragraph 572 in section 2.18.3.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.45.2.3 Temporary increase in SSC and contaminated sediments

Section 2.45.2.3. remains unchanged except paragraph 3935 which is replaced by the paragraph 442 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.45.2.3.1 Dredging and dredge disposal

Section 2.45.2.3.1 is replaced in its entirety by the paragraphs 443 to 446 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.45.2.3.2 Trenching

Section 2.45.2.3.2 remains unchanged except for paragraphs 3943 to 3945 which are replaced by the paragraphs 447 to 449 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.46 French ZSCs – Migratory Fish

2.46.1 Sea lamprey [1095]

2.46.1.1 Increase in underwater noise and vibration

Section 2.46.1.1 remains unchanged except for paragraph 3965 which is replaced by paragraph 430 from Section 2.13.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $_{LE,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.46.1.1.1 Mortality

Section 2.46.1.1.1 remains unchanged except for paragraphs 3966 and 3968 which are replaced by paragraphs 431 and 432 and paragraphs 433 and 434 respectively in section 2.13.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.1.1.2 Recoverable injury

Section 2.46.1.1.2 remains unchanged except for paragraph 3969 which is replaced by paragraphs 435 to 437 in section 2.13.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.1.1.3 Temporary threshold shift and behavioural responses

Section 2.46.1.1.3 remains unchanged except for paragraph 3971 which is replaced by paragraphs 438 to 440 in section 2.13.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.1.1.4 Conclusions relating to underwater noise impacts

Section 2.46.1.1.4 remains unchanged except for paragraph 3977 which is replaced by paragraph 440 in section 2.13.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.1.3 Temporary increase in SSC and contaminated sediments

Section 2.46.1.3. remains unchanged except paragraph 3986 which is replaced by the paragraph 441 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.46.1.3.1 Dredging and dredge disposal

Section 2.46.1.3.1 is replaced in its entirety by the paragraphs 442 to 445 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.46.1.3.2 Trenching

Section 2.46.1.3.2 remains unchanged except for paragraphs 3994 to 3996 which are replaced by the paragraphs 446 to 448 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.46.2 Twaite shad [1103] and Allis shad [1102]

2.46.2.1 Increase in underwater noise and vibration

Section 2.46.2.1 remains unchanged except for paragraph 4013 which is replaced by paragraph 548 from Section 2.18.2.1 above. This update has been made to include the results from the updated underwater noise modelling assessment (CWP commits to a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750 m at WTG and OSS piling events; and commits to the implementation of noise abatement in the event of high order UXO clearance) in response to FIR Item 10a and 10t (see **FIR Response Document**)

2.46.2.1.1 Mortality

Section 2.46.2.1.1 remains unchanged except for paragraphs 4014 and 4016 which are replaced by paragraphs 549 to 550 and 551 to 552 respectively in section 2.18.2.1.1 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.2.1.2 Recoverable injury

Section 2.46.2.1.2 remains unchanged except for paragraph 4017 which is replaced by paragraphs 553 to 555 in section 2.18.2.1.2 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.2.1.3 Temporary threshold shift and behavioural responses

Section 2.46.2.1.3 remains unchanged except for paragraph 4019 which is replaced by paragraphs 556 to 558 in section 2.18.2.1.3 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.2.1.4 Conclusions relating to underwater noise impacts

Section 2.13.2.1.4 remains unchanged except for paragraph 4025 which is replaced by paragraph 559 in section 2.18.2.1.4 above. This update has been made to include the results from the updated underwater noise modelling assessment in response to FIR item 10a and 10t (see **FIR Response Document**).

2.46.2.3 Temporary increase in SSC and contaminated sediments

Section 2.46.2.3. remains unchanged except paragraph 4034 which is replaced by the paragraph 441 provided in Section 2.13.2.3 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.46.2.3.1 Dredging and dredge disposal

Section 2.46.2.3.1 is replaced in its entirety by the paragraphs 442 to 445 provided in the Dredging and dredge disposal paragraphs provided in Section 2.13.2.3.1 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**).

2.46.2.3.2 Trenching

Section 2.46.2.3.2 remains unchanged except for paragraphs 4042 to 4044 which are replaced by the paragraphs 446 to 448 provided in the Trenching paragraphs provided in Section 2.13.2.3.2 above. This update has been made to include the updated sediment plume modelling in response to FIR Item 6i (see **FIR Response Document**) and an increase in depth of cover within the zone of greater burial depth.

2.47 French ZSCs – harbour porpoise

Section 2.47.1 remains unchanged except for paragraphs 4056 through to 4083 which are replaced by paragraphs 573 and 600 below. These updates have been made in consideration with:

6. Updated guidance from Southall et al., (2019) to NMFS (2024) for PTS thresholds and marine mammal hearing ranges;
7. Updated guidance on the use of EDRs for high and low order UXO clearance, and geophysical surveys (JNCC, 2025b);
8. The commitment to mitigated pile driving and UXO clearance;
9. Updates to the EIAR Addendum, and
10. In response to FIR Items 10aa and 10bb (see **FIR Response Document**).

The methodology for the assessment is provided in **Section 2** of **Volume 2** of this NIS Addendum. Where impacts associated with increased underwater noise from vessel presence, other construction activities and

operational noise remain unchanged in the EIAR Addendum, they also remain unchanged for the purpose of the NIS and have thus, not been considered here.

2.47.1.1.1 Impact 1: Increased underwater noise

Assessment of the Project Alone

573. The CWP array site is located approximately >400 km away from the nearest French ZSC.

Auditory Injury (PTS)

Pre-construction geophysical surveys

574. There is no overlap between the CWP array area or the OECC with any of the ZSCs. **Appendix 9-C** of the EIAR Addendum concludes that for pre-construction geophysical surveys and harbour porpoise, PTS-onset ranges were considered negligible, with a very low potential for PTS-onset.

575. To further reduce the risk of injury, the Applicant has committed to a geophysical survey updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- Pre-shooting MMO watch of 1 km radius for 30 min.
- Ramp-up where possible.

576. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the geophysical survey takes place. Although the injury ranges for the geophysical surveys were not assessed quantitatively for CWP, these are highly unlikely to exceed 500 m (size of the mitigation zone recommended in JNCC (2025a)). As such, it is anticipated that there will be no residual risk of injury to harbour porpoise following the mitigation.

577. Considering the above, the geophysical surveys are highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ.*

UXO clearance

578. The maximum PTS impact range for harbour porpoise due to high-order detonation of the largest 750 kg + donor UXO is 14 km. As there is no spatial overlap of the CWP Project with any of the French ZSCs, there is no potential for *in situ* overlap between PTS-onset ranges and the ZSCs for unmitigated UXO clearance activities.

579. To further reduce the risk of injury outside of the ZSCs, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). This includes:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible
- Only using minimum quantity of explosive as donor charge.
- Activities to occur in daylight only.
- Pre-detonation MMO watch of 1 km radius for 30 min.
- Implementation of noise abatement in the event high order clearance is required.

580. Low-order clearance is the preferred option for which the maximum auditory injury (PTS) range for harbour porpoise is 990 m. For high order clearance with noise abatement, the maximum PTS impact range for a 750 kg UXO + donor is 5.1 km for harbour porpoise.

581. The MMO watch of the 1 km radius will ensure that no harbour porpoises are present before the UXO clearance occurs. Given that the injury range for the low-order clearance is 990 m, there will be no residual risk of injury to harbour porpoise following the mitigation. For high-order clearance with noise abatement, the injury range is larger than the 1 km radius that will be monitored by the MMO, and thus a residual risk of injury remains. It is however anticipated that a 5.1 km impact range can be mitigated through the use of pre-detonation ADD activation, to deter porpoise out of the injury range.

582. Additionally, it should be noted that the injury range of 5.1 km represents a very precautionary value as this estimation is based on the assumption that the noise levels will be proportional to full detonation of the new explosive quantity (NEQ) of the UXO, and don't account for absorption of energy by the seabed or degradation of the UXO. Most recent studies on high-order UXO clearance did not report a strong correlation between the estimated UXO NEQ and measured noise levels, suggesting that not all explosive material within the UXO detonates (Robinson *et al.*, 2022). Further, the majority of acoustic energy produced by a high-order detonation is below a few hundred Hz, decreasing on average by about SEL 10 dB per decade above 100 Hz, and there is a pronounced drop-off in energy levels above ~5-10 kHz (von Benda-Beckmann *et al.*, 2015, Salomons *et al.*, 2021). Therefore, the primary acoustic energy from a high-order UXO detonation is below the region of greatest sensitivity for harbour porpoise (Southall *et al.*, 2019, NMFS, 2024). If PTS were to occur within this low frequency range, it would be unlikely to result in any significant impact to vital rates of porpoise.

583. Considering the above, the UXO clearance is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Piling of WTGs

584. The maximum unmitigated PTS-onset range for harbour porpoise is 1 km. As such, there will be no overlap between PTS-onset ranges and any of the French ZSCs. When considering the impacts of piling of WTGs at the MU scale, up to one harbour porpoise is at risk of experiencing injury (<0.01% Celtic and Irish Sea MU).

585. To further reduce the risk of injury, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. This includes:

- The limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events.
- Pre-piling MMO watch of 1 km radius for 30 min.
- 20 minute piling soft-start at 10% of maximum hammer energy, followed by a gradual ramp-up to full hammer energy.

586. The maximum mitigated PTS-onset range for harbour porpoise is 140 m. When considering the impacts of piling of WTGs, less than one harbour porpoise is at risk of experiencing injury (<0.01% MU). The MMO watch of the 1 km radius as well as a 20 minute piling sort-start and a gradual ramp-up will ensure that no harbour porpoises are present before the piling occurs. Given that the injury range for the mitigated piling is 140 m, there will be no residual risk of injury to harbour porpoise following the mitigation.

587. Considering the above, piling of WTGs is highly unlikely to cause auditory injury (PTS) to individuals *in situ* and *ex situ*.

Conclusion

588. Considering the above, following the mitigation measures included in the updated **MMMP**, the impacts as a result of PTS both *in situ* and *ex situ* are expected to be to be reduced to negligible levels. As such, it can be concluded beyond reasonable scientific doubt that adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the French ZSCs will not occur as a result of injury from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

Disturbance

589. The ZSCs are located within the French inshore/offshore regions.

Pre-construction geophysical surveys

590. Given that there is no spatial overlap of the CWP Project with any of the French ZSCs, there is no risk of behavioural disturbance impacts for harbour porpoises *in situ*. For *ex situ* disturbance from geophysical surveys within the Celtic and Irish Sea MU, using SCANS IV block density, the number of harbour porpoise predicted to impacted is 8 individuals (0.01% Celtic and Irish Sea MU).

591. It is anticipated that the noise emitted from geophysical survey equipment will be rapidly attenuated with distance from source such that noise levels at which behavioural disturbance would be anticipated to occur will be of small spatial extent. In particular, it is noted that those sources with higher source levels (SBP, UHRS), along with the SBL, are highly directional, with noise levels outside of the main beam considerably lower and therefore with limited horizontal propagation of noise levels. The consequence of the impact is short-term, intermittent over the course of a geophysical survey campaign, with temporary behavioural effects that are very unlikely to alter survival and reproductive rates to the extent that the population trajectory would be altered. Therefore, the proposed geophysical survey activities are unlikely to result in a significant negative impact on individuals or the harbour porpoise community within the site. They will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from geophysical surveys will not adversely affect the harbour porpoise community at the site.

UXO clearance

592. There will be no overlap of the 20 km EDR or 26 km TTS range with the boundaries of any of the When considering *ex situ* impacts of disturbance from unmitigated high-order UXO clearance using 20 km EDR, a maximum of 352 harbour porpoise individuals (0.56% of the Celtic and Irish Sea MU) are at risk of experiencing disturbance. Using TTS as a proxy for disturbance, a maximum of 595 harbour porpoise individuals (0.95% of the Celtic and Irish Sea MU) are predicted to be disturbed.

593. To further reduce the impact, the Applicant has committed to a UXO updated **MMMP** that complies with DAHG (2014) guidance (for blasting, since no UXO clearance specific guidance is available). Measures relevant to disturbance include:

- Preference for low order clearance over high order clearance, with low order assumed as the primary mitigation where possible;

- Only using minimum quantity of explosive as donor charge; and
- Implementation of noise abatement in the event high order clearance is required.

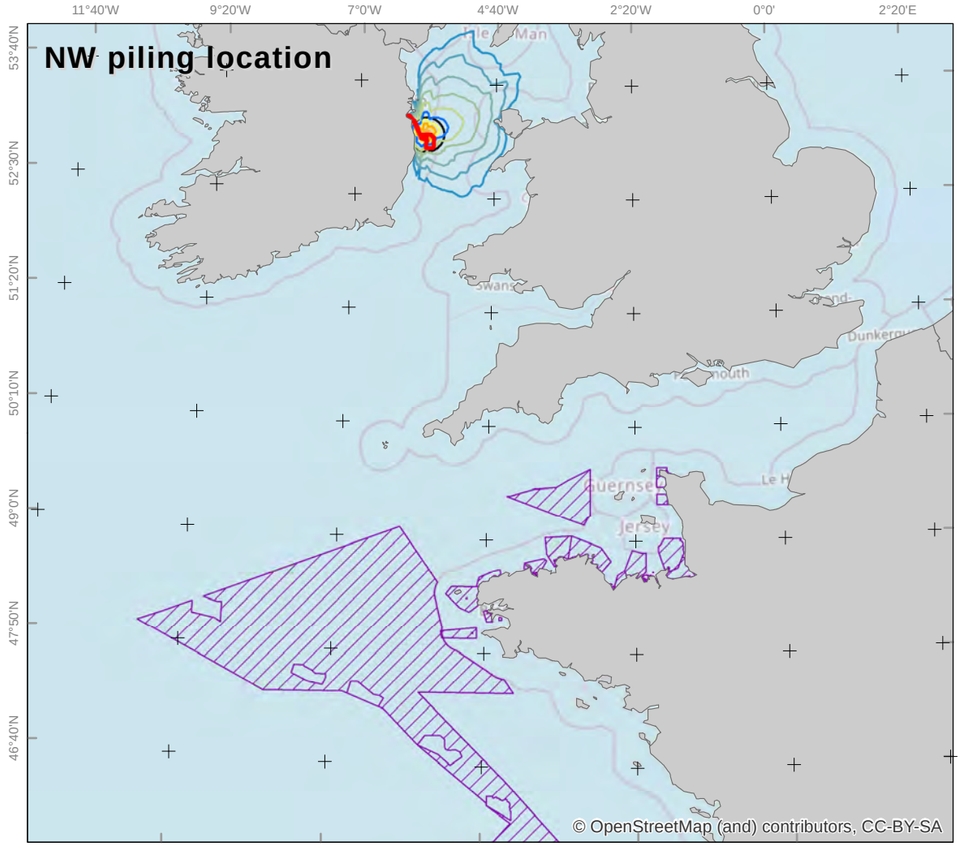
594. There will be no overlap with any of the ZSCs for 10 km and 5 km EDRs as well as with the TTS range (9.5 km). When considering *ex situ* impacts of disturbance from high-order UXO clearance using noise abatement (10 km EDR), a maximum of 88 harbour porpoise individuals (0.14% of the Celtic and Irish Sea MU) are at risk of being disturbed. When considering *ex situ* impacts of disturbance from low-order UXO clearance, a maximum of 22 harbour porpoise individuals (0.03% of the Celtic and Irish Sea MU) are predicted to be disturbed. TTS as a proxy for disturbance for disturbance, a maximum of 3 harbour porpoise individuals (<0.01% of the Celtic and Irish Sea MU) are predicted to be disturbed.

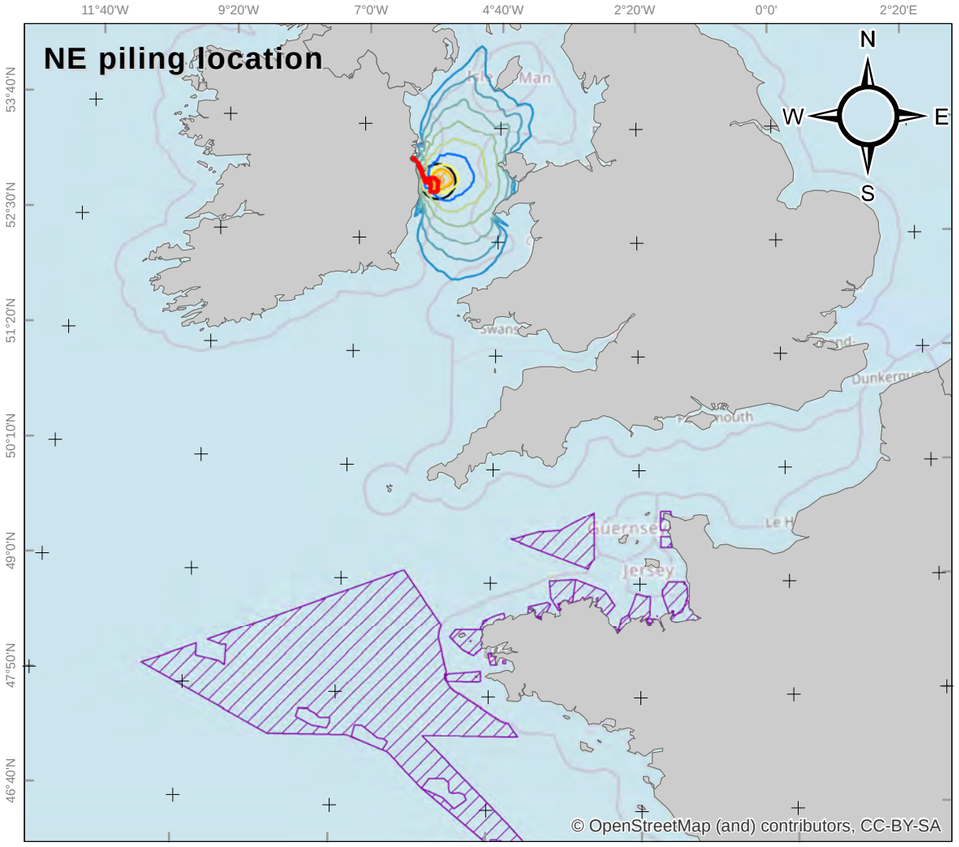
595. It is noted in the JNCC (2020) guidance that, although UXO detonation is considered a loud underwater noise source, "...a one-off explosion would probably only elicit a startle response and would not cause widespread and prolonged displacement...". Whilst detonations will usually be undertaken as part of a campaign and, therefore, may result in multiple detonations over several days (JNCC, 2020), each detonation will be of a short-term duration, resulting in behavioural effects that are temporary and reversible. Therefore, disturbance associated with UXO clearance will not result in the permanent exclusion of harbour porpoise from part of its range within the site and beyond. Additionally, such short-term disturbance is unlikely to be sufficient to result in any changes to the vital rates of individuals and therefore will not result in a significant negative impact on individuals or the harbour porpoise community within the site. Subsequently, behavioural disturbance from UXO clearance will not adversely affect the harbour porpoise community at the site.

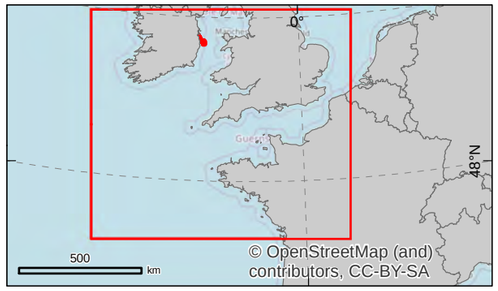
Piling of WTGs

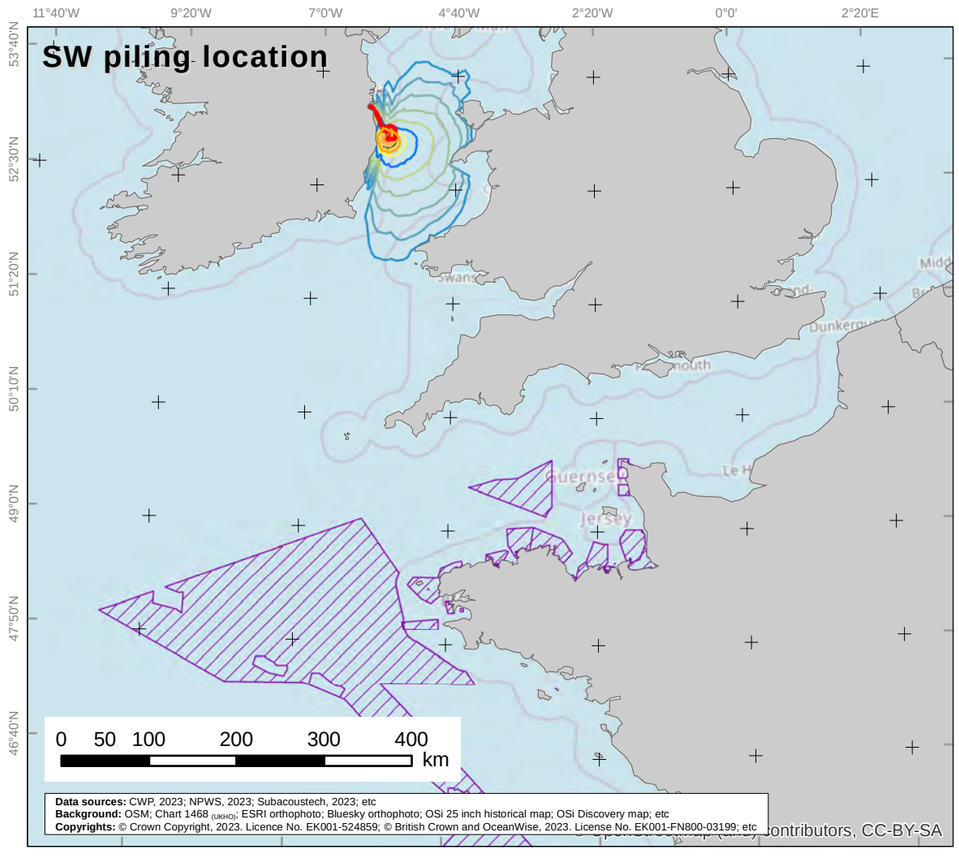
Unmitigated piling

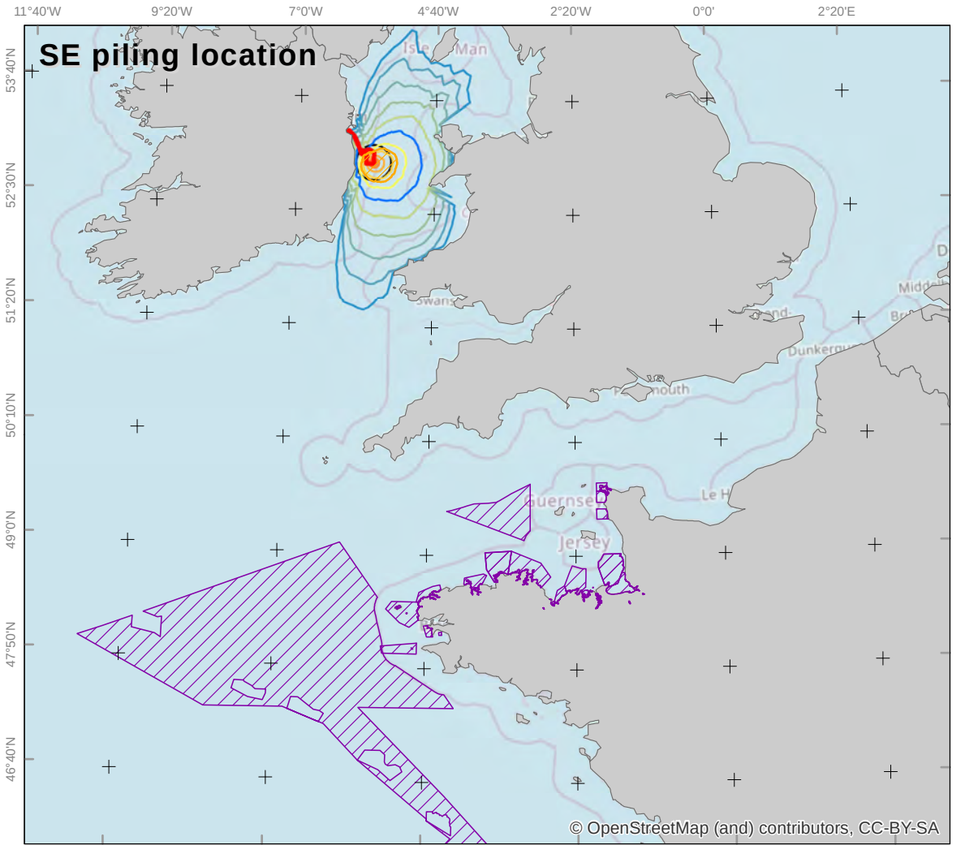
596. For the unmitigated piling using the harbour porpoise dose-response function, none of the noise contours overlap with the French ZSCs (see **Figure 39**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 20 km EDR for unmitigated piling (JNCC, 2025b), there is no overlap with the French ZSCs.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 20 km EDR
- French ZSCs

codling wind park

Project: Codling Wind Park

SMRU Consulting

Figure 39: Predicted overlap between disturbance contours from unmitigated piling of WTGs at CWP and the French ZSCs

CWP doc. number: CWP-SMR-CON-09-MAP-2117

N/A
IS - PAB..DPNM.CONT.CORNERS..THRESH.SEL.CONT.WTGs.CORNERS - FRENCH.ZSC.

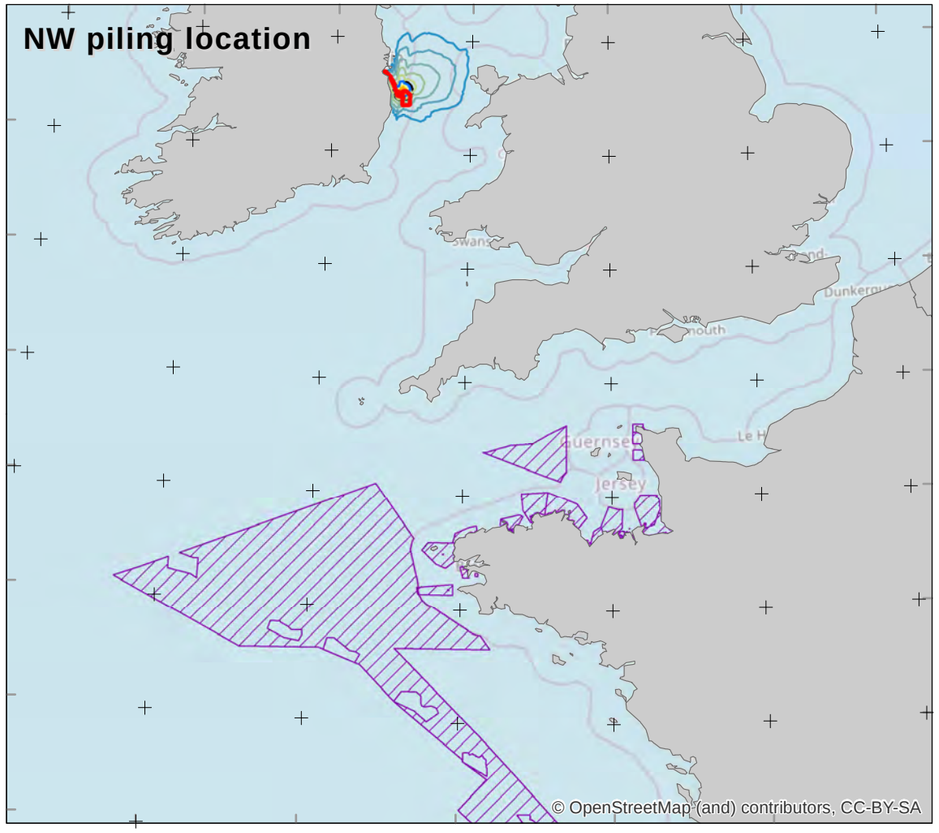
Size: A3
Scale: 1:7,000,000

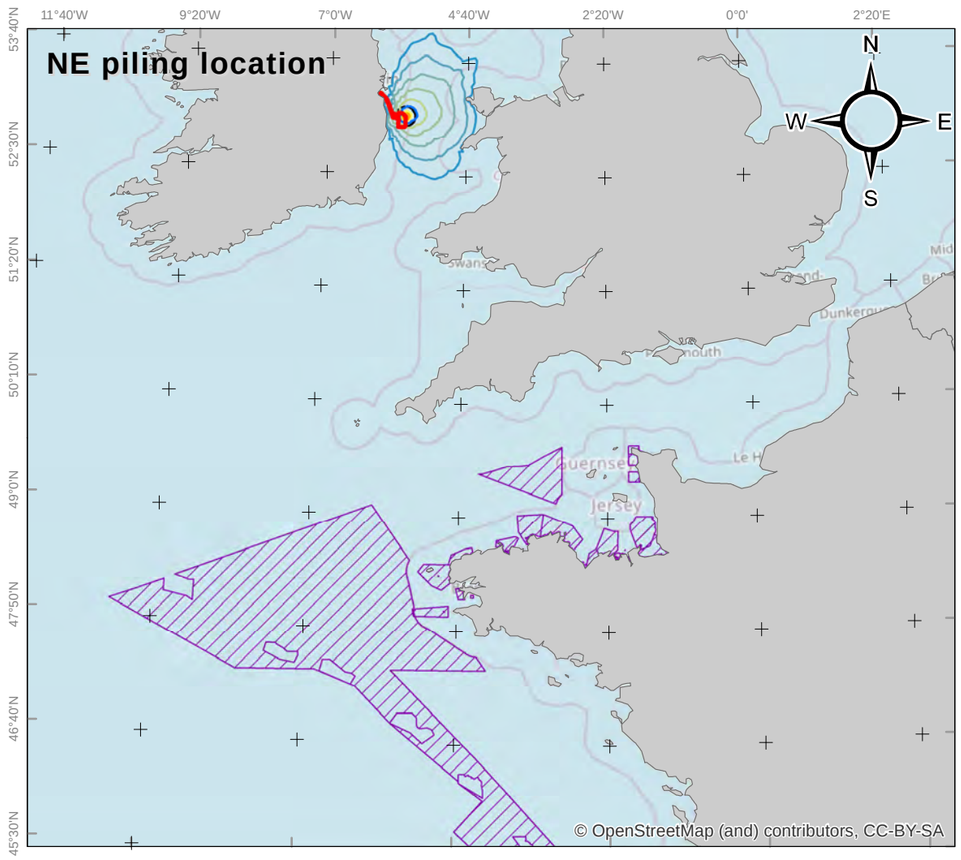
CRS: EPSG 25830

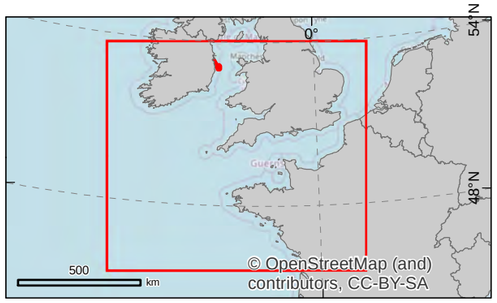
Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

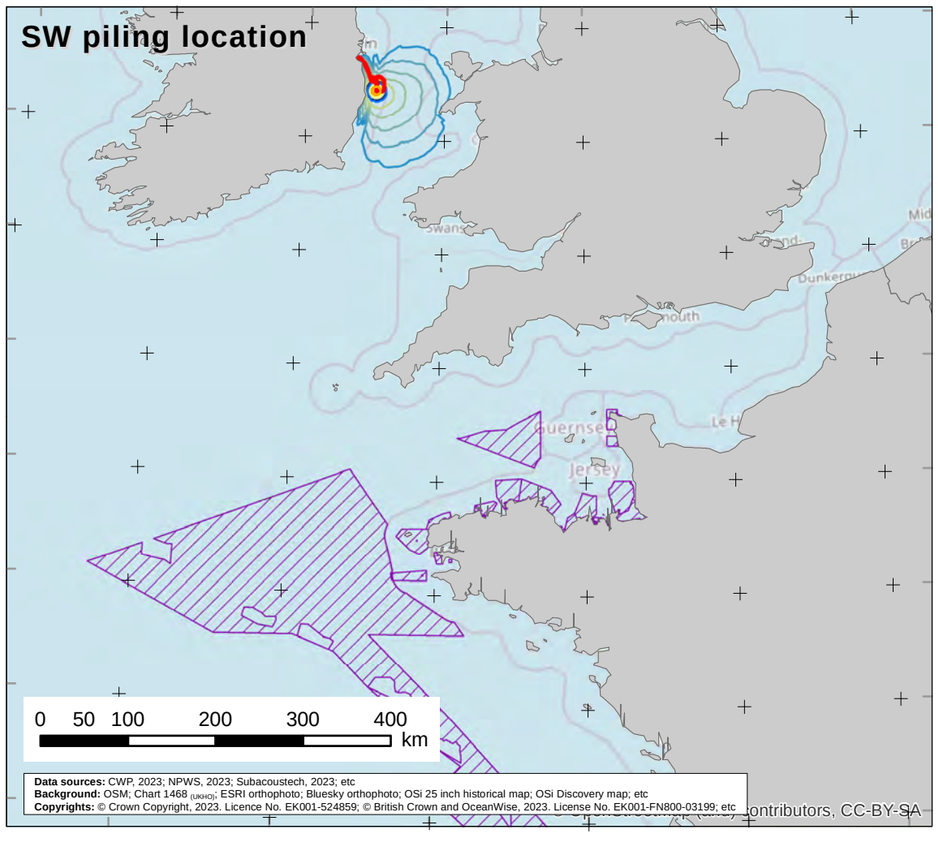
Mitigated piling

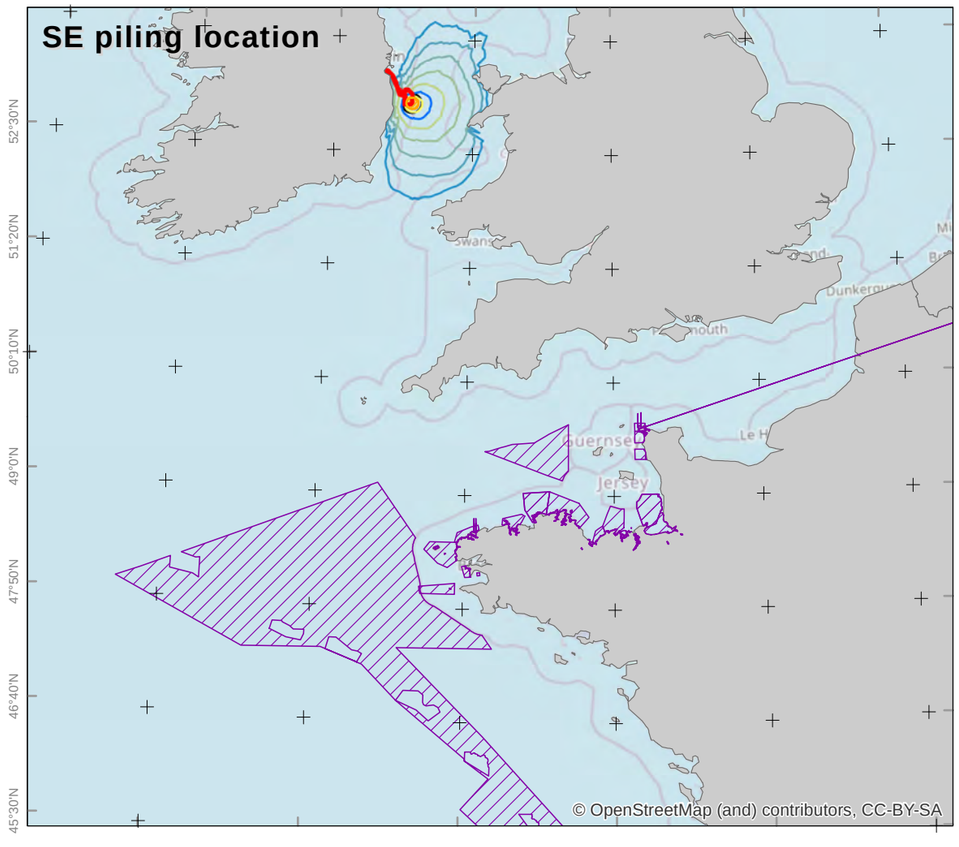
597. To further reduce the impacts from piling, the Applicant has committed to a piling updated **MMMP** that complies with DAHG (2014) guidance. The measure applicable to disturbance include the limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m at WTG and OSS piling events. None of the disturbance contours overlap with the Irish West Coast SACs (**Figure 40**). Similarly when considering the distance to both 145 dB SEL_{ss} (Lucke *et al.*, 2009) and level B harassment thresholds, as well as the 11 km EDR for mitigated piling (JNCC, 2025b), there is no overlap with the Irish West Coast SACs.











Legend

- Planning application boundary
- Level B harrassment threshold
- SEL_{ss} 145 dB re µPa²s threshold

SEL_{ss} dB re µPa²s (5dB contours)

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB
- 175 dB
- 180 dB
- 11 km EDR
- French ZSCs

codling wind park

Project: Codling Wind Park

SMRU Consulting

Figure 40: Predicted overlap between disturbance contours from mitigated piling of WTGs at CWP and the French ZSCs

CWP doc. number: CWP-SMR-CON-09-MAP-2118

Internal descriptive code: N/A

Size: A3

Scale: 1:7,000,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
A	Final version	03/04/2026	JC	RRS/EA	EA

598. For mitigated piling of WTGs, the approach presented below is in line with the EIAR Addendum (**Section 11** of the **EIAR Addendum (Part 1)**). When considering impacts at the MU scale, the harbour porpoise dose-response function predicted up to 668 porpoise to be disturbed on a single piling day, equating to 1.07 % of the Celtic and Irish Sea MU when a monopile foundation is installed at the SE location. To determine if this level of disturbance could have a population-level effect at the MU scale, and therefore contribute to any negative impact to the porpoise community under the Conservation Objective Target 2, further assessment detail is provided by population modelling. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day. This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE. The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the MU population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population.

599. Considering the above, mitigated piling at WTGs is unlikely to result in a significant negative impact on individuals or the harbour porpoise community within and outside the site. It will also not lead to the permanent exclusion of harbour porpoise from any part of its range within the site. Subsequently, behavioural disturbance from piling at WTGs will not adversely affect the harbour porpoise community at the site.

Conclusion

600. Considering the impact pathways described above, disturbance effects from increased underwater noise are anticipated to be below levels that may adversely affect the harbour porpoise individuals and community at the site and will not lead to permanent exclusion of harbour porpoise from a part of its range. As such, it can be concluded beyond reasonable scientific doubt that, adverse effects on the qualifying Annex II marine mammal species, harbour porpoise, which undermine the COs of the French ZSCs will not occur as a result of behavioural disturbance from underwater noise generated from WTG piling, UXO clearance and geophysical surveys at the CWP Project Alone.

3 REFERENCES

References remains unchanged

NIS ADDENDUM VOLUME 5 ASSESSMENT OF IMPLICATIONS FOR SPECIAL PROTECTION AREAS – PART 1

Section 1 remains unchanged

2 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES

The following is provided as an explanation of the approach taken to reassessments of potential impacts on SPAs with regard to the request for additional information (FIR) received from ACP.

Reassessment has been undertaken only in regard to topics specifically raised in the FIR. Where reassessment has been undertaken it has been done in relation to the present Conservation Objectives of the SPA in question. It is acknowledged that, for a number of SPAs which do not overlap with the proposed development areas, Conservation Objectives have changed from being generic at the time of the original application submission, to site and species specific at the time of submission of FIR response related documents. It is important to note that the application assessment utilised 'proxy' Conservation Objectives where it was felt that the published Conservation Objectives were generic. NIS Appendix A: SPA Site-specific Conservation Objectives presents a detailed comparison of Conservation Objectives that may be considered 'generic' and those that have been superseded by site specific Conservation Objectives. Among those SPAs where Conservation Objectives have changed in the period between drafting of the original application and submission of the FIR response, some did not have impacts that required an updated assessment for the FIR. The conclusions of these original impact assessments undertaken in relation to previous (generic) Conservation Objectives are valid with regard to updated (site- and species-specific) Conservation Objectives. The rationale for this is as follows:

1. The broad themes of previous generic Conservation Objective attributes, entirely overlap with the more precisely defined attributes and targets of updated site and species-specific Conservation Objectives.

   For example, the previous (generic) Conservation Objective [To maintain or restore the favourable conservation condition of the SCI(s)] attributes and targets of breeding seabird SPAs were:

   1. *Population dynamics data on the SCI indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.*
   2. *The natural range of the SCI is neither being reduced nor is likely to be reduced for the foreseeable future.*
   3. *There is, and will probably continue to be, a sufficiently large habitat to maintain the SCI's population on a long-term basis*.

   The kittiwake feature of Wicklow Head SPA provides an example of an SCI at an SPA where Conservation Objectives have been revised. The updated Conservation Objective [To restore the favourable conservation condition of the SCI] attributes are:

   1. *Breeding population size – Long term trend is stable or increasing*
   2. *Productivity rate – Sufficient to maintain a stable or increasing population*

   [These would previously have been considered in relation to generic attribute 1]

   3. *Distribution – Sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population*
   4. *Forage spatial distribution, extent, abundance and availability – sufficient to support the population target.*
   5. *Disturbance at breeding site – levels do not significantly impact birds at breeding site.*
   6. *Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population.*

7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

[These would previously have been considered in relation to generic attributes 2 and 3.]

As such, assessments undertaken against previous generic attributes provide the information necessary for An Coimisiún Pleanála to undertake an Appropriate Assessment for these SPAs even though generic Conservation Objectives have been changed to site-specific Conservation Objectives.

2. An additional rationale relating to Irish SPAs designated in relation to breeding seabird SCIs where Conservation Objectives have been updated since submission of the original application is below:

As noted above, when the original application was submitted, in relation to breeding seabird SPAs, the Applicant, being aware that NPWS was in the process of reviewing SPA Conservation Objectives, was able to predict specific Conservation Objectives prior to their publication (termed 'proxy Conservation Objectives'). These proxies were based on the existing Conservation Objectives and attributes of breeding seabird SPAs for which published Conservation Objectives were already site and species specific at the time of the drafting of the original application. As a parallel assessment against these proxy Conservation Objectives was included within the original application (NIS Volume 7: Appendix 7 – Ornithology Proxy Conservation Objectives), and the predicted proxy conservations align exactly, or very closely, with those ultimately published (see example, below), assessments undertaken with additional examination of proxy Conservation Objectives provide the information necessary for the Irish Ministers to undertake an Appropriate Assessment for these SPAs even though generic Conservation Objectives have been changed to specific Conservation Objectives.

The kittiwake feature of Wicklow Head SPA provides an example of an SCI at an SPA where Conservation Objectives have been revised. The predicted site and species-specific Conservation Objective [To restore the favourable conservation condition of the SCI attributes] align directly with six of the seven revised specific attributes. These were:

1. Breeding population abundance – No significant decline **[This aligns with specific attribute 1]**
2. Productivity rate – No significant decline **[This aligns with specific attribute 2]**
3. Distribution: breeding colonies – No significant decline **[This aligns with specific attribute 3]**
4. Prey biomass available – No significant decline **[This aligns with specific attribute 4]**
5. Barriers to connectivity – No significant increase **[This aligns with specific attribute 7]**
6. Disturbance at the breeding site – No significant increase **[This aligns with specific attribute 5]**

Proxy attributes align indirectly with the remaining revised specific attribute [*6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population*] as no impacts to the breeding colony resulted in an AESI in relation to Conservation Objective 1.

2.1 Introduction or spread of invasive non-native species: High level assessment for non-overlapping SPAs

Section 1 remains unchanged

2.2 South Dublin Bay and River Tolka Estuary SPA (IE004024)

Section 2.2 remains unchanged except for the following paragraphs which have been replaced by the paragraphs indicated below. This is in response to FIR item 7v which relates to the timing of roosting tern disturbance periods within South Dublin Bay SPA see **FIR Response Document**).

Paragraphs 40 to 43 (relating to roosting common tern) are replaced by paragraphs 601 to 604;

601. Baseline acoustic surveys describe a summary of measurement results as having an L_{A90} (i.e., the sound level that is exceeded for 90% of the sample period; it is typically used as a descriptor for background noise) of 55 dB and a L_{Aeq} (i.e., the equivalent continuous sound level; a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period between the times of 1335 and 1516) of 70dB. Piling noise from the CWP project has been modelled in bands of High (>70 dB), Medium (55 dB to 70 dB) and Low (40dB to 55dB) acoustic stimuli (**Section 10.10.2** of **Chapter 10 Ornithology** of the EIAR**,**). Acoustic disturbance associated with any given piling event during daylight hours, when terns are not forming nocturnal roosting aggregations within South Dublin Bay (from sunrise until approximately one hour before sunset (Tierney *et al.*, 2016)), will, on average, result in potential disturbance to only a very small number of *Sterna* terns present within the South Dublin Bay and River Tolka Estuary SPA during the breeding season (up to 0.3 individuals where the greatest extent of mobile construction activities are implemented (i.e., Alternative Alignment for the purposes of Modelling (AAM) scenario). This represents a up to 1.07% of the average number of *Sterna* terns present within the South Dublin Bay section of the South Dublin Bay and River Tolka Estuary SPA during diurnal baseline surveys (28.02 individuals), up to 0.03% of the SPA common tern breeding population (988 individuals – 2016 count, SMP 2023) and <0.01% of the mean peak count of *Sterna* terns from post-breeding tern aggregation surveys in South Dublin Bay 2013 – 2018 (7,364 individuals - see **Table 3.4** in **Technical Appendix 10.5 Baseline Characterisation Report** of the EIAR).

602. Visual stimuli associated with intertidal cable route installation activities between sunrise and approximately one hour before sunset, will, on average, result in potential disturbance to only a very small number of *Sterna* terns present within the South Dublin Bay and River Tolka Estuary SPA (up to 2.88 individuals for the most impactful cable laying route selection). This represents up to 10.26% of the average number of *Sterna* terns present within the South Dublin Bay section of the South Dublin Bay and River Tolka Estuary SPA during diurnal baseline surveys (28.02 individuals), up to 0.29% of the SPA common tern breeding population (988 individuals – 2016 count, SMP 2023) and 0.04% of the mean peak count of *Sterna* terns from post-breeding tern aggregation surveys in South Dublin Bay 2013 – 2018 (7,364 individuals - see **Table 3.4** in **Technical Appendix 10.5 Baseline Characterisation Report** of the EIAR).

603. As such, given the very limited number of individuals potentially experiencing disturbance in relation to diurnal construction phase activities within intertidal areas of South Dublin and River Tolka Estuary SPA, there is no potential for AESI to result from such activities to this SCI of the SPA when considering the Conservation Objectives, attributes and targets of the SPA.

604. Should, however, construction activities be undertaken during periods in which *Sterna* terns form post breeding roosting aggregations within South Dublin Bay (specifically between one hour before sunset through to sunrise, from mid-July to September, inclusive), acoustic and visual stimuli from such activities may result in potential disturbance impacts to larger numbers of *Sterna* terns within the South Dublin Bay and River Tolka Estuary SPA, than if activities were conducted outside of these periods.

Paragraphs 196 to 199 (relating to roosting Arctic tern) and paragraphs 308 to 311 (relating to roosting roseate tern) are replaced by paragraphs 605 to 608, respectively;

605. Acoustic stimuli associated with any given piling event during daylight hours, when terns are not forming nocturnal roosting aggregations within South Dublin Bay (from sunrise until approximately one hour before sunset (Tierney *et al.*, 2016)), will, on average, result in potential disturbance to only a very small number of *Sterna* terns present within the South Dublin Bay and River Tolka Estuary SPA (up to 0.3 individuals where the greatest extent of mobile construction activities (i.e. Alternative Alignment for the purposes of Modelling (AAM) scenario) are implemented). This represents an up to 1.07% of the average number of *Sterna* terns present within the South Dublin Bay section of the South

Dublin Bay and River Tolka Estuary SPA during diurnal baseline surveys (28.02 individuals) and <0.01% of the mean peak count of *Sterna* terns from post-breeding tern aggregation surveys in South Dublin Bay 2013 – 2018 (7,364 individuals - see **Table 3.4** in **Technical Appendix 10.5 Baseline Characterisation Report** of the EIAR).

606. Visual stimuli associated with intertidal cable route installation activities between sunrise and approximately one hour before sunset, will, on average, result in potential disturbance to only a very small number of *Sterna* terns present within the South Dublin Bay and River Tolka Estuary SPA (up to 2.88 individuals for the most impactful cable laying route selection). This represents up to 10.26% of the average number of *Sterna* terns present within the South Dublin Bay section of the South Dublin Bay and River Tolka Estuary SPA during diurnal baseline surveys (28.02 individuals) and 0.04% of the mean peak count of *Sterna* terns from post-breeding tern aggregation surveys in South Dublin Bay 2013–2018 (7,364 individuals - see **Table 3.4** in **Technical Appendix 10.5 Baseline Characterisation Report** of the EIAR).

607. As such, given the very limited number of individuals potentially experiencing disturbance in relation to diurnal construction phase activities within intertidal areas of South Dublin and River Tolka Estuary SPA, there is no potential for AESI to result from such activities to this SCI of the SPA when considering the Conservation Objectives, attributes and targets of the SPA.

608. Should, however, construction activities be undertaken during periods in which *Sterna* terns form post breeding roosting aggregations within South Dublin Bay (specifically between one hour before sunset through to sunrise, from mid-July to September, inclusive), acoustic and visual stimuli from such activities may result in potential disturbance impacts to larger numbers of *Sterna* terns within the South Dublin Bay and River Tolka Estuary SPA, than if activities were conducted outside of these periods.

Paragraph 445 (relating to proposed mitigation of construction phase disturbance and displacement impacts to SCIs of South Dublin Bay and River Tolka Estuary SPA at the OECC intertidal landfall) is replaced by paragraph 609:

609. Full details of this seasonal restriction additional mitigation are as follows:

- No construction phase cable route installation or associated activities, including preparatory works, will be undertaken within the South Dublin Bay area during the period of September to mid-April, inclusive.
- This area corresponds with the extent of intertidal habitat (areas between MLWS and MHWS) within the South Dublin Bay part of the South Dublin Bay and River Tolka Estuary SPA, and also includes a small area of terrestrial habitat covering the Goose Green area at Poolbeg.

2.3 North Bull Island SPA (IE004006)

Section 2.4 remains unchanged except for paragraph 674 (relating to proposed mitigation of construction phase disturbance and displacement impacts to SCIs of North Bull Island SPA at the OECC intertidal landfall) is replaced by paragraph 610:

610. Full details of this seasonal restriction additional mitigation are as follows:

- No construction phase cable route installation or associated activities, including preparatory works, will be undertaken within the South Dublin Bay area during the period of September to mid-April, inclusive.
- This area corresponds with the extent of intertidal habitat (areas between MLWS and MHWS) within the South Dublin Bay part of the functionally connected South Dublin Bay and River Tolka Estuary SPA.

2.4 Dalkey Islands SPA (IE004172)

Section 2.4 remains unchanged except for paragraphs 859 to 862 (relating to roosting common tern), paragraphs 996 to 999 (relating to roosting Arctic tern) and paragraphs 1,129 to 1,132 (relating to roosting roseate tern), which are replaced by paragraphs 605 to 608 (above). This is in response to FIR item 7v which relates to the timing of roosting tern disturbance periods within South Dublin Bay and River Tolka Estuary SPA, which is treated as being functionally connected with Dalkey Islands SPA, (see **FIR Response Document**).

2.5 The Murrough SPA (IE004186)

Section 2.5 (The Murrough SPA) remains unchanged with the exception of the assessment of disturbance and displacement impacts to the red-throated diver SCI, which has been revised in response to FIR items 7F and 7K. Revised assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 19, below, replaces the equivalent section of Table 2-22 in Section 2.5. of Volume 5, Part 1 of the NIS. Table 19 outlines the updated Conservation Objectives, Attributes and Targets for The Murrough SPA for red-throated diver. Construction Phase impact 2 – Disturbance and Displacement paragraphs 1472 to 1486 of Section 2.5.3 of Volume 5, Part 1 in the NIS are replaced by paragraphs 611 to 627, below. Operation and Maintenance impact 2 – Disturbance and Displacement paragraphs 1511 to 1539 of Section 2.5.3 of Volume 5, Part 1 in the NIS are replaced by paragraphs 628 to 662, below.

Table 19 Summary of assessment of adverse effects on site integrity (project alone) - The Murrough SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
Objective: To maintain the favourable conservation condition of the red-throated diver in The Murrough SPA, which is defined by the following list of attributes and targets: 1. Non-breeding population size - the number of birds indicate that the long term SPA population trend is stable or increasing; 2. Spatial distribution - the number of hectares, time spent and intensity of use by red-throated diver is indicative of a sufficient number of locations, areas and availability (in terms of timing and intensity of use) of suitable habitat to support the population target; 3. Disturbance across the site - the intensity, frequency, timing and duration of disturbance show that disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution 4. Barriers to connectivity and site use - the number, location, shape and hectares of any barriers to connectivity do not significantly impede the site population's access to the SPA or other ecologically important sites outside the SPA; 5. Forage spatial distribution, extent and abundance - the location of, number of hectares and forage biomass indicate a sufficient number of locations, areas of suitable habitat and available forage biomass to support the population target; and 6. Roost spatial distribution and extent - the location and hectares of roosting habitat indicate a sufficient number of locations, areas and availability of suitable roosting habitat to support the population target	Red-throated diver [A001]				
	Disturbance and displacement (including barrier effects) [1,2,3,4,5,6]	**Section 2.5.3**	None	No change	No AESI

2.5.3 Receptor 3: Red-throated diver

Construction Phase Impacts

Construction phase impact 2 – Disturbance and displacement

OECC (including intertidal landfall area)

Project-only assessment

611. During the construction phase of the CWP Project, vessel traffic within the OECC may result in the temporary disturbance and displacement of the red-throated diver SCI of The Murrough SPA from areas of *ex situ* supporting habitat within and surrounding the OECC, as well as in-situ within a very small area of overlap between the OECC and the SPA. Red-throated diver is particularly sensitive to disturbance by vessel activity and individuals within The Murrough SPA may experience temporary disturbance and displacement impacts from vessel activity associated with construction phase activities within the part of the OECC which falls within The Murrough SPA or in close vicinity to the SPA's boundaries.

612. Disturbance and displacement have the potential to impact on the following Conservation Objective attributes and targets for this SPA SCI:

- Non-breeding population size - the number of birds indicate that the long term SPA population trend is stable or increasing;
- Spatial distribution - the number of hectares, time spent and intensity of use by red-throated diver is indicative of a sufficient number of locations, areas and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Disturbance across the site - the intensity, frequency, timing and duration of disturbance show that disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution;
- Barriers to connectivity and site use - the number, location, shape and hectares of any barriers to connectivity do not significantly impede the site population's access to the SPA or other ecologically important sites outside the SPA;
- Forage spatial distribution, extent and abundance - the location of, number of hectares and forage biomass indicate a sufficient number of locations, areas of suitable habitat and available forage biomass to support the population target; and
- Roost spatial distribution and extent - the location and hectares of roosting habitat indicate a sufficient number of locations, areas and availability of suitable roosting habitat to support the population target.

613. In relation to these Conservation Objective attributes, disturbance leading to displacement of red-throated diver from *ex situ* supporting habitats and an extremely limited areas of in-situ habitat, may lead to the temporary exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours.

614. Temporary reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, may affect the energetic costs of those behaviours and, in turn, affect the condition of individuals and

their consequent survival and/or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

615. Construction phase works within the OECC at any period in time, and the associated extent of areas in which the SCI may experience potential disturbance or displacement by construction vessels will cover only an extremely small proportion of the overall OECC and surrounding areas. Studies undertaken within the North and Baltic Seas by Fliessbach et al., (2019), describe the maximum ranges at which seabird species demonstrate disturbance responses to approaching vessel traffic. From these ranges it is possible to estimate the maximum spatial extent of *ex situ* and *in situ* disturbance and displacement impacts as a result of construction phase vessel activity around each vessel within the OECC. The maximum disturbance response range of red-throated diver is 2 km per Fliessbach et al. (2019), which yields a maximum potential extent of *ex situ* areas experiencing disturbance around each vessel of 12.556 km2. The area of overlap between the OECC and the SPA boundary is 0.014 km2, which equates to 0.04% of the OECC area (38.22 km2) and 0.01% of The Murrough SPA area (97.69 km2). This area of overlap follows a seaward expansion of The Murrough SPA in 2023, with the OECC slightly overlapping the north-eastern corner of the revised SPA boundary.

616. Potential for disturbance and displacement within the OECC during the construction phase of the project relates to works associated with cable laying and transport of materials and personnel to and from the areas of works within the application area over the course of the construction phase of the project. During such activities, displacement and disturbance would potentially occur within a limited range of any vessels involved.

617. Construction phase activities within the OECC will include up to a maximum of seven vessels at any one time in offshore areas. These vessels will typically be operating in close proximity to accomplish specific construction activities and therefore have overlapping areas in which they may be causing disturbance.

618. For red-throated diver within the context of the extent of available in-situ SPA habitat and *ex situ* supporting habitat, the area in which temporary disturbance and displacement may occur in relation to construction phase vessel activity within the OECC is considered negligible. In the event of potential temporary exclusion from affected areas, a sufficient extent of accessible suitable supporting habitat and foraging resource within and surrounding the SPA would remain available to the SCI to support SPA population targets.

619. From studies undertaken within the North and Baltic Seas (Fliessbach et al., 2019), almost all unidentified divers and divers identified as red-throated divers were observed to demonstrate escape responses (in the form of taking flight) in response to approaching vessels. The mean distance at which these responses occurred was 1,374 m or 1,281 m for individual or groups of unidentified divers, respectively, and 750 m or 702 m for individual or groups identified as red-throated divers, respectively. The maximum distance at which these responses occurred (provided only in relation to individuals in Fliessbach et al., 2019) was 2,000 m for unidentified divers and 1,700 m for individuals identified as red-throated divers. The minimum distance at which these responses occurred (provided only in relation to individuals in Fliessbach et al., 2019) was 340 m for unidentified divers and 250 m for individuals identified as red-throated divers.

620. Given the proximity of the overlap between the potential disturbance radii of vessels undertaking construction works within the OECC and The Murrough SPA, and making the conservative assumption to use the disturbance responses ranges from Fliessbach et al. (2019) of unidentified divers (except for minimum distances, where the value for identified red-throated divers is considered appropriate), it is estimated that:

- 6.69% (6.53 km^2) of the area of The Murrough SPA lies within the maximum range (2,000 m) of areas within the OECC in which vessels may undertake construction phase activities at which divers have been observed to demonstrate avoidance responses;

- 3.38% (3.30 km^2) of the area of the Murrough SPA lies within the mean range (1,374 m) of areas within the OECC in which vessels may undertake construction phase activities at which divers have been observed to demonstrate avoidance responses; and
- 0.17% (0.17 km^2) of the area of the Murrough SPA lies within the minimum range (250 m) of areas within the OECC in which vessels may undertake construction phase activities at which divers have been observed to demonstrate avoidance responses.

621. Digital aerial survey (DAS) surveys during the winter 2024/25 period covered The Murrough SPA as well as the areas where 10 km buffers from both The Murrough SPA and from the array site overlap. These surveys recorded numbers and distributions of red-throated divers. The pattern of diver distribution reflected this species' preference for shallower waters (with higher concentrations of birds being recorded within nearshore areas of The Murrough SPA and on Codling Bank itself) and avoidance of vessel activity (with birds being recorded less frequently in the vicinity of the shipping route which runs north-south along the eastern edge of The Murrough SPA; see Chapter 16 Shipping and Navigation). This shipping corridor is used by large cargo vessels travelling between Dublin and other ports (mostly Rotterdam), with passage rates of approximately nine to twelve cargo vessels per day, in addition to smaller numbers of fishing and recreational vessel traffic.

622. The peak abundance of red-throated diver within The Murrough SPA and a 10 km buffer of the array site is estimated from site-specific DAS surveys in the winter of 2024/2025 which are further validated by data from 25/26 surveys (**Appendix 10-I Design-based Density, Abundance Estimates and Distributional response of the Red-throated Diver** of the EIAR Addendum). The peak abundance was 15.141 individuals (with the average abundance being 2.524 individuals). Given the limited duration of predicted disturbance impacts associated with activities within the OECC during the construction phase of the project, the small number (at most) of individuals within a small part of the SPA, where baseline levels of vessel disturbance are already high, the potential for construction phase activity within the OECC to cause significant additional displacement effects to the red-throated diver SCI of The Murrough SPA is assed to be negligible. Furthermore, any disturbance impacts which have the potential to affect the relevant COs for red-throated diver are reversible, with marine areas becoming available again to red-throated divers following cessation of the disturbance-inducing activity or vessel presence. Therefore, there is no potential for such activities to result in an AESI in relation to the Conservation Objectives and attributes and targets for these SCIs as stated in **Table 6**.

623. With regards to disturbance and displacement impacts from construction phase activities within the OECC, levels of impact are not considered capable of altering any Conservation Objective attributes in such a way as to impede the realisation of attribute targets. The CWP Project will therefore not impede the overall objective for the SCI of maintaining favourable conservation condition at The Murrough SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to The Murrough SPA.

Proposed mitigation

624. Despite disturbance and displacement impacts associated with construction phase activities within the OECC not resulting in an AESI to the red-throated diver SCI of The Murrough SPA, due to the proximity of the array site and OECC to the SPA (the latter overlapping a small area of the SPA over an area of 0.014km^2), additional mitigation in the form of protocols presented in the updated EVMP will be implemented to reduce potential vessel related disturbance to red-throated diver.

625. These protocols include speed limits (40 km/h or 21.5 knots when operating or transiting inside or within 2 km of The Murrough SPA), avoiding non-essential vessel transits through The Murrough SPA (where practicable), and routing construction vessel movements to make preferential use of existing

shipping lanes (where practicable) in order to reduce vessel activities outside of areas in which baseline levels of vessel transit are high.

Residual impacts

626. As per the project-only assessment, above.

Project-only effect on site integrity conclusion for impact

627. The Conservation Objective and its attributes and targets for this SPA SCI are presented in **Table 19**. Disturbance and displacement effects during the construction phase of the CWP Project can be concluded not to impede the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for this SPA SCI**.

Operation and Maintenance Phase Impacts

Operation and maintenance impact 2 – Disturbance and displacement

Array site (indirect habitat loss and barrier effects)

Project-only assessment

628. Disturbance and displacement have the potential to impact on the following Conservation Objective attributes and targets for this SPA SCI:

- Non-breeding population size - the number of birds indicate that the long term SPA population trend is stable or increasing;
- Spatial distribution - the number of hectares, time spent and intensity of use by red-throated diver is indicative of a sufficient number of locations, areas and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Disturbance across the site - the intensity, frequency, timing and duration of disturbance show that disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution;
- Barriers to connectivity and site use - the number, location, shape and hectares of any barriers to connectivity do not significantly impede the site population's access to the SPA or other ecologically important sites outside the SPA;
- Forage spatial distribution, extent and abundance - the location of, number of hectares and forage biomass indicate a sufficient number of locations, areas of suitable habitat and available forage biomass to support the population target; and
- Roost spatial distribution and extent - the location and hectares of roosting habitat indicate a sufficient number of locations, areas and availability of suitable roosting habitat to support the population target.

629. Operation and maintenance phase disturbance and displacement impacts to the red-throated diver SCI of The Murrough SPA from activities associated with the presence of the array site may occur through distributional responses to vessel traffic within and around the array site, avoidance of areas around WTGs during normal operation by birds on the sea surface, or alteration of flightpaths by migrating or commuting individuals.

630. Red-throated diver is widely recognised as being particularly sensitive to human activities in marine

areas, including through the disturbance effects of vessel traffic and the presence of WTGs (Garthe and Hüppop 2004; Schwemmer *et al.*, 2011; Furness and Wade 2012; Furness *et al.*, 2013; Bradbury *et al.*, 2014; Wade *et al*, 2016). The UK Statutory Nature Conservation Bodies (SNCBs) recommend the use of a 100% displacement rate to a 4 km buffer and a 10% mortality rate; or reduced displacement and mortality rates for buffers of up to 10 km (UK SNCBs, 2022). However, studies to quantify displacement rates, distances at which displacement occurs, and the consequences of displacement report a wide range of observed responses.

631. For example, a review from the English southern North Sea for the Norfolk Vanguard OWF examination found the strongest evidence-led position to be a displacement rate of 90% affecting the array site and a 2 km buffer and a 1% mortality rate of displaced birds (MacArthur Green, 2019). However, analysis and interpretation of pre-, during- and post-construction survey results from the Irish Sea/Liverpool Bay area for the constructed Gwynt y Môr and Rhyl Flats OWFs assessing potential changes in the abundance and distribution of red-throated diver throughout the Gwynt y Môr construction and operation, found that the operation of Gwynt y Môr currently appears to have had little influence on the presence of red-throated diver in this area (APEM, 2011; RWE Renewables, 2019).

632. Such variability in red-throated diver displacement response estimates between studies is likely to be a consequence of differing conditions between studies. These would include differences in baseline characterisation methods such as survey platform, programme duration and timings, as well as site conditions such as array design and proximity to diver foraging areas. In a meta-analysis of post-construction monitoring from a number of OWFs in the UK and the North Sea, Hall (2024) found that the extent to which red-throated divers exhibited within-windfarm displacement responses was influenced by WTG diameter, turbine spacing and density of turbines. Birds exhibited less of a distributional response to array sites comprised of fewer, larger turbines compared to older OWFs with smaller, more densely distributed WTGs. The approach to assessing red-throated diver displacement follows a similar rationale to that applied for auk species in the EIAR, where mortality and displacement rates were justified using precautionary, evidence-based approach.

633. For the assessment of displacement rates of red-throated diver it is considered appropriate to use the three distance bands extending out to 10 km, which allows the assessment to reflect the likely decay in displacement response to WTGs with increasing distance from the array site; a phenomenon which has been widely observed in studies relating to red-throated diver displacement (Heinänen *et al.*, 2020; Mendel *et al.*, 2019). This is a more appropriate method for calculating displacement rate over the larger distance of 10 km, rather than the application of a uniform rate across the entire study area, as it more closely reflects the best available scientific evidence currently available. Hall (2024) further demonstrates that diver responses to OWF construction are highly variable, with some sites showing strong avoidance while others exhibit limited displacement beyond a few kilometres. The Applicant has precautionarily applied a displacement rate of 100% within the array, with progressively lower displacement assumptions in outer bands (57.175% in the 0 km to 5 km band and 34.025% in the 5 km to 10 km band; see **Appendix 10-J Parameterisation of Red-throated Diver Displacement Rates** of the **EIAR Addendum**).

634. Site-specific DAS data collected over six surveys during winter 2024/2025, and further validated by raw data for 25/26 (which is provided in **Appendix 10-D Baseline and Contemporary Survey Data Comparison** of the **EIAR Addendum)**, provides evidence on the spatial variation in habitat quality for red-throated divers wintering in the region. The composite of the existing characterisation surveys presented in the application and the 24/25 and 25/26 data demonstrate that the shallow waters of Codling Bank itself provide comparatively more favourable conditions (although the density of flying birds within the array site and a 4 km buffer during baseline surveys was extremely low) than the shipping area to the west, but markedly less favourable than areas to the west of the shipping route, within the SPA. The shipping route which traverses a north-south alignment through waters to the west of the array site and the outer reaches of the 10 km buffer comprise sub-optimal habitat, characterised

by deeper water and heavy vessel traffic. The shipping route consistently supported very low diver densities during aerial surveys, indicating that any displacement from these zones would have negligible ecological consequences for red-throated diver. The relative importance of diver habitats (and therefore the potential impact of displacement from the array site) declines sharply with distance from the array footprint (Hall, 2024; JNCC, 2022).

635. In terms of the Murrough SPA, the winter 2024/25 DAS area comprises the entirety of the SPA, as well as offshore areas of marine habitat which lie within 10 km of both The Murrough SPA and the array site.. Winter 2024/24 DAS recorded a pattern of distribution which reflects what is known about red-throated diver behaviour and distribution within the region, with low densities of birds being recorded within the offshore reaches of The Murrough SPA (adjacent to and within the north-south orientated shipping lane) and a higher occurrence of individuals associated with shallower waters around Codling Bank and nearshore areas of The Murrough SPA.

636. Red-throated diver is a relatively long-lived species with individuals typically breeding for many seasons and producing relatively few young each year. Substantial increases to mortality rates, particularly if they affect breeding adults, would therefore be likely to result in population level effects. The absence of any population change, derived from a large and long-term monitoring dataset (Vilela *et al.*, 2020), is therefore indicative that the probability of individuals experiencing mortality or fitness effects from OWF related displacement leading to demographic consequences is very low, and provides support for a very low (e.g. 1%, or smaller) displacement mortality rate to be used for OWF displacement impact assessment, rather than a high (e.g. 10%) displacement mortality rate. This conservative rate is supported by studies from the German Bight, which indicate that, while divers are displaced from turbine areas, there is little evidence of associated population-level declines. This is likely due to redistribution into alternative habitats and low intra-specific competition (BioConsult SH, 2020; Dierschke *et al.*, 2017). These findings support the conclusion that displacement does not equate to significant mortality, and justify the precautionarily proportionate approach adopted for the assessment of red-throated diver displacement.

637. In a UK Crown Estate (2019) commissioned plan level Habitats Regulations Assessment (HRA) for English waters, when considering potential impact of displacement to red-throated diver from Gwynt y Môr OWF in the Welsh part of the Irish Sea, it was stated that: "*There is no evidence currently available that displacement will directly result in the mortality of individual birds. Mortality as a consequence of displacement is more likely to occur as a result of increased densities outside of the impacted area, which may lead to increased competition for resources. Displacement of birds from lower density areas, which are likely to be of lower habitat quality is less likely to result in mortality than would be the case in areas of high density and hence higher habitat quality. It is assumed that there are more opportunities for birds in lower quality habitats to relocate to habitats of similar quality. As such, the use of a 1% mortality rate is considered appropriate for this assessment*."

638. When this rationale is presented in the context of both observed diver habitat use within the western Irish Sea (i.e., Figure 78 within Jessop *et al.*, 2018) and the distribution of divers observed during the 2024/25 DAS campaign, displacement of red-throated diver from the CWP array site, which is not among the highest density areas within the region, may also be considered as displacement of birds from lower density areas. Such displacement from relatively lower quality habitats, where there is a large amount of similar (or better) quality habitat within the western Irish Sea region is therefore unlikely to result in significant increases in intra-specific competition within the region and, as such, the use of a 1% mortality rate is further supported for this assessment.

639. The displacement matrices provided in **Appendix 10-I: Design-based density, abundance estimates and distributional response of the red-throated diver** of the **EIAR Addendum** estimate mortality for displaced red-throated divers across a range of rates (0.5%–10%). However, the Applicant considers that mortality is likely to occur at the low end of this range and has applied a 1% displacement mortality rate, consistent with current guidance within the broader Irish Sea (JNCC, 2022). This assumption is supported by empirical evidence from European waters such as the German

Bight, where monitoring and modelling have shown clear displacement responses to OWFs, with detectable responses to turbine arrays and adjacent areas up to 10 to 15 km away (Heinänen *et al.*, 2020; Mendel *et al.*, 2019). Despite this avoidance, there is limited evidence of a corresponding decline in the red-throated diver population within the region (BioConsult SH; 2020). This suggests that displaced individuals are able to redistribute into alternative habitats without significant demographic consequences, likely due to low baseline densities and limited intra-specific competition for prey resources (Dierschke *et al.*, 2017). Given the regional distribution of red-throated diver (i.e., Figure 78 within Jessop *et al.*, 2018) this is anticipated to be applicable to Codling Wind Park, and this assessment. Based on these findings, and in line with JNCC's interim advice, the 1% mortality rate remains the most appropriate and precautionary assumption for this assessment (JNCC, 2022).

640. Red-throated divers are unlikely to experience significant levels of increased density-dependant competition or interference as a result of redistribution due to avoidance of OWFs, as this species utilises a broad range of prey species and does not typically aggregate in high densities within marine foraging areas (Diershke *et al.*, 2017).

641. The average annual mortality rate of red-throated diver is estimated to be 22.4% (calculated from demographic parameters presented in Horswill and Robinson, 2015 – see **Section 10.6**, **Table 10-15** of **Chapter 10 Ornithology** of the EIAR).

642. Available red-throated diver abundance data recorded as part of the ObSERVE survey programme (Jessopp *et al.*, 2018) provide an estimated of 131 birds within the SPA. However, whilst this does give helpful regional context, the temporal resolution of the ObSERVE data is relatively low (two aircraft passes over the SPA; Jessopp *et al.*, 2018). As such, this assessment has been undertaken using data collected from site-specific red-throated diver DAS surveys, as this is a more methodologically robust dataset for the following reasons:

- The DAS area covers areas where 10 km buffers from both The Murrough SPA and from the array site overlap;
- DAS data provide distributional information on red-throated divers within the regions; and
- Site-specific DAS data were collected at a higher spatial and temporal resolution than ObSERVE data.

643. Contemporary DAS surveys undertaken in 2024/25 yielded a peak abundance within the SPA of 211.64 red-throated diver (in December 2024) and an average abundance within the SPA across November 2024 to April 2025 non-breeding season of 63.375 individuals (**Appendix 10-I Design-based Density, Abundance Estimates and Distributional Response of the Red-throated Diver** of the **EIAR Addendum**). The estimated peak abundance of red-throated diver within the area of The Murrough SPA which lies within a 10 km of the array site (i.e. into which displacement impacts from the array are considered to potentially extend) was 15.21 individuals (in December 2024) and the average abundance within this part of the SPA across November 2024 to April 2025 non-breeding season was 2.535 individuals [Note: Red throated diver was observed within the area of the SPA which is within 10 km of the array area in one of the six surveyed months of the 2024/25 breeding season] (**Appendix 10-I Design-based Density, Abundance Estimates and Distributional Response of the Red-throated Diver** of the **EIAR Addendum**).

644. By applying the 5 km to 10 km displacement rate of 34.025% and a resulting mortality rate of 1%, the estimated additional mortality of red-throated diver within The Murrough SPA would be 0.052 birds per annum (i.e. one individual every 19.3 years) based on the peak monthly densities within the impacted part of the SPA, or 0.009 birds per annum (i.e. one individual every 115.9 years) based on the average monthly densities within the impacted part of the SPA.

645. In relation to the peak red-throated diver population of The Murrough SPA estimated from contemporary DAS datasets (211.64 individuals), from which a total average annual mortality of 47.407 individuals would be calculated (assuming 22.4 % annual mortality rate – Horswill and Robinson, 2015), predicted peak and average additional mortalities resulting from displacement within the SPA

(0.052 and 0.009 individuals, respectively) would constitute 0.110% and 0.019% increases to baseline SPA mortality rates.

646. In relation to the designated population of The Murrough SPA (131 individuals ref SPA designation, based upon Jessopp *et al.* 2018 datasets), from which a total average annual mortality of 29.334 individuals would be calculated (assuming 22.4 % annual mortality rate – Horswill and Robinson, 2015), predicted peak and average additional mortalities resulting from displacement within the SPA (0.052 and 0.009 individuals, respectively) would constitute 0.177% and 0.031% increases to baseline SPA mortality rates. However, it should be noted that these latter estimates are based upon mortality predictions from observations indicating there to be more individuals within the SPA than the presently designated population, and consequently should be considered excessively precautionary.

647. Regardless of how potential displacement impacts to The Murrough SPA red-throated diver population are contextualised, these very small increase to the baseline mortality rates do not result in an AESI to the red-throated diver SCI of The Murrough SPA in relation to the Conservation Objectives, attributes and targets outlined in **Table 19**.

648. With regards to potential barrier effects to red-throated diver due to the presence of standing infrastructure within the array site, flight densities observed within the array site and a surrounding 4 km buffer area during baseline surveys were extremely low (**Technical Appendix 10.5: Baseline Characterisation Report** of the EIAR). Consequently, disturbance and displacement impacts resulting from barrier effects to the red-throated diver SCI of The Murrough SPA do not have the potential to result in AESI in relation to the Conservation Objectives, attributes and targets outlined in **Table 19**.

Proposed mitigation

649. Despite disturbance and displacement impacts associated with operation and maintenance phase activities within the array site not resulting in AESI to the red-throated diver SCI of The Murrough SPA, due to the proximity of the array site and OECC to the SPA (the latter overlapping a small area (0.014 km^2) of the SPA, additional mitigation in the form protocols in the updated Ecological Vessel Management Plan EVMP will be implemented to reduce the potential for vessel-related disturbance to red-throated diver. Following consultation with ACP, the updated EVMP commits project vessels to a speed limit of 40 km/h or 21.5 knots when operating or transiting inside or within 2km of The Murrough SPA.

650. These protocols also include avoiding non-essential vessel transits through The Murrough SPA (where practicable) and routing vessel movements to make preferential use of existing shipping lanes in order to reduce vessel activities outside of areas in which baseline levels of vessel transit are high.

Residual impacts

651. As per project-only assessment, above.

OECC (including intertidal landfall area)

Project-only assessment

652. Disturbance and displacement have the potential to impact on the following Conservation Objective attributes and targets for this SPA SCI:

- Non-breeding population size - the number of birds indicate that the long term SPA population trend is stable or increasing;
- Spatial distribution - the number of hectares, time spent and intensity of use by red-throated diver is indicative of a sufficient number of locations, areas and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Disturbance across the site - the intensity, frequency, timing and duration of disturbance show that disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution;
- Barriers to connectivity and site use - the number, location, shape and hectares of any barriers to connectivity do not significantly impede the site population's access to the SPA or other ecologically important sites outside the SPA; and
- Roost spatial distribution and extent - the location and hectares of roosting habitat indicate a sufficient number of locations, areas and availability of suitable roosting habitat to support the population target.

653. Potential for disturbance and displacement within the OECC during the operational and maintenance phase of the project is limited to works associated with routine monitoring activity and maintenance or repair events over the operational lifetime of the project. During such activities, displacement and disturbance would potentially occur only within a limited range of any vessels involved.

654. Following an offshore expansion of The Murrough SPA in 2023, the OECC slightly overlaps the north-eastern corner of the revised SPA boundary, with a total of 0.014 km^2 within both the SPA and OECC. This equates to 0.04% of the OECC area (38.22 km^2) and 0.01% of The Murrough SPA area (97.69 km^2).

655. From studies undertaken within the North and Baltic Seas (Fliessbach *et al.,* 2019), almost all unidentified divers and divers identified as red-throated divers were observed to demonstrate escape responses (in the form of taking flight) in response to approaching vessels. The mean distance at which these responses occurred was 1,374 m or 1,281 m for individual or groups of unidentified divers, respectively, and 750 m or 702 m for individual or groups identified as red-throated divers, respectively. The maximum distance at which these responses occurred (provided only in relation to individuals in Fliessbach *et al.*, 2019) was 2,000 m for unidentified divers and 1,700 m for individuals identified as red-throated divers. The minimum distance at which these responses occurred (provided only in relation to individuals in Fliessbach *et al.*, 2019) was 340 m for unidentified divers and 250 m for individuals identified as red-throated divers.

656. Given the proximity of the overlap between the potential disturbance radii of vessels undertaking operation and maintenance works within the OECC and The Murrough SPA, and making the conservative assumption to use the disturbance responses ranges from Fliessbach *et al.*, 2019, of unidentified divers (except for minimum distances, where the value for identified red-throated divers is considered appropriate), it is estimated that:

- 6.69% (6.53 km^2) of the area of The Murrough SPA lies within the maximum range (2,000 m) of areas within the OECC in which vessels may undertake operation and maintenance phase activities at which divers have been observed to demonstrate avoidance responses;
- 3.38% (3.30 km^2) of the area of the Murrough SPA lies within the mean range (1,374 m) of areas within the OECC in which vessels may undertake operation and maintenance phase activities at which divers have been observed to demonstrate avoidance responses; and
- 0.17% (0.17 km^2) of the area of the Murrough SPA lies within the minimum range (250 m) of areas within the OECC in which vessels may undertake operation and maintenance phase activities at which divers have been observed to demonstrate avoidance responses.

657. DAS surveys during the winter 2024/25 period covered The Murrough SPA as well as the areas where 10 km buffers from both The Murrough SPA and from the array site overlap. These surveys recorded numbers and distributions of red-throated divers. The pattern of diver distribution reflected this species' preference for shallower waters (with higher concentrations of birds being recorded within nearshore

areas of The Murrough SPA and on Codling Bank itself) and avoidance of vessel activity (with birds being recorded less frequently in the vicinity of the shipping route which runs north-south along the eastern edge of The Murrough SPA; see Chapter 16 Shipping and Navigation). This shipping corridor is used by large cargo vessels travelling between Dublin and other ports (mostly Rotterdam), with passage rates of approximately nine – 12 cargo vessels per day, in addition to smaller numbers of fishing and recreational vessel traffic.

658. The peak abundance of red-throated diver within The Murrough SPA and a 10 km buffer of the array site, is estimated from site-specific DAS surveys in the winter of 2024/2025 which are further validated by data from 25/26 surveys (**Appendix 10-I Design-based Density, Abundance Estimates and Distributional Response of the Red-throated Diver** of the **EIAR Addendum**). The peak abundance was 15.141 individuals (with the average abundance being 2.524 individuals). Given the limited duration of predicted disturbance impacts associated with potential maintenance activities within the OECC during the operational phase of the project, the small number (at most) of individuals within a small part of the SPA, where baseline levels of vessel disturbance are already high, the potential for operation and maintenance phase activity within the OECC to cause significant additional displacement effects to the red-throated diver SCI of The Murrough SPA is assed to be negligible. Therefore, there is no potential for such activities to result in an AESI in relation to the Conservation Objectives and attributes and targets for these SCIs as stated in **Table 19.**

Proposed mitigation

659. Despite disturbance and displacement impacts associated with operation and maintenance phase activities within the OECC not resulting in an AESI to the red-throated diver SCI of The Murrough SPA, due to the proximity of the array site and OECC to the SPA (the latter overlapping a small area of the SPA over an area of 0.014km^2), additional mitigation in the form of protocols presented in the updated EVMP will be implemented to reduce potential vessel related disturbance to red-throated diver.

660. These protocols include speed limits (40 km/h or 21.5 knots when operating or transiting inside or within 2km of The Murrough SPA), avoiding non-essential vessel transits through The Murrough SPA (where practicable), and routing maintenance vessel movements to make preferential use of existing shipping lanes (where practicable) in order to reduce vessel activities outside of areas in which baseline levels of vessel transit are high.

Residual impacts

661. As per the project-only assessment, above.

Project-only effect on site integrity conclusion for impact

662. The Conservation Objective and its attributes and targets for this SPA SCI are presented in **Table 19.** Disturbance and displacement effects during the operation and maintenance phase of the CWP Project can be concluded not to impede the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for this SPA SCI**.

NIS ADDENDUM VOLUME 5 ASSESSMENT OF IMPLICATIONS FOR SPECIAL PROTECTION AREAS – PART 2

Section 3 remains unchanged

4 EXAMINATION AND ANALYSIS OF POTENTIAL IMPACTS ON EUROPEAN SITES

Section 4, 4.1, 4.2, and 4.3 remain unchanged

4.4 Wicklow Head SPA (IE004127)

Section 4.4 (Wicklow Head SPA) remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 20, below, is to be read in conjunction with Table 4-1 in Section 4.4. of Volume 5, Part 2 of the NIS. Table 20 outlines the updated Conservation Objectives, Attributes and Targets for the Wicklow Head SPA for kittiwake. An additional section is included below to assess disturbance and displacement impacts to kittiwake.

Table 20 Summary of project alone assessment of adverse effects on site integrity (project alone) - Wicklow Head SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Section 4.4.1**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.					

4.4.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

663. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Wicklow Head SPA. As such, disturbance and displacement only has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Wicklow Head SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

664. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Wicklow Head SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

665. This SPA lies 2 km outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Wicklow Head SPA. Similarly, the coastal breeding colony

of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

666. In relation to the impacted Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

667. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

668. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as calculated in **Appendix 10-H Kittiwake Displacement Matrices** of the EIAR Addendum, are presented for the displacement and mortality rates best supported by available evidence in **Table 21**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Wicklow Head SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7, Appendices** of the NIS, and also presented in **Table 21**.

Table 21 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities to Wicklow Head SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	Migration free breeding (May–Jul)	Post-breeding migration (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.18%	13.02%	0.14%	
Impact to SPA (increase in mortality)	0.003	0.212	0.006	0.221

669. **Table 21**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Wicklow Head SPA for each bio-season it is estimated, for example, that 0.18% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Wicklow Head SPA; this equates to a predicted precautionary mortality of 0.003 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate

annual displacement mortalities to Wicklow Head SPA. From this, annual predicted kittiwake displacement mortality to Wicklow Head SPA is calculated as 0.221 individuals.

670. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in Table 22In this table, to align with the methodology used in the NIS, the 2023 SPA count (Arklow Extension Survey Data; Cork Ecology, 2023) is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 22 Increase to annual kittiwake mortality resulting from displacement mortalities apportioned to Wicklow Head SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.221	1,290	14.60%	188	0.117%

671. Additional mortality to the kittiwake SCI of Wicklow Head SPA resulting from displacement is estimated to represent a very small potential increase (much less than 1%) to SPA baseline mortality rates. As such, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Wicklow Head SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Wicklow Head SPA.

Proposed mitigation

672. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Wicklow Head SPA.

Residual effect

673. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

674. The Conservation Objective and its attributes and targets for the kittiwake SCI of Wicklow Head SPA are presented in **Table 20**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the**

Wicklow Head SPA kittiwake SCI.

4.5 Howth Head Coast SPA

Section 4.5 (Howth Head Coast SPA) remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 23, below, is to be read in conjunction with Table 4-4 in Section 4.5. of Volume 5, Part 2 of the NIS. Table 23 outlines the updated Conservation Objectives, Attributes and Targets for the Howth Head Coast SPA for kittiwake. An additional section is included below in paragraphs 675 to 686 to assess disturbance and displacement impacts to kittiwake (Operation and maintenance impact 5).

Table 23 Assessment of adverse effects on site integrity (project alone) – Howth Head Coast SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Operation and maintenance impact 5**, below	None	No change	No AESI

4.5.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

675. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Howth Head Coast SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Howth Head Coast SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

676. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Howth Head Coast SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

677. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Howth Head Coast SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

678. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

679. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in

turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

680. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as calculated in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 24**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Howth Head Coast SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 24.**

Table 24 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Howth Head Coast SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.50%	7.29%	0.38%	
Impact to SPA (increase mortality)	0.009	0.119	0.016	0.143

681. **Table 24**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Howth Head Coast SPA for each bio-season it is estimated, for example, that 0.50% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Howth Head Coast SPA; this equates to a predicted precautionary mortality of 0.009 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Howth Head Coast SPA. From this, annual predicted kittiwake displacement mortality to Howth Head Coast SPA is calculated as 0.143 individuals.

682. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 25.** In this table, to align with the methodology used in the NIS, the 2018 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 25 Increase to annual mortality resulting from displacement mortalities apportioned to Howth Head Coast SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.143	3546	14.60%	518	0.028%

683. As additional mortality to the kittiwake SCI of Howth Head Coast SPA resulting from displacement is estimated to represent a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Howth Head Coast SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Howth Head Coast SPA.

Proposed mitigation

684. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Howth Head Coast SPA.

Residual effect

685. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

686. The Conservation Objective and its attributes and targets for the kittiwake SCI of Howth Head Coast SPA are presented in **Table 23**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Howth Head Coast SPA kittiwake SCI.**

4.6 Ireland's Eye SPA

Section 4.6 (Ireland's Eye SPA) remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 26, below, is to be read in conjunction with Table 4-7 in Section 4.6. of Volume 5, Part 2 of the NIS. Table 26 outlines the updated Conservation Objectives, Attributes and Targets for the Wicklow Head SPA for kittiwake. An additional section is included below in paragraphs 687 to 698 to assess disturbance and displacement impacts to kittiwake (Operation and maintenance impact 5).

Table 26 Assessment of adverse effects on site integrity (project alone) – Ireland's Eye SPA

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Operation and maintenance impact 5**, below	None	No change	No AESI

4.6.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

687. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which

disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Ireland's Eye SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Ireland's Eye SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

688. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Ireland's Eye SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

689. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Ireland's Eye SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

690. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

691. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

692. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as calculated in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 27**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Ireland's Eye SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 27**.

Table 27 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Ireland's Eye SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	Migration free breeding (May–Jul)	Post-breeding migration (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.11%	1.62%	0.09%	
Impact to SPA (increased mortality)	0.002	0.026	0.004	0.032

693. **Table 27**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Ireland's Eye SPA for each bio-season it is estimated, for example, that 0.11% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Ireland's Eye SPA; this equates to a predicted precautionary mortality of 0.002 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Ireland's Eye SPA. From this, annual predicted kittiwake displacement mortality to Ireland's Eye SPA is calculated as 0.032 individuals.

694. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table** In this table, to align with the methodology used in the NIS, the 2016 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 28 Increase to annual mortality resulting from displacement mortalities apportioned to Ireland's Eye SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.032	802	14.60%	117	0.027%

695. As additional mortality to the kittiwake SCI of Ireland's Eye SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Ireland's Eye SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to

compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Ireland's Eye SPA.

Proposed mitigation

696. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Ireland's Eye SPA.

Residual effect

697. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

698. The Conservation Objective and its attributes and targets for the kittiwake SCI of Ireland's Eye SPA are presented in **Table 26**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Ireland's Eye SPA kittiwake SCI.**

4.7 Lambay Island SPA (IE004069)

Section 4.7 (Lambay Island SPA) remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in 29, below, is to be read in conjunction with Table 4-20 in Section 4.7. of Volume 5, Part 2 of the NIS. 29 outlines the updated Conservation Objectives, Attributes and Targets for the Wicklow Head SPA for kittiwake. An additional section is included below in paragraphs 699 to 710 to assess disturbance and displacement impacts to kittiwake (Operation and maintenance impact 5).

During preparation of additional information it was noticed that an SCI of this SPA previously screened-out of the NIS on the basis of forging range (namely shag) should have been screened in in relation to certain impacts associated with OECC. Table 6, in Section 3, Screening, above, has duly been amended. The Conservation Objectives of shag are included in **Table 29**, below and assessment of relevant impacts included in Section 4.7.10 of this addendum.

Table 29 Assessment of adverse effects on site integrity (project alone) – Lambay Island SPA

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
Kittiwake [A188]					

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Operation and maintenance impact 5**, below	None	No change	No AESI
Shag					
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and	Disturbance and displacement (OECC only) [1,2,4,6]	See, **Impact 2**, below	None	No change	No AESI
	Changes in prey availability (OECC only) [1,2,4]	See **Impact 3**, below	None	No change	No AESI
	Introduction or spread of INNS [1,2,3,4]	See high level assessment in **Section 4.2** of **Volume 5.2** of NIS			No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.					

4.7.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

699. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Lambay Island SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Lambay Island SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

700. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Lambay Island SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

701. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Lambay Island SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

702. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

703. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

704. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as calculated in **Appendix 10-H Kittiwake Displacement Matrices** of the EIAR addendum, are presented for the displacement and mortality rates best supported by available evidence in **Table 30.** Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Lambay Island SPA according to the apportioning ratios determined in **Appendix 3**, **Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 30.**

Table 30 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Lambay Island SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.93%	9.93%	0.71%	
Impact to SPA (increased mortality)	0.016	0.162	0.029	0.207

705. **Table 30** above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Lambay Island SPA for each bio-season it is estimated, for example, that 0.93% of total predicted displacement mortality during the

return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Lambay Island SPA; this equates to a predicted precautionary mortality of 0.016 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Lambay Island SPA. From this, annual predicted kittiwake displacement mortality to Lambay Island SPA is calculated as 0.207 individuals.

706. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 31.** In this table, to align with the methodology used in the NIS, the 2015 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 31 Increase to annual mortality resulting from displacement mortalities apportioned to Lambay Island SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.207	6640	14.60%	969	0.021%

707. As additional mortality to the kittiwake SCI of Lambay Island SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Lambay Island SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Lambay Island SPA.

Proposed mitigation

708. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Lambay Island SPA.

Residual effect

709. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

710. The Conservation Objective and its attributes and targets for the kittiwake SCI of Lambay Island SPA are presented in , above. With regards to displacement impacts during the operation and maintenance

phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Lambay Island SPA kittiwake SCI.**

4.7.10 Receptor 10: Shag

Construction phase impact 2 – Disturbance and displacement

OECC

Project-only assessment

711. As the OECC does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the OECC, all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the shag SCI of Lambay Island SPA.

712. Shag are considered to be at least somewhat sensitive to disturbance and displacement impacts around vessel traffic (Jarrett *et al.*, 2021). As such, during the construction phase of the CWP Project, vessel traffic may result in the temporary disturbance and displacement of shag which breed within Lambay Island SPA from areas within and immediately surrounding the OECC. Disturbance and displacement effects have the potential to impact the following Conservation Objective attributes and targets for the shag SCI of Lambay Island SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target; and,
- Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population.

713. In relation to these Conservation Objective attributes, disturbance leading to temporary displacement of shag from locations around vessel activity within the OECC and surrounding areas may lead to the temporary and localised exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. temporary indirect habitat loss).

714. Temporary localised reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, which may require individuals to use alternative areas for such behaviours, may affect the energetic costs of those behaviours and, in turn, affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

715. Visual aerial surveys of the western Irish Sea (ObSERVE data – Jessopp *et al.*, 2018) indicate that the OECC lies within an area of regionally relatively high importance regionally (inferred from relatively high observed counts within area) for shag. Works within the OECC at any period in time, and the associated extent of areas in which the receptor may experience potential disturbance or displacement by construction vessels, will cover only an extremely small proportion of the overall OECC area and a much smaller still proportion the area within the foraging range of shag breeding within Lambay Island SPA (mean–maximum foraging range (+ 1 SD) = 23.7 km, Woodward *et al.*, 2019). Construction phase activities within the OECC will include up to a maximum of seven vessels at any one time in offshore

areas. These vessels will typically be operating in close proximity to accomplish specific construction activities and therefore have overlapping areas in which they may be causing disturbance.

716. In the context of the extent of available habitat within foraging range of the SPA, the negligible proportion that will experience potential disturbance impacts from construction phase vessel activity within the OECC, and the temporary nature of such disturbance, the scale of disturbance and displacement impacts from construction phase activities within the OECC is considered to be negligible. In particular, any temporary localised exclusion from areas within or immediately surrounding the OECC is not expected to affect the energetic costs to individuals in such a way as to reduce the condition of individuals and their consequent survival rates. Accordingly, the level of impact is not considered capable of altering the extent of available habitat in such a way as to result in a significant decline in the breeding population abundance of the shag SCI of Lambay Island SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the shag SCI of Lambay Island SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Lambay Island SPA.

Proposed mitigation

717. No specific mitigation is proposed or required in respect of disturbance and displacement during the construction phase within the OECC, as this impact will not give rise to any AESI in relation to Lambay Island SPA.

Residual effect

718. As per project-only assessment, above.

Construction phase impact *3 – Changes in prey availability*

OECC

Project-only assessment

719. As the OECC does not overlap this SPA and the SPA is beyond the range in which prey species may experience potential impacts from construction phase works, potential changes in prey availability impacts will occur entirely outside of the SPA, i.e. all impacts assessed here relate to prey species within *ex situ* habitats which may support the shag SCI of Lambay Island SPA.

720. Shag depredates a range of fish species. Construction phase activities within the OECC which may affect those prey species have the potential to impact on the following Conservation Objective attributes and targets for the shag SCI of Lambay Island SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population; and,
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target.

721. In relation to these Conservation Objective attributes, construction within the CWP Project OECC may impact shag prey species through underwater noise effects, increases to suspended sediment concentrations or temporary disturbance of important benthic habitats for those prey species. Should these impacts to prey species reduce the availability of those prey species to foraging shag, this may

result in effects to the demographic parameters, and resultant population dynamics, of this SCI through processes such as increased energetic consequences of foraging reducing individual condition and survival or productivity rates, or reduced provisioning rates to offspring reducing productivity rates. These potential consequences may compromise the ability of the SCI to maintain its population, with prey availability changes potentially resulting in there being insufficient habitat to support the SCI's population on a long-term basis.

722. Of shag's key prey species groups, sand eels are anticipated to be most impacted by underwater noise during the construction phase. Mortality or injury inducing underwater noise impacts to this group (and to prey species more generally) are however anticipated to very limited, as no pile driving activities are proposed in relation to the installation of the export cable within OECC, with high energy underwater noise sources limited to the potential treatment of a small number of UXO (fewer than ten).

723. Areas affected by increased SSC levels during construction phase activities within the OECC are assessed to be of negligible size in relation to this SCI's breeding (mean–maximum foraging range + 1 SD = 23.7 km, Woodward *et al.*, 2019) and non-breeding season range extents and occur over relatively short durations. Suspended sediment plumes created during dredge disposal operations within the OECC are predicted to enhance SSC levels over up to c. 4–5 km (depending on tidal conditions), for a duration of c. 10 days and resulting in cumulative deposition thicknesses of c. 1 cm. Suspended sediment plumes created during trenching operations within the OECC are predicted to enhance SSC levels over up c. 7 km (depending on tidal conditions), for a duration of c. 10 days and resulting in cumulative deposition thicknesses of c. 1 cm (see **Appendix 6-A** of the EIAR Addendum).

724. The spatial extent of temporarily disturbed of areas of benthic habitat during construction phase activities within the OECC (up to 5.63 km^2) is also assessed to be of negligible size in relation to this SCI's breeding and non-breeding season range extents. Within these areas benthic communities are typically resilient to localised habitat disturbance, demonstrating high or very high-levels of recoverability (i.e. within weeks or months).

725. Despite the above potential pathways to impact, the areas in which impacts to prey species availability may occur represent a negligible proportion of sea area within the foraging range of shag breeding within Lambay Island SPA and a smaller still proportion of the wider Irish Sea and Western UK-waters region likely used by the majority of SPA individuals outside of the breeding period.

726. In the context of the extent of available habitat within foraging range of the SPA, the negligible proportion of that habitat in which potential impacts to prey species may occur, and that potential temporary impacts to prey species may be of limited (if any) demographic consequence to their seabird predators, the scale of changes in prey availability impacts associated with construction phase activities within the OECC is considered to be negligible.

727. In particular, potential changes to prey availability resultant from construction phase activities within the OECC are not expected to perceptibly increase the energetic costs of foraging, or lead to reductions in offspring provisioning rates for the shag SCI of Lambay Island SPA in such a way as to affect demographic parameters. Accordingly, the level of impact is not considered capable of altering the availability of shag prey species in such a way as to result in a significant decline in the breeding population abundance of the shag SCI of Lambay Island SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the shag SCI of Lambay Island SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Lambay Island SPA.

Proposed mitigation

728. No specific mitigation is proposed or required in respect of changes in prey availability during construction within the OECC, as this impact will not give rise to any AESI in relation to Lambay Island SPA.

Residual effect

729. As per project-only assessment, above.

Operation and maintenance impact 2 – Disturbance and displacement

OECC

Project-only assessment

730. Potential for disturbance and displacement within the OECC during the operational phase of the project is limited to works associated with routine monitoring activity and maintenance or repair events over the operational lifetime of the project. The proposed presence of vessels during the operation and maintenance phase is anticipated to be barely above baseline levels of vessel movement within the area. During such activities, displacement and disturbance would potentially occur only within a limited range of any vessels involved (Jarrett *et al.*, 2021).

731. As such, the consequences of any disturbance and displacement impacts from operational phase activities within the OECC will be negligible, and there is no potential for such activities to result in AESI in relation to the Conservation Objectives and attributes and targets for this SCI.

Proposed mitigation

732. No specific mitigation is proposed. No specific mitigation is proposed or required in respect of disturbance and displacement during the operation and maintenance phase within the OECC, as this impact will not give rise to any AESI in relation to Lambay Island SPA.

Residual effect

733. As per project-only assessment, above.

Operation and maintenance phase impact 3 – Changes in prey availability

OECC

Project-only assessment

734. As the OECC does not overlap this SPA and the SPA is beyond the range in which prey species may experience potential impacts from operation and maintenance phase activities, potential changes in

prey availability impacts will occur entirely outside of the SPA, i.e. all impacts assessed here relate to prey species within *ex situ* habitats which may support the shag SCI of Lambay Island SPA.

735. Shag depredates a range of fish species. Operation and maintenance phase activities within the OECC which may affect those prey species have the potential to impact on the following Conservation Objective attributes and targets for the shag SCI of Lambay Island SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population; and,
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target.

736. In relation to these Conservation Objective attributes, operation and maintenance phase activities within the CWP Project OECC may impact shag prey species through underwater noise effects, increases to suspended sediment concentrations, removal or alteration of important benthic habitats for those prey species, or electromagnetic field effects affecting prey species distributions around electrical infrastructure. Should these impacts to prey species reduce the availability of those prey species to foraging shag, this may result in effects to the demographic parameters, and resultant population dynamics, of this SCI through processes such as increased energetic consequences of foraging reducing individual condition and survival or productivity rates, or reduced provisioning rates to offspring reducing productivity rates. These potential consequences may compromise the ability of the SCI to maintain its population, with prey availability changes potentially resulting in there being insufficient habitat to support the SCI's population on a long-term basis.

737. As operational phase activities within the OECC do not include piling works or any other very high energy underwater noise inducing activities, and operational noise impact magnitudes to all potential prey species are assessed to be very low, there is not considered to be a pathway for operation and maintenance phase underwater noise impacts to have the potential to cause perceptible changes to prey availability in such a way that could impact this SCI.

738. Similarly, as operational phase activities within the OECC do not routinely require disturbance of the seabed (in the form of trenching or dredging activities) except within highly localised areas in which this is necessary to facilitate repairs, increased SSC levels, are considered to occur only potentially infrequently and locally during the operational phase and there is no perceptible pathway for this impact to have the potential to cause changes to prey availability during the operational phase in such a way that could impact this SCI.

739. Key fish species, upon which shag predate, may experience the loss of up to 0.11 km^2 of previously available benthic habitat within the OECC as a result of occupancy of the seabed by infrastructure during the operation and maintenance phase of the CWP Project. The spatial extent of such prey species habitat loss is, however, considered to be of negligible size in relation to this SCI's breeding and non-breeding season range extents.

740. During the operation and maintenance phase, one additional potential impact to seabird receptor prey species which does not occur during the construction phase is considered, namely EMF effects, associated with electricity passing along infrastructure cables. Any effects on fish are anticipated to occur within the immediate vicinity of the cable and effect levels are likely to be low in relation to background levels associated with the Earth's magnetic field. The magnitude of such impacts to potentially sensitive fish species are assessed as being very low. Consequently, there is not considered to be a pathway for operation and maintenance phase EMF impacts to have the potential to cause impacts to prey availability in such a way that could impact this SCI.

741. Despite the above potential pathway to impact in the form of benthic habitat loss, the area in which impacts to prey species availability may occur represents a negligible proportion of sea area within the foraging range of shag breeding within Lambay Island SPA (mean–maximum + 1 SD = 23.7 km,

Woodward *et al.*, 2019) and a smaller still proportion of the wider Irish Sea and Western UK-waters region likely used by the majority of SPA individuals outside of the breeding period.

742. In the context of the extent of available habitat within foraging range of the SPA, there is predicted to be a negligible proportion of that habitat in which potential impacts to prey species may occur. Any potential impact to prey species is similarly of limited (if any) demographic consequence to their seabird predators. The scale of changes in prey availability impacts associated with operation and maintenance phase activities within the OECC is therefore considered to be negligible.

743. In particular, potential changes to prey availability resultant from operation and maintenance phase activities within the OECC are not expected to perceptibly increase the energetic costs of foraging, or lead to reductions in offspring provisioning rates for the shag SCI of Lambay Island SPA in such a way as to affect demographic parameters. Accordingly, the level of impact is not considered capable of altering the availability of shag prey species in such a way as to result in a significant decline in the breeding population abundance of the shag SCI of Lambay Island SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the shag SCI of Lambay Island SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Lambay Island SPA.

Proposed mitigation

744. No specific mitigation is proposed or required in respect of changes in prey availability during the operation and maintenance phase within the OECC, as this impact will not give rise to any AESI in relation to the Lambay Island SPA.

Residual effect

745. As per project-only assessment, above.

4.8 Rockabill SPA (IE004014)

Section 4.8 (Rockabill SPA) remains unchanged with the exception of the addition of an assessment of collision impacts to the roseate tern SCI in response to FIR item 7E. As roseate tern was screened out for assessment in Section 4.8 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor were not included within Table 4-37 of Section 4.8 of Volume 5, Part 2 of the NIS. These Conservation Objectives are detailed in Table 32 to facilitate the additional assessment of collision impacts for this SCI. As such the information presented in Table 32, below, is to be read in conjunction with Table 4-37 in Section 4.8. of Volume 5, Part 2 of the NIS. Table 32 outlines the Conservation Objectives, Attributes and Targets for Rockabill SPA for roseate tern. An additional section is included below in paragraphs 746 to 754 to assess collision impacts to roseate tern.

Table 32 Summary of assessment of adverse effect on site integrity (project alone) - Rockabill SPA

Objective:	Attributes and targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
[Roseate tern [A192]						

Objective:	Attributes and targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
To maintain the favourable conservation condition of the SCI in the SPA	1. Breeding population abundance – no significant decline 2. Productivity rate – no significant decline 3. Distribution: breeding colonies – no significant decline 4. Prey biomass available – no significant decline 5. Barriers to connectivity – no significant increase 6. Disturbance at the breeding site – human activities should occur at levels that do not adversely affect the breeding roseate tern population	Collision [1]	See **Section 4.8.3**, below	None	No change	No AESI

4.8.3 Receptor 3: Roseate tern

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

746. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of this SPA SCI through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attribute and target for this SPA SCI:

- Breeding population abundance - no significant decline.

747. In relation to this Conservation Objective attribute, mortality resulting from predicted collisions with operational WTGs within the array site may directly affect the overall annual adult survival rate of roseate tern which could in turn impact the population size of this breeding SCI.

748. Predicted migratory and annual estimated roseate tern collision mortalities, as presented in **Appendix 10-K Roseate Tern Collision Risk Modelling** of the **EIAR Addendum**, are presented in **Table 33**. These values were calculated using the mCRM tool, assuming the most recent published count for roseate terns from Rockabill SPA of 1,776 breeding pairs (Coughlan *et al.*, 2024). This value is used to represent the biogeographic population at risk of collision. As the SPA breeding population has been used directly as the population parameter within the mCRM, the collision results are therefore fully

apportioned to Rockabill SPA. Collision mortalities are presented in relation to Representative scenarios A and B (75 and 60 WTGs respectively).

Table 33 Predicted migratory and annual collision mortalities to roseate terns for the Rockabill SPA population

Representative scenario	Collisions in each migratory period		Annual collisions
	Pre-breeding	Post-breeding	
A	0.216	0.227	0.443
B	0.19	0.199	0.389

749. **Table 33** shows that the total annual predicted roseate tern collision mortality is 0.443 individuals in relation to representative scenario A and 0.389 individuals in relation to Representative scenario B.

750. Increases to SPA roseate tern mortality resulting from the annual collision impacts are presented in **Table 34.** In this table, the most recent colony count of 1,776 breeding pairs (Coughlan *et al.*, 2024) is used to estimate the annual mortality of breeding adults from the SPA colony (i.e. the colony count is multiplied by the average adult mortality rate for roseate tern (0.117; Horswill and Robinson, 2015)). The percentage of the collision mortality compared to this baseline SPA annual mortality is calculated to show the proportional increase in SPA mortality from additional predicted annual collision mortality due to the CWP project.

Table 34 Increase to annual adult mortality resulting from collision mortalities apportioned to Rockabill SPA

Representative scenario	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
A	0.443	3552	11.7%	415.58	0.11%
B	0.389				0.09%

751. As additional predicted mortality to the roseate tern SCI of Rockabill SPA resulting from estimated collision with operational WTGs is a very small increase to SPA baseline mortality (much less than 1%), this impact would not impede the overall objective of maintaining the favourable conservation condition of the roseate tern SCI of Rockabill SPA. Specifically, collision mortality will not affect the breeding population abundance of the SCI. In light of this, it can be concluded beyond reasonable scientific doubt that there will be no AESI to the Rockabill SPA due to the CWP Project alone.

Proposed mitigation

752. No specific mitigation is proposed, or required, to reduce predicted collisions during operation and maintenance, as this impact will not give rise to any AESI in relation to this SPA SCI.

Residual impacts

753. As per project only assessment, above.

Project-only effect on site integrity conclusion for impact

754. The Conservation Objective and its attributes and targets for this SPA SCI are presented in **Table 32**. It can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for this SPA SCI.**

4.9 Skerries Islands SPA (IE004122)

Section 4.9 (Skerries Islands SPA) remains unchanged except that during preparation of additional information it was noticed that an SCI of this SPA previously screened out of the NIS on the basis of forging range (namely cormorant) should have been screened in in relation to certain impacts associated with OECC. Table 6, in Section 3, Screening, above, has duly been amended. The Conservation Objectives of cormorant are included in Table 35, below and assessment of relevant impacts included in Sections 4.9.3 of this addendum. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 35, below, is to be read in conjunction with Table 4-38 in Section 4.9. of Volume 5, Part 2 of the NIS.

Table 35 Assessment of adverse effects on site integrity (project alone) – Skerries Islands SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Winter population trend - long term trend is stable or increasing 4. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 5. Winter spatial distribution – sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	Cormorant [A017]				
	Disturbance and displacement (OECC only) [1,2,3,5,6,7, 8,9,10]		None	No change	No AESI
	Changes in prey availability (OECC only) [1,2,3,5,6,10]		None	No change	No AESI
	Introduction or spread of INNS [1,2,3,4,5,6,9,10]	See high level assessment in **Section 4.2** of **Volume 5.2** of NIS			No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
6. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 7. Disturbance at breeding or wintering sites – levels do not significantly impact the achievement of targets. 8. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 9. Winter roost spatial distribution and extent – sufficient number of locations, area and availability of suitable roosting habitat to support the population target 10. Supporting winter habitat: area and quality - sufficient area of utilisable habitat available in ecologically important sites outside the SPA 11. Barriers to connectivity (winter and breeding) – no significant impact upon access to SPA or ecologically important sites outside SPA.					

4.9.3 Receptor 5: Cormorant

Construction phase impact 2 – Disturbance and displacement

OECC

Project-only assessment

755. As the OECC does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the OECC, all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement

impacts assessed here relate to *ex situ* habitats which may support the cormorant SCI of Skerries Islands SPA.

756. Cormorant are considered to be at least somewhat sensitive to disturbance and displacement impacts around vessel traffic (i.e. high [4/5] disturbance reaction to vessels – Garthe and Hüppop, 2004; and low/moderate [9.2/25] behavioural sensitivity to vessel disturbance – Fliessbach *et al.*, 2019). As such, during the construction phase of the CWP Project, vessel traffic may result in the temporary disturbance and displacement of cormorant which breed and winter within Skerries Islands SPA from areas within and immediately surrounding the OECC. Disturbance and displacement effects have the potential to impact the following Conservation Objective attributes and targets for the cormorant SCI of Skerries Islands SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Winter population trend - long term trend is stable or increasing;
- Winter spatial distribution – sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at breeding or wintering sites – levels do not significantly impact the achievement of targets;
- Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population;
- Winter roost spatial distribution and extent – sufficient number of locations, area and availability of suitable roosting habitat to support the population target; and
- Supporting winter habitat: area and quality - sufficient area of utilisable habitat available in ecologically important sites outside the SPA.

757. In relation to these Conservation Objective attributes, disturbance leading to temporary displacement of cormorant from locations around vessel activity within the OECC and surrounding areas may lead to the temporary and localised exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. temporary indirect habitat loss).

758. Temporary localised reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, which may require individuals to use alternative areas for such behaviours, may affect the energetic costs of those behaviours and, in turn, affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

759. Visual aerial surveys of the western Irish Sea (ObSERVE data – Jessopp *et al.*, 2018) indicate that the OECC lies within an area of regionally relatively high importance regionally (inferred from relatively high observed counts within area) for cormorant. Works within the OECC at any period in time, and the associated extent of areas in which the receptor may experience potential disturbance or displacement by construction vessels, will cover only an extremely small proportion of the overall OECC area and a much smaller still proportion the area within the foraging range of cormorant breeding or wintering within Skerries Islands SPA (mean–maximum foraging range (+ 1 SD) = 33.9 km, Woodward *et al.*, 2019). From studies undertaken within the North and Baltic Seas (Fliessbach *et al.*, 2019), 48% of cormorant were observed to demonstrate escape responses (primarily in the form of taking off) in response to approaching vessels. The mean distance at which these responses occurred was 258 m; an area of approximately 0.209 km^2 around each vessel, which equates to 0.55% of the total OECC area, and significantly less than the available regional habitat. Construction phase activities within the OECC will include up to a maximum of seven vessels at any one time in offshore

areas. These vessels will typically be operating in close proximity to accomplish specific construction activities and therefore have overlapping areas in which they may be causing disturbance.

760. In the context of the extent of available habitat within foraging range of the SPA, the negligible proportion that will experience potential disturbance impacts from construction phase vessel activity within the OECC, and the temporary nature of such disturbance, the scale of disturbance and displacement impacts from construction phase activities within the OECC is considered to be negligible. In particular, any temporary localised exclusion from areas within or immediately surrounding the OECC is not expected to affect the energetic costs to individuals in such a way as to reduce the condition of individuals and their consequent survival rates. Accordingly, the level of impact is not considered capable of altering the extent of available habitat in such a way as to result in a significant decline in the breeding population abundance of the cormorant SCI of Skerries Islands SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the cormorant SCI of Skerries Islands SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Skerries Islands SPA.

Proposed mitigation

761. No specific mitigation is proposed or required in respect of disturbance and displacement during the construction phase within the OECC, as this impact will not give rise to any AESI in relation to Skerries Islands SPA.

Residual effect

762. As per project-only assessment, above.

Construction phase impact 3 – Changes in prey availability

OECC

Project-only assessment

763. As the OECC does not overlap this SPA and the SPA is beyond the range in which prey species may experience potential impacts from construction phase works, potential changes in prey availability impacts will occur entirely outside of the SPA, i.e. all impacts assessed here relate to prey species within *ex situ* habitats which may support the cormorant SCI of Skerries Islands SPA.

764. Cormorant depredates a range of fish species. Construction phase activities within the OECC which may affect those prey species have the potential to impact on the following Conservation Objective attributes and targets for the cormorant SCI of Skerries Islands SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Winter population trend - long term trend is stable or increasing;
- Winter spatial distribution – sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target; and
- Supporting winter habitat: area and quality - sufficient area of utilisable habitat available in ecologically important sites outside the SPA.

765. In relation to these Conservation Objective attributes, construction within the CWP Project OECC may impact cormorant prey species through underwater noise effects, increases to suspended sediment

concentrations or temporary disturbance of important benthic habitats for those prey species. Should these impacts to prey species reduce the availability of those prey species to foraging cormorant, this may result in effects to the demographic parameters, and resultant population dynamics, of this SCI through processes such as increased energetic consequences of foraging reducing individual condition and survival or productivity rates, or reduced provisioning rates to offspring reducing productivity rates. These potential consequences may compromise the ability of the SCI to maintain its population, with prey availability changes potentially resulting in there being insufficient habitat to support the SCI's population on a long-term basis.

766. Of cormorant's key prey species groups, sand eels are anticipated to be most impacted by underwater noise during the construction phase. Mortality or injury inducing underwater noise impacts to this group (and to prey species more generally) are however anticipated to very limited, as no pile driving activities are proposed in relation to the installation of the export cable within OECC, with high energy underwater noise sources limited to the potential treatment of a small number of UXO (fewer than ten).

767. Areas affected by increased SSC levels during construction phase activities within the OECC are assessed to be of negligible size in relation to this SCI's breeding (mean–maximum foraging range + 1 SD = 33.9 km, Woodward *et al.*, 2019) and non-breeding season range extents and occur over relatively short durations. Suspended sediment plumes created during dredge disposal operations within the OECC are predicted to enhance SSC levels over up to c. 4–5 km (depending on tidal conditions), for a duration of c. 10 days and resulting in cumulative deposition thicknesses of c. 1 cm. Suspended sediment plumes created during trenching operations within the OECC are predicted to enhance SSC levels over up c. 7 km (depending on tidal conditions), for a duration of c. 10 days and resulting in cumulative deposition thicknesses of c. 1 cm (see **Appendix 6-A** of the EIAR Addendum).

768. The spatial extent of temporarily disturbed of areas of benthic habitat during construction phase activities within the OECC (up to 5.63 km^2) is also assessed to be of negligible size in relation to this SCI's breeding and non-breeding season range extents. Within these areas benthic communities are typically resilient to localised habitat disturbance, demonstrating high or very high-levels of recoverability (i.e. within weeks or months).

769. Despite the above potential pathways to impact, the areas in which impacts to prey species availability may occur represent a negligible proportion of sea area within the foraging range of cormorant breeding within Skerries Islands SPA and a smaller still proportion of the wider Irish Sea and Western UK-waters region likely used by the majority of SPA individuals outside of the breeding period.

770. In the context of the extent of available habitat within foraging range of the SPA, the negligible proportion of that habitat in which potential impacts to prey species may occur, and that potential temporary impacts to prey species may be of limited (if any) demographic consequence to their seabird predators, the scale of changes in prey availability impacts associated with construction phase activities within the OECC is considered to be negligible.

771. In particular, potential changes to prey availability resultant from construction phase activities within the OECC are not expected to perceptibly increase the energetic costs of foraging, or lead to reductions in offspring provisioning rates for the cormorant SCI of Skerries Islands SPA in such a way as to affect demographic parameters. Accordingly, the level of impact is not considered capable of altering the availability of cormorant prey species in such a way as to result in a significant decline in the breeding population abundance of the cormorant SCI of Skerries Islands SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the cormorant SCI of Skerries Islands SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Skerries Islands SPA.

Proposed mitigation

772. No specific mitigation is proposed or required in respect of changes in prey availability during construction within the OECC, as this impact will not give rise to any AESI in relation to Skerries Islands SPA.

Residual effect

773. As per project-only assessment, above.

Operation and maintenance impact 2 – Disturbance and displacement

OECC

Project-only assessment

774. Potential for disturbance and displacement within the OECC during the operational phase of the project is limited to works associated with routine monitoring activity and maintenance or repair events over the operational lifetime of the project. During such activities, displacement and disturbance would potentially occur only within a limited range of any vessels involved. From studies undertaken within the North and Baltic Seas (Fliessbach *et al.*, 2019), 48% of cormorant were observed to demonstrate escape responses (primarily in the form of taking off) in response to approaching vessels. The mean distance at which these responses occurred was 258 m; an area of approximately 0.209 km^2 around each vessel, which equates to 0.55% of the total OECC area and a *de minimis* area in the context of available habitat.

775. As such, the consequences of any disturbance and displacement impacts from operational phase activities within the OECC will be negligible, and there is no potential for such activities to result in AESI in relation to the Conservation Objectives and attributes and targets for this SCI.

Proposed mitigation

776. No specific mitigation is proposed or required in respect of disturbance and displacement during the operation and maintenance phase within the OECC, as this impact will not give rise to any AESI in relation to Skerries Islands SPA.

Residual effect

777. As per project-only assessment, above.

Operation and maintenance phase impact 3 – Changes in prey availability

OECC

Project-only assessment

778. As the OECC does not overlap this SPA and the SPA is beyond the range in which prey species may experience potential impacts from operation and maintenance phase activities, potential changes in

prey availability impacts will occur entirely outside of the SPA, i.e. all impacts assessed here relate to prey species within *ex situ* habitats which may support the cormorant SCI of Skerries Islands SPA.

779. Cormorant depredates a range of fish species. Operation and maintenance phase activities within the OECC which may affect those prey species have the potential to impact on the following Conservation Objective attributes and targets for the cormorant SCI of Skerries Islands SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population;
- Winter population trend - long term trend is stable or increasing;
- Winter spatial distribution – sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target; and
- Supporting winter habitat: area and quality - sufficient area of utilisable habitat available in ecologically important sites outside the SPA.

780. In relation to these Conservation Objective attributes, operation and maintenance phase activities within the CWP Project OECC may impact cormorant prey species through underwater noise effects, increases to suspended sediment concentrations, removal or alteration of important benthic habitats for those prey species, or electromagnetic field effects affecting prey species distributions around electrical infrastructure. Should these impacts to prey species reduce the availability of those prey species to foraging cormorant, this may result in effects to the demographic parameters, and resultant population dynamics, of this SCI through processes such as increased energetic consequences of foraging reducing individual condition and survival or productivity rates, or reduced provisioning rates to offspring reducing productivity rates. These potential consequences may compromise the ability of the SCI to maintain its population, with prey availability changes potentially resulting in there being insufficient habitat to support the SCI's population on a long-term basis.

781. As operational phase activities within the OECC do not include piling works or any other very high energy underwater noise inducing activities, and operational noise impact magnitudes to all potential prey species are assessed to be very low, there is not considered to be a pathway for operation and maintenance phase underwater noise impacts to have the potential to cause perceptible changes to prey availability in such a way that could impact this SCI.

782. Similarly, as operational phase activities within the OECC do not routinely require disturbance of the seabed (in the form of trenching or dredging activities) except within localised areas in which this is necessary to facilitate repairs, increased SSC levels, are considered to occur only potentially infrequently and locally during the operational phase and there is no perceptible pathway for this impact to have the potential to cause changes to prey availability during the operational phase in such a way that could impact this SCI.

783. Key fish species, upon which cormorant predate, may experience the loss of up to 0.11 km^2 of previously available benthic habitat within the OECC as a result of occupancy of the seabed by infrastructure during the operation and maintenance phase of the CWP Project. The spatial extent of such prey species habitat loss is, however, considered to be of negligible size in relation to this SCI's breeding and non-breeding season range extents.

784. During the operation and maintenance phase, one additional potential impact to seabird receptor prey species which does not occur during the construction phase is considered, namely EMF effects, associated with electricity passing along infrastructure cables. Any effects on fish are anticipated to occur within the immediate vicinity of the cable and effect levels are likely to be low in relation to background levels associated with the Earth's magnetic field. The magnitude of such impacts to potentially sensitive fish species are assessed as being very low. Consequently, there is not

considered to be a pathway for operation and maintenance phase EMF impacts to have the potential to cause impacts to prey availability in such a way that could impact this SCI.

785. Despite the above potential pathway to impact in the form of benthic habitat loss, the area in which impacts to prey species availability may occur represents a negligible proportion of sea area within the foraging range of cormorant breeding within Skerries Islands SPA (mean–maximum + 1 SD = 33.9 km, Woodward *et al.*, 2019). This is a smaller still proportion of the wider Irish Sea and Western UK-waters region likely used by the majority of SPA individuals outside of the breeding period.

786. In the context of the extent of available habitat within foraging range of the SPA, the negligible proportion of that habitat in which potential impacts to prey species may occur, and that potential impacts to prey species may be of limited (if any) demographic consequence to their seabird predators, the scale of changes in prey availability impacts associated with operation and maintenance phase activities within the OECC is considered to be negligible.

787. In particular, potential changes to prey availability resultant from operation and maintenance phase activities within the OECC are not expected to perceptibly increase the energetic costs of foraging, or lead to reductions in offspring provisioning rates for the cormorant SCI of Skerries Islands SPA in such a way as to affect demographic parameters. Accordingly, the level of impact is not considered capable of altering the availability of cormorant prey species in such a way as to result in a significant decline in the breeding population abundance of the cormorant SCI of Skerries Islands SPA. The CWP Project will therefore not impede the overall objective of maintaining / restoring the favourable conservation condition of the cormorant SCI of Skerries Islands SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Skerries Islands SPA.

Proposed mitigation

788. No specific mitigation is proposed or required in respect of changes in prey availability during the operation and maintenance phase within the OECC, as this impact will not give rise to any AESI in relation to the Skerries Islands SPA.

Residual effect

789. As per project-only assessment, above.

4.10 Aberdaron Coast and Bardsey Island SPA (Wales – UK9013121)

Section 4.10 (Aberdaron Coast and Bardsey Island SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.10 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor these are presented in Table 36 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 36, below, is to be read in conjunction with Table 4-41 in Section 4.10. of Volume 5, Part 2 of the NIS. Table 36 outlines the Conservation Objectives, Attributes and Targets for Aberdaron Coast and Bardsey Island SPA for Manx shearwater. An additional section is included below in paragraphs 790 to 803 to assess artificial lighting impacts to Manx shearwater.

Table 36 Assessment of adverse effects on site integrity (project alone) - Aberdaron Coast and Bardsey Island SPA

Objective	Attributes and targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
Manx shearwater [A013]						
The vision for this feature is for it to be in a favourable conservation status	1.Breeding population - stable or increasing 2. Productivity rate - stable 3. Deaths from the lighthouse attractions, fencing and other infrastructure - minimal 4. Ground predators - none introduced 5. No disturbance to nesting birds by restoration works on boundary walls or recreational activities	Artificial lighting impacts [1,2]	See **Section 4.10.1**, below	None	No change	No AESI

4.10.1 Receptor 1: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

790. Manx shearwater is a burrow-nesting seabird species which displays nocturnal behaviours when in close proximity to its breeding colonies; a strategy to minimise predation risk from diurnal predators such as gulls (McSorley *et al.,* 2008). Manx shearwater has a very large foraging range, with the mean maximum foraging range plus one standard deviation of 2,365.5 km (Woodward *et al.,* 2019). Available evidence indicates that artificial lighting impacts may affect emergent fledglings more than other age classes (Syposz *et al.*, 2018), although there is little evidence available regarding this species' responses to artificial WTG navigation lighting (Deakin *et al.*, 2022).

791. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Aberdaron Coast and Bardsey Island SPA:

- Breeding population - stable or increasing; and
- Productivity rate - stable.

792. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of

individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

793. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of this SPA:

- Deaths from the lighthouse attractions, fencing and other infrastructure - minimal;
- Ground predators - none introduced; and
- No disturbance to nesting birds by restoration works on boundary walls or recreational activities.

794. These COs relate only to *in situ* impacts upon birds within the breeding colony itself.

795. Although there is theoretical connectivity between SPAs for which Manx shearwater is an SCI and projects out to a by-sea distance of 2,365.5 km (mean max. foraging range plus 1 S.D.; Woodward *et al.*, 2019), it is considered that impacts from artificial lighting from the array site would be so small as to be imperceptible in terms of any resultant changes to baseline mortality for those SPAs which are considered to be sufficiently distant from the array site (conservatively considered to be approximately 500 km from the array site).

796. Estimates of the distance from which artificial lighting may lead to attraction and/or disorientation impacts to seabirds range from several tens of metres to in excess of 10 km (Deakin *et al.*, 2022). Baseline characterisation DAS recorded densities in excess of 24 birds per km^2 within the Gwynt y Môr OWF (RWE, 2022). The nearest Manx shearwater breeding colony to the array site is Aberdaron Coast and Bardsey Island SPA (57.78 km by sea). The limit for a direct line of sight between a Manx shearwater flying at 12 m above MSL (Johnston & Cook; 2016) and lighting mounted on a nacelle at a height of 175.72 m above MSL (per **Chapter 4 Project Description** of the EIAR) is calculated as being approximately 59.717 km (assuming an Earth radius of 6,378 km). The distance between the edge of the SPA and the array site is 57.68. Artificial lighting from OWF infrastructure or associated vessels may therefore be visible from the SPA as such there is potential connectivity between emergent burrow-nesting fledglings and impacts from project-related artificial lighting. It is nevertheless considered likely that any emerging fledglings, or indeed adult birds, at sea would encounter artificial lighting from other sources, such as vessels, lighthouses and coastal settlements, before coming into range of lights associated with the CWP Project.

797. Minimum lighting recommendations for OWFs (IAA, 2026) require an illumination intensity that is significantly less powerful than the examples used by Deakin *et al.* (2022) in their assessment of impacts to nocturnal procellarids (i.e. villages, lighthouses and offshore oil platforms).

798. Minimum aviation lighting for Irish OWFs uses ICAO-compliant medium-intensity red obstruction lights (~2,000 cd at night), typically placed only on perimeter turbines rather than across the entire array. While the per-fixture intensity is similar to other aviation beacons, the overall lighting load is far lower than the examples used by Deakin et al. (2022), namely lighthouses, which can reach hundreds of thousands to millions of candelas, and offshore oil platforms, which rely on extensive area/flood lighting delivering ~100–300 lux over large deck surfaces. Consequently, OWFs produce much less total light output and spatial illumination footprint. Artificial lighting at sea generated by WTGs and associated vessels and infrastructure is unlikely to impact upon Manx shearwater SCIs to the same degree.

799. Artificial lighting from OWFs is far less intense, less widespread and more tightly regulated than the bright, continuous coastal and urban lighting which is more commonly known to attract and ground fledging Manx shearwaters. Coastal settlements and industrial sites produce strong, broad-spectrum light that creates a more significant skyglow effect, drawing fledglings off course. Conversely, OWF lighting is minimal, mainly aviation-safety based, and typically lower in intensity and duration (Syposz *et al.,* 2018; NatureScot, 2020).

800. It is therefore concluded that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

801. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Aberdaron Coast and Bardsey Island SPA.

Residual effect

802. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

803. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Aberdaron Coast and Bardsey Island SPA are presented in **Table 36,** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in turn, that there is **no project-only AESI for Aberdaron Coast and Bardsey Island SPA Manx shearwater SCI.**

4.11 Saltee Islands SPA (IE004002)

Section 4.11 (Saltee Islands SPA) remains unchanged, but for two exceptions.

Firstly, the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. As kittiwake was not assessed in relation to disturbance and displacement impacts in Section 4.11 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 37 to facilitate the additional assessment of disturbance and displacement impacts for this SCI. As such the information presented in Table 37, below, is to be read in conjunction with Table 4-46 in Section 4.11. of Volume 5, Part 2 of the NIS. Table 37 outlines the Conservation Objectives, Attributes and Targets for Saltee Islands SPA for kittiwake. An additional section is included below in paragraphs 804 to 815 to assess disturbance and displacement impacts to kittiwake.

Secondly, the assessment of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. As the Conservation Objectives of this SPA have not been updated since submission of the original application, and collision impacts to gannet were previously assessed in Section 4.11. of Volume 5, Part 2 of the NIS, no changes are required to Table 4-46 in Section 4.11. of Volume 5, Part 2 of the NIS with regard to this revised assessment. However, Operation and Maintenance impact 4 – Collision paragraphs 2680 to 2688 in Section 4.11. of NIS Volume 5, Part 2 are replaced by paragraphs 816 to 825, below.

Table 37 Assessment of adverse effects on site integrity (project alone) – Saltee Islands SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To maintain the	Kittiwake [A188]				

favourable conservation condition of the SCI: 1. Breeding population abundance – no significant decline 2. Productivity rate – no significant decline 3. Distribution: breeding colonies – no significant decline 4. Prey biomass available – no significant decline 5. Barriers to connectivity – no significant increase 6. Disturbance at the breeding site – no significant increase	Disturbance and displacement (including barrier effects) [1,2,5]	See, **Section 4.11.1**, below	None	No change	No AESI

4.11.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

804. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Saltee Islands SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Saltee Islands SPA:

- Breeding population abundance – no significant decline;
- Productivity rate – sufficient to maintain a stable or increasing population; and
- Barriers to connectivity – no significant increase.

805. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Saltee Islands SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population
- Prey biomass available – no significant decline; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

806. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution

of the breeding kittiwake SCI of Saltee Islands SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs. Furthermore, there is no route to impact from disturbance and displacement of the breeding kittiwake SCI upon the available prey biomass.

807. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

808. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

809. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as determined in **Appendix 10-H Kittiwake Displacement Matrices of the EIAR addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 38**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Saltee Islands SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 38**.

Table 38 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Saltee Islands SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.29%	0.37%	0.22%	
Impact to SPA (increased mortality	0.005	0.006	0.009	0.020

810. **Table 38**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Saltee Islands SPA for each bio-season it is estimated, for example, that 0.29% of total predicted displacement mortality during the

return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Saltee Islands SPA; this equates to a highly precautionary mortality of 0.005 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Saltee Islands SPA. From this, annual predicted kittiwake displacement mortality to Saltee Islands SPA is calculated as 0.020 individuals.

811. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 39**. In this table, to align with the methodology used in the NIS, the 2015 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 39 Increase to annual mortality resulting from displacement mortalities apportioned to Saltee Islands SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.020	2076	14.60%	303	0.007%

812. As additional mortality to the kittiwake SCI of Saltee Islands SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Saltee Islands SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Saltee Islands SPA.

Proposed mitigation

813. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Saltee Islands SPA.

Residual effect

814. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

815. The Conservation Objective and its attributes and targets for the kittiwake SCI of Saltee Islands SPA are presented in **Table 37**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Saltee Islands SPA kittiwake SCI.**

4.11.7 Receptor 7: Gannet

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

816. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of gannet from Saltee Islands SPA through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attributes and targets for the gannet SCI of Saltee Islands SPA:

- Breeding population abundance – no significant decline.
- Productivity rate – no significant decline.

817. In relation to these Conservation Objective attributes, mortality resultant from collision with operational WTGs within the array site may directly affect the overall survival rate of this SCI at Saltee Islands SPA and thereby potentially contribute to declines in the breeding population abundance of the SCI. Furthermore, collision mortality may also adversely affect the overall productivity rate of this SCI at Saltee Islands SPA, through reductions to offspring provisioning rates and other parental care metrics (should parents experience collision mortality).

818. Total bio-seasonal and total annual estimated gannet collision mortalities, as derived in **Appendix 10.3 Collision Risk Modelling** of the EIAR, are presented in **Table 40**. These values are apportioned to Saltee Islands SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of this NIS, and also presented in **Table 40**.

819. Collision mortalities are presented in relation to Representative scenarios A and B and CRM Band Option 1 and 2 models. As described in **Appendix 10.3 Collision Risk Modelling** of the EIAR, Band Option 1 CRMs (which utilise site-specific flight height data for this SCI) are considered most appropriate and associated values highlighted in bold. Detailed justification regarding why Band Option 1 models are considered most appropriate for this SCI, and the CRM parameters used, is presented in **Appendix 10.3 Collision Risk Modelling** of the EIAR. To summarise, baseline site-specific flight height data for this SCI are considered sufficiently robust to inform collision risk modelling and the use of site-specific data in assessment (alongside a generic Band Option 2 approach) was assessed to be 'an attractive option' in an NPWS review of ornithological assessment methods for east coast Phase 1 projects (ABPmer, 2023). Band Option 2 model outputs are also presented to facilitate comparison with the outputs of other projects (particularly other Irish OWFs with potentially concurrent construction and operational timelines).

Table 40 Total bio-seasonal and annual collision mortalities to gannet and mortalities apportioned to Saltee Islands SPA

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Total impact	A	**1**	**0.326**	**0.432**	**0.136**	**0.894**
		2	0.932	1.222	0.406	2.560
	B	**1**	**0.274**	**0.372**	**0.116**	**0.762**
		2	0.830	1.065	0.338	2.233
Impact accounting for 70% macro-avoidance during non-breeding seasons only	A	**1**	**0.098**	**0.432**	**0.041**	**0.571**
		2	0.280	1.222	0.122	1.624
	B	**1**	**0.082**	**0.372**	**0.035**	**0.489**
		2	0.249	1.065	0.101	1.415
Percentage of impact apportioned to SPA, inclusive of 70% macro-avoidance for the non-breeding seasons			1.47%	3.98%	1.77%	
Impact to SPA	A	**1**	**0.001**	**0.017**	**0.001**	**0.019**
		2	0.004	0.049	0.002	0.055
	B	**1**	**0.001**	**0.015**	**0.001**	**0.017**
		2	0.004	0.042	0.002	0.048

820. **Table 40**, above, demonstrates that, when using Band Option 1 CRM, total annual predicted gannet collision mortality is calculated as 0.894 individuals in relation to Representative scenario A and 0.762 individuals in relation to Representative scenario B. When a 70% rate of macro-avoidance by this species to the presence of OWF infrastructure is applied during the non-breeding seasons only, total annual predicted gannet collision mortality is calculated as 0.571 individuals in relation to Representative scenario A and 0.489 individuals in relation to Representative scenario B under Band Option 1. When these predicted mortalities are apportioned to Saltee Islands SPA for each bio-season it is estimated, for example, that 1.47% of total predicted collision mortality during the return migration bio-season (which, for gannet, is considered as the December to March period) relates to breeding adults from Saltee Islands SPA; this equates to 0.001 individuals from the SPA per return migration bio-season for both Representative scenarios A and B (accounting for macro-avoidance). Apportioning is similarly undertaken in relation to other bio-seasons, and all apportioned bio-seasonal mortalities summed to estimate annual collision mortalities to Saltee Islands SPA. From this, when using Band Option 1 CRM, annual predicted gannet collision mortality to Saltee Islands SPA is calculated as 0.019 individuals in relation to Representative scenario A and 0.017 individuals in relation to Representative scenario B (accounting for macro-avoidance).

821. Increases to SPA gannet mortality rates resultant from apportioned annual impacts are presented in **Table 41**. In this table, the most recent colony count from the SPA (2014 count – SMP, 2023), is used

to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus gannet adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional collision mortality associated with the CWP Project for Representative scenarios A and B (accounting for macro-avoidance).

Table 41 Increase to annual mortality rates resulting from collision mortalities apportioned to Saltee Islands SPA (accounting for 70% macro-avoidance by this species)

Design option	CRM Band Option	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality rate	Baseline estimated SPA annual mortality	Increase to SPA mortality rate
A	**1**	**0.019**	9,444	8.10%	764.964	**0.002%**
	2	0.055				0.007%
B	**1**	**0.017**				**0.002%**
	2	0.048				0.006%

822. Additional mortality to the gannet SCI of Saltee Islands SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%, for preferred Band Option 1 models) to SPA baseline mortality rates. This impact is considered not capable of altering gannet mortality rates in such a way as to result in a significant decline in the breeding population abundance or productivity rate of the gannet SCI of Saltee Islands SPA. Specifically, collision mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Saltee Islands SPA.

Proposed mitigation

823. No specific mitigation is proposed or required in respect of collision during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Saltee Islands SPA.

Residual effect

824. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

825. The Conservation Objective and its attributes and targets for the gannet SCI of Saltee Islands SPA are presented in **Table 4-46 in Section 4.11.** of **Volume 5, Part 2**. With regards to collision impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no

impediment to the Conservation Objective being met for this SCI and, in turn, that there is no project-only AESI for the Saltee Islands SPA gannet SCI.

4.12 Skomer, Skokholm and the seas off Pembrokeshire SPA (Wales – UK9015051)

Section 4.12 (Skomer, Skokholm and the seas off Pembrokeshire SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.12 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 42 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 42, below, is to be read in conjunction with Table 4-67 in Section 4.12. of Volume 5, Part 2 of the NIS. Table 42 outlines the Conservation Objectives, Attributes and Targets for Skomer, Skokholm and the seas off Pembrokeshire SPA for Manx shearwater. An additional section is included below in paragraphs 826 to 838 to assess artificial lighting impacts to Manx shearwater.

Table 42 Assessment of adverse effects on site integrity (project alone) - Skomer, Skokholm and the Seas off Pembrokeshire SPA

Objectives: Attributes and targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
Manx shearwater [A013]					
1. The size of the population should be stable or increasing, allowing for natural variability, and sustainable in the long term - the breeding population of Manx shearwater should be stable or increasing with no measured decrease in numbers, based on annual study plots. 2. The distribution of the population should be being maintained, or where appropriate increasing - the distribution of this species within the site should not be constrained by anthropogenic factors, including disturbance of nesting sites by the public and activities	Artificial lighting impacts [1,3]	**Section 4.12.3**, below	None	No change	No AESI

Objectives: Attributes and targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
leading to possible loss of suitable nesting sites. 3. There should be sufficient habitat, of sufficient quality, to support the population in the long term - the breeding and foraging habitat of this species should be stable or increasing in terms of its area, and its quality should remain unaffected by anthropogenic factors. 4. Factors affecting the population or its habitat should be under appropriate control - rafting birds should remain unaffected by boat use and other anthropogenic factors; appropriate codes of conduct must be followed by all visitors and craft surrounding the islands. Factors affecting the species within the site should be under control.					

4.12.3 Receptor 3: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

826. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10**.

827. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA:

- The size of the population should be stable or increasing, allowing for natural variability, and sustainable in the long term - the breeding population of Manx shearwater should be stable or increasing with no measured decrease in numbers, based on annual study plots; and
- There should be sufficient habitat, of sufficient quality, to support the population in the long term - the breeding and foraging habitat of this species should be stable or increasing in terms of its area, and its quality should remain unaffected by anthropogenic factors.

828. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

829. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of this SPA:

- The distribution of the population should be being maintained, or where appropriate increasing - the distribution of this species within the site should not be constrained by anthropogenic factors, including disturbance by the public and activities leading to possible loss of suitable nesting sites; and
- Factors affecting the population or its habitat should be under appropriate control - breeding success of this species should remain unaffected by negative human influence. Factors affecting the species within the site should be under control.

830. These COs relate only to *in situ* impacts upon birds within the breeding colony itself.

831. Although there is theoretical connectivity between SPAs for which Manx shearwater is an SCI and projects out to a by-sea distance of 2,365.5 km (mean max. foraging range plus 1 S.D.; Woodward *et al.*, 2019), it is considered that impacts from artificial lighting from the array site would be so small as to be imperceptible in terms of any resultant changes to baseline mortality for those SPAs which are considered to be sufficiently distant from the array site (conservatively considered to be approximately 500 km from the array site).

832. Estimates as to the distance from which artificial lighting may lead to attraction and/or disorientation impacts to seabirds range from several tens of metres to in excess of 10 km (Deakin *et al.*, 2022). The limit for a direct line of sight between a Manx shearwater flying at 12 m above MSL (Johnston & Cook; 2016) and lighting mounted on a nacelle at a height of 175.72 m above MSL (per **Chapter 4 Project Description** of the EIAR) is calculated as being approximately 59.717 km (assuming an Earth radius of 6,378 km). This distance is less than the distance from the edge the SPA to the array site. Any artificial lighting emanating from OWF infrastructure or associated vessels will not be directly visible from Skomer, Skokholm and the Seas off Pembrokeshire SPA and as such there is considered to be no connectivity between emergent burrow-nesting fledglings and impacts from project-related artificial lighting. It is considered likely that any emerging fledglings or indeed adult birds at sea would encounter artificial lighting from other sources before coming into range of lights associated with the CWP Project.

833. Minimum lighting recommendations for OWFs (IAA, 2026) require an illumination intensity that is significantly less powerful than the examples used by Deakin *et al.* (2022) in their assessment of impacts to nocturnal procellarids (i.e. villages, lighthouses and offshore oil platforms). Therefore artificial lighting at sea generated by WTGs and associated vessels and infrastructure is unlikely to impact upon Manx shearwater SCIs to the same degree. It is therefore concluded that lighting attraction to OWFs is unlikely to occur.

834. Artificial lighting from OWFs is far less intense, less widespread and more tightly regulated than the bright, continuous coastal and urban lighting which is more commonly known to attract and ground

fledging Manx shearwaters. Coastal settlements and industrial sites produce strong, broad-spectrum light that creates a more significant skyglow effect, drawing fledglings off course. Conversely, OWF lighting is minimal, mainly aviation-safety based, and typically lower in intensity and duration (Syposz *et al.*, 2018; NatureScot, 2020).

835. It is therefore concluded that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

836. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Skomer, Skokholm and the Seas off Pembrokeshire SPA.

Residual effect

837. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

838. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Skomer, Skokholm and the Seas off Pembrokeshire SPA are presented in **Table 42** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Skomer, Skokholm and the Seas off Pembrokeshire SPA Manx shearwater SCI.**

4.13 Grassholm SPA (Wales – UK9014041)

Section 4.13 (Grassholm SPA) of Volume 5, Part 2 of the NIS remains unchanged with the exception of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. As the Conservation Objectives of this SPA have not been updated since submission of the original application, and collision impacts to gannet were previously assessed in Section 4.13. of Volume 5, Part 2 of the NIS, no changes are required to Table 4-76 in Section 4.13. of Volume 5, Part 2 of the NIS with regard to this revised assessment. However, Operation and Maintenance impact 4 – Collision paragraphs 3145 to 3154 in Section 4.13. of NIS Volume 5, Part 2 are replaced by paragraphs 839 to 849, below.

4.13.1 Receptor 1: Gannet

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

839. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of gannet from Grassholm SPA through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attributes and targets for the gannet feature of Grassholm SPA:

- The breeding population will not fall below 30,000 pairs in three consecutive years;
- The breeding population will not drop by more than 25% of the previous year's figures in any one year; and
- There will be no decline in the breeding population significantly greater than any decline in the North Atlantic population as a whole.

840. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding gannet SCI of Grassholm SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs

841. In relation to these Conservation Objective attributes, mortality resultant from collision with operational WTGs within the array site may directly affect the overall survival rate of this feature at Grassholm SPA and thereby potentially contribute to declines in the breeding population abundance of the feature. Furthermore, collision mortality may also adversely affect the overall productivity rate of this feature at Grassholm SPA, through reductions to offspring provisioning rates and other parental care metrics (should parents experience collision mortality).

842. Total bio-seasonal and total annual estimated gannet collision mortalities, as derived in **Appendix 10.3: Collision Risk Modelling** of the EIAR, are presented in **Table 43** These values are apportioned to Grassholm SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of this NIS, and also presented in **Table 43**.

843. Collision mortalities are presented in relation to Representative scenarios A and B and CRM Band Option 1 and 2 models. As described in **Appendix 10.3: Collision Risk Modelling** of the EIAR, Band Option 1 CRMs (which utilise site-specific flight height data for this feature) are considered most appropriate and associated values highlighted in bold. Detailed justification regarding why Band Option 1 models are considered most appropriate for this SCI, and the CRM parameters used, is presented in **Appendix 10.3: Collision Risk Modelling** of the EIAR. To summarise, baseline site-specific flight height data for this feature are considered sufficiently robust to inform collision risk modelling and the use of site-specific data in assessment (alongside a generic Band Option 2 approach) was assessed to be 'an attractive option' in an NPWS review of ornithological assessment methods for east coast Phase 1 projects (ABPmer, 2023). Band Option 2 model outputs are also presented to facilitate comparison with the outputs of other projects (particularly other Irish OWFs with potentially concurrent construction and operational timelines).

Table 43 Total bio-seasonal and annual collision mortalities to gannet and mortalities apportioned to Grassholm SPA

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Total impact	A	**1**	**0.326**	**0.432**	**0.136**	**0.894**
		2	0.932	1.222	0.406	2.560
	B	**1**	**0.274**	**0.372**	**0.116**	**0.762**

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
		2	0.83	1.065	0.338	2.233
Impact accounting for 70% macro-avoidance during non-breeding seasons only	A	**1**	**0.098**	**0.432**	**0.041**	**0.571**
		2	0.280	1.222	0.122	1.624
	B	**1**	**0.082**	**0.372**	**0.035**	**0.489**
		2	0.249	1.065	0.101	1.415
Percentage of impact apportioned to SPA (inclusive of 70% macro-avoidance)			11.19%	24.74%	13.46%	
Impact to SPA	A	**1**	**0.011**	**0.107**	**0.006**	**0.123**
		2	0.031	0.302	0.016	0.350
	B	**1**	**0.009**	**0.092**	**0.005**	**0.106**
		2	0.028	0.263	0.014	0.305

844. **Table 43**, above, demonstrates that, when using Band Option 1 CRM, total annual predicted gannet collision mortality is calculated as 0.894 individuals in relation to Representative scenario A and 0.762 individuals in relation to Representative scenario B. When a 70% rate of macro-avoidance by this species to the presence of OWF infrastructure is applied during the non-breeding seasons only, total annual predicted gannet collision mortality is calculated as 0.894 individuals in relation to Representative scenario A and 0.762 individuals in relation to Representative scenario B under Band Option 1. When these predicted mortalities are apportioned to Grassholm SPA for each bio-season it is estimated, for example, that 11.19% of total predicted collision mortality during the return migration bio-season (which, for gannet, is considered as the December to March period) relates to breeding adults from Grassholm SPA; this equates to 0.011 individuals, and 0.009 individuals from the SPA per return migration bio-season for Representative scenarios A and B, respectively (accounting for macro-avoidance). Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual collision mortalities to Grassholm SPA and, from this, when using Band Option 1 CRM, annual predicted gannet collision mortality to Grassholm SPA is calculated as 0.123 individuals in relation to Representative scenario A and 0.106 individuals in relation to Representative scenario B (accounting for macro-avoidance).

845. Increases to SPA gannet mortality rates resultant from apportioned annual impacts are presented in **Table 44**. In this table, the most recent colony count from the SPA (2014 count – SMP, 2023), is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus gannet adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional collision mortality associated with the CWP Project for Representative scenarios A and B (accounting for macro-avoidance).

Table 44 Increase to annual mortality rates resulting from collision mortalities apportioned to Grassholm SPA

Design option	CRM Band Option	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality rate	Baseline estimated SPA annual mortality	Increase to SPA mortality rate
A	**1**	**0.123**	72022	8.10%	5833.782	**0.016%**
	2	0.350				0.046%
B	**1**	**0.106**				**0.014%**
	2	0.305				0.040%

846. As additional mortality to the gannet feature of Grassholm SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%, for preferred Band Option 1 models) to SPA baseline mortality rates, this impact is considered not capable of altering gannet mortality rates in such a way as to result in a significant decline in the breeding population abundance or productivity rate of the gannet feature of Grassholm SPA. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Grassholm SPA.

Proposed mitigation

847. No specific mitigation is proposed or required in respect of collision during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Grassholm SPA.

Residual effect

848. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

849. The Conservation Objective and its attributes and targets for the gannet feature of Grassholm SPA are presented in **Table 4-76 in Section 4.13.** of **Volume 5, Part 2**. With regards to collision impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in turn, that there is **no project-only AESI for the Grassholm SPA gannet feature.**

4.14 Copeland Islands SPA (Northern Ireland – UK9020291)

Section 4.14 (Copeland Islands SPA) of Volume 5, Part 2 of the NIS remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.14 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor these are presented in Table 45 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 45,

below, is to be read in conjunction with Table 4-83 in Section 4.14. of Volume 5, Part 2 of the NIS. Table 45 outlines the Conservation Objectives, Attributes and Targets for Copeland Islands SPA for Manx shearwater. An additional section is included below in paragraphs 850 to 856 to assess artificial lighting impacts to Manx shearwater.

Table 45 Assessment of adverse effects on site integrity (project alone) - Copeland Islands SPA

Objective:	Attributes and Targets	Predicted Effect(s)	Link to Assessment	Mitigation	Residual Effect	Conclusion
Manx shearwater [A013]						
To maintain the favourable conservation condition of the feature in the SPA	1. Breeding population – no significant decrease in population against national trends.	Artificial lighting impacts [1]	**Section 4.14.1**	None	No change	No AESI

4.14.1 Receptor 1: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

850. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

851. Artificial lighting impacts have the potential to impact on the following Conservation Objective attribute and target for the Manx shearwater feature of Copeland Islands SPA:

- Breeding population – no significant decrease in population against national trends.

852. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

853. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

854. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Copeland Islands SPA.

Residual effect

855. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

856. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Copeland Islands SPA are presented in **Table 45** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Copeland Islands SPA Manx shearwater SCI.**

Section 4.15 remains unchanged

4.16 Helvick Head to Ballyquin SPA (IE004192)

Section 4.16 (Helvick Head to Ballyquin SPA) of Volume 5, Part 2 of the NIS remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 46, below, is to be read in conjunction with Table 4-89 in Section 4.16. of Volume 5, Part 2 of the NIS. Table 46 outlines the updated Conservation Objectives, Attributes and Targets for the Helvick Head to Ballyquin SPA for kittiwake. An additional section is included below in paragraphs 857 to 868 to assess disturbance and displacement impacts to kittiwake.

Table 46 Assessment of adverse effects on site integrity (project alone) – Helvick Head to Ballyquin SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Operation and maintenance impact 5**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.					

4.16.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

857. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Helvick Head to Ballyquin SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Helvick Head to Ballyquin SPA:

- Breeding population size – long term trend is stable or increasing;
- Prey biomass available – no significant decline;
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

858. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of

Helvick Head to Ballyquin SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

859. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Helvick Head to Ballyquin SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs

860. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

861. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

862. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as determined in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 47**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Helvick Head to Ballyquin SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 47.**

Table 47 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Helvick Head to Ballyquin SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	Migration free breeding (May–Jul)	Post-breeding migration (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.02%	0.01%	0.01%	
Impact to SPA (increased mortality)	<0.001	<0.001	0.001	0.001

863. **Table 47**, above, outlines that, assuming a displacement rate of 30% and an associated mortality rate

of 1%, total annual predicted kittiwake displacement mortality is calculated as a precautionary 7.475 individuals. When these predicted mortalities are apportioned to Helvick Head to Ballyquin SPA for each bio-season it is estimated, for example, that 0.02% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Helvick Head to Ballyquin SPA; this equates to less than 0.001 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Helvick Head to Ballyquin SPA. From this, annual predicted kittiwake displacement mortality to Helvick Head to Ballyquin SPA is calculated as 0.001 individuals.

864. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 48.** In this table, to align with the methodology used in the NIS, the 2018 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 48 Increase to annual mortality resulting from displacement mortalities apportioned to Helvick Head to Ballyquin SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.001	130	14.60%	19	0.006%

865. As additional mortality to the kittiwake SCI of Helvick Head to Ballyquin SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Helvick Head to Ballyquin SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Helvick Head to Ballyquin SPA.

Proposed mitigation

866. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Helvick Head to Ballyquin SPA.

Residual effect

867. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

868. The Conservation Objective and its attributes and targets for the kittiwake SCI of Helvick Head to Ballyquin SPA are presented in **Table 46**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Helvick Head to Ballyquin SPA kittiwake SCI.**

Section 4.17 remains unchanged

4.18 Ailsa Craig SPA (Scotland – UK9003091)

Section 4.18 (Ailsa Craig SPA) remains unchanged, but for two exceptions.

Firstly, the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. As kittiwake was not assessed in relation to disturbance and displacement impacts in Section 4.18 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 49 to facilitate the additional assessment of disturbance and displacement impacts for this SCI. As such the information presented in Table 49, below, is to be read in conjunction with Table 4-93 in Section 4.18. of Volume 5, Part 2 of the NIS. Table 49 outlines the Conservation Objectives, Attributes and Targets for Ailsa Craig SPA for kittiwake. An additional section is included below in paragraphs 869 to 880 to assess disturbance and displacement impacts to kittiwake.

Secondly, the assessment of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. As the Conservation Objectives of this SPA have not been updated since submission of the original application, and collision impacts to gannet were previously assessed in Section 4.18. of Volume 5, Part 2 of the NIS, no changes are required to Table 4-93 in Section 4.18. of Volume 5, Part 2 of the NIS with regard to this revised assessment. However, Operation and Maintenance impact 4 – Collision paragraphs 3723 to 3732 in Section 4.18. of NIS Volume 5, Part 2 are replaced by paragraphs 881 to 890, below.

Table 49 Assessment of adverse effects on site integrity (project alone) – Ailsa Craig SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained. To ensure for the qualifying species that the following are maintained in the long term: 1. Population of the species as a viable component of the	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4]	See, **Section 4.18.1**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
site 2. Distribution of the species within site distribution and extent of habitats supporting the species 3. Structure, function and supporting processes of habitats supporting the species 4. No significant disturbance of the species					

4.18.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

869. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Ailsa Craig SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Ailsa Craig SPA:

- Population of the species as a viable component of the site;
- Distribution of the species within site distribution and extent of habitats supporting the species; and
- No significant disturbance of the species.

870. The following Conservation Objective, attribute and target in relation to breeding kittiwake of Ailsa Craig SPA does not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Structure, function and supporting processes of habitats supporting the species.

871. Not only does this SPA lie outside the area of impact, (i.e. the array site plus a 2 km buffer), there is no route to impact upon the supporting habitats of this SCI through disturbance and displacement of breeding kittiwake at Ailsa Craig SPA.

872. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from

areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

873. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

874. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as determined in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 50**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Ailsa Craig SPA according to the apportioning ratios determined in **Appendix 3**, **Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 50**.

Table 50 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Ailsa Craig SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.14%	0.06%	0.11%	
Impact to SPA (additional mortality)	0.002	0.001	0.004	0.008

875. **Table 50,** above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Ailsa Craig SPA for each bio-season it is estimated, for example, that 0.14% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Ailsa Craig SPA; this equates to a highly precautionary predicted mortality of 0.002 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Ailsa Craig SPA. From this, annual predicted kittiwake displacement mortality to Ailsa Craig SPA is calculated as 0.008 individuals.

876. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 51**. In this table, to align with the methodology used in the NIS, the 2021 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage

of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 51 Increase to annual mortality resulting from displacement mortalities apportioned to Ailsa Craig SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.008	980	14.60%	143	0.005%

877. As additional mortality to the kittiwake SCI of Ailsa Craig SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Ailsa Craig SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Ailsa Craig SPA.

Proposed mitigation

878. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Ailsa Craig SPA.

Residual effect

879. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

880. The Conservation Objective and its attributes and targets for the kittiwake SCI of Ailsa Craig SPA are presented in **Table 49**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Ailsa Craig SPA kittiwake SCI.**

4.18.3 Receptor 3: Gannet

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

881. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of gannet from Ailsa Craig SPA through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attribute and target for the gannet feature of Ailsa Craig SPA:

- Population of the species as a viable component of the site is maintained.

882. In relation to these Conservation Objective attributes, mortality resultant from collision with operational WTGs within the array site may directly affect the overall survival rate of this feature at Ailsa Craig SPA and thereby potentially contribute to declines in the breeding population abundance of the feature. Furthermore, collision mortality may also adversely affect the overall productivity rate of this feature at Ailsa Craig SPA, through reductions to offspring provisioning rates and other parental care metrics (should parents experience collision mortality).

883. Total bio-seasonal and total annual estimated gannet collision mortalities, as derived in **Appendix 10.3: Collision Risk Modelling** of the EIAR, are presented in **Table 52**. These values are apportioned to Ailsa Craig SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of this NIS, and also presented in **Table 52**.

884. Collision mortalities are presented in relation to Representative scenarios A and B and CRM Band Option 1 and 2 models. As described in **Appendix 10.3: Collision Risk Modelling** of the EIAR, Band Option 1 CRMs (which utilise site-specific flight height data for this feature) are considered most appropriate and associated values highlighted in bold. To summarise, baseline site-specific flight height data for this feature are considered sufficiently robust to inform collision risk modelling and the use of site-specific data in assessment (alongside a generic Band Option 2 approach) was assessed to be 'an attractive option' in an NPWS review of ornithological assessment methods for east coast Phase 1 projects (ABPmer, 2023). Band Option 2 model outputs are also presented to facilitate comparison with the outputs of other projects (particularly other Irish OWFs with potentially concurrent construction and operational timelines).

Table 52 Total bio-seasonal and annual collision mortalities to gannet and mortalities apportioned to Ailsa Craig SPA

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Total impact	A	**1**	**0.326**	**0.432**	**0.136**	**0.894**
		2	0.932	1.222	0.406	2.560
	B	**1**	**0.274**	**0.372**	**0.116**	**0.762**
		2	0.83	1.065	0.338	2.233

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Impact accounting for 70% macro-avoidance during the non-breeding seasons only	A	**1**	**0.098**	**0.432**	**0.041**	**0.571**
		2	0.280	1.222	0.122	1.624
	B	**1**	**0.082**	**0.372**	**0.035**	**0.489**
		2	0.249	1.065	0.101	1.415
Percentage of impact apportioned to SPA (inclusive of 70% macro-avoidance)			10.32%	7.48%	12.42%	
Impact to SPA	A	**1**	**0.010**	**0.032**	**0.005**	**0.048**
		2	0.029	0.091	0.015	0.135
	B	**1**	**0.008**	**0.028**	**0.004**	**0.041**
		2	0.026	0.080	0.013	0.118

885. **Table 52**, above, outlines that, when using Band Option 1 CRM, total annual predicted gannet collision mortality is calculated as 0.894 individuals in relation to Representative scenario A and 0.762 individuals in relation to Representative scenario B. When a 70% rate of macro-avoidance by this species to the presence of OWF infrastructure is applied during the non-breeding seasons only, total annual predicted gannet collision mortality is calculated as 0.571 individuals in relation to Representative scenario A and 0.489 individuals in relation to Representative scenario B under Band Option 1. When these predicted mortalities are apportioned to Ailsa Craig SPA for each bio-season it is estimated, for example, that 10.32% of total predicted collision mortality during the return migration bio-season (which, for gannet, is considered as the December to March period) relates to breeding adults from Ailsa Craig SPA; this equates to 0.010 individuals, and 0.008 individuals from the SPA per return migration bio-season for Representative scenarios A and B, respectively (accounting for macro-avoidance). Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual collision mortalities to Ailsa Craig SPA.From this, when using Band Option 1 CRM, annual predicted gannet collision mortality to Ailsa Craig SPA is calculated as 0.048 individuals in relation to Representative scenario A and 0.041 individuals in relation to Representative scenario B (accounting for macro-avoidance).

886. Increases to SPA gannet mortality rates resultant from apportioned annual impacts are presented in **Table 53**. In this table, the most recent colony count from the SPA (2014 count – SMP, 2023), is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus gannet adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional collision mortality associated with the CWP Project for Representative scenarios A and B (accounting for macro-avoidance).

Table 53 Increase to annual mortality rates resulting from collision mortalities apportioned to Ailsa Craig SPA

Design option	CRM Band Option	Annual impact to SPA	SPA population (breeding adults)	Adult annual mortality rate	Baseline estimated SPA annual mortality	Increase to SPA mortality rate
A	**1**	0.048	66452	8.10%	5382.612	**0.006%**
	2	0.135				0.018%
B	**1**	0.041				**0.005%**
	2	0.118				0.015%

887. As additional mortality to the gannet feature of Ailsa Craig SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%, for preferred Band Option 1 models) to SPA baseline mortality rates, this impact is considered not capable of altering gannet mortality rates in such a way as to result in a significant decline in the breeding population abundance or productivity rate of the gannet feature of Ailsa Craig SPA. Specifically, collision mortality will not affect the population dynamics of the feature in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Ailsa Craig SPA.

Proposed mitigation

888. No specific mitigation is proposed or required in respect of collision during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Ailsa Craig SPA.

Residual effect

889. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

890. The Conservation Objective and its attributes and targets for the gannet feature of Ailsa Craig SPA are presented in **Table 4-93** in **Section 4.18.** of **Volume 5, Part 2**. With regards to collision impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in turn, that there is **no project-only AESI for the Ailsa Craig SPA gannet feature.**

4.19 Rathlin Island SPA (Northern Ireland – UK9020011)

Section 4.19 (Rathlin Island SPA) remains unchanged with the exception of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. As kittiwake was not assessed in relation to disturbance

and displacement impacts in Section 4.19 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 54 to facilitate the additional assessment of disturbance and displacement impacts for this SCI. As such the information presented in Table 54, below, is to be read in conjunction with Table 4-102 in Section 4.19. of Volume 5, Part 2 of the NIS. Table 54 outlines the Conservation Objectives, Attributes and Targets for Rathlin Island SPA for kittiwake. An additional section is included below in paragraphs 891 to 902 to assess disturbance and displacement impacts to kittiwake.

Table 54 Assessment of adverse effects on site integrity (project alone) – Rathlin Island SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To maintain the favourable conservation condition of the Feature in the SPA 1. Breeding population – maintain or enhance. 2. Productivity – fledging success sufficient to maintain or enhance population. 3. Supporting habitats – maintain or enhance. 4. Disturbance – ensure no significant disturbance to qualifying feature. 5. Distribution of the species within site – maintain in the long-term.	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,3,4]	See, **Operation and maintenance impact 5**, below	None	No change	No AESI

4.19.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

891. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Rathlin Island SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake

SCI within Rathlin Island SPA:

- Breeding population – maintain or enhance;
- Productivity – fledging success sufficient to maintain or enhance population.
- Supporting habitats – maintain or enhance; and
- Disturbance – ensure no significant disturbance to qualifying feature.

892. The following Conservation Objective, attribute and target in relation to breeding kittiwake of Rathlin Island SPA does not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution of the species within site – maintain in the long-term.

893. This SPA lies outside the area of impact and as such there is no route to impact upon the distribution of the breeding kittiwake SCI of Rathlin Island SPA.

894. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

895. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

896. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as determined in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 55**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Rathlin Island SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 55.**

Table 55 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Rathlin Island SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	3.84%	1.30%	2.94%	
Impact to SPA (30% displacement / 1% mortality)	0.068	0.021	0.120	0.209

897. **Table 55**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Rathlin Island SPA for each bio-season it is estimated, for example, that 3.84% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Rathlin Island SPA; this equates to a precautionary predicted mortality of 0.068 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Rathlin Island SPA. From this, annual predicted kittiwake displacement mortality to Rathlin Island SPA is calculated as 0.209 individuals.

898. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table 56**. In this table, to align with the methodology used in the NIS, the 2021 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 56 Increase to annual mortality rates resulting from displacement mortalities apportioned to Rathlin Island SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.209	27412	14.60%	4002	0.005%

899. As additional mortality to the kittiwake SCI of Rathlin Island SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Rathlin Island SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Rathlin Island SPA.

Proposed mitigation

900. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Rathlin Island SPA.

Residual effect

901. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

902. The Conservation Objective and its attributes and targets for the kittiwake SCI of Rathlin Island SPA are presented in **Table 54**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Rathlin Island SPA kittiwake SCI.**

4.20 Old Head of Kinsale SPA (IE004021)

Section 4.20 (Old Head of Kinsale SPA) remains unchanged with the exception of the addition of an assessment of disturbance and displacement impacts to the kittiwake SCI in response to FIR item 7J. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 57, below, is to be read in conjunction with Table 4-105 in Section 4.20. of Volume 5, Part 2 of the NIS. Table 57 outlines the updated Conservation Objectives, Attributes and Targets for the Old Head of Kinsale SPA for kittiwake. An additional section is included below in paragraphs 903 to 914 to assess disturbance and displacement impacts to kittiwake.

Table 57 Assessment of adverse effects on site integrity (project alone) – Old Head of Kinsale SPA

Objective: **Attributes and targets**	**Predicted effect** **[Attribute(s) potentially affected]**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Objective: To restore the favourable conservation condition of the SCI: 1. Breeding population size – long term trend is stable or increasing 2. Productivity rate – sufficient to maintain a stable or increasing population 3. Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population 4. Forage spatial distribution, extent, abundance and availability – sufficient to support the population target. 5. Disturbance at breeding site – levels do not significantly impact birds at breeding site. 6. Disturbance at areas ecologically connected to colony - levels do not significantly impact breeding population. 7. Barriers to connectivity – no significant impact upon access to SPA or ecologically important	Kittiwake [A188]				
	Disturbance and displacement (including barrier effects) [1,2,4,6,7]	See, **Section 4.20.1**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect [Attribute(s) potentially affected]	Link to assessment	Mitigation	Residual effect	Conclusion
sites outside SPA.					

4.20.1 Receptor 1: Kittiwake

Operation and maintenance phase impacts

Operation and maintenance impact 5 – Disturbance and Displacement

Array site

Project-only assessment

903. As the array site does not overlap this SPA and the SPA is beyond the extent of areas in which disturbance and displacement impacts are considered to occur surrounding the array site (for kittiwake this is regarded as a 2 km buffer) all disturbance and displacement impacts will occur entirely outside of the SPA, i.e. all disturbance and displacement impacts assessed here relate to *ex situ* habitats which may support the kittiwake SCI of Old Head of Kinsale SPA. As such, disturbance and displacement has the potential to impact the following Conservation Objective attributes and targets for the kittiwake SCI of Old Head of Kinsale SPA:

- Breeding population size – long term trend is stable or increasing;
- Productivity rate – sufficient to maintain a stable or increasing population
- Forage spatial distribution, extent, abundance and availability – sufficient to support the population target;
- Disturbance at areas ecologically connected to colony – levels do not significantly impact breeding population; and
- Barriers to connectivity – no significant impact upon access to SPA or ecologically important sites outside SPA.

904. The following Conservation Objectives, attributes and targets in relation to breeding kittiwake of Ireland's Eye SPA do not have the potential to be impacted by disturbance and displacement to this SCI during the operation and maintenance phase:

- Distribution – sufficient availability of suitable nesting sites throughout SPA to maintain a stable or increasing population; and
- Disturbance at breeding site – levels do not significantly impact birds at breeding site.

905. This SPA lies outside the area of impact and as such there is no route to impacts upon the distribution of the breeding kittiwake SCI of Old Head of Kinsale SPA. Similarly, the coastal breeding colony of this SPA lies beyond the area of impact from the array site. There is no route to impact through disturbance from the array site to birds at the breeding site. There is no overlap between the area of

impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs

906. In relation to these Conservation Objective attributes, disturbance leading to displacement of kittiwake from the CWP Project array site and surrounding areas may lead to the exclusion of individuals from areas of habitat which would otherwise be used for foraging or other behaviours (i.e. indirect habitat loss). Similarly, due to the presence of operational WTGs within the array site, kittiwakes which would otherwise pass through these areas, may avoid flying through, or close to, the operational array site and alter flightpaths so as to go round this area, with potential reductions in habitat 'behind' installed infrastructure (i.e. experience 'barrier effects').

907. Resultant reductions in the extent of marine areas in which individuals can undertake foraging and non-foraging behaviours, or the requirement of individuals to use alternative areas for such behaviours, or the requirement for individuals to increase flight lengths to avoid passage through or close to areas in which operational WTGs are present, may affect the energetic costs of those behaviours and, in turn, the affect the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the SCI to maintain its population.

908. Total bio-seasonal and total annual estimated operation and maintenance phase kittiwake displacement mortalities, as determined in **Appendix 10-H Kittiwake Displacement Matrices** of the **EIAR Addendum**, are presented for the displacement and mortality rates best supported by available evidence in **Table 58**. Note that for seabird receptors such as kittiwake, which are potentially displaying frequent distributional responses to the presence of array site infrastructure (as opposed to migrants which typically may display one-off responses to avoid such infrastructure), indirect habitat loss and barrier effects are treated collectively when displacement matrices are used to calculate displacement mortality figures. These values are apportioned to Old Head of Kinsale SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of the NIS, and also presented in **Table 58.**

Table 58 Total bio-seasonal and annual displacement mortalities to kittiwake and mortalities apportioned to Old Head of Kinsale SPA

	Bio-season			Annual
	Return migration (Jan–Apr)	**Migration free breeding** (May–Jul)	**Post-breeding migration** (Aug–Dec)	
Total impact (30% displacement / 1% mortality)	1.757	1.629	4.089	7.475
Percentage of impact apportioned to SPA	0.20%	0.04%	0.15%	
Impact to SPA (increase in mortality)	0.004	0.001	0.006	0.011

909. **Table 58**, above, outlines that, assuming a displacement rate of 30% and an associated precautionary mortality rate of 1%, total annual predicted kittiwake displacement mortality is calculated as 7.475 individuals. When these predicted mortalities are apportioned to Old Head of Kinsale SPA for each bio-season it is estimated, for example, that 0.20% of total predicted displacement mortality during the return migration bio-season (which, for kittiwake, is considered as the January to April period) relates to breeding adults from Old Head of Kinsale SPA; this equates to a precautionary predicted mortality of 0.004 individuals from the SPA per return migration bio-season. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual displacement mortalities to Old Head of Kinsale SPA. From this, annual predicted kittiwake displacement mortality to Old Head of Kinsale SPA is calculated as 0.011 individuals.

910. Increases to SPA kittiwake mortality resultant from apportioned annual impacts are presented in **Table**

59. In this table, to align with the methodology used in the NIS, the 2015 SPA count is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus kittiwake adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional displacement mortality associated with the CWP Project.

Table 59 Increase to annual mortality rates resulting from displacement mortalities apportioned to Old Head of Kinsale SPA

	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality	Increase to SPA mortality
Impact to SPA (30% displacement / 1% mortality)	0.011	1442	14.60%	211	0.005%

911. As additional mortality to the kittiwake SCI of Old Head of Kinsale SPA resulting from displacement is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the kittiwake SCI of Old Head of Kinsale SPA. Specifically, displacement mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Old Head of Kinsale SPA.

Proposed mitigation

912. No specific mitigation is proposed or required in respect of displacement during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Old Head of Kinsale SPA.

Residual effect

913. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

914. The Conservation Objective and its attributes and targets for the kittiwake SCI of Old Head of Kinsale SPA are presented in **Table 57**, above. With regards to displacement impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Old Head of Kinsale SPA kittiwake SCI.**

Sections 4.21 – 4.24 – remain unchanged

4.25 The Bull and the Cow Rocks SPA (IE004066)

Section 4.25 (The Bull and the Cow Rocks SPA) remains unchanged with the exception of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. Revised assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 60 below, replaces the equivalent section of Table 4-112 in Section 4.25. of Volume 5, Part 2 of the NIS. Table 60 outlines the updated Conservation Objectives, Attributes and Targets for The Bull and Cow Rocks SPA for gannet. Operation and Maintenance impact 4 – Disturbance and Displacement paragraphs 4256 to 4265 of Section 4.25. of Volume 5, Part 2 in the NIS are replaced by paragraphs 915 to 926, below.

Table 60 Assessment of adverse effects on site integrity (project alone) – The Bull and the Cow Rocks SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
To maintain the Favourable conservation condition of Gannet in The Bull and The Cow Rocks SPA, which is defined by the following list of attributes and targets: 1: Breeding population size - long term SPA population trend is stable or increasing; 2: Productivity rate - sufficient to maintain a stable or increasing population; 3: Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population; 4: Forage spatial distribution, extent, abundance and availability - Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; 5: Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; 6: Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population;	Gannet [A016]				
	Collision [1]	See **Section 4.25.1**, below	None	No change	No AESI

7: Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA					

4.25.1 Receptor 1: Gannet

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

915. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of gannet from The Bull and the Cow Rocks SPA through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attributes and targets for the gannet SCI of The Bull and the Cow Rocks SPA:

- Breeding population size - Long term SPA population trend is stable or increasing.

916. The following Conservation Objective, attributes and targets in relation to breeding gannet of The Bull and the Cow Rocks SPA do not have the potential to be impacted by collision of this SCI during the operation and maintenance phase:

- Productivity rate - sufficient to maintain a stable or increasing population;
- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site;
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

917. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding gannet SCI of The Bull and the Cow Rocks SPA through collision. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

918. In relation to these Conservation Objective attributes, mortality resultant from collision with operational WTGs within the array site may directly affect the overall survival rate of this SCI at The Bull and the Cow Rocks SPA and thereby potentially contribute to declines in the breeding population abundance of the SCI. Furthermore, collision mortality may also adversely affect the overall productivity rate of this SCI at The Bull and the Cow Rocks SPA, through reductions to offspring provisioning rates and

other parental care metrics (should parents experience collision mortality).

919. Total bio-seasonal and total annual estimated gannet collision mortalities, as derived in **Appendix 10.3: Collision Risk Modelling** of the EIAR, are presented in **Table 61**. These values are apportioned to The Bull and the Cow Rocks SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of this NIS, and also presented in **Table 61**.

920. Collision mortalities are presented in relation to Representative scenarios A and B and CRM Band Option 1 and 2 models. As described in **Appendix 10.3: Collision Risk Modelling** of the EIAR, Band Option 1 CRMs (which utilise site-specific flight height data for this SCI) are considered most appropriate and associated values highlighted in bold. Detailed justification regarding why Band Option 1 models are considered most appropriate for this SCI, and the CRM parameters used, is presented in **Appendix 10.3: Collision Risk Modelling** of the EIAR. To summarise, baseline site-specific flight height data for this SCI are considered sufficiently robust to inform collision risk modelling and the use of site-specific data in assessment (alongside a generic Band Option 2 approach) was assessed to be 'an attractive option' in an NPWS review of ornithological assessment methods for east coast Phase 1 projects (ABPmer, 2023). Band Option 2 model outputs are also presented to facilitate comparison with the outputs of other projects (particularly other Irish OWFs with potentially concurrent construction and operational timelines).

Table 61 Total bio-seasonal and annual collision mortalities to gannet and mortalities apportioned to The Bull and the Cow Rocks SPA

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Total impact	A	**1**	**0.326**	**0.432**	**0.136**	**0.894**
		2	0.932	1.222	0.406	2.560
	B	**1**	**0.274**	**0.372**	**0.116**	**0.762**
		2	0.83	1.065	0.338	2.233
Impact accounting for 70% macro-avoidance	A	**1**	**0.098**	**0.432**	**0.041**	**0.571**
		2	0.280	1.222	0.122	1.624
	B	**1**	**0.082**	**0.372**	**0.035**	**0.489**
		2	0.249	1.065	0.101	1.415
Percentage of impact apportioned to SPA (inclusive of 70% macro-avoidance)			1.99%	0.42%	2.39%	
Impact to SPA	A	**1**	**0.002**	**0.002**	**0.001**	**0.005**
		2	0.006	0.005	0.003	0.014
	B	**1**	**0.002**	**0.002**	**0.001**	**0.004**
		2	0.005	0.004	0.002	0.012

921. **Table 61**, above, outlines that, when using Band Option 1 CRM, total annual predicted gannet collision

mortality is calculated as 0.894 individuals in relation to Representative scenario A, and 0.762 individuals in relation to Representative scenario B. When a 70% rate of macro-avoidance by this species to the presence of OWF infrastructure is applied during the non-breeding seasons only, total annual predicted gannet collision mortality is calculated as 0.571 individuals in relation to Representative scenario A, and 0.489 individuals in relation to Representative scenario B. When these predicted mortalities are apportioned to The Bull and the Cow Rocks SPA for each bio-season it is estimated, for example, that 1.99% of total predicted collision mortality during the return migration bio-season (which, for gannet, is considered as the December to March period) relates to breeding adults from The Bull and the Cow Rocks SPA; this equates to 0.002 individuals from the SPA per return migration bio-season for both Representative scenarios A and B (accounting for macro-avoidance). Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual collision mortalities to The Bull and the Cow Rocks SPA and, from this, when using Band Option 1 CRM, annual predicted gannet collision mortality to The Bull and the Cow Rocks SPA is calculated as 0.005 individuals in relation to Representative scenario A, and 0.004 individuals in relation to Representative scenario B (accounting for macro-avoidance).

922. Increases to SPA gannet mortality rates resultant from apportioned annual impacts are presented in **Table 62**. In this table, the most recent colony count from the SPA (2014 count – SMP, 2023) is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus gannet adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional collision mortality associated with the CWP Project for Representative scenarios A and B (accounting for macro-avoidance).

Table 62 Increase to annual mortality rates resulting from collision mortalities apportioned to The Bull and the Cow Rocks SPA

Design option	CRM Band Option	Annual impact to SPA	SPA population (breeding adults)	Adult annual mortality rate	Baseline estimated SPA annual mortality	Increase to SPA mortality rate
A	**1**	**0.005**	12766	8.10%	1034.046	**0.001%**
	2	0.014				0.002%
B	**1**	**0.004**				**0.001%**
	2	0.012				0.002%

923. As additional mortality to the gannet SCI of The Bull and the Cow Rocks SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%, for preferred Band Option 1 models) to SPA baseline mortality rates, this impact is considered not capable of altering gannet mortality rates in such a way as to result in a significant decline in the breeding population abundance or productivity rate of the gannet SCI of The Bull and the Cow Rocks SPA. Specifically, collision mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to The Bull and the Cow Rocks SPA.

Proposed mitigation

924. No specific mitigation is proposed or required in respect of collision during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to The Bull and the Cow Rocks SPA.

Residual effect

925. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

926. The Conservation Objective and its attributes and targets for the gannet SCI of The Bull and the Cow Rocks SPA are presented in **Table 60**, above. With regards to collision impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Bull and the Cow Rocks SPA gannet SCI.**

Section 4.26 remains unchanged

4.27 Deenish Islands and Scariff Island SPA (IE004175)

Section 4.27 (Deenish Islands and Scariff Island SPA) of Volume 5, Part 2 of the NIS remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 63, below, is to be read in conjunction with Table 4-120 in Section 4.27 of Volume 5, Part 2 of the NIS. Table 63 outlines the updated Conservation Objectives, Attributes and Targets for the Deenish Islands and Scariff Island SPA for Manx shearwater. An additional section is included below in paragraphs 927 to 936 to assess artificial lighting impacts to Manx shearwater.

Table 63 Assessment of adverse effects on site integrity (project alone) - Deenish Islands and Scariff Island SPA

Objective: **Attributes and targets**	**Predicted effect**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
To maintain the Favourable conservation condition of Manx shearwater in Deenish Island and Scariff Island SPA, which is defined by the following list of attributes and targets: 1: Breeding population size - long term SPA population trend is stable or increasing; 2: Productivity rate - sufficient to maintain a stable or increasing population; 3: Distribution: extent of available nesting options within the SPA -	Manx shearwater [A013]				
	Artificial lighting impacts [1,2,4,6]	**Section 4.27.2**	None	No change	No AESI

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population; 4: Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; 5: Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; 6: Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; 7: Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA					

4.27.2 Receptor 2: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

927. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

928. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Deenish Islands and Scariff Island SPA:

- Breeding population size - long term SPA population trend is stable or increasing;
- Productivity rate - sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population;

929. The following Conservation Objective, attributes and targets in relation to breeding Manx shearwater of Deenish Island and Scariff Island SPA do not have the potential to be impacted by artificial lighting impacts to of this SCI during the operation and maintenance phase:

- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

930. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding Manx shearwater SCI of Deenish Island and Scariff Island SPA through artificial lighting impacts. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

931. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

932. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

933. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

934. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Deenish Islands and Scariff Island SPA.

Residual effect

935. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

936. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Deenish Islands and Scariff Island SPA are presented in **Table 63** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Deenish Islands and Scariff Island SPA Manx shearwater SCI.**

Section 4.28 remains unchanged

4.29 Puffin Island SPA (IE004003)

Section 4.29 (Puffin Island SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 64, below, is to be read in conjunction with Table 4-126 in Section 4.29. of Volume 5, Part 2 of the NIS. Table 64 outlines the updated Conservation Objectives, Attributes and Targets for Puffin Island SPA for Manx shearwater. An additional section is included below in paragraphs 937 to 946 to assess artificial lighting impacts to Manx shearwater.

Table 64 Assessment of adverse effects on site integrity (project alone) - Puffin Island SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
To maintain the Favourable conservation condition of Manx shearwater in Puffin Island SPA, which is defined by the following list of attributes and targets: 1: Breeding population size - long term SPA population trend is stable or increasing; 2: Productivity rate - sufficient to maintain a stable or increasing population; 3: Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population; 4: Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; 5: Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; 6: Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; 7: Barriers to connectivity - barriers	Manx shearwater [A013]				
	Artificial lighting impacts [1, 2,4,6]	See **Section 4.29.2**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA					

4.29.2 Receptor 2: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

937. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

938. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Puffin Island SPA:

- Breeding population size - long term SPA population trend is stable or increasing;
- Productivity rate - sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population;

939. The following Conservation Objective, attributes and targets in relation to breeding Manx shearwater of Puffin Island SPA do not have the potential to be impacted by artificial lighting impacts to of this SCI during the operation and maintenance phase:

- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

940. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding Manx shearwater SCI of Puffin Island SPA through artificial lighting impacts. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

941. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of

individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

942. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

943. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

944. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Puffin Island SPA.

Residual effect

945. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

946. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Puffin Island SPA are presented in **Table 64** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in turn, that there is **no project-only AESI for Puffin Island SPA Manx shearwater SCI.**

4.30 Skelligs SPA (IE004007)

Section 4.30 (Skelligs SPA) remains unchanged, but for two exceptions.

Firstly, the assessment of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. Revised assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 65, below, replaces the equivalent section of Table 4-131 in Section 4.30. of Volume 5, Part 2 of the NIS. Table 65 outlines the updated Conservation Objectives, Attributes and Targets for Skelligs SPA for gannet. Operation and Maintenance impact 4 – Disturbance and Displacement paragraphs 4879 to 4888 of Section 4.30. of Volume 5, Part 2 in the NIS are replaced by paragraphs 947 to 958, below.

Secondly, the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 65, below, is to be read in conjunction with Table 4-131 in Section 4.30. of Volume 5, Part 2 of the NIS. Table 65 outlines the updated Conservation Objectives, Attributes and Targets for Skelligs SPA for Manx shearwater. An additional section is included below in paragraphs 959 to 968 to assess artificial lighting impacts to Manx shearwater.

Table 65 Assessment of adverse effects on site integrity (project alone) - Skelligs SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
To maintain the Favourable conservation condition of the SCIs of Skelligs SPA, which is defined by the following list of attributes and targets: 1: Breeding population size - long term SPA population trend is stable or increasing; 2: Productivity rate - sufficient to maintain a stable or increasing population; 3: Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population; 4: Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; 5: Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; 6: Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; 7: Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA	Gannet [A016]				
	Collision [1]	See **Section 4.30.2**, below	None	No change	No AESI
	Manx shearwater [A013]				
	Artificial lighting impacts [1,2,4,6]	See **Section 4.30.3**, below	None	No change	No AESI

4.30.2 Receptor 2: Gannet

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

947. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in the mortality of gannet from Skelligs SPA through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attribute and target for the gannet SCI of Skelligs SPA:

- Breeding population size - Long term SPA population trend is stable or increasing.

948. The following Conservation Objective, attributes and targets in relation to breeding gannet of Skelligs SPA do not have the potential to be impacted by collision of this SCI during the operation and maintenance phase:

- Productivity rate - sufficient to maintain a stable or increasing population;
- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site;
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

949. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding gannet SCI of Skelligs SPA through collision. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

950. In relation to this Conservation Objective attribute, mortality resultant from collision with operational WTGs within the array site may directly affect the overall survival rate of this SCI at Skelligs SPA. Furthermore, collision mortality may also adversely affect the overall productivity rate of this SCI at Skelligs SPA, through reductions to offspring provisioning rates and other parental care metrics. These potential consequences may compromise the ability of the SCI to maintain its population on a long-term basis.

951. Total bio-seasonal and total annual estimated gannet collision mortalities, as derived in **Appendix 10.3: Collision Risk Modelling** of the EIAR, are presented in **Table 66**. These values are apportioned to Skelligs SPA according to the apportioning ratios determined in **Appendix 3, Apportioning ratios technical appendix** in **Volume 7** of this NIS, and also presented in **Table 66.**

952. Collision mortalities are presented in relation to Representative scenarios A and B and CRM Band Option 1 and 2 models. As described in **Appendix 10.3: Collision Risk Modelling** of the EIAR, Band Option 1 CRMs (which utilise site-specific flight height data for this SCI) are considered most appropriate and associated values highlighted in bold. Detailed justification regarding why Band Option 1 models are considered most appropriate for this SCI, and the CRM parameters used, is presented in **Appendix 10.3: Collision Risk Modelling** of the EIAR. To summarise, baseline site-specific flight height data for this SCI are consider sufficiently robust to inform collision risk modelling and the use of site-specific data in assessment (alongside a generic Band Option 2 approach) was assessed to be 'an attractive option' in an NPWS review of ornithological assessment methods for east coast Phase 1 projects (ABPmer, 2023). Band Option 2 model outputs are also presented to facilitate comparison with the outputs of other projects (particularly other Irish OWFs with potentially concurrent construction and operational timelines).

Table 66 Total bio-seasonal and annual collision mortalities to gannet and mortalities apportioned to Skelligs SPA

	Design option	CRM Band Option	Bio-season			Annual
			Return migration (Dec–Mar)	Migration free breeding (Apr–Aug)	Post-breeding migration (Sep–Nov)	
Total impact	A	**1**	**0.326**	**0.432**	**0.136**	**0.894**
		2	0.932	1.222	0.406	2.560
	B	**1**	**0.274**	**0.372**	**0.116**	**0.762**
		2	0.83	1.065	0.338	2.233
Impact accounting for 70% macro-avoidance during non-breeding seasons only	A	**1**	**0.098**	**0.432**	**0.041**	**0.571**
		2	0.280	1.222	0.122	1.624
	B	**1**	**0.082**	**0.372**	**0.035**	**0.489**
		2	0.249	1.065	0.101	1.415
Percentage of impact apportioned to SPA (inclusive of 70% macro-avoidance)			10.97%	2.09%	13.20%	
Impact to SPA	A	**1**	**0.011**	**0.009**	**0.005**	**0.025**
		2	0.031	0.026	0.016	0.072
	B	**1**	**0.009**	**0.008**	**0.005**	**0.021**
		2	0.027	0.022	0.013	0.063

953. **Table 66**, above, demonstrates that, when using Band Option 1 CRM, total annual predicted gannet collision mortality is calculated as 0.894 individuals in relation to Representative scenario A, and 0.762 individuals in relation to Representative scenario B. When these predicted mortalities are apportioned to Skelligs SPA for each bio-season it is estimated, for example, that 10.97% of total predicted collision mortality during the return migration bio-season (which, for gannet, is considered as the December to March period) relates to breeding adults from Skelligs SPA; this equates to 0.011 and 0.009 individuals from the SPA per return migration bio-season for Representative scenarios A and B respectively. Apportioning is similarly undertaken in relation to other bio-seasons and all apportioned bio-seasonal mortalities summed to estimate annual collision mortalities to Skelligs SPA and, from this, when using Band Option 1 CRM, annual predicted gannet collision mortality to Skelligs SPA is calculated as 0.025 individuals in relation to Representative scenario A and 0.006 individuals in relation to Representative scenario B.

954. Increases to SPA gannet mortality rates resultant from apportioned annual impacts are presented in **Table 67**. In this table, the most recent colony count from the SPA (2023 count – Arklow Extension Survey Data; Cork Ecology, 2023) is used to estimate the average number of breeding adults from the SPA colony which die each year by multiplying by one minus gannet adult annual survival rate (taken from Horswill and Robinson, 2015). The percentage of the apportioned mortality compared to this baseline SPA annual mortality is derived to show the proportional increase to SPA mortality rates owing to additional collision mortality associated with the CWP Project for Representative scenarios A and B (accounting for macro-avoidance).

Table 67 Increase to annual mortality rates resulting from collision mortalities apportioned to Skelligs SPA

Design option	CRM Band Option	Annual impact to SPA	SPA population (breeding adults)	Adult annual mortality rate	Baseline estimated SPA annual mortality	Increase to SPA mortality rate
A	**1**	**0.025**	70588	8.10%	5717.628	**0.003%**
	2	0.072				0.009%
B	**1**	**0.021**				**0.003%**
	2	0.063				0.008%

955. As additional mortality to the gannet SCI of Skelligs SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%, for preferred Band Option 1 models) to SPA baseline mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the gannet SCI of Skelligs SPA. Specifically, collision mortality will not affect the population dynamics of the SCI in such a way as to compromise its ability to maintain itself on a long-term basis as a viable component of its natural habitats. In light of these factors, it can be concluded beyond reasonable scientific doubt that the CWP Project will not give rise to any AESI to Skelligs SPA.

Proposed mitigation

956. No specific mitigation is proposed or required in respect of collision during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to the Skelligs SPA.

Residual effect

957. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

958. The Conservation Objective and its attributes and targets for the gannet SCI of Skelligs SPA are presented in **Table 65**, above. With regards to collision impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this SCI and, in turn, that there is **no project-only AESI for the Skelligs SPA gannet SCI.**

4.30.3 Receptor 3: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

959. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

960. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Skelligs SPA:

- Breeding population size - long term SPA population trend is stable or increasing;
- Productivity rate - sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population;

961. The following Conservation Objective, attributes and targets in relation to breeding Manx shearwater of Skelligs SPA do not have the potential to be impacted by artificial lighting impacts to of this SCI during the operation and maintenance phase:

- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

962. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding Manx shearwater SCI of Skelligs SPA through artificial lighting impacts. There is no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

963. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

964. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

965. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

966. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Skelligs SPA.

Residual effect

967. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

968. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Skelligs SPA are presented in **Table 65** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Skelligs SPA Manx shearwater SCI.**

4.31 Rum SPA (Scotland – UK9001341)

Section 4.31 (Rum SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.31 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 68 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 68, below, is to be read in conjunction with Table 4-142 in Section 4.31 of Volume 5, Part 2 of the NIS. Table 68 outlines the Conservation Objectives, Attributes and Targets for Rum SPA for Manx shearwater. An additional section is included below in paragraphs 969 to 978 to assess artificial lighting impacts to Manx shearwater.

Table 68 Assessment of adverse effects on site integrity (project alone) - Rum SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
To ensure that the qualifying features of the SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status. To ensure that the integrity of the SPA is restored in the context of environmental changes by meeting the following for each qualifying feature: 1. The populations of the qualifying features are viable components of the SPA. 2. The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species. 3. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate, restored at the SPA	Manx shearwater [A013]				
	Artificial lighting impacts [1,3]	See **Section 4.31.1**, below	None	No change	No AESI

4.31.1 Receptor 1: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

969. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

970. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Rum SPA:

- The populations of the qualifying features are viable components of the SPA; and
- The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate, restored at the SPA.

971. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

972. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attribute and target for the Manx shearwater feature of this SPA:

- The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.

973. This CO relates only to disturbance impacts, whereas artificial lighting impacts do not qualify as a disturbance impact.

974. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

975. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

976. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Rum SPA.

Residual effect

977. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

978. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Rum SPA are presented in **Table 68** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Rum SPA Manx shearwater SCI.**

Section 4.32 remains unchanged

4.33 Blasket Islands SPA (IE004008)

Section 4.33 (Blasket Islands SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. Additional assessment has been undertaken against updated Conservation Objectives for this SPA. As such the information presented in Table 69, below, is to be read in conjunction with Table 4-148 in Section 4.33. of Volume 5, Part 2 of the NIS. Table 69 outlines the updated Conservation Objectives, Attributes and Targets for the Blasket Islands SPA for Manx shearwater. An additional section is included below in paragraphs 979 to 988 to assess artificial lighting impacts to Manx shearwater.

Table 69 Assessment of adverse effects on site integrity (project alone) - Blasket Islands SPA

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
To maintain the Favourable conservation condition of the SCIs of Blasket Islands SPA, which is defined by the following list of attributes and targets: 1: Breeding population size - long term SPA population trend is stable or increasing; 2: Productivity rate - sufficient to maintain a stable or increasing population; 3: Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population; 4: Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; 5: Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on	Manx shearwater [A013]				
	Artificial lighting impacts [1,2,4,6]	See **Section 4.33.2**, below	None	No change	No AESI

Objective: Attributes and targets	Predicted effect	Link to assessment	Mitigation	Residual effect	Conclusion
birds at the breeding site; 6: Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population; 7: Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA					

4.33.2 Receptor 2: Manx shearwater

Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

979. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

980. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Blasket Islands SPA:

- Breeding population size - long term SPA population trend is stable or increasing;
- Productivity rate - sufficient to maintain a stable or increasing population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance at areas ecologically connected to the colony - disturbance occurs at levels that do not significantly impact on breeding population;

981. The following Conservation Objective, attributes and targets in relation to breeding Manx shearwater of Skelligs SPA do not have the potential to be impacted by artificial lighting impacts to of this SCI during the operation and maintenance phase:

- Distribution: extent of available nesting options within the SPA - sufficient availability of suitable nesting sites throughout the SPA to maintain a stable or increasing population;
- Disturbance at the breeding site - disturbance occurs at levels that do not significantly impact on birds at the breeding site; and
- Barriers to connectivity - barriers do not significantly impact the population's access to the SPA or other ecologically important sites outside the SPA

982. This SPA lies outside the area of impact and as such there is no route to impacts upon the range of the breeding Manx shearwater SCI of Blasket Islands SPA through artificial lighting impacts. There is

no overlap between the area of impact (i.e. the array site plus a 2 km buffer) and the specific SPA regions outlined in these COs.

983. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

984. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

985. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

986. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Blasket Islands SPA.

Residual effect

987. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

988. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Blasket Islands SPA are presented in **Table 69** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Blasket Islands SPA Manx shearwater SCI.**

Sections 4.34 and 4.35 remain unchanged

4.36 North-west Irish Sea SPA (IE004236)

Section 4.36 (North-west Irish Sea SPA) remains unchanged with the exception of the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.36 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 70 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 70, below, is to be read in conjunction with Table 4-155 in Section 4.36. of Volume 5, Part 2 of the NIS. Table 70 outlines the Conservation Objectives, Attributes and Targets for North-west Irish Sea SPA for Manx shearwater. An additional section is included below in paragraphs 989 to 998 to assess artificial lighting impacts to Manx shearwater.

Table 70 Assessment of adverse effects on site integrity (project alone) - North-west Irish Sea SPA

Objective:	Attribute	Target	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
Manx shearwater [A013]							
To maintain the favourable conservation condition of the SCI in the SPA	1. Breeding population size 2. Spatial distribution 3. Forage spatial distribution, extent, abundance and availability 4. Disturbance across the site 5. Barriers to connectivity	1. No significant decline 2. Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population 3. Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target 4. The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution 5. The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA	Artificial lighting impacts [1,2,3,4]	See **Section 4.36.1**, below	None	No change	No AESI

4.36.1 Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

989. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

990. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of North-west Irish Sea SPA:

- Breeding population size - no significant decline;
- Spatial distribution - sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance across the site - the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution. [Site lies within the distance (59.717 km) from which there is a direct line of sight between nacelle-mounted aviation lighting and areas within the SPA]

991. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attribute and target for the Manx shearwater feature of this SPA:

- Barriers to connectivity - the number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA.

992. This is because artificial lighting impacts do not constitute barrier effects.

993. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

994. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

995. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

996. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to North-west Irish Sea SPA.

Residual effect

997. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

998. The Conservation Objective and its attributes and targets for the Manx shearwater feature of North-west Irish Sea SPA are presented in **Table 70** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for North-west Irish Sea SPA Manx shearwater SCI.**

4.37 Seas off Wexford SPA (IE004237)

Section 4.37 (Seas off Wexford SPA SPA) remains unchanged, but for two exceptions.

Firstly, the addition of an assessment of artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.37 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 71 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 71, below, is to be read in conjunction with Table 4-155 in Section 4.37. of Volume 5, Part 2 of the NIS. Table 71 outlines the Conservation Objectives, Attributes and Targets for Seas off Wexford SPA for Manx shearwater. An additional section is included below in paragraphs 999 to 1008 to assess artificial lighting impacts to Manx shearwater.

Secondly, the assessment of collision impacts to the gannet SCI, which has been revised in response to FIR item 7M. As the Conservation Objectives of this SPA have not been updated since submission of the original application, and collision impacts to gannet were previously assessed in Section 4.37. of Volume 5, Part 2 of the NIS, no changes are required to Table 4-155 in Section 4.37. of Volume 5, Part 2 of the NIS with regard to this revised assessment. However, the assessment of Operation and Maintenance impact 4 – Collision for this SCI in within Table 4-156 in Section 4.37. of Volume 5, Part 2 of the NIS is replaced by paragraphs 1009 to 1014, below.

Table 71 Assessment of adverse effects on site integrity (project alone) - Seas off Wexford SPA

Objective:	Attribute	Target	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
Manx shearwater [A013]							
To maintain the favourable conservation condition of the SCI in the SPA	1. Breeding population size 2. Spatial distribution 3. Forage spatial distribution, extent, abundance and availability 4. Disturbance across the site 5. Barriers to connectivity	1. Long term SPA population trend is stable or increasing 2. Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population 3. Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target 4. The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution 5. The number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA	Artificial lighting impacts [1,2,3,4]	See **Section 4.37.1**, below	None	No change	No AESI

4.37.1 Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

999. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

1000. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Seas of Wexford SPA:

- Breeding population size - long term SPA population trend is stable or increasing;
- Spatial distribution - sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population;
- Forage spatial distribution, extent, abundance and availability - sufficient number of locations, area of suitable habitat and available forage biomass to support the population target; and
- Disturbance across the site - the intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population size and spatial distribution [Site lies within the distance (59.717 km) from which there is a direct line of sight between nacelle-mounted aviation lighting and areas within the SPA]

1001. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attribute and target for the Manx shearwater feature of this SPA:

- Barriers to connectivity - the number, location, shape and area of barriers do not significantly impact the site population's access to the SPA or other ecologically important sites outside the SPA.

1002. This is because artificial lighting impacts do not constitute barrier effects.

1003. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

1004. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

1005. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

1006. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Seas off Wexford SPA.

Residual effect

1007. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

1008. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Seas off Wexford SPA are presented in **Table 71** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Seas off Wexford SPA Manx shearwater SCI.**

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

1009. Gannet is designated as a SCI of seas off Wexford SPA in relation to the number of individuals of this species which use this area during the breeding season, and in particular, associated with several colonies located around the periphery of the Irish Sea – which for the purpose of this assessment are assumed to be Saltee Islands SPA, Grassholm SPA, Ailsa Craig SPA, The Bull and the Cow Rocks SPA and Skelligs SPA (i.e. all SPAs surrounding the Irish sea where breeding gannet is a designated Feature).

1010. All of these colonies are within the mean maximum (+ 1 SD) foraging range of gannet (509.4 km – Woodward *et al.*, 2019) from the array site, and as such are assessed to have potential connectivity with the array site.

1011. Collectively a total of 0.220 and 0.189 gannet mortalities per annum are apportioned to these SPAs for array site Design Options A and B respectively for preferred Band Option 1 CRMs (see consideration of gannet SCI above).

1012. Collectively the breeding populations of these SPAs are estimated to total 231,282 individuals (see consideration of gannet SCI above). Therefore, assuming an average adult annual mortality rate of 10.5% (Horswill and Robinson, 2015), the average annual baseline mortality rate of gannet associated with SPAs surrounding the Irish sea where breeding gannet is a designated Feature which contribute to the population utilising the marine area encompassed by seas off Wexford SPA is 24,284.61 individuals.

1013. Additional collision mortality would therefore equate to an increase of 0.001% and 0.001% to SPA baseline mortality rates for array site Design Options A and B respectively.

1014. As additional mortality to the gannet SCI of seas off Wexford SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (less than 0.1%, for preferred Band Option 1 models) to SPA baseline mortality rates, this impact is considered not to impede the realisation of Conservation Objective attribute targets associated with the maintenance of the population size of the gannet SCI of seas off Wexford SPA (outlined in Table 4-155 in Section 4.37. of Volume 5, Part 2 of the NIS).

4.38 Irish Sea Front SPA

Section 4.38 (Irish Sea Front SPA) remains unchanged with the exception of the addition of an assessment of

artificial lighting impacts to the Manx shearwater SCI in response to FIR item 7O. As Manx shearwater was not assessed in relation to artificial lighting impacts in Section 4.38 of Volume 5, Part 2 of the NIS, the Conservation Objectives of this receptor are presented in Table 72 to facilitate the additional assessment of artificial lighting impacts for this SCI. As such the information presented in Table 72, below, is to be read in conjunction with Table 4-164 in Section 4.38. of Volume 5, Part 2 of the NIS. Table 72 outlines the Conservation Objectives, Attributes and Targets for Irish Sea Front SPA for Manx shearwater. An additional section is included below in paragraphs 1015 to 1024 to assess artificial lighting impacts to Manx shearwater.

Table 72 Assessment of adverse effects on site integrity (project alone) - Irish Sea Front SPA

Objective: **Attributes and targets**	**Predicted effect(s)**	**Link to assessment**	**Mitigation**	**Residual effect**	**Conclusion**
Manx shearwater [A013]					
Objective: To maintain or restore the favourable conservation condition of the SCI: 1. Avoid significant disturbance of the qualifying feature within the site, such that the ability of the species to use the site is maintained in the long-term 2. Maintain the habitats, processes and food resources of the qualifying feature in favourable condition 3. Ensure connectivity between the site and its supporting habitats and Manx shearwater breeding colonies is maintained	Artificial lighting impacts [2,3]	See **Section 4.38.1**, below	None	No change	No AESI

4.38.1 Operation and maintenance phase impacts

Operation and maintenance phase impact 2a – Artificial lighting impacts

Array site

Project-only assessment

1015. An introduction to artificial lighting impacts upon Manx shearwater is provided in **Section 4.10.1**.

1016. Artificial lighting impacts have the potential to impact on the following Conservation Objective attributes and targets for the Manx shearwater feature of Irish Sea Front SPA:

- Maintain the habitats, processes and food resources of the qualifying feature in favourable

condition; and
- Ensure connectivity between the site and its supporting habitats and Manx shearwater breeding colonies is maintained.

1017. In relation to these Conservation Objective attributes, artificial lighting impacts from the array site has the potential to lead impacts upon energetic costs to Manx shearwater and in turn the condition of individuals and their consequent survival and / or productivity rates; and thereby compromise the ability of the feature to maintain its population.

1018. Artificial lighting impacts do not have the potential to impact on the following Conservation Objective attribute and target for the Manx shearwater feature of this SPA:

- Avoid significant disturbance of the qualifying feature within the site, such that the ability of the species to use the site is maintained in the long-term.

1019. This CO relates only to *in situ* impacts upon birds within the SPA itself.

1020. A detailed assessment of the impacts from artificial lighting from the array site on Manx shearwater is provided in **Section 4.12.3**.

1021. It is concluded, on the same basis as provided in **Section 4.12.3**, that lighting attraction to OWFs is unlikely to occur and as such a conclusion of no AESI can be drawn.

Proposed mitigation

1022. No specific mitigation is proposed or required in respect of artificial lighting impacts during the operation and maintenance phase within the array site, as this impact will not give rise to any AESI in relation to Irish Sea Front SPA.

Residual effect

1023. As per project-only assessment, above.

Project-only effect on site integrity conclusion for impact

1024. The Conservation Objective and its attributes and targets for the Manx shearwater feature of Irish Sea Front SPA are presented in **Table 72** above. With regards to artificial lighting impacts during the operation and maintenance phase of the CWP Project, it can be concluded that there is no impediment to the Conservation Objective being met for this feature and, in **turn, that there is no project-only AESI for Irish Sea Front SPA Manx shearwater SCI.**

Sections 4.39 – 4.42 remain unchanged

4.43 Coquet Island SPA

Section 4.43 is a new section which has been added to assess the Coquet Island SPA. This is in response to FIR Item 7E.

1025. This SPA is designated in relation to the following SCIs which have been screened in for consideration within the NIS: roseate tern.

1026. The minimum separation distance between SPA and the array site is 368.82 km.

1027. The minimum separation distance between SPA and the OECC is 372.96 km.

1028. The minimum separation distance between SPA and the OECC intertidal landfall is 374.53 km.

Table 73 Assessment of adverse effects on site integrity (project alone) - Coquet Island SPA

Objective:	Attributes	Targets	Predicted effect(s)	Link to assessment	Mitigation	Residual effect	Conclusion
Roseate tern [A192]							
Subject to natural change, maintain or restore the roseate tern population, distribution and its supporting habitats in favourable condition.	1. Breeding population: abundance	1. Maintain the size of the breeding population at a level which is above 80 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Collision [1]	See **Section 4.43.1**, below	None	No change	No AESI
	2. Connectivity with supporting habitats	2. Maintain safe passage of birds moving between nesting and feeding areas.					
	3. Disturbance caused by human activity	3. Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed					
	4. Predation - all habitats	4. Reduce predation and disturbance caused by native and non-native predators					
	5. Productivity	5. [Maintain or recover] productivity so that breeding success is maximised within the constraints of the site.					
	6. Structure: pathogens	6. [Restrict OR Reduce] the introduction and spread of pathogens, including Highly Pathogenic Avian Influenza, and their impacts.					
	7. Supporting habitat: air quality	7. Maintain concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)					
	8. Supporting habitat: conservation measures	8. Maintain the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised.					
	9. Supporting habitat: extent, distribution and availability of supporting habitat for the breeding season	9. Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding): The extent of the following supporting habitats is currently unknown: Intertidal sand and muddy sand, Intertidal mixed sediments, Intertidal coarse sediment, Coastal lagoons, Atlantic salt meadows (*Glauco-puccinellietalia maritimae*)					
	10. Supporting habitat: food availability (bird)	10. Maintain the distribution, abundance and availability of key food and prey items (e.g. sandeel, sprat) at preferred sizes.					
	11. Supporting habitat: vegetation characteristics for nesting	11. Maintain the mix or heights of vegetation types within and immediately adjacent to nesting areas - including height (generally <3 cm)					
	12. Supporting habitat: water quality - contaminants	12. Reduce aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.					
	13. Supporting habitat: water quality - dissolved oxygen	13. Maintain the dissolved oxygen (DO) concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg L-1 (at 35 salinity) for 95 % of year) avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.					
	14. Supporting habitat: water quality - nutrients	14. Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.					
	15. Supporting habitat: water quality - turbidity	15. Maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat.					

4.43.1 Receptor 1: Roseate tern

Operation and maintenance phase impacts

Operation and maintenance impact 4 – Collision

Array site

Project-only assessment

1029. During the operation and maintenance phase of the CWP Project the presence of operational WTGs within the array site may result in increased mortality to this SPA SCI through the collision of individuals with turbine blades. Collision mortality has the potential to impact on the following Conservation Objective attribute and target for this SPA SCI:

- Breeding population: abundance - maintain the size of the breeding population at a level which is above 80 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.

1030. In relation to these Conservation Objective attributes, mortality resulting from collision with operational WTGs within the array site may directly affect the overall adult survival rate of this SPA SCI that could then impact population sizes.

1031. Predicted migratory and annual collision mortalities of roseate terns, as derived in **Appendix 10-K Roseate Tern Collision Risk Modelling** of the **EIAR Addendum**, are presented in **Table 74.** These values were calculated using the mCRM tool assuming the most recent published count for roseate tern from the Coquet Island SPA of 118 breeding pairs (Burnell *et al.,* 2023, Harris *et al.,* 2024) represents the biogeographic population at risk of collision. As the SPA breeding population has been used directly as the population parameter within the mCRM, the collision results are therefore fully apportioned to Coquet Island SPA. Collision mortalities are presented in relation to Representative scenarios A and B (75 and 60 WTGs respectively).

Table 74 Predicted migratory and annual collision mortalities to roseate terns from the Coquet Island SPA Population

Representative scenario	Collisions in each migratory period		Annual collisions
	Pre-breeding	Post-breeding	
A	0.014	0.015	0.029
B	0.013	0.013	0.026

1032. **Table 74** demonstrates that total annual predicted roseate tern collision mortality is 0.029 individuals per annum from representative scenario A and 0.026 individuals from representative scenario B.

1033. Increases to SPA roseate tern adult mortality resulting from the annual predicted collision impacts are presented in **Table 75**. In this table, the most recent colony count of 118 breeding pairs (Burnell *et al.*, 2023, Harris *et al.,* 2024) is used to estimate the annual mortality of breeding adults from the SPA colony (i.e. the colony count is multiplied by the average adult mortality rate for roseate tern (0.117; Horswill and Robinson, 2015). The percentage of the collision mortality compared to this baseline SPA

annual adult mortality is derived to show the proportional increase to SPA mortality owing to additional predicted collision mortality from the CWP project.

Table 75 Increase to annual adult mortality resulting from collision mortalities apportioned to Coquet Island SPA

Representative scenario	Annual impact to SPA (breeding adults)	SPA population (breeding adults)	Adult annual mortality (Horswill and Robinson, 2015)	Baseline estimated SPA annual mortality (breeding adults)	Percentage point Increase to SPA mortality
A	0.029	236	11.7%	27.6	0.11%
B	0.026				0.09%

1034. As additional annual adult mortality to the roseate tern SCI of Coquet Island SPA resulting from collision with operational WTGs is estimated to represent-only a very small potential increase (much less than 1%) to SPA baseline annual adult mortality rates, this impact is considered not to impede the overall objective of maintaining / restoring the favourable conservation condition of the roseate tern SCI of the Coquet Island SPA. Specifically, predicted collision mortality will not affect the breeding population size of the SCI. In light of this, it can be concluded beyond reasonable scientific doubt that there will be no AESI to Coquet Island SPA due to predicted impacts from the CWP project.

Proposed mitigation

1035. No specific mitigation is proposed, or required, due to predicted collisions during operation and maintenance, as this impact will not in an AESI to this SPA SCI.

Residual impacts

1036. As per project only assessment, above.

Project-only effect on site integrity conclusion for impact

1037. The Conservation Objective and its attributes and targets for this SPA SCI are presented in **Table 73**. Predicted collision impacts during the operation and maintenance phase of the CWP Project, will not impede the Conservation Objectives being met for this SCI and, in turn, that there is **no project-only AESI for this SPA SCI.**

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