codling wind park

Environmental Impact Assessment Report

Volume 1

Non-Technical Summary


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wind park

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Abbreviations

Abbreviation	Term in Full
ABP	An Bord Pleanála
AIS	Air insulated switchgear
AC	Alternating current
BS	British standard
CDP	City / county development plan
CEMP	Construction Environmental Management Plan
CFRAM	Catchment flood risk assessment and management
CGS	County Geological Sites
CIEEM	Chartered Institute of Ecology and Environmental Management
CO_2	Carbon dioxide
CWP	Codling Wind Park
CWPE	Codling Wind Park Extension
CWPL	Codling Wind Park Limited
CWP OIW	CWP Onshore infrastructure works
DAFM	Department of Agriculture, Food and the Marine
DAHG	Department of Arts, Heritage and the Gaeltacht
DCHG	Department of Culture, Heritage and the Gaeltacht
DCC	Dublin City Council
DCCAE	Department of Communications, Climate Action and Environment
DCMNR	Department of Communications, Marine and Natural Resources
DECC	Department of the Environment, Climate and Communications
DEHLG	Department of the Environment, Heritage & Local Government
DELG	Department of Environment and Local Government
DHLGH	Department of Housing, Local Government and Heritage
DLRCC	Dún Laoghaire–Rathdown County Council
DTTS	Department of Transport, Tourism and Sport
DT	Department of Transport,
EC	European Commission
ECC	Export Cable Corridor
EcIA	Ecological Impact Assessment
ED	Electoral District

EDF R	Électricité de France Renewables
EIA	Environmental Impact Assessment
EIA Report	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
ESBN	Electricity Supply Board (ESB) Networks
EU	European Union
FOS	Fred Olsen Seawind
FRA	Flood Risk Assessment
GHG	Greenhouse Gas
GIS (switchgear)	Gas insulated switchgear
GIS	Geographic Information System
GLVIA3	Guidelines for Landscape & Visual Impact Assessment, Third Edition
GSI	Geological Survey Ireland
GW	Gigawatt
HAT	Highest astronomical tide
HDD	Horizontal directional drilling
HEC-RAS	Hydrologic Engineering Centre's – River Analysis System
HGV	Heavy goods vehicles
HSE	Health Service Executive
IAQM	Institute of Air Quality Management
IED	Industrial Emissions Directive
IFI	Inland Fisheries Ireland
IFPs	Instrument Flight Procedures
IHP	Irish Health Repository
INNS	Invasive non-native species
IPPC	Integrated pollution prevention and control
kV	Kilovolt
LAP	Local Area Plan
LAT	Lowest astronomical tide
LCA	Landscape character assessment
mAOD	Metres above ordnance datum
MAC	Maritime Area Consent
MAP	Maritime Area Planning

MEC	Maximum export capacity
MHWM	Mean high water mark
MoLAS	Museum of London Archaeology Service
MPDM	Marine Planning and Development Management
MSL	Mean sea level
MW	megawatts
MHWS	Mean high water springs
NBDC	National Biodiversity Data Centre
NECP	National Energy and Climate Plan
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NIS	Natura Impact Statement
NMPF	National Marine Planning Framework
NMS	National Monuments Services
NPWS	National Parks and Wildlife Services
NRA	National Roads Authority
NSA	Nutrient Sensitive Area
NTA	National Transport Agency
OfTW	Offshore transmission works
OIW	Onshore infrastructure works
OWF	Offshore wind farm
O&M	Operations and maintenance
OMB	Operations and maintenance base
OSS	Offshore substation structure
SAC	Special Area of Conservation
SPA	Special Protection Area
SUDS	Sustainable Urban Drainage System
TJB	Transition joint bay
WEI	Wind Energy Ireland
WTG	Wind turbine generator
ZoI	Zone of influence
ZTV	Zone of theoretical visibility

Definitions

Glossary	Meaning
alternating current (AC)	A flow of electrical current which reaches maximum in one direction, decreases to zero, then reverses itself and reaches maximum in the opposite direction. The cycle is repeated continuously and the number of cycles per second is equal to the frequency. The Irish electrical system is an AC network that uses a frequency of 50 Hz.
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.
EirGrid	State-owned electric power transmission system operator in Ireland and nominated Offshore Transmission Asset Owner
ESB Networks (ESBN)	Owner of the electricity distribution system in the Republic of Ireland, responsible for carrying out maintenance, repairs and construction on the grid.
ESBN network cables *(previously the ESB grid connection)*	Three onshore export cable circuits connecting the onshore substation to the proposed ESBN Poolbeg substation, which will then transfer the electricity onwards to the national grid.
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.
generating station	Comprising the wind turbine generators (WTGs) and inter array cables (IACs).
high water mark (HWM)	The line of high water of ordinary or medium tides of the sea or tidal river or estuary.

horizontal directional drilling (HDD)	HDD is a trenchless drilling method used to install cable ducts beneath the ground through which onshore export cables from can be pulled. HDD enables the installation of cables beneath obstacles such as roads, waterways and existing utilities.
Inter-array cables (IACs)	The subsea electricity cables between each WTG between and the OSSs.
interconnector cables	The subsea electricity cables between 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).
limit of deviation (LoD)	Locational flexibility of permanent and temporary infrastructure is described as a LoD from a specific point or alignment.
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.
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 entire footprint of the offshore infrastructure and associated temporary works that will form the offshore boundary for the planning application.
offshore export cables	The cables which transport electricity generated by the wind turbine generators (WTGs) from the offshore substation structures (OSSs) to 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 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.
OSS topside	The offshore substation topside structure resting on the OSS monopile foundation and housing all electrical and ancillary

	equipment. This includes all systems such as electrical, SCADA, safety and mechanical equipment.
OSS monopile foundation	The bottom fixed structure piled to the seabed supporting the OSS topside. It consists of a monopile and a transition piece. It can include systems such as electrical, SCADA, cathodic protection, safety and mechanical equipment.
offshore transmission infrastructure (OfTI)	The offshore transmission assets comprising the OSSs, interconnector cables and offshore export cables. The EIAR considers both permanent and temporary works associated with the OfTI.
onshore export cables	The cables which transport electricity generated by the WTGs from the TJBs at the landfall to the onshore substation.
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.
onshore substation site	The area within which permanent and temporary works will be undertaken to construction the onshore substation.
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.
O&M phase	This is the period of time during which the CWP project will be operated and maintained.
operations and maintenance base (OMB)	The operational and maintenance facilities to support the CWP Project, including buildings / warehouses, laydown areas, cranes, parking and marine works such as pontoons for maintenance vessels.
parameters	Set of parameters by which the CWP Project is defined and which are used to form the basis of assessments.
Phase 1 Project	On 19 of May 2020, the Government announced that seven offshore renewable energy projects had been designated as Relevant Projects, namely Oriel Wind Park, Arklow Bank II, Bray Bank, Kish Bank. North Irish Sea Array, Codling Wind Park and Skerd Rocks. These projects are now known as Phase 1 Projects.
planning application boundary	The area subject to the application for development consent, including all permanent and temporary works for the CWP Project.
Poolbeg 220kV substation	This is the ESBN substation that the ESBN network cables connect into, from the onshore substation. This substation will then transfer the electricity onwards to the national grid
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 this Non-Technical Summary

1. This is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) that has been prepared to present the findings of the Environmental Impact Assessment (EIA) undertaken for the Codling Wind Park (CWP) Project.

2. Forming Volume 1 of the EIAR, it is provided as a stand-alone document and aims to provide the reader with a concise summary of the environmental assessments undertaken in an easily digestible format, which is free from technical terms and jargon. Full detailed reports, describing the CWP Project, its evolution and the extensive environmental assessment work that has been undertaken are available at https://codlingwindparkplanningapplication.ie/ in the following volumes of the EIAR:

   - Volume 2: Introductory Chapters;
   - Volume 3: Topic Chapters;
   - Volume 4: Appendices; and
   - Volume 5: Summary Chapters

1.2 Overview of Codling Wind Park

3. Codling Wind Park Limited (CWPL), referred to as the **'Applicant'** is proposing to develop the CWP Project, a proposed offshore wind farm (OWF) located in the Irish Sea approximately 13–22 km off the east coast of Ireland, at County Wicklow.

4. The CWP Project has an expected generating capacity of 1,300 megawatts (MW) and comprises the following main components, as described further in **Section 3** below:

   - The Generating Station, which comprises the wind turbine generators (WTGs), inter-array cables (IACs) (linking WTGs to each other and to the offshore substation structures (OSSs)) and interconnector cables (linking OSSs to each other);
   - The offshore transmission infrastructure (OfTI), which comprises the OSSs and offshore export cables;
   - The landfall, which describes the point at which the offshore export cables are brought onshore and connected at transition joint bays (TJBs) to the onshore export cables. 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 are too shallow for conventional cable lay vessels to operate; and
   - The onshore transmission infrastructure (OTI), which comprises the onshore export cables, the onshore substation and network cables to connect the onshore substation to the Irish national grid at the existing 220kV Poolbeg substation.

5. **Figure 1** illustrates these project components and how they relate to each other.

6. A ten-year planning permission is sought, with an operation lifetime of 25 years. The 25-year operational lifetime shall commence on full commercial operation of the project.

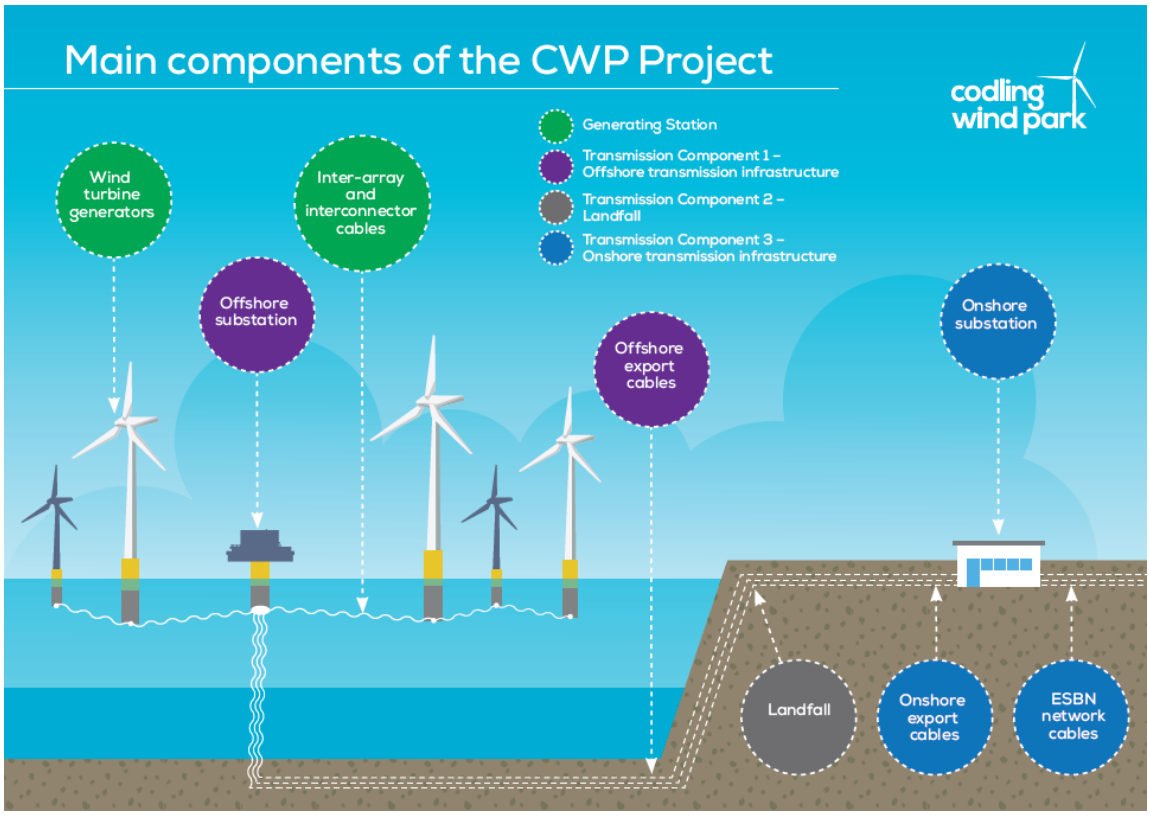


Figure 1 CWP Project components

1.3 Overview of the Developer

7. CWPL is a joint venture between Fred. Olsen Seawind and Électricité de France Renewables (EDF R).

8. Fred. Olsen Seawind is a dedicated offshore wind farm developer, building on the Fred. Olsen-related companies' long experience within renewable energy and on Fred. Olsen Renewables' 25 years of wind development experience and expertise. This now includes 12 wind farms with over 300 wind turbines in the UK, Norway and Sweden. The wind energy production in 2022 from the wind farms corresponds to a greenhouse gas (GHG) reduction of an estimated 900,000 tonnes CO_2 equivalents.

9. EDF R is one of the UK and Ireland's leading renewable energy companies, specialising in wind power, solar and battery storage technology. EDF R develops, builds, operates and maintains renewable technologies throughout their lifetime and has an operational portfolio of 38 wind farms, including two OWFs in the UK and five onshore wind farms in Ireland.

1.4 Need for Codling Wind Park

10. Climate change is a global issue and one of the main challenges of our time. This is recognised in the Irish Government's Climate Action Plan (CAP) (as published in 2019 and updated in 2021, 2023 and 2024), which makes reference to unequivocal evidence that human influence has warmed the climate at a rate that is unprecedented in the last 2,000 years.

11. The Irish Government has committed, through the CAP, to a target of 80% of electricity demand from renewable energy by 2030. This is supported by a commitment set out in the 2020 Programme for Government to achieve 5 GW of electricity from offshore wind by 2030 (Department of the Taoiseach, 2020).

12. With an expected capacity of 1,300 MW, the CWP Project has the potential to provide approximately 26% of the targeted 5 GW of offshore wind by 2030. The use of existing, proven technology and good geographic access for grid connection enables the CWP Project to play a crucial role in delivering this target, alongside other offshore wind projects currently in the development phase.

13. The generation of renewable energy over the anticipated 25-year operational lifetime of the CWP Project will also help reduce Ireland's reliance on imported energy and improve energy security. This is a key objective set out within the White Paper 'Ireland's Transition to a Low Carbon Energy Future 2015-2030' (Department of Communications, Energy and Natural Resources (DECNR), 2020), which states that the ability to attract and retain investment and build Irish enterprise depends on Ireland's ability to guarantee a reliable supply of energy, at competitive cost.

1.5 Overview of Required Permissions

1.5.1 Planning Permission

14. The Planning and Development Act 2000, as amended (PDA), is the primary legislation for planning in Ireland. The Applicant is seeking permission for the CWP Project, which includes the onshore and offshore components and all associated temporary works, under section 291 of the PDA. As such, the planning application is submitted to An Bord Pleanála for determination.

1.5.2 Maritime Area Consent

15. A Maritime Area Consent (MAC) is a right to occupy a specified part of the maritime area, conditional on securing other necessary approvals, and is required before an application for planning permission can be submitted.

16. The Applicant applied for a MAC for the CWP Project in June 2022. In December 2022, a MAC was granted for the CWP Project, conditional on securing planning permission from An Bord Pleanála.

17. Subsequent amendments have been granted to allow for additional land required at the onshore substation site and to increase navigational safety during construction of the offshore wind farm.

1.6 Legislation, Policy and Guidance

18. A wide range of legislation, policy and guidance has been followed in the preparation of the CWP Project planning application and EIA. Key legislation, national policy and guidance are highlighted below, and full details can be found in the EIAR **Chapter 2 Policy and Legislative Context**. An assessment of the CWP Project compliance with policy is provided in the **Planning Report** submitted separately to the EIAR in support of the planning application.

1.6.1 EIA legislation

19. The legislative framework for EIA is provided through the European Union Directive 011/92/EU as amended by Directive 2014/52/EU (the EIA Directive). The EIA Directive provides EU Member States

discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

20. In transposing the EIA Directive into Irish Legislation, the Planning and & Development Regulations 2001 (as amended) establish mandatory thresholds for each project class.

21. The CWP Project is subject to the EIA process as it exceeds the following threshold:

22. *"Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts*".

1.6.2 National Policy

23. There are a number of policy documents at a national level which set the scene for the CWP Project and provide an overarching framework for decision making.

National Marine Planning Framework

24. The National Marine Planning Framework (NMPF) is a key consideration for CWP. The NMPF sets out the overarching approach to managing Ireland's maritime activities to ensure the sustainable use of resources up to 2040. This single framework establishes the vision, objectives and policies for all marine-based human activities. CWP has been developed with these policies in mind. A table detailing Project compliance with the NMPF policies is included within the planning application, in the **Planning Report, Appendix A Compliance with the NMPF**.

Offshore Renewable Energy Development Plan (OREDP)

25. The Offshore Renewable Energy Development Plan (OREDP) sets out the key principles and policy actions and identifies enablers for the delivery of offshore renewable energy within the Irish maritime territory. It identifies opportunities for the following:

- The sustainable development of Irish Offshore Renewable Energy (ORE) resources;
- The increase in indigenous production of renewable electricity;
- The contribution to reducing greenhouse gas (GHG) emissions;
- The improvement of the security of energy supply; and
- The creation of jobs in the green economy.

26. The overarching vision of the OREDP states: '*our offshore renewable energy resource contributing to our economic development and sustainable growth, generating jobs for our citizens, supported by coherent policy, planning and regulation, and managed in an integrated manner*'.

27. The OREDP contains a series of 'suggested' project level mitigation measures. A table detailing Project compliance with the OREDP project level mitigation measures is included within the planning application in the **Planning Report, Appendix B Response to OREDP I Project Level Mitigation Measures.**

National Planning Framework

28. The National Planning Framework (NPF) sets out Ireland's planning framework up to 2040 as part of Project Ireland 2040.[1] One of the National Strategy Outcomes detailed is the "Transition to a Low Carbon and Climate Resilient Society". This includes the delivery of 40% of the electricity needs from renewable sources by 2020 with a strategic aim to increase renewable deployment in line with EU targets and national policy objectives out to 2030 and beyond.

29. National Policy Outcomes under the NPF support the sustainable growth and development of the maritime economy and the progressive development of Ireland's offshore energy potential.

National Development Plan

30. The National Development Plan (NDP) is the national plan setting out investment priorities to guide national, regional, and local planning and investment decisions. The NDP prioritises investment in high-quality infrastructure through both public and private investors.

31. The NDP highlights that action in the energy sector will be critical to the achievement of Ireland's climate targets and the transformation to a high-renewable, net-zero emissions future. This will require a fundamental shift in the way energy is supplied, stored and used. The long-term objective is to transition to net-zero carbon, reliable, secure, flexible and resource-efficient energy services at the least possible cost for society by mid-century. Offshore renewable energy is highlighted as playing a significant role in meeting long-term energy ambitions.

1.6.3 Guidance

Environmental Protection Agency Guidelines on the information to be contained in Environmental Impact Assessment Reports 2022

32. The Environmental Protection Agency (EPA) Guidelines aim to improve the quality of EIARs and facilitate compliance with the EIA Directive and are written with a focus on the obligations of developers who are preparing EIARs. The Guidelines emphasise the importance of the methods used in the preparation of an EIAR to ensure that the information presented is adequate and relevant. The Guidelines include a review of the role of EIARs in the EIA process and identify fundamental considerations such as alternatives, avoidance of significant adverse effects, mitigation and monitoring, provision of relevant information, public participation and objectivity. The Applicant's project team has taken these Guidelines into consideration in the preparation of the EIAR.

33. Where appropriate, relevant guidance from other jurisdictions has also been considered in the preparation of the EIAR.

[1] In July 2024, the Government published the Draft Revised NPF. Relevant National Policy Outcomes have been considered as part of the planning application.

2 SITE SELECTION AND CONSIDERATION OF ALTERNATIVES

34. A key component of the EIAR is a description of the site selection and consideration of alternatives process carried out by the Applicant to determine the most appropriate location and design for the CWP Project, as detailed in EIAR **Chapter 3 Site Selection and Consideration of Alternatives.**

35. Consideration has been given to reasonable alternatives at every stage of the process. This includes consideration of alternative locations for the array site, cable route alignments, site layouts, designs, processes, and mitigation measures for both the offshore and onshore infrastructure. This has formed the basis for decision making throughout the pre-application stage.

2.1 Background

36. The historical background of the CWP Project provides important context in understanding the site selection process and the key events that shaped the early stages of the CWP Project development.

37. Site selection and consideration of alternatives for the CWP Project was first initiated by Fred Olsen Renewables Ltd (FORL) in 1999 with the initial aim of identifying a suitable location for the array site.

38. This initial process led to the identification of the current CWP Project array site. However, when this site was initially identified, the size of the area made it unrealistic for development in a single phase. As a result, a decision was taken by FORL to make a foreshore lease application for the northern part of the site only, now referred to as the original CWP array site, with an opportunity to apply for permission to develop the southern part of the site at a later stage.

39. In November 2005, FORL was awarded a Foreshore Lease under the Foreshore Act 1933 for the installation of up to 220 WTGs within the original CWP array site with a generating capacity of up to 1,100 MW and associated infrastructure.

40. In March 2009, following the completion of further site selection analysis, FORL applied for a Foreshore Lease for the Codling Wind Park Extension (CWPE), a similar-sized array site containing up to 200 additional WTGs with up to 1,000 MW generating capacity. The proposed CWPE array adjoined the original CWP array site and extended to the south. However, issues in Ireland at the time concerning a viable route to market for OWF projects and grid connection delays meant that the application for the CWPE was not taken forward.

41. In 2019, the Irish Government published its Climate Action Plan (CAP) 2019[2], setting out the ambition of delivering 70% of Ireland's electricity from renewable sources by 2030, including at least 3.5 gigawatt (GW) of offshore wind capacity by 2030 (since updated as described in Section 1.4). Plans were also set out for a new consenting system for the maritime area, in the form of the now-established MAP Act 2021. This provided a platform to reinitiate the project.

42. Although initially proposed as two projects, significant advances in WTG technology, combined with considerable reductions in the cost of energy from offshore wind, mean that the original CWP project and CWPE can now be developed as one project, the 'CWP Project', with a greatly reduced number of WTGs while optimising the renewable electricity production from the site.

[2] These targets have since been updated, with CAP 2023 setting out the Irish Government's intention to meet up to 80% of electricity consumption from renewable power by 2030, including 5 gigawatt (GW) of installed, fixed bottom offshore wind capacity. This plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021.

2.2 Do-Nothing Scenario

43. In the context of the CWP Project, the “do-nothing” scenario would comprise not proceeding with the development at all. This would remove any possibility of environmental effects (in the context of EIA); however, the requirement for the project, and its core objectives, would not be met.

44. To do nothing would be incompatible with core government policies to meet Ireland’s legal obligations to reduce greenhouse gas emissions and transition to renewable energy.

2.3 Site selection and consideration of alternatives methodology

45. The siting, design and ongoing refinement of the CWP Project have taken account of physical constraints, and environmental, technical, social and commercial considerations. This is with the aim of identifying sites that will be both environmentally acceptable and technically deliverable, whilst seeking to deliver the lowest cost of energy for the consumer.

46. A multi-disciplinary design team was formed to undertake the site selection process, which included a team of specialists comprising engineers, planners, legal advisors and EIA consultants, whose expertise was drawn upon throughout.

47. The identification of preferred sites and routes was progressed through six distinct phases, each relating to separate but integrally linked components of the CWP Project. A summary of each phase is included in the table below.

48. Each phase involved the identification of site and route option locations for the main components of the CWP Project and included desktop studies, site visits, identification and mapping of constraints, and public and stakeholder consultation. An outline of the phases is provided in **Figure 2** below.

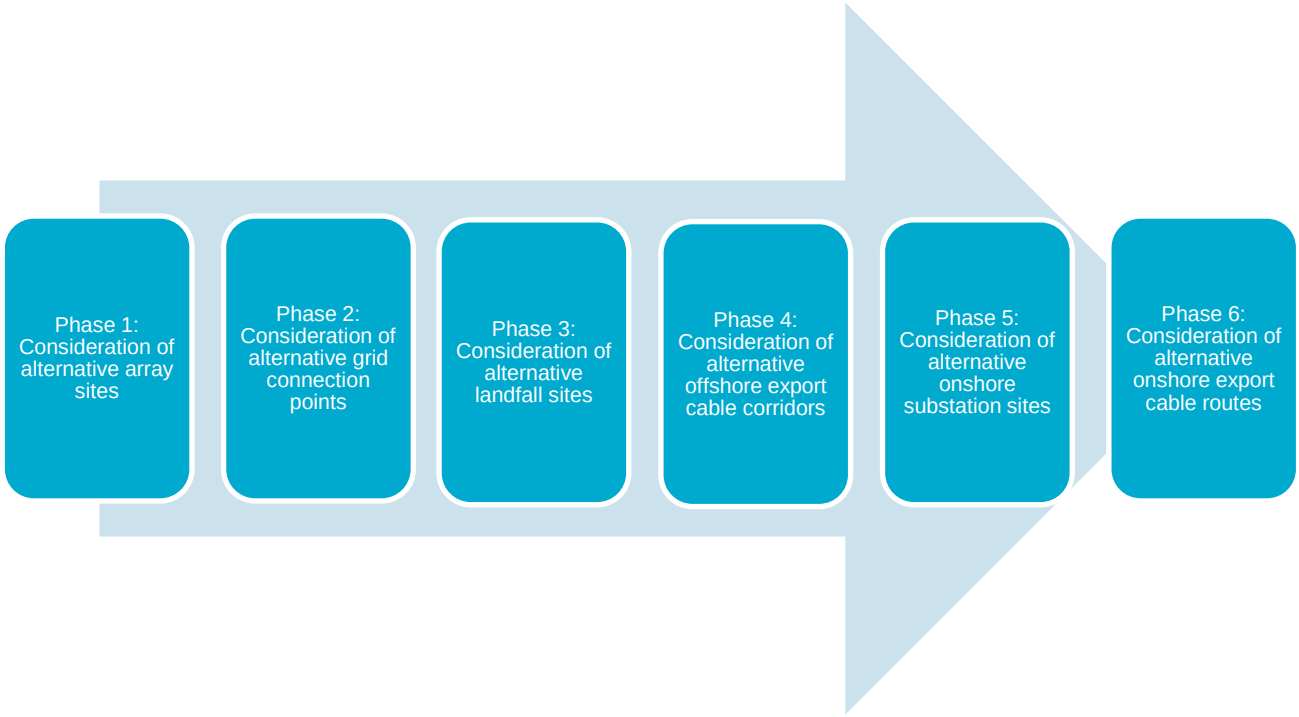


Figure 2 Site selection and assessment of alternatives process

Phase	Summary of conclusions
Phase 1: Consideration of alternative array sites	**Whole of Ireland** • Initiated by FORL in 1999 with the initial aim of identifying a suitable location for the array site, the study area for original assessment by FORL included the whole of the Irish coastline. • Following assessment of environmental and technical constraints, the east coast of Ireland was determined by FORL to be the only practicable location for the development of an OWF. • A lack of suitable onshore grid connections in proximity to the west and south coast search areas, alongside increased water depths in these areas, were key factors that contributed to this finding. Updated analysis presented in EIAR **Chapter 3 Site Selection and Consideration of Alternatives** confirm that these conclusions remain valid. **East Coast of Ireland** • A more in-depth analysis of potential array sites on the east coast of Ireland was undertaken, which highlighted multiple locations on the east coast of Ireland as being potentially viable sites, including Kish and Bray Bank, Codling Bank (including India Bank to the south), Arklow Bank and Blackwater Bank. • It was considered that the Codling Bank demonstrated considerable advantages over the alternative locations assessed due to the distance from shore, size, shape and known stability of the bank, which would present a wide-ranging scope for site design. **Codling Bank** • In summary, the proposed array site was found to be the most appropriate site within the Codling Bank area due to its location within the 12 nautical mile limit (the geographical restriction on the development of offshore wind at this point in time); avoiding shallow banks to the west identified as important areas for key environmental receptors; and the water depths within the array site, which do not typically exceed 20 m, providing clear economic advantages in terms of reduced foundation cost. • Updated analysis presented in EIAR **Chapter 3 Site Selection and Consideration of Alternatives** confirm that these conclusions remain valid.
Phase 2 Consideration of alternative grid connection points	• EirGrid, as the transmission systems operator, issued a Grid Connection Assessment (GCA) to each Phase 1 Project confirming the onshore connection location, the connection method and the cost of connecting the project to the transmission system. A GCA is required for each Phase 1 Project to then receive a full grid connection offer from EirGrid, which has yet to occur. • EirGrid undertook an assessment to identify a range of locations with strong 220 kV electrical connectivity to the Dublin Region for the purposes of connecting the Phase 1 Projects to the grid. • Initially, the Applicant considered all potential options for the CWP Project grid connection; however, a number of potential options were quickly discounted due to capacity constraints, extended offshore export cable routes required and the need for multiple cable crossings. • The grid connection point at Poolbeg was identified by EirGrid as the only location which could accept the anticipated generating capacity from the CWP Project. Consequently, EirGrid issued a GCA to the Applicant confirming Poolbeg as the grid connection location.

Phase	Summary of conclusions
Phase 3 Consideration of alternative landfall sites	• The process for identifying a preferred landfall site location for the CWP Project has taken into account a range of factors that consider both environmental acceptability and technical feasibility. • Eleven potential landfall location options were identified; however, only three of these were considered technically feasible options for facilitating an onshore grid connection on the Poolbeg Peninsula. • The CWP Project landfall location was ultimately selected due to its proximity to the preferred onshore grid connection point, advantageous physical site conditions for cable installation, and space and access during the construction phase.
Phase 4 consideration of alternative offshore export cable corridors (OECC)	• The Applicant completed an assessment to identify an OECC route, within which the offshore export cables would be installed between the array site and the landfall location. The initial assessment considered OECC routes to alternative grid connection locations south of Dublin; however, these were subsequently discounted following the confirmation of Poolbeg as the preferred grid connection location for the CWP Project. • The refinement of the OECC between the array site and Poolbeg sought to minimise the overall length of the OECC by prioritising, where possible, the shortest route, whilst at the same time avoiding various technical and environmental constraints. For example, the Applicant has sought to maximise the distance between the OECC and designated sites for nature conservation. Where it is impossible to avoid a designated site, for example at the approach to the landfall, the potential effects are reported, and appropriate mitigation measures will be put in place (as described in relevant chapters of the EIAR and the **Natura Impact Statement**). • The avoidance of shipwrecks, other features of potential archaeological importance, other marine infrastructure, shipping and navigation features and areas for commercial fishing also informed the route and extent of the OECC, as well as the preferred offshore export cable alignments within the OECC.
Phase 5 consideration of alternative onshore substation sites	• The study area for the identification of the onshore substation encompassed the majority of Poolbeg Peninsula, within close proximity to the grid connection location at the existing Poolbeg 220kV substation. Within this study area, eleven potential sites were identified for the location of the onshore substation. • Following a series of site visits to better understand the physical characteristics of each site and to assess the feasibility of each option against the main technical considerations, seven of the eleven site locations were determined to be unsuitable for the CWP Project onshore substation and were therefore screened out from any further assessment. • The remaining sites were subject to environmental and socio-economic assessment, which identified the preferred onshore substation site as the best-performing option.

Phase	Summary of conclusions
Phase 6 Consideration of alternative onshore export cable routes	• At the time of completing this phase of the site selection process, both the preferred onshore substation site and landfall location had been identified. Therefore, the aim of the assessment was to identify the best performing route option and installation method for the onshore export cables between the landfall and the onshore substation site. • In summary, the preferred onshore export cable route was selected as the best-performing option as the installation method would reduce the risk of impacting on existing underground services and would enable a deeper crossing of other known structures such as the Old Harbour Wall, which runs along the southern boundary of the onshore substation site. This was supported by an environmental constraints analysis which determined a low risk for significant environmental effects during construction and operation of the proposed underground tunnel within which the cables will be installed (see EIAR **Chapter 4 Project Description**).

49. Following the selection of the preferred location for the CWP Project, the focus changed from alternative sites and routes to the development of individual project components, including the consideration of:

- Alternative layouts / locations / alignments:
  - Alternative WTG layouts (including OSS positions)
  - Alternative IAC and interconnector cable layouts
  - Alternative TJB layouts
  - Alternative offshore export cable alignments
  - Alternative onshore substation layouts
  - Alternative locations for the [onshore substation] ESB Networks (ESBN) building
  - Alternative ESBN network cable alignments
- Alternative designs and technologies:
  - Alternative WTG models (and number of WTGs)
  - Alternative WTG heights as a function of minimum blade tip clearance
  - Alternative WTG foundation designs (including OSS foundations)
- Alternative installation methods:
  - Alternative landfall cable duct installation methods
  - Alternative ESBN network cable installation methods
  - Alternative onshore export cable installation methods

50. For each of the elements mentioned above, the Applicant has, in **Chapter 3 Site Selection and Consideration of Alternatives**, set out clearly the main reasons for selecting the preferred option on the basis of:

- Relevant legislation and planning policy;
- Feedback received from stakeholders and the public;
- Environmental and technical constraints identified during site visits and desk-based data collections;
- The identification of reasonable alternatives; and
- A comparison of environmental effects where multiple reasonable alternatives were identified.

51. In summary, taking account of physical constraints, and environmental, technical, social and commercial considerations, the Applicant has, in all cases, selected the best performing option. This is the subject of a process that has been underpinned at all times by the principle of impact avoidance.

3 PROJECT OVERVIEW

3.1 Summary and key terms

52. As illustrated in **Figure 1**, the CWP Project includes both onshore and offshore components, including:

- The **Generating Station**, which comprises:
  - the WTGs that generate the electricity;
  - the subsea inter-array cables (IACs) that transmit the electricity between the WTGs and the offshore substation structures (OSSs); and
  - the subsea interconnector cables, that transmit electricity between the OSSs.
- The **OfTI**, which comprises:
  - the OSSs that collect the electricity generated by the turbines, via the IACs, for transmission to shore; and
  - the offshore export cables that transmit electricity from the OSSs to shore.
- The **landfall**, which describes the point at which the offshore export cables are brought onshore and connected at transition joint bays (TJBs) to the onshore export cables.
- The **OTI**, which comprises:
  - the onshore export cables that transmit the electricity brought ashore from the offshore export cables to the onshore substation;
  - the onshore substation; and
  - the network cables to connect the onshore substation to the Irish national grid.

53. The components described above are located within defined project boundaries.

54. The **array site** is the boundary within which permanent infrastructure, including the WTGs, IACs, interconnector cables and the OSSs, are proposed. An **offshore export cable corridor** (OECC) connects the array site to the landfall location at Poolbeg and represents the area below the high water mark (HWM) within which the **offshore export cables** will be installed.

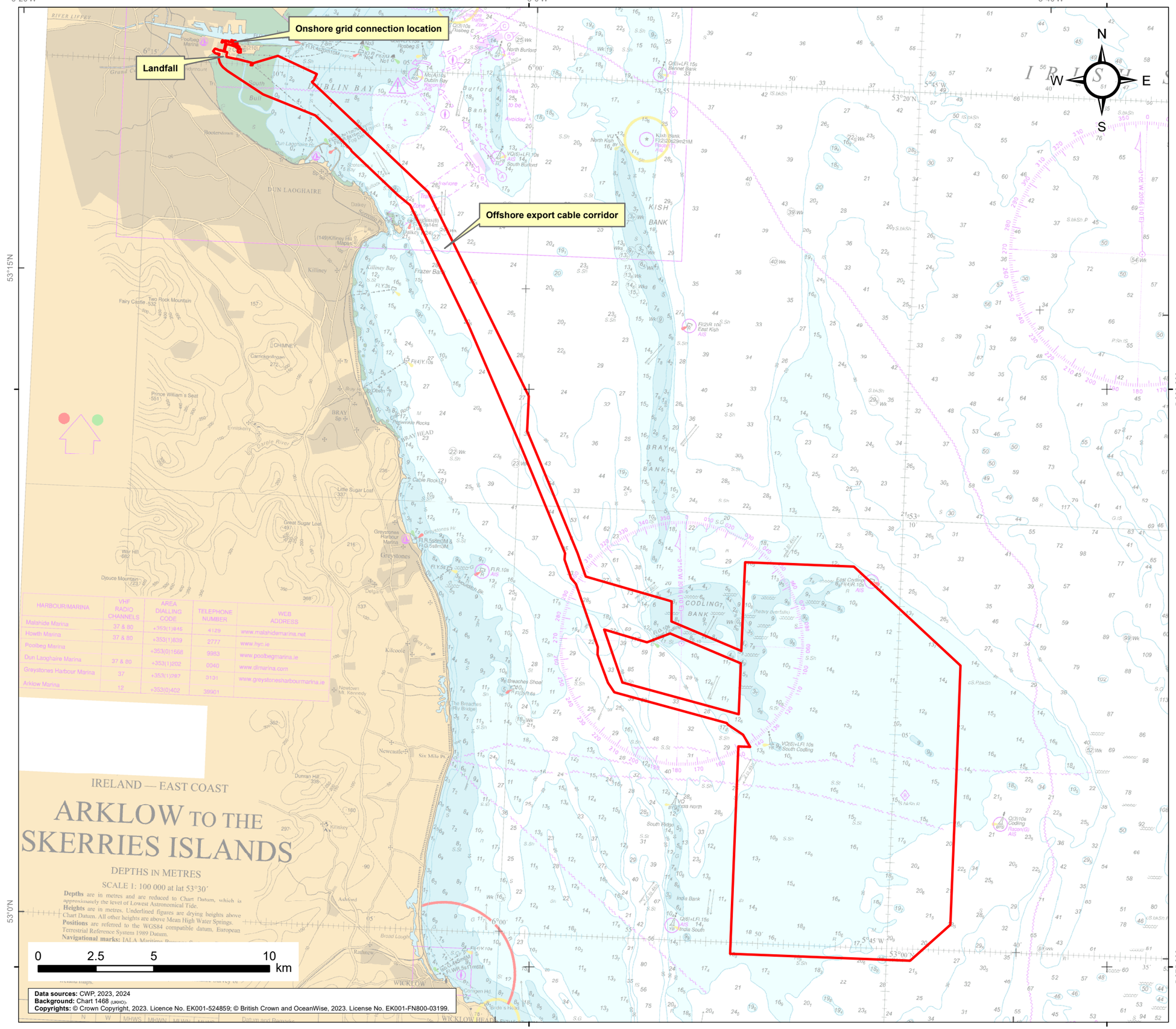
55. At the **landfall**, the offshore export cables are connected to the **onshore export cables** in **transition joint bays** (TJBs). This marks the termination of the OfTI and the start of the OTI. The onshore export cables are then routed north, across the Poolbeg Peninsula, to an **onshore substation** located on the south bank of the River Liffey.

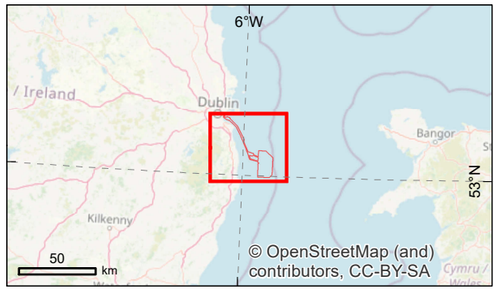
56. For the purposes of the EIAR, the boundary between offshore and onshore project infrastructure is defined by the HWM. The **offshore development area** includes infrastructure seawards of the HWM. The **onshore development area** includes infrastructure landward of the HWM, including all components of the OTI. **Landfall** straddles the offshore and onshore development areas.

57. The **planning application boundary** for the CWP Project is provided in **Figure 3**. This includes the array site, the OECC and the onshore development area. The planning application boundary includes the space required for temporary works associated with the permanent and temporary infrastructure for which planning consent is being sought.

58. To ensure the safety of marine users during the construction phase of the CWP Project, the Applicant will deploy temporary demarcation buoys around the perimeter of the array site in a maritime safety demarcation area (MSDA). This temporary buoyage will indicate a safe direction of navigation to all marine users in the area. No permanent infrastructure will be installed in the MSDA. The planning application boundary also accounts for the MSDA around the array site.

59. **Figure 3** is supported by **Figure 4**, showing a section of the offshore development area, including the array site and MSDA, and **Figure 5**, which shows the onshore development area.





Legend

Planning application boundary

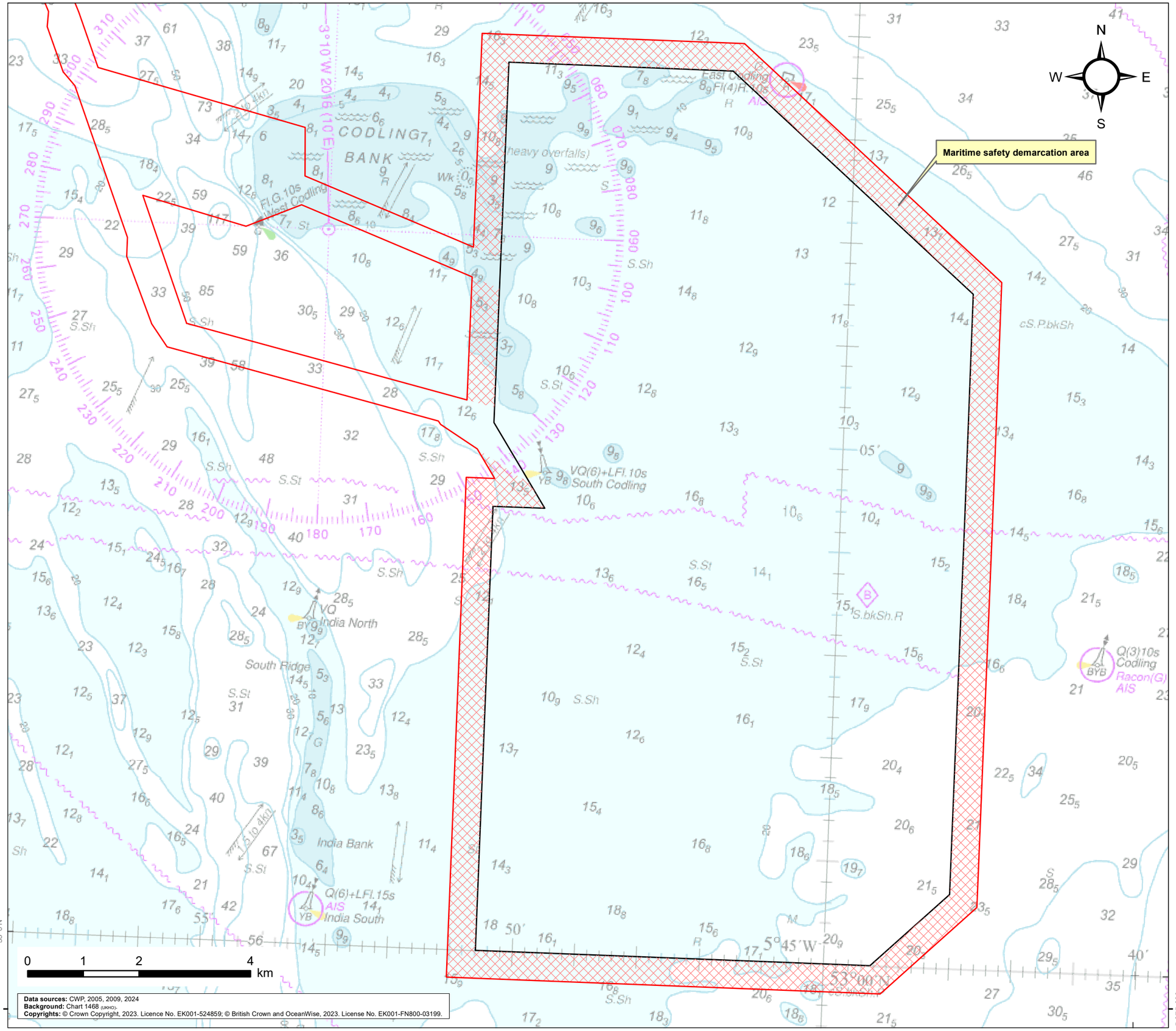
codling wind park	*Project:* Codling Wind Park	*Contractor:*	*Website:*

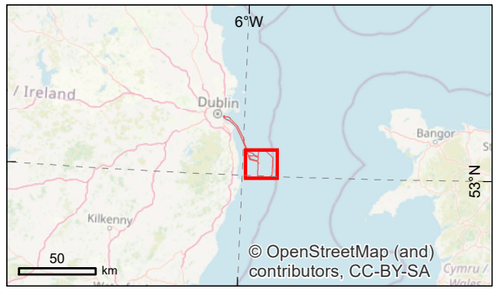
Figure 3
Planning application boundary

CWP doc. number: CWP-CWP-ENG-08-01-MAP-1749

Internal descriptive code:	*Size:*	*CRS:*
WE - PAB - - (UKHO.1469..EIAR.Vol.01.FIG.03)	A3 *Scale:* 1:160,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
00	Final for issue	2024/08/15	JM	CD	ES





Legend

- Planning application boundary
- Maritime safety demarcation area (MSDA)
- Array site

codling wind park

Project: Codling Wind Park

Contractor:

Website:

Figure 4
Array site and maritime safety demarcation area

CWP doc. number: CWP-CWP-ENG-08-01-MAP-1750

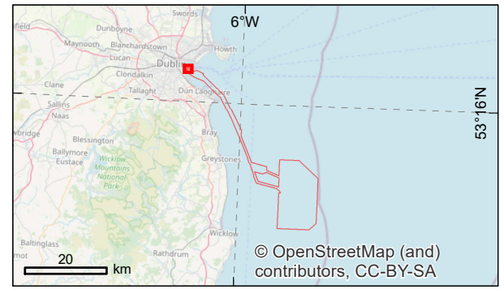
Internal descriptive code: WF - PAB..WF.RLB..MSDA - - (UKHO.1469..EIAR.Vol.01.FIG.04)

Size: A3

Scale: 1:67,000

CRS: EPSG 25830

Rev.	Updates	Date	By	Chk'd	App'd
00	Final for issue	2024/08/15	JM	CD	ES



Legend

- Planning application boundary
- Onshore substation site
- Poolbeg 220kV substation
- Transition joint bay
- High water mark

codling wind park	*Project:* Codling Wind Park	*Contractor:* *Website:*

Figure 5
Onshore development area

CWP doc. number: CWP-CWP-ENG-08-01-MAP-1751

Internal descriptive code:	*Size:*	*CRS:*
PB - PAB..TJBs6..SS.PP.PL - FUT.SS.ESBN..HWM - (OSM..EIAR.Vol.01.FIG.05)	A3	EPSG 25830
	Scale: 1:6,000	

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
00	Final for issue	2024/08/15	JM	CD	ES

3.2 Approach to Design

60. Complex, large-scale infrastructure projects with a terrestrial and marine interface, such as the CWP Project, are consented and constructed over extended timeframes. The ability to adapt to a changing supply chain, policy or environmental conditions and to make use of the best available information to feed into project design, promotes environmentally sound and sustainable development. This ultimately reduces project development costs and therefore electricity costs for consumers and reduces CO_2 emissions.

61. In this regard, the approach to the design development of the CWP Project has sought to introduce flexibility where required, among other things, to enable the best available technology to be constructed and to respond to dynamic maritime conditions, while at the same time specifying project boundaries, project components and project parameters wherever possible, having regard to known environmental constraints.

62. Wherever possible, the location and detailed parameters of the CWP Project components are identified and described in full within the EIAR. However, for the reasons outlined above, certain design decisions and installation methods will be confirmed post-consent, requiring a degree of flexibility in the planning consent. Following extensive consultation, An Bord Pleanála issued an Opinion under 287B of the Planning and Development Act, 2000 as amended, which confirmed that it was appropriate that the planning application for the CWP Project be made and determined before certain details of the development are confirmed, as described in EIAR **Chapter 4 Project Description**.

63. Notwithstanding the flexibility in design and methods, the EIAR identifies, describes and assesses all of the likely significant impacts of the CWP Project on the environment. The approach taken by the Applicant to achieve this across all EIA topics is presented in EIAR **Chapter 5 EIA Methodology**.

64. The remainder of **Section 3** describes each of the main project components in more detail, including the approach to design and a description of the anticipated construction programme for the CWP Project.

3.3 Generating Station

3.3.1 Wind Turbine Generators

65. For the CWP Project, conventional three-bladed, horizontal axis WTGs will be used, comprising the following key components, illustrated in **Figure 6**:

- Rotor – comprising the blades, hub and spinner;
- Nacelle – housing the electrical generator, transformer, the control electronics and the drive system; and
- Structural support – including the tower and rotor yaw mechanism which enables the rotor and nacelle to turn to face into the wind.

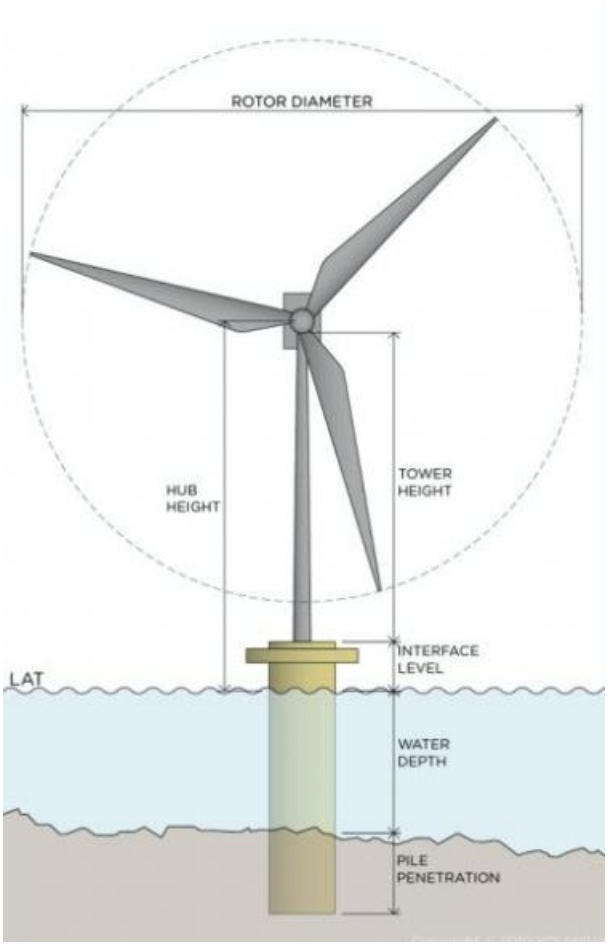


Figure 6 Typical components of an offshore WTG (source: Youwind Renewables)

66. An example of flexibility sought in the consent is on the size and therefore number of wind turbines that will be installed. Two WTG layout options are proposed:

- **WTG Layout Option A**, consisting of 75 WTGs with a rotor diameter of 250 m; and
- **WTG Layout Option B**, consisting of 60 WTGs with a rotor diameter of 276 m

67. The Applicant is seeking planning permission for both WTG layout options, but only one of them will be constructed (and therefore not both nor a combination of both).

68. The difference in rotor diameter between WTG Option A and WTG Option B means that the size and dimensions of the other components also vary between the two options. For example, WTG Option B has an increased overall height and blade width. The details associated with each WTG option are described in detail in EIAR **Chapter 4 Project Description**.

69. The preferred locations of WTGs for both WTG Layout Option A and Option B are shown in the planning drawings that accompany the planning application. For each option, limited flexibility on the location of WTGs is being sought in the form of a 100m buffer, or what the Applicant has termed a 'limit of deviation' (LoD), from the centre point of each WTG.

3.3.2 WTG foundation and associated scour protection

70. Foundation structures are required to securely support the WTGs and OSSs to the seabed. For the CWP Project, monopile foundations have been selected as the preferred foundation type. Monopile foundations consist of a single tubular section of steel which are installed by being driven into the seabed.

71. Scour protection is required to ensure that erosion of the seabed around the monopile foundation does not affect the stability or integrity of the structure.

72. For the CWP Project, the monopile foundation scour protection design will consist of a standard rock placement solution, consisting of graded stones placed on or around the monopile foundation with a thicker armour layer and a filter layer beneath.

73. The difference in rotor diameter between WTG Option A and WTG Option B means that the size and dimensions of the foundations will also vary between the two options. The foundation details associated with each WTG option are described in detail in EIAR **Chapter 4 Project Description**.

3.3.3 IACs and interconnector cables

74. IACs distribute the electrical power generated at the WTGs to the OSSs where the combined generated power can be converted to a higher voltage, ready for transmission to shore and ultimately connection to the onshore grid. Two interconnector cables are also required to transmit electricity between the OSSs.

75. WTG Layout Option A and Option B have different IAC layouts, which are shown in the planning drawings that accompany the planning application. The interconnector alignments are the same for both WTG layout options.

76. For each option, there is limited flexibility on the alignment of each IAC and interconnector cable in the form of a 100 m LOD on either side of the preferred alignment. Around the centre point of each WTG and OSS, the LOD for the location of the cables is increased to 200 m.

3.3.4 Cable protection

77. Where practicable, all cables will be buried to a minimum depth of cover. In cases where the depth of cover is inadequate due to unforeseeable seabed conditions, cable protection will be implemented as mitigation to avoid risks to other marine operations. Cable burial is the preferred method of protection, and secondary cable protection will only be used where cable burial is not appropriate or achievable.

78. Secondary cable protection within the array site will be achieved by covering the cables with rock placement.

3.4 Offshore transmission infrastructure

3.4.1 Offshore Substation Structure

79. The design and capacity of the CWP Project will require three OSSs. The function each OSS is to collect the incoming electricity from the WTGs and transform this to a higher voltage for transmission to the shore.

80. The OSS topside unit is prefabricated in the form of a multi-level structure fixed atop a single monopile foundation with a transition piece bolted and / or grouted to the monopile.

81. The height and dimensions of the OSS topsides will be the same for both WTG layout options; however, the OSS monopile foundation dimensions will depend on which WTG is installed. The OSS foundation details associated with each WTG option are described in EIAR **Chapter 4 Project Description**.

82. The preferred OSS locations are the same for both WTG layout options; however, as with the WTGs, flexibility on the location of the OSSs is being sought in the form of a 100m LOD from the centre point of each OSS.

3.4.2 Offshore export cables

83. The OECC connects the array site to the landfall location at Poolbeg and represents the area below the HWM within which the offshore export cables will be installed.

84. Three offshore export cables will be installed within the OECC, which will transmit electricity generated by the WTGs via the OSSs to the TJBs at the landfall location on the southern shoreline of Poolbeg Peninsula.

85. The preferred alignments for the offshore export cables within the OECC are presented on the planning drawings that accompany the planning application. The preferred alignments are the same for both WTG layout options.

86. The OECC represents the area outside of the array site within which the offshore export cables shall be installed. Within the array site, the Applicant has sought flexibility on the preferred alignment of each export cable in the form of a 250m LOD on either side of the preferred alignment of each export cable.

3.4.3 Cable protection

87. As with the IACs and interconnector cables, cable protection for the offshore export cables will be achieved using rock placement. In addition, concrete mattresses will be used to facilitate cable crossings. The flexible mattresses are designed to conform to changes in the seabed and to form a low profile to encourage, for example, fishing gear to roll over the mattress.

3.5 Landfall

88. The landfall, on the southern shoreline of the Poolbeg Peninsula, describes the point at which the offshore export cables (forming part of the OfTI) are brought onshore and connected at three TJBs to the onshore export cables (part of the OTI). TJBs are underground bays lined with concrete, within which the offshore and onshore export cables will be joined together.

89. The landfall represents a complex interaction between land and the marine environment. For the CWP Project, this includes the installation of the offshore export cables within the shallow waters and intertidal area of Dublin Bay.

90. The following activities are included in the scope of ‘landfall works’, extending from the TJBs onshore to approximately 4 km offshore from the HWM:

- The installation of the TJBs and the bringing together of the onshore and offshore export cables within the TJBs.

- Ducted offshore export cable laying[3], referred to as the 'landfall cable ducts', extending from the TJBs onshore to the intertidal area, just below the HWM;
- Ducted offshore export cable laying, referred to as the 'intertidal cable ducts', from the seaward extent of the landfall cable ducts, just below the HWM, to approximately 350 m offshore from the HWM;
- Non-ducted offshore export cable laying in the intertidal area, from approximately 350 m from the HWM to the limits of vessel operability (approximately 4 km from the high water mark). This area is referred to as the transition zone, as installation methods transition from land-based techniques to shallow water and marine based.

91. The location of the landfall infrastructure is shown on the planning drawings that accompany the planning application.

3.6 Onshore transmission infrastructure

3.6.1 Onshore Export Cables

92. Three onshore export cable circuits will connect to the offshore export cables at the TJBs and will transfer the electricity onwards to the onshore substation.

93. The onshore export cables between the landfall and the onshore substation will be installed within an underground tunnel that extends from a compound near the landfall to the proposed onshore substation site.

94. The alignment of the underground tunnel is shown on the planning drawings that accompany the planning application.

3.6.2 Onshore Substation

95. The onshore substation will be a gas-insulated (GIS) switchgear design, where the high-voltage (HV) equipment is designed to be insulated by pressurised gas.

96. In summary, the substation will include:

- Perimeter structures, including upgraded revetements and coastal retaining walls
- Land reclamation for the ESB building
- A raised site platform, taking into account flood risk protection
- One GIS building
- One Electricity Supply Board (ESB) GIS building
- One ESB medium-voltage (MV) building
- Three shunt reactors (incorporated within the GIS building)
- One Statcom building
- Three harmonic filters
- Upgrades to the existing access road from Pigeon House Road to the site entrance
- A new bridge to provide vehicle access across the Dublin Waste to Energy plant cooling water discharge channel
- New internal access road layout within the site boundary
- Drainage infrastructure

[3] With the offshore wind farm industry growing, one of the essential considerations is the safe and effective installation of protective ducts for the export cables as they come on shore. In recent years, long-length reinforced plastic pipes have been increasingly deployed to achieve this.

- Security and lighting

97. The design of the onshore substation has been developed to reduce the visual impact of the buildings where possible. It takes into account the need for the onshore substation buildings to achieve necessary engineering standards, while also recognising the importance of the surrounding buildings on the Poolbeg Peninsula. **Figure 7** below shows the proposed onshore substation from the ferry terminal looking south (Viewpoint 8: Dublin Ferry Terminal 1 from the Landscape and Visual Impact Assessment). Further details on the design process can be found in the **Codling Wind Park Onshore Substation Architectural Design Statement** and in EIAR **Chapter 23 Landscape and Visual Impact Assessment**.

98. Further detail on the layout and design of the onshore substation can be found in the planning drawings that accompany the planning application.

Figure 7 Visualisation of the proposed onshore substation from Dublin Ferry Terminal 1

3.6.3 Electricity Supply Board Networks (ESBN) Network Cables

99. Three ESBN network cables will connect from the onshore substation to the grid connection point at the Poolbeg 220kV substation, which will then transfer the electricity onwards to the Irish Electricity Grid.

100. The ESBN network cables will consist of two separate sections, with two distinct installation methods;

- Section A, which consists of cables installed by means of a standard open cut trench arrangement; and
- Section B, which consists of cables installed by means of horizontal directional drilling (HDD). HDD is a trenchless drilling method used to install cable ducts beneath the ground through which onshore export cables from can be pulled. HDD enables the installation of cables beneath obstacles such as roads, waterways and existing utilities.

101. The alignment of the ESBN network cables is shown on the planning drawings that accompany the planning application.

3.7 Construction programme and working hours

102. The construction programme for the CWP Project is dependent on a number of factors which may be subject to change, including the determination of the application for development consent and the availability and lead in times associated with procurement and installation of project components.

103. An indicative construction programme for the CWP Project is presented in **Figure 8** below, which assumes a total construction duration over a four year period, including commissioning.

104. Construction of the offshore components for the CWP Project will be completed in a number of stages. These may not necessarily be consecutive, and some flexibility is required in the construction process to account for changing construction programmes due to, for example, fabrication delays or vessel availability. Offshore construction will take place 24 hours per day, seven days per week.

105. Construction of the onshore components for the CWP Project will commence with the onshore substation preliminary works, including the establishment of access roads, site preparation and temporary compounds.

106. Onshore construction activity will mostly take place during daytime hours Monday to Friday (7am to 7pm) and a half day on Saturdays (up to 2pm).

107. Evening, night-time and Sunday working will be required during certain periods to facilitate landfall works at low tide, tunnelling and HDD activities onshore that, due to their nature, cannot be limited to daytime hours only.

Indicative construction programme	Year 1		Year 2		Year 3		Year 4	
Onshore substation construction and commissioning								
Landfall works (Phase 1)								
Landfall works (Phase 2)								
Onshore export cable installation								
WTG and OSS foundation installation (incl. scour protection)								
WTG installation								
OSS topside installation and commissioning								
IAC and interconnector cable installation								
Offshore export cable installation								
WTG commissioning								

Figure 8 Indicative construction programme

4 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

4.1 Purpose of the EIA

108. The overall objective of an EIA process is to identify, assess and describe the potential direct and indirect significant effects on the environment resulting from a development. Where potentially significant effects are identified, appropriate measures to avoid, reduce, and if necessary, offset these effects are prescribed.

109. An EIAR is produced by an applicant to support their application for planning permission and details the findings of the EIA. The purpose of the EIAR is to provide the decision maker (An Bord Pleanála in the case of the CWP Project), relevant stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects on the environment resulting from the development.

4.2 Overview of the EIAR

110. The principal elements of the EIAR include:

- **A description of the baseline environment:** This includes a review of the existing environment to determine the current environmental conditions before the existence of the proposed development. This provides a robust starting point against which effects can be assessed and against which environmental monitoring of the effects of the CWP Project can be measured. The methods for establishing the baseline environment differ depending on the environmental topic; however, methods used by CWP include extensive surveying, desk-based studies, and consultation with stakeholders.

- **Description of the proposed development:** Provide information on the site, design, size and any other relevant features of the CWP Project.

- **Identification and assessment of effects:** An experienced team of specialist EIA and environmental professionals have identified all potential environmental impacts of the CWP Project during the construction, operation and maintenance and decommissioning phases. An assessment of these potential environmental impacts of the CWP Project on the existing environment has been undertaken to determine the significance of each effect.

- **Mitigation and Monitoring:** Mitigation measures are developed to eliminate or reduce potential significant adverse effects identified in the EIA process. The approach to mitigation for the CWP Project is a hierarchical one, which seeks to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment. For the purposes of the EIA, two types of mitigation are defined:
    - Primary mitigation: These are measures which have been adopted as part of the project design and approach to construction, to avoid or otherwise reduce adverse impacts on the environment. They are an inherent part of the CWP Project and are effectively 'built in' to the impact assessment. Some examples of primary mitigation measures adopted for the CWP Project are included in **Section 5** of this NTS.
    - Additional mitigation: These are measures that are identified during the EIA process specifically to avoid or reduce any predicted significant effects. Additional mitigation is normally specific to particular receptors, e.g., birds or marine mammals, and may make reference to management plans or specific commitments to control activities. The significance

of effects after the implementation of mitigation measures are reported in the EIAR, and are termed 'residual effects'.

To verify predictions and to address areas of uncertainty, monitoring is proposed as a key aspect of environmental management for the construction and operations and maintenance of the CWP Project. Monitoring, where proposed, is described within the relevant chapters of the EIAR **(Chapters 6–32)** and summarised in **Chapter 33 Summary of Mitigation and Monitoring**. An **In Principle Project Environmental Monitoring Plan** has been developed to support the planning application, which provides a framework for the final Project Environmental Monitoring Plan.

- **Cumulative, transboundary and inter-related effects:** In addition to the assessment of effects of the project alone, the Applicant is required to consider and assess effects which may arise when the CWP Project is considered together with other proposed projects in the area, known as cumulative assessment. Transboundary effects, which arise when impacts from the development within one European Economic Area (EEA) state affects the environment of another EEA state(s) are also considered. There is also a requirement to undertake an inter-related effects assessment. This considers the inter-related effects between topics which may lead to environmental effects of greater significance than when they are considered in isolation. Cumulative, transboundary and inter-related effects are assessed and reported within each EIAR topic chapter.

4.3 Consultation

4.3.1 EIA Consultation

111. The Applicant's project team has undertaken EIA topic-specific engagement with a wide range of stakeholders, including prescribed bodies and a number of relevant non-prescribed bodies. This engagement has been invaluable in seeking agreement on the approach to the EIA and has formed a key component of the EIA process. Details of stakeholder engagement are provided in the **Schedule of Pre-Application Consultation** submitted in support of the planning application.

112. The Applicant engaged in pre-application consultation with An Bord Pleanála under section 287 of the PDA from June 2023 to March 2024.

113. An EIA Scoping Report for the CWP Project offshore infrastructure was published on 2 December 2020. Separately, an EIA Scoping Report for the onshore infrastructure was published on 30 April 2021. The purpose of the EIA Scoping Reports was to engage with An Bord Pleanála, as the decision maker, relevant stakeholders and other interested parties at an early stage, inviting them to provide relevant information and to comment on the proposed approach to the EIA.

114. A consultation period of eight weeks was provided for responses to each Scoping Report.

115. Responses to the EIA Scoping Reports have informed the scope of the topic assessments and specific matters are referenced in the consultation summary tables within each of the EIAR topic chapters **(Chapters 6–32)**. The outcomes of additional topic-specific engagement with relevant stakeholders are also presented in the summary tables.

4.3.2 Non-Statutory Public Consultation

116. In addition to the EIA consultation, the project team has undertaken three phases of non-statutory public consultation and engagement, as an integral part of the project development process. This consultation has served as an essential means of engaging with stakeholders, local communities, and interested parties to gather feedback, address concerns, and incorporate valuable insights into the decision-making process. The consultations took place on the dates listed below, and information obtained from these events is still available on the CWP Project website.

- March 2021
- January 2023
- April–May 2024

117. Full details of the extensive consultation undertaken by the project team is included in the **Public and Stakeholder Consultation Report**, which has been submitted with the planning application.

5 PRIMARY MITIGATION MEASURES

118. As described in **Section 4** above, primary mitigation measures are those which have been adopted as part of the evolution of the project design and approach to construction to avoid or otherwise reduce adverse impacts on the environment. They are an inherent part of the CWP Project and are effectively 'built in' to the design and therefore also the impact assessment. A full list of the CWP primary mitigation measures is included in EIAR **Chapter 33 Summary of Mitigation and Monitoring.** Listed below as an example are a selection of the primary mitigation that have been incorporated into the CWP Project.

- Positions of WTGs and OSSs have been informed by a wide range of site-specific data, including metocean data (e.g. wind speed and direction), geophysical and geotechnical survey data (e.g., bathymetry), environmental data (e.g. benthic surveys and archaeological assessment) and stakeholder consultation. Designing and optimising the layout of the WTGs has considered multiple constraints identified from analysis of these datasets, alongside the consideration of layout principles taken from relevant guidance on the design of OWFs. A summary of the key actions taken to avoid or otherwise reduce impacts is provided below:
    - The WTG layout options include Search and Rescue (SAR) access lanes to allow a SAR resource to fly on the same orientation continuously through the array site. This is provided to minimise risks to surface vessels and / or SAR resource transiting through the array site.
    - Archaeological exclusion zones (AEZs) around known features of archaeological interest have been avoided. No works that impact the seabed will be undertaken within the extent of an AEZ during the construction, operational, or decommissioning phases of the CWP Project.
    - The WTG layout options have been developed to avoid or minimise interaction with known areas of high fishing density, where possible. As avoidance is not always possible, the layouts have also been developed to increase the potential for coexistence during operation. For example, data from fishing vessel plotters has been used to determine the direction in which the fishermen shoot their gear; in an east to west direction. It was therefore preferable to align the rows of WTGs in this same direction.
- All WTGs for both layout options will feature a minimum blade tip clearance of 36 m above Mean Sean Level (MSL) (+37.72m LAT). This is beyond the minimum 22 m clearance required for safety of navigation and has been set by the Applicant to reduce the potential collision risk for offshore ornithology receptors.
- A Marine Mammal Mitigation Protocol (MMMP) has been prepared to outline the mitigation requirements for minimising the impacts on marine mammals during the construction of the CWP Project. The MMMP will be implemented by the Applicant and its appointed contractor(s) and will be secured through conditions of the development consent.
- To minimise the potential for disturbance to the artificial badger sett located within the Irishtown Nature Park, construction phase activities along the eastern boundary of construction Compound A will be limited and will predominantly include the laydown / storage of material and the movement and parking of vehicles.
- To avoid impacts to Pigeon House Hotel and its heritage value, construction Compound C will be established away from and to the southwest of the upstanding hotel structure and adjacent stone footings identified during the field inspection (likely to represent the remains of a barrack building).

6 SUMMARY OF THE ENVIRONMENTAL ASSESSMENT

119. This section of the NTS provides a non-technical summary of the assessments undertaken for the CWP Project. An assessment of the likely effects to each of the environmental topics outlined below, has been undertaken for the proposed CWP project during construction, operation and maintenance, and decommissioning phases of the CWP project.

6.1 Marine Geology, Sediments and Coastal Processes

120. Below is a summary of the key findings of the assessment for marine geology, sediments and coastal processes. Full details are provided in **Volume 3, Chapter 6 Marine Geology, Sediments and Coastal Processes** of the EIAR. This also includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

121. The EIAR chapter is supported by a Cumulative Effects Assessment in **Volume 4, Appendix 6.1 Cumulative Effects Assessment**. The assessment of effects on the prevailing hydrodynamic, wave and sediment regimes is supported by numerical modelling. Details are provided in **Volume 4, Appendix 6.3 Modelling Report**, which presents modelling results for the activities associated with the array and cable infrastructure, and **Volume 4, Appendix 6.4 Codling Wind Park Hydraulic Modelling Support** of the EIAR, which presents modelling results for the activities within the River Liffey.

6.1.1 Overview of the existing environment

122. The study area for the marine geology, sediments and coastal processes assessment has been defined at both the local and regional scale. The local scale reflects the boundaries of the planning application boundary for the CWP Project, with the array site, OECC, and within the River Liffey. The regional scale reflects broader scale boundaries of marine, coastal and seabed areas outside the local scale study area, remaining inside a relevant area that the CWP Project may influence and extending 25 km from the array site and OECC.

123. Codling Bank is one of the largest shallow banks in the Irish Sea. It forms part of a series of coast-parallel, north–south trending, offshore banks. These banks form a punctuated line along the eastern Irish coast, and from north to south include Bennet, Kish, Frazer, Bray, India, Arklow, Glassgorman, Rusk, Blackwater / Moneyweights, Lucifer, Long and Holdens banks. Uniquely, within the context of these banks, Codling Bank is a stable formation which consists of glacial outwash sand and gravel moraine sediments deposited during the last ice age.

124. The tidal regime in the vicinity of the offshore development area is complex due to the location of an amphidromic point at Courtown to the southeast of the Irish coast. Water levels across the array site are observed between -28 m and -6 m relative to the Lowest Astronomical Tide (LAT), with deeper water levels observed towards the southeast, decreasing in depth towards the northeast. Comparatively, water levels within the OECC vary between -40 m and -20 m as the cable traverses the seabed to shore.

125. The tides are semi-diurnal (occur twice daily). Typical depth-averaged tidal flows exceed >1 m/s, and range from 0.5 to >2 m/s. The tidal regime, on occasion, is affected by surges. Surge-induced currents within the Irish Sea are typically weak; however, interactions between surge and tide may potentially have a significant impact on local sediment transport via an increase in local flow rates and, during negative surges, the transfer of wave energy to the seabed. Generally, waves are locally wind-generated approaching the site from the south and of fairly short period though, on occasion, higher energy wave events (i.e. storms) occur.

126. Surveys performed revealed that the seabed is dominantly composed of gravel. Samples collected in the centre of the array site and across northern sections of the OECC displayed a greater percentage of sand. Sandwaves and megaripples with wave heights of up to 4 metres were observed along an approximately 5 km wide band, running from northwest to southeast across most of the central region of the site. The presence of these features is indicative of the seabed being mobile under the prevailing regime. However, their presence is limited to isolated locations dominantly comprised of sand-sized sediments. Within the prevailing gravel deposits, the formation of bedforms is limited.

127. The coastline proximal to the offshore development area is, for the purposes of the assessment, considered to extend from County Dublin in the North to County Wicklow to the South. Anthropogenic influences are seen along this coastline both in terms of heavily industrialised areas and alterations made to mitigate coastal erosion and recession.

6.1.2 A summary of the assessment findings

128. A detailed description of the marine geology, sediments and coastal processes assessment methodology that has been applied is presented in **Volume 3, Chapter 6 Marine Geology, Sediments and Coastal Processes** of the EIAR. The table below provides a summary of the key impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Temporary disturbance of the seabed leading to increases in suspended sediment concentrations, and associated deposition.	✓		✓
Alteration to seabed morphology	✓		✓
Localised alteration of hydrodynamic and wave conditions across the site and effects on the sediment transport regime and coastal processes	✓	✓	✓
Scour around installed structures and associated sediment transportation and deposition leading to changes in seabed composition, structure, or morphology.		✓	
Operation and maintenance		✓	

129. In summary, considering the primary mitigation measures described in **Volume 3, Chapter 6 Marine Geology, Sediments and Coastal Processes** of the EIAR, there is a minor / negligible effect predicted for the marine geology, sediments and coastal processes receptors, which is not significant. Where flexibility in the proposed design exists, there is no other scenario which would lead to a more significant effect and no additional mitigation is required.

130. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of the CWP Project and other planned developments. This assessment is provided in **Volume 4, Appendix 6.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects are anticipated for marine geology, sediments and coastal processes receptors.

6.1.3 Conclusion

131. No significant effects are predicted on the marine geology, sediments and coastal processes receptors from the CWP Project alone or cumulatively with other proposed developments.

6.2 Marine Water Quality

132. Marine water quality is the study of the condition and characteristics of water that determine its suitability for various uses and the health of aquatic ecosystems. It encompasses the chemical, physical, and biological properties of water and the presence of nutrients, contaminants and pollutants.

133. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 7 Marine Water Quality** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

134. The assessment of the EIAR, also includes a Cumulative Effects Assessment **Volume 4**, **Appendix 7.1 Cumulative Effects Assessment**, a Water Framework Directive Assessment in **Volume 4**, **Appendix 7.3** and also refers to a Site-Specific Benthic Baseline Report, provided in **Volume 4**, **Appendix 8.3 Benthic Baseline Report**.

6.2.1 An overview of the existing environment

135. The study area was defined as a 10 km radius from the offshore development area. This was informed by the results of the marine area model presented in **Volume 4, Appendix 6.3 Marine Geology, Sediments and Coastal Processes Modelling Report**.

136. The study area encompasses mainly offshore waters (beyond 1 nautical mile of the coast to the extent of Ireland's territorial waters), Water Framework Directive (WFD) coastal and transitional water bodies, bathing waters and nutrient-sensitive areas. The Irish Sea is a relatively shallow basin up to 100 m water depth, with a deep bisecting channel running north to south and a strong tidal flow which promotes the formation and movement of sandwaves. Waters around Ireland are typically well-mixed, exhibiting low vertical stratification in temperature and salinity, though there is some regional variation due to topography, land run-off and seasonal changes. There are seven coastal and transitional water bodies within the study area and one groundwater body.

137. A site-specific subtidal and intertidal baseline survey was conducted, which found the array site to consist of a mosaic of gravel and cobbles and varying degrees of sandy gravel and gravelly sand. The sediments in the OECC were the same as those of the array site with the addition of muddy sand habitats on the approach to the intertidal area. The majority of sediments at landfall and in the intertidal area were fine sand and in the proposed onshore substation location of the River Liffey the habitat was sandy mud throughout. Contaminant levels were found to be generally low throughout the study area.

138. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 7 Marine Water Quality** of the EIAR.

6.2.2 A summary of the assessment findings

139. A detailed description of the marine water quality assessment methodology that has been applied is presented in **Volume 3, Chapter 7 Marine Water Quality** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation	Decommissioning
Direct temporary disturbance resulting in temporary increases in suspended sediment concentration	✓	✓	✓
Direct disturbance resulting in resuspension of contaminated sediments	✓	✓	✓
Accidental pollution events	✓	✓	✓

140. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 7 Marine Water Quality**, and additional mitigation measures for the construction impact of direct temporary disturbance resulting in temporary increases in suspended sediment concentration, there are **no significant effects** predicted on marine water quality receptors.

141. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4, Appendix 7.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on marine water quality receptors were identified.

6.2.3 Conclusion

142. No significant effects are predicted on marine water quality receptors from the CWP Project alone or cumulatively with other proposed development.

6.3 Subtidal and Intertidal Ecology

143. Subtidal and intertidal ecology is the study of the seabed sediments and the species that live within and on top of them. These are referred to as benthic habitats and communities, and their interactions and influences on the surrounding physical and living environment were assessed.

144. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 8 Subtidal and Intertidal Ecology** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

145. The assessment also includes a Site-Specific Benthic Baseline Report, provided in **Volume 4**, **Appendix 8.3 Benthic Baseline Report** of the EIAR, and a Cumulative Effects Assessment **Volume 4**, **Appendix 8.1 Cumulative Effects Assessment**

6.3.1 An overview of the existing environment

146. The study area was defined as a 20 km radius from the offshore development area. This was informed by the modelling presented in **Appendix 6.3 Marine Geology, Sediments and Coastal Processes Modelling Report**.

147. A baseline desktop study of the 20km^2 study area indicated the subtidal habitats are mainly coarse sediment, mixed sediments and sand habitat types with some areas of mud and rock habitats. The intertidal habitats within the study area include areas of rocky coastline interspersed with sections of sandy beaches. In more sheltered areas, vegetated intertidal habitats such as seagrass beds and salt

meadows, can be present, in addition to extensive mudflats and sandflats, such as those present in Dublin Bay.

148. The site-specific subtidal baseline survey found the array site to support biotopes dominated by bivalves and polychaetes. The biotopes identified in the OECC were the same as those of the array site with the addition of muddy sand habitats on the approach to the intertidal area.

149. The site specific landfall and intertidal area surveys found the majority of the habitat type across the shore was fine sand habitats, with two small areas of coarser sediment. Casts of polychaete worm *Arenicola marina* and areas of green and brown seaweeds, typical to sandy shore environments, were observed. In the proposed landfall location of the River Liffey, the habitat was sandy mud throughout, dominated by the polychaete worm *Capitella* sp.

150. A consideration of the likely future environment without the CWP Project is described in **Volume 3**, **Chapter 8 Subtidal and Intertidal Ecology** of the EIAR.

6.3.2 A summary of the assessment findings

151. A detailed description of the subtidal and intertidal ecology assessment methodology that has been applied is presented in **Volume 3, Chapter 8 Subtidal and Intertidal Ecology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation	Decommissioning
Temporary habitat disturbance	✓	✓	✓
Temporary increase in suspended sediment concentration (SSC)	✓		✓
Remobilisation of contaminated sediments	✓		✓
Introduction of INNS	✓	✓	✓
Accidental pollution events	✓	✓	✓
Long-term habitat loss		✓	
Habitat creation (increased hard substrate)		✓	
Presence of EMF and / or Temperature changes		✓	

152. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 8 Subtidal and Intertidal Ecology**, there are **no significant effects** predicted on subtidal and intertidal ecology receptors.

153. The assessment also considers the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4, Appendix 8.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on subtidal and intertidal ecology receptors were identified.

6.3.3 Conclusion

154. No significant effects are predicted on subtidal and intertidal ecology receptors from the CWP Project alone or cumulatively with other proposed development.

6.4 Fish, Shellfish and Turtle Ecology

155. Fish, shellfish and turtle ecology is the study of fishes, shellfish and turtles and their interactions and influences on the surrounding physical and living environment.

156. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 9 Fish, Shellfish and Turtle Ecology** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

157. The assessment also includes an Underwater Noise Assessment, provided in **Volume 4**, **Appendix 9.4 UWN Assessment** of the EIAR, and a Cumulative Effects Assessment **Volume 4**, **Appendix 9.1 Cumulative Effects Assessment.**

6.4.1 An overview of the existing environment

158. Three study areas for the assessment were defined on the basis of International Council for the Exploration of the Sea (ICES) statistical rectangles where the offshore development area is located. This is the smallest spatial unit over which relevant fisheries data are aggregated. The local study area includes the onshore and offshore infrastructure, including the marine area around the onshore substation location and the extent of the River Liffey. The regional study area has been used to provide regional context and ensures data coverage for near field indirect impacts (i.e., impacts arising from sediment dispersion and underwater noise). The Irish Sea study area has been defined as the Irish Sea using ICES division 27.7.a to reflect international reporting (e.g. OSPAR) and provides data against which far-field indirect impacts can be considered (e.g. impacts arising from noise propagation).

159. For the local study area, in which all direct impacts are contained, 15 fish species and five shellfish species were recorded over the five-year period. The dominant fish and shellfish species were as follows: razor / knife clams), Norway lobster, sword razor shell, whelk, blonde ray, small-spotted catshark, European plaice, great Atlantic scallop, and haddock.

160. The regional study area was used to provide regional context and ensures data coverage for near field indirect impacts (i.e., impacts arising from sediment dispersion). For the regional study area in the north, dominant species included: European sprat, haddock, anglerfish, common edible cockle, sword razor shell, and whelk. In the regional study area to the south, catches were dominated by a mixture of European sprat, herring and haddock, along with whelk, edible crab and great Atlantic scallop.

161. The national study area was defined as the Irish Sea and provides data against which far-field indirect impacts can be considered (e.g. impacts arising from noise propagation). The fish and shellfish assemblage in the national study area was found to be much more diverse, with 161 fish species and 64 shellfish species recorded. This is expected as it covers a larger area, and the data include landings by all member countries.

162. A combination of monthly vessel-based and digital aerial surveys were undertaken to characterise the receiving environment for marine mammals and other megafauna. No marine turtles were recorded during the CWP Project's monthly site-specific surveys. Two sightings of leatherback turtle off the counties of Cork and Clare were recorded within the last 12 months on the Irish Whale and Dolphin

Group (IWDG) citizen science recording scheme. No recordings on the east coast of Ireland were noted during the ObSERVE[4] surveys.

163. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 9 Fish, Shellfish and Turtle Ecology** of the EIAR.

6.4.2 A summary of the assessment findings

164. A detailed description of the fish, shellfish and turtle ecology assessment methodology that has been applied is presented in **Volume 3, Chapter 9 Fish, Shellfish and Turtle Ecology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation	Decommissioning
Temporary seabed habitat disturbance	✓		
Noise and vibration	✓		✓
Temporary disturbance of the seabed leading to increases in suspended sediment concentrations and associated deposition	✓		
Collision with vessels	✓	✓	✓
Accidental pollution events	✓	✓	✓
Invasive non-native species (INNS)	✓	✓	✓
Long-term habitat loss		✓	
Operational noise		✓	
Temporary disturbance of the seabed including associated increases in SSC and deposition		✓	✓
Electromagnetic fields (EMF) from cables		✓	

165. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 9 Fish, Shellfish and Turtle Ecology**, there are **no significant effects** predicted on fish, shellfish and turtle ecology receptors.

166. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 9.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on fish, shellfish and turtle ecology receptors were identified.

[4] ObSERVE is a major marine scientific programme established by the Irish Government in 2014. Its main aim is to improve the knowledge and understanding of protected offshore species and sensitive habitats through high quality, state-of-the-art data collection across Ireland's EEZ (https://www.gov.ie/en/publication/12374-observe-programme/).

6.4.3 Conclusion

167. No significant effects are predicted on fish, shellfish and turtle ecology receptors from the CWP Project alone or cumulatively with other proposed development.

6.5 Ornithology

168. The ornithological assessment spans three ecological environments: offshore, intertidal and onshore. In addition, consideration has been made to ornithological interests in relation to estuarine regions of the River Liffey. The species which inhabit these respective zones can be broadly categorised as seabirds, wildfowl, waders and waterbirds and terrestrial species; however, migrating bird species which transit these regions are also considered where appropriate.

169. A summary of the key findings of the ornithological assessment is provided below. Full details are presented in **Volume 3, Chapter 10 Ornithology** of the EIAR. This chapter also includes details of relevant legislation, policy and guidance, as well as a summary of the stakeholder consultation that was carried out in order to inform the approach to the ornithological assessment.

170. In order to quantify any impacts arising from the CWP Project to ornithological interests, Collision Risk and Displacement modelling were carried out, full details of which are presented in the following appendices:

- **Volume 4, Appendix 10.3 Collision Risk Modelling**;
- **Volume 4, Appendix 10.4 Offshore Ornithology Displacement**; and
- **Volume 4, Appendix 10.7 Kittiwake Collision Risk Modelling**.

6.5.1 An overview of the existing environment

171. Four ornithological study areas were determined, as described above, along with an overview of the existing ornithological baselines that have been determined through available existing literature and site-specific baseline surveys.

Offshore

172. The offshore study area was determined by considering the array site and OECC plus the Zone of Influence (ZoI) for ornithological receptors. In accordance with relevant guidance, a 4 km buffer has been applied to the array site. It is acknowledged that sensitive species, such as red-throated diver, may show distributional responses to offshore wind farm infrastructure over greater distances than this, and consideration is made to this within the offshore ornithological assessment.

173. In addition to a literature review, data from a number of site-specific boat-based and digital aerial baseline survey campaigns within the array site plus the 4 km buffer have been used to characterise the offshore ornithological baseline.

174. The primary species identified include auks, such as guillemot, razorbill and puffin, as well as gull species, including kittiwake, herring gull, great black-backed gull, and common gull. Other species recorded within the offshore environment include common scoter and red-throated diver.

175. Consideration of the above (and other screened-in) key seabird receptors is given in **Volume 3**, **Chapter 10 Ornithology** and **Volume 4**, **Appendix 10.5 Baseline Characterisation Report** of the EIAR.

Intertidal

176. The intertidal study area was aligned with BirdWatch Ireland's Irish Wetland Bird Survey (I-WeBS) site "Dublin Bay", which extends from the great south wall of the Liffey and Poolbeg power station at its northernmost extent, and Dun Laoghaire harbour at the southern end. This region falls entirely within the South Dublin Bay and River Tolka Estuary SPA and encompasses the OECC as it traverses the intertidal area from the transition zone to the landfall.

177. In addition to a literature review, a campaign of site-specific intertidal landfall surveys was also undertaken in order to characterise the ornithological baseline within South Dublin Bay and the intertidal landfall area, as well as a study on the behaviour of post-breeding roosting tern aggregations.

178. The primary species identified include waders, such as oystercatcher, redshank, curlew and bar-tailed and black-tailed Godwits, as well as gull species, including black-headed gull, Mediterranean gull, herring gull, lesser black-backed gull and great black-backed gull. Other species recorded within the intertidal environment include great crested grebe, red-throated diver, shelduck and light-bellied brent goose.

179. Post-breeding tern species recorded and derived from literature data include Arctic tern, common tern, roseate tern and Sandwich tern.

180. Consideration of the above (and other screened-in) key intertidal waterbird receptors is provided within **Volume 3**, **Chapter 10 Ornithology** and **Appendix 10.4 Baseline characterisation** of the EIAR.

Onshore

181. The study area for onshore ornithology is defined as the onshore development area and also considers sensitive receptor sites within and around the Poolbeg Peninsula, including the Electricity Supply Board (ESB) 220 kV Poolbeg Generation Station (used by breeding peregrine falcon), the grassland immediately south of the Ringsend WWTP (known as 'Goose Green'), which forms part of the South Dublin Bay and River Tolka Estuary SPA, and amenity areas such as Irishtown Nature Park and Sean Moore Park.

182. In addition to a literature review, site-specific onshore surveys were undertaken in order to characterise the ornithological baseline within the onshore study area. These included transect and point count surveys and raptor surveys.

183. The primary species identified include those that are considered to be at potential risk due to their abundance, conservation designation and potential sensitivity to impacts. These species were greenfinch, light-bellied brent goose, linnet, peregrine falcon and sand martin. Abundances of all species observed during site-specific onshore surveys are presented in **Appendix 10.8 Onshore Ornithology Baseline Characterisation Report**.

184. Consideration of the above (and other screened-in) key onshore ornithological receptors is given within **Volume 3**, **Chapter 10 Ornithology** of the EIAR.

Estuarine / Liffey

185. The study area for the Estuarine / Liffey is focused near the proposed onshore substation, including the adjacent rock armour and quay walls, and extends into the River Liffey located on the north side of Poolbeg Peninsula in County Dublin. The study area also considers sensitive receptor sites within the River Liffey, including the Coal Distribution Limited (CDL) and ESB mooring dolphins (used by breeding common tern and Arctic tern), which form part of the South Dublin Bay and River Tolka

Estuary SPA and South Dublin Bay pNHA. The study area also considers other jetties and piers extending into the river.

186. In addition to a literature review, site-specific estuarine / Liffey surveys were undertaken in order to characterise the ornithological baseline within estuarine / Liffey study area. This included tern surveys and black guillemot surveys.

187. The primary species identified include those that are considered to be at potential risk due to their abundance, conservation designation and potential sensitivity to impacts. These species were Arctic tern, black-headed gull, black guillemot and common tern. Abundances of all species observed during site-specific estuarine / Liffey surveys are presented in **Appendix 10.8 Onshore Ornithology Baseline Characterisation Report**.

188. Consideration of the above (and other screened-in) key onshore ornithological receptors is given in **Volume 3**, **Chapter 10 Ornithology** of the EIAR.

6.5.2 A summary of the assessment findings

189. A detailed description of the ornithology assessment methodology that has been applied is presented in **Volume 3**, **Chapter 10 Ornithology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Direct effects on habitat	✓	✓	✓
Disturbance and displacement	✓	✓	✓
Changes in prey availability	✓	✓	✓
Collision with WTGs		✓	
Accidental pollution events	✓	✓	✓
Introduction and / or spread of Invasive Non Native Species (INNS)	✓	✓	✓
Presence of onshore buildings / infrastructure		✓	

190. The assessment identified the requirement for a number of additional mitigation measures that are proposed in addition to the primary mitigation measures. The comprehensive list of additional mitigation measures are described in detail along with the primary mitigation measures in **Volume 3**, **Chapter 10 Ornithology** of the EIAR.

191. In summary, taking into account primary and additional mitigation measures, there are **no significant effects** predicted on ornithological receptors from the CWP Project on its own.

192. The assessment also considered the potential for significant cumulative effects to occur as a result of the combined impact of CWP Project and other planned developments. This assessment is provided in **Volume 4**, **Appendix 10.1 Cumulative Effects Assessment** of the EIAR. To summarise the Cumulative Effects Assessment (CEA), **no significant cumulative effects** on ornithological receptors are predicted.

6.5.3 Conclusion

193. No significant effects are predicted on ornithological receptors from the CWP Project alone or cumulatively with other proposed developments.

6.6 Marine Mammals

194. The key findings of the assessment on marine mammals are summarised below, with full details presented in **Volume 3**, **Chapter 11: Marine Mammals** of the EIAR.

195. Additional information to support the assessment includes an underwater noise assessment **in Volume 4, Appendix 9.4 UWN Assessment** of the EIAR; baseline technical report in **Volume 4 Appendix 11.3 Baseline Technical Report** and Phase 1 Irish Offshore Wind Farms - Cumulative iPCoD Modelling in **Volume 4, Appendix 11.4 Phase 1 Irish Offshore Wind Farms - Cumulative iPCoD Modelling.**

6.6.1 An overview of the existing environment

196. The initial literature review, conducted to inform the marine mammal chapter of the scoping report, identified the key species in the study area as: harbour porpoise, bottlenose dolphins, Risso's dolphins, common dolphins, minke whales, grey seals and harbour seals.

197. The marine mammal study area varies depending on the species, considering species-specific ecology and behaviour. The study area for marine mammals has been defined at two spatial scales:

- the management unit (MU) scale defined by the Inter-Agency Marine Mammal Working Group; and
- the marine mammal survey area, which provides an indication of the local densities of each species within the CWP Project array site / project boundary through the use of aerial surveys.

198. Site-specific boat-based and digital aerial surveys were also conducted within the array site and a 4 km buffer.

199. The CWP Project is located within the following MUs for each species:

- Harbour porpoise: Celtic and Irish Seas MU;
- Bottlenose dolphin: Irish Sea MU;
- Risso's dolphin: Celtic and Greater North Seas MU;
- Common dolphin: Celtic and Greater North Seas MU;
- Minke whale: Celtic and Greater North Seas MU;
- Grey seal: East regions of Republic of Ireland (RoI) and Northern Ireland MU; and
- Harbour seal: East regions of RoI and Northern Ireland MU.

200. **Appendix 11.3 Baseline Technical Report** details the key data sources used to characterise the baseline for marine mammals in relation to CWP Project, which were supplemented by the site-specific surveys.

6.6.2 A summary of assessment findings

201. A detailed description of the marine mammal assessment methodology that has been applied is presented in **Volume 3**, **Chapter 11 Marine Mammals** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation	Decommissioning
Auditory injury (PTS) from pre-construction surveys	✓		
Disturbance from pre-construction surveys	✓		
Auditory injury (PTS) from UXO clearance	✓		
Disturbance from UXO clearance	✓		
Auditory injury (PTS) from piling – WTG and OSS foundations	✓		
Disturbance from piling – WTG and OSS foundations	✓		
Auditory injury (PTS) from piling – onshore substation revetment	✓		
Disturbance from piling – onshore substation revetment	✓		
Auditory injury (PTS) from other construction activities	✓		
Disturbance from other construction activities	✓		
Vessel collision	✓	✓	✓
Disturbance from vessels	✓	✓	
Indirect impacts to prey	✓	✓	✓
Auditory injury (PTS) from operational noise		✓	
Disturbance from operational noise		✓	
Auditory injury (PTS) and disturbance from decommissioning activities.			✓

202. In summary, taking into account the mitigation measures described in **Volume 3, Chapter 11 Marine Mammals**, there are **no significant effects** predicted on marine mammal receptors.

203. The marine mammal assessment also considered the potential for significant cumulative effects to occur because of the combined impact of the CWP Project and other planned developments. This is presented in **Appendix 11.1 Cumulative Effects Assessment**. In summary, **no significant cumulative effects** on marine mammal receptors are predicted.

6.6.3 Conclusion

204. No significant effects are predicted on marine mammal receptors from the CWP Project alone or cumulatively with other proposed developments.

6.7 Commercial Fisheries

205. The Commercial Fisheries assessment considers commercial fisheries, charter angling and aquaculture. Commercial fisheries refers to any form of fishing activity legally undertaken and sold for taxable profit; charter angling relates to businesses that operate vessels for recreational angling and aquaculture refers to the rearing of animals or plants in an aquatic environment within a defined location.

206. The key findings of the commercial fisheries assessment are summarised below, with full details presented in **Volume 3**, **Chapter 12 Commercial Fisheries** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

207. The assessment also includes a Technical Report that characterises the commercial fisheries operating across the local and regional commercial fisheries study areas, provided in **Volume 4**, **Appendix 12.3 Commercial Fisheries Technical Report** of the EIAR.

6.7.1 An overview of the existing environment

208. The commercial fisheries active across the proposed CWP Project and wider regional area was characterised via analysis of landing statistics and mapping of fishing grounds, including vessel monitoring system data, inshore fishing mapping, scouting surveys, vessel plotter data and consultation with the fishing industry.

209. The commercial fishing fleets operating across the local and / or regional study areas include:

- Irish potting vessels targeting whelk;
- Irish potting vessels targeting brown crab and lobster;
- Irish scallop dredgers targeting king scallop;
- UK scallop dredgers targeting queen scallop (mainly Scottish registered vessels);
- Irish demersal otter trawlers targeting haddock and mixed demersal species;
- Irish demersal otter trawlers targeting nephrops and mixed demersal species;
- Razor shell hydraulic dredge fishery;
- Mussel seed dredge fishery;
- Irish and Belgian beam trawlers targeting plaice, sole, blonde ray and mixed demersal species; and
- Irish pelagic trawlers targeting sprat.

210. The characterisation of commercial fisheries found that the principal fisheries active across the proposed CWP Project, include potting for whelk and potting for crab and lobster. The other fisheries listed above may also operate within the proposed CWP Project on an occasional basis.

211. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 12 Commercial Fisheries** of the EIAR.

6.7.2 A summary of the assessment findings

212. A detailed description of the commercial fisheries assessment methodology that has been applied is presented in **Volume 3**, **Chapter 12 Commercial Fisheries** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Loss of grounds or restricted access to fishing grounds within the array site	✓	✓	✓
Loss of grounds or restricted access to fishing grounds within the OECC	✓	✓	✓
Displacement of fishing activity into other areas	✓	✓	✓
Interference with fishing activities	✓	✓	✓
Potential for snagging of gear	✓	✓	✓
Increased steaming times to fishing grounds	✓	✓	✓
Effects on commercially exploited species	✓	✓	✓

213. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 12 Commercial Fisheries** of the EIAR. The additional mitigation measures include:

- To mitigate the potential effects on the whelk and crab and lobster fisheries during construction and decommissioning:
    - The CWP Project has developed a Fisheries Management and Mitigation Strategy (FMMS) which will be implemented during the construction and decommissioning phases. The FMMS has been submitted in support of the planning application.
    - It is the intention of the CWP Project to promote co-existence and minimise potential disruption to normal commercial fishing practices. It is recognised, however, that there may be instances where the relocation of static fishing gear may be necessary as a result of survey or construction works. Where this is the case, CWP will endeavour to enter into reasonable, justifiable and evidence-based cooperation agreements with affected fishermen who can demonstrate a legitimate economical dependency on the CWP Project offshore development area wherever possible.
    - The CWP Project will follow standard procedures as outlined in the in draft Seafood ORE Co-existence BPG, or other relevant guidelines and legislation in place at the time of construction, operation and decommissioning.
    - To mitigate the potential effects on the whelk fishery during the operation and maintenance phase;
    - Continued implementation of the FMMS during the operation and maintenance phases;
    - Pre- and post-construction monitoring of whelk catch rates within the array site, including a control site outside the array site; and
    - Gear trials to assess practicality of potting activity within the operational array site.

214. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 12 Commercial Fisheries** of the EIAR and the additional mitigation measures described above, there are **no residual significant effects** predicted on commercial fisheries, charter angling and aquaculture receptors.

215. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4, Appendix 12.1 Cumulative Effects Assessment** of the EIAR. The cumulative effects assessment identified the potential for cumulative displacement effects. The CWP Project is committed to continued participation and involvement in the Seafood / ORE Working Group as an approach to mitigating displacement effects developed in this Working Group. In summary, considering this commitment, **no significant cumulative effects** on commercial fisheries, charter angling and aquaculture receptors are predicted.

6.7.3 Conclusion

216. No residual significant effects are predicted on commercial fisheries, charter angling and aquaculture receptors from the CWP Project alone or cumulatively with other proposed developments.

6.8 Offshore Bats

217. Of the 18 bat species resident in Great Britain (GB) and nine present in Ireland, some are known to migrate overseas, including from Great Britain. Therefore, the potential for impacts of CWP Project on migratory bats was the principal focus of the offshore bats assessment.

218. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.8.1 An overview of the existing environment

219. The study area for the offshore bats assessment was defined following the Eurobats guidance principally looking at the potential for impacts on migratory bats. To this end, bat activity at potential landfall points on the Welsh and Irish coasts was the key focus, reflecting where bats may be likely to leave, or arrive at, one landmass in order to cross to another that may take them through the CWP development area, i.e. the start or end of any potential offshore migration routes. As there is no information available on potential migratory routes between Ireland and Wales, survey areas were chosen based on the closest and most prominent landfall points to the CWP Project, where access was available. The potential landfall points chosen for this study were at the Wicklow Lighthouse and golf course on the Irish coast, and the area around the Royal Society for the Protection of Birds (RSPB) reserve at South Stack lighthouse in North Wales.

220. A comprehensive desk-based review was also undertaken to inform the baseline for offshore bats, which included all bat records within 10 km of the potential landfall points on the Irish and Welsh coasts. A search for sites designated for bat interest and a review of literature describing potential bat migrations were also conducted to inform the assessment.

221. Automated full-spectrum bat detectors were deployed at the chosen potential landfall points (four on each coast) set to record all bat activity within one hour prior to sunset through to one hour after sunrise, every night for the approximate 12-week deployments during each migration period (spring and autumn 2022).

222. Additional data were acquired from the proposed Dublin Array Offshore Wind Farm (OWF) (currently at planning stage).

223. Acoustic data analysis was undertaken to bat species or genus level using Kaleidoscope automatic identification software.

224. The desk study identified seven Sites of Special Scientific Interest (SSSIs) and three Special Areas of Conservation (SACs) within 10 km of the static detectors on the Welsh Coast. Bats are not listed as a feature of interest or reason for designation for any of these 10 sites.

225. Results from the desk study identified that the following nine species of bats are known to be present in both Ireland and Wales:

- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Leisler's;
- Whiskered;
- Daubenton's;
- Natterer's;
- Lesser horseshoe; and
- Brown long-eared.

226. Of these, only the three Pipistrellus species and Leisler's are considered likely to migrate, although Daubenton's may also forage offshore. These five species were taken further for assessment. Myotis species calls are not possible to differentiate accurately from sound analysis alone and as such all Myotis passes are considered potential Daubenton's passes within the assessment.

6.8.2 A summary of the assessment findings

227. A number of potential impacts on offshore bats, associated with the construction, operation and maintenance, and decommissioning phases of the CWP Project were identified and presented in **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Disturbance	✓	✓	✓
Collision		✓	
Lighting	✓	✓	✓

228. In summary, taking into account the primary mitigation measures, described in **Volume 3, Chapter 13 Offshore Bats** there **are no significant effects** predicted on offshore bat receptors.

229. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 13.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on offshore bat receptors were identified.

6.8.3 Conclusion

230. No significant effects are predicted on offshore bat receptors from the CWP Project alone or cumulatively with other proposed development.

6.9 Marine Archaeology & Cultural Heritage

231. The key findings of the assessment on marine archaeology and cultural heritage are summarised below, with full details presented in **Volume 3**, **Chapter 14 Marine Archaeology & Cultural Heritage** of the EIAR. This includes details of the legislation, policy, guidance, and relevant stakeholder consultation that had informed the approach to the assessment.

232. The assessment also includes a Marine Archaeology Technical Report, provided in **Volume 4**, **Appendix 14.3 Marine Archaeological Technical Report** of the EIAR.

6.9.1 An overview of the existing environment

233. Marine Archaeology and Cultural Heritage covers a range of receptors and characterises a number of pathways. Marine Archaeology and Cultural Heritage encapsulates the following aspects: palaeogeography, known wrecks and obstructions, identified geophysical receptors, intertidal heritage assets, and the potential for further marine cultural heritage assets. The baseline characteristics specific to Marine Archaeology and Cultural Heritage were characterised following a desk-based review of publicly available data. This was enhanced by site-specific surveys, which included collection of geophysical and geotechnical data and an intertidal walkover survey and metal detection exercise.

234. The study area for the marine cultural heritage assessment was defined on the basis of the area over which potential direct and indirect effects of the CWP Project are predicted to occur on marine heritage receptors during the different phases of CWP Project. This comprises the array site and OECC, including the intertidal area to the high water mark and a reclaimed area known as Pigeon Park.

235. Within the Marine Archaeology and Cultural Heritage study area, the following elements have been identified:

- A total of 32 features of palaeogeographic interest, consisting of:
    - six channels and one fine-grained deposit assigned a P1 archaeological rating (high archaeological potential); and
    - 25 cut and fills assigned a P2 archaeological rating (medium archaeological potential).
- A total of 454 seabed anomalies identified as being of possible archaeological interest, consisting of:
    - two anomalies were assigned an A1 archaeological rating (anthropogenic origin of archaeological interest);
    - 145 anomalies were assigned an A2_h archaeological rating (anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature);
    - 305 anomalies were assigned an A2_l archaeological rating (anomaly of possible anthropogenic origin but interpretation is uncertain; may be anthropogenic or a natural feature); and
    - two records were assigned an A3 archaeological rating (historic record of possible archaeological interest with no corresponding geophysical anomaly).
- Six records relating to archaeological sites, artefacts, material and standing remains within the intertidal zone (to MHWS).

- Potential for the discovery of palaeogeographic receptors, potential maritime and aviation receptors, and further intertidal heritage receptors.

6.9.2 A summary of the assessment findings

236. A number of potential impacts on Marine Archaeology and Cultural Heritage, associated with the construction, operation and maintenance, and decommissioning phases of the CWP Project were identified and presented in **Volume 3**, **Chapter 14 Marine Archaeology & Cultural Heritage** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Direct physical impact to known and potential marine cultural heritage receptors	✓	✓	✓
Indirect physical impact to known and potential marine cultural heritage receptors	✓	✓	✓

237. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 14 Marine Archaeology & Cultural Heritage** of the EIAR. In summary, the additional mitigation measures include:

- Further targeted geoarchaeological work to improve the interpretation of P1 and P2 palaeogeographic features beyond characterisation for the purposes of EIA.
- A Protocol for Archaeological Discoveries (PAD) will be in place for the CWP Project for reporting and investigating unexpected archaeological discoveries encountered during the different phases of the CWP Project, with a Retained Archaeologist providing guidance and advising industry staff on the implementation of the PAD.
- A targeted archaeological walkover survey to enable the identification of any further cultural heritage receptors with surface expression along the proposed cable routes leading up to the landfall.

238. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 14 Marine Archaeology & Cultural Heritage** of the EIAR and the additional mitigation measures described above, there are **no significant effects** predicted on Marine Archaeology and Cultural Heritage.

239. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 14.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on Marine Archaeology and Cultural Heritage receptors were identified.

6.9.3 Conclusion

240. No significant effects are predicted on Marine Archaeology and Cultural Heritage receptors from the CWP Project alone or cumulatively with other proposed development.

6.10 Seascape, Landscape and Visual Impacts

241. The Seascape, Landscape and Visual Impact Assessment (SLVIA) describes and assesses the impacts of the proposed CWP Project on seascape, landscape and townscape character, national designated landscapes, and visual receptors including main (named) settlements and key routes.

242. The key findings of the assessment are summarised below, with the full SLVIA presented in **Volume 3**, **Chapter 15 Seascape, Landscape and Visual Impact Assessment** of the EIAR. This includes details of the methodology, legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

243. The following appendices, provided in Volume 4 of the EIAR support the SLVIA:

- **Appendix 15.3** SLVIA Methodology;
- **Appendix 15.4** Seascape Character Assessment;
- **Appendix 15.5** Landscape Character Assessment;
- **Appendix 15.6** Viewpoint Assessment;
- **Appendix 15.7** Settlement Assessment;
- **Appendix 15.8** Sequential Route Assessment;
- **Appendix 15.9** National Designated Landscapes;
- **Appendix 15.10** SLVIA Figures;
- **Appendix 15.11** Visualisations;
- **Appendix 15.12** Bare earth ZTVs at A1;
- **Appendix 15.13** Obstructed ZTVs at A1; and
- **Appendix 15.14** Cumulative ZTVs at A1.

6.10.1 An overview of the existing environment

244. A 50 km study area from the outermost WTGs within the array site was identified as being appropriate to cover all potentially significant seascape, landscape and townscape character, national designated landscapes and visual receptors arising from the CWP Project. The extent of the study area was informed by bare earth and obstructed Zone of Theoretical Visibility (ZTV) studies and site surveys. Furthermore, the CWP Project and the other Phase 1 Projects agreed on the approach to the cumulative assessment.

245. Within the study area, the seascape, landscape and townscape character, national landscape designations and visual receptors were identified and assessed. Photography was also undertaken from selected viewpoints, which are presented in the SLVIA (**Appendix 15.11 SLVIA Visualisations**). A selection of these were used to produce wireframes and photomontage visualisations to illustrate the appearance of the CWP Project from several locations along the coast.

246. The study area extended from just south of the Skerries, north of Dublin, to Gorey in the south. Westwards, the study area included the Dublin Mountains and Wicklow Mountain National Park, whilst offshore the area extended eastward to include Irish and Welsh inshore waters.

247. The closest seascape, landscape and townscape character receptors to the CWP Project include Regional Seascape Character Area (RSCA) 14 Irish Sea; Seabank and Broad Bays, Landscape Area (LA) 1c The Bray Mountain Group AONB, LA 2a The Northern Area; and LA 2b The Southern Coastal Area. The closest designated landscape to the CWP Project is the Bray Head Special Amenity Area. Visual receptors include Bray located on the coast and the Wicklow Mountains; the settlements of Greystones Kilcoole and Wicklow and users of the Bray to Greystones Coastal Walk and Greystones to Wicklow Trail as well as users of the DART Line and Dublin to Rosslaire Main Line (from Greystones to Wicklow).

248. A consideration of the likely future environment without the CWP Project is described in **in Volume 3**, **Chapter 15 Seascape, Landscape and Visual Impact Assessment** of the EIAR.

6.10.2 A summary of the assessment findings

249. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Direct / indirect temporary impacts on seascape, landscape / townscape, national designated landscapes and visual receptors.	✓		✓
Direct / indirect temporary nighttime impacts on seascape, landscape / townscape, national designated landscapes and visual receptors.	✓		✓
Direct / indirect long term though reversible impacts on seascape, landscape / townscape, national designated landscapes and visual receptors		✓	
Direct / indirect long term though reversible nighttime impacts on seascape, landscape / townscape, national designated landscapes and visual receptors		✓	

250. Taking account of the primary mitigation measures described in **Volume 3, Chapter 15 Seascape, Landscape and Visual Impact Assessment** of the EIAR, significant adverse effects are predicted to be experienced by the receptors listed below during operation / maintenance (impact 3 daytime). No significant effects would be experienced by receptors during remaining phases of the proposed development.

- Seascape character: Regional Seascape Character Area (RSCA) 14 Irish Sea, Seabank and Broad Bays.
- Landscape/ townscape character: Landscape Area (LA) 1c The Bray Mountain Group AONB, LA 2a The Northern Area; and LA 2b The Southern Coastal Area.
- National Designated Landscapes: Bray Head Special Amenity Area.
- Visual Receptor Groups: Group 3 Bray Head to Cliff Manor, Group 4 Cliff Manor, Greystones, Kilcoole to Five Mile Point Group 5 Wicklow to Wicklow Head, Group 6 Dublin and Bray Mountains, Group 8 Wicklow Head to Brittas Bay and Group 9 Marine Recreational Receptors.
- Main (Named) Settlements: Greystones, Kilcoole and Wicklow.
- Key Routes: The Bray to Greystones Coastal Walk and Greystones to Wicklow Trail.

251. The SLVIA also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 15.1 Cumulative Effects Assessment** of the EIAR. The SLVIA predicts that significant cumulative effects would be experienced where the effects of the CWP Project's array site were added to the marine environment which includes all of the other Phase 1 Projects as well as the

existing Phase 1 Arklow Bank OWF. Such effects would be in relation to specific landscape / townscape receptors (during operation daytime), visual receptor groups, main named settlements and key routes (during operation daytime). Aside from visual receptor group 3 Bray Head to Cliff Manor (construction day and nighttime), no significant adverse cumulative effects would be experienced by seascape, landscape / townscape character and national designated landscapes, main named settlements and users of key routes for remaining phases of construction / decommissioning (daytime and nighttime) and operation (nighttime) (impacts 1, 2, 4, 5 and 6).

6.10.3 Conclusion

252. The coastal element of CWP Project's study area includes a varied coastline of bays, headlands, points with rocky outcrops, arches, stacks and islands. The Dublin Hills and Wicklow Mountains form a backdrop to the coastal edge. Elevated ground, headlands and some straighter sections of the coast have expansive views out across a large-scale, simple seascape where the CWP array would form a relatively small component of the available views. Bays may offer more contained views and a greater focus on the more immediate coastal and defining landscape features whilst from other locations there are no seaward views.

253. Significant effects are predicted on SLVIA receptors from the CWP Project on its own and cumulatively with other developments on certain receptors. An effect that is assessed to be significant (and adverse) in landscape and visual terms does not necessarily mean that such an impact would be unacceptable or should necessarily be regarded as an "undue consequence" (GLVIA3 (Landscape Institute and IEMA, 2013) para 5.40). As such where significant effects have been identified, it is not necessarily the case that the effects are unacceptable in isolation or in aggregate.

254. Significant effects experienced by SLVIA receptors from the CWP Project would be directly from points opposite or close to the CWP Project's offshore infrastructure. The level of effects would diminish with distance from the Proposed Development. The angle of view alongside the influence of elements and features that screen, or filter views such as vegetation, built form also have an influence on the nature of views and the significance of effects on visual receptors and the aesthetic and perceptual qualities of local landscape townscape and seascape character.

255. The professional judgment of the assessors of the SLVIA concluded that the CWP Project could be accommodated in SLVIA terms.

6.11 Shipping and Navigation

256. Shipping and navigation refers to the regular activity and behaviour of surface-based vessels, including both commercially operated vessels and privately owned recreational vessels.

257. The key findings of the shipping and navigation assessment are summarised below, with further details presented in **Volume 3**, **Chapter 16 Shipping and Navigation** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

258. Additional assessment has been undertaken within a technical report, the Navigational Risk Assessment (NRA), which is provided in **Volume 4**, **Appendix 16.3 Navigational Risk Assessment** of the EIAR. The NRA is the required means by which hazards to shipping and navigation are identified and assessed.

6.11.1 An overview of the existing environment

259. The study area was defined as a 10 nm radius buffer of the array site. This is an industry-standard study area for similar shipping and navigation assessments.

260. The shipping and navigation baseline in the study area was characterised by numerous data sources, primarily including Admiralty charts (which provided the navigational features of the area), maritime incident data (which provided an indication of offshore incident rates) and vessel traffic data (which captured local vessel traffic patterns).

261. Admiralty charts indicate that multiple shallow banks are present, which are a primary influence of vessel routeing in the area. This aligns with the vessel traffic data, which show that the vast majority of vessels avoid these shallow banks. These banks are marked via buoyage to highlight the potential hazard to passing mariners. Key ports include Wicklow Harbour and Dublin, with the vessel traffic data indicating that the majority of the commercial traffic is associated with Dublin. The vessel traffic is regulated via Traffic Separation Schemes (TSSs), of which there are three that the traffic within the study area transit to / from. A review of incident data over a 10-year period indicates an average of 27 incidents per year within the study area, with *machinery failure* and *person in danger* being the most common incident types. The majority of incidents occurred close to the coast, noting that five occurred within the array site over the course of the 10-year period.

262. Further details of the existing environment with respect to shipping and navigation can be found in **Volume 3**, **Chapter 16** of the EIAR.

6.11.2 A summary of the assessment findings

263. A detailed description of the shipping and navigation assessment methodology that has been applied is presented in **Volume 3**, **Chapter 16 Shipping and Navigation** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Vessel displacement leading to increased encounters and collision risk	✓	✓	✓
Increased collision risk (third party with project vessel)	✓	✓	✓
Vessel to structure allision risk (vessel to structure)	✓	✓	✓
Reduction in emergency response capability	✓	✓	✓
Port Access Restrictions	✓	✓	✓
Reduction in under keel clearance		✓	
Anchor interaction with subsea cables		✓	

264. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 16 Shipping and Navigation** of the EIAR. In summary, the additional mitigation measures include:

- AIS transmission by all vessels associated with the CWP project;
- Consultation with any base ports used on CWP project vessel movements;
- Liaison procedures with Dublin Port and Dun Laoghaire Harbour as part of the cable burial risk assessment process;
- In addition to consultation undertaken to inform the EIAR and NRA, MSO and Irish Lights will be consulted on the final cable alignments to inform any areas where there is a reduction in water depth >5%;
- IRCG will be consulted on the final WTG / OSS layout

265. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 16 Shipping and Navigation** of the EIAR and the additional mitigation measures described above, the significance of risk for all potential impacts is **broadly acceptable** or **tolerable and 'as low as reasonably practicable' (ALARP)**, which is not significant in EIA terms (assuming implementation of additional mitigation where necessary).

266. The assessment also considers the potential for significant cumulative effects to occur because of the combined impact of the CWP Project and other planned developments. This assessment is provided **in Volume 4**, **Appendix 16.1 Cumulative Effects Assessment**. In summary, **no significant cumulative effects** on shipping and navigation receptors were identified.

6.11.3 Conclusion

267. No significant effects are predicted on shipping and navigation receptors from the CWP Project alone or cumulatively with other proposed developments.

6.12 Aviation, Military and Radar

268. Potential effects of WTGs on aviation primarily concern ensuring that the safety of aircraft is not compromised. There are two dominant scenarios that can lead to potential effects on aviation:

- Physical obstruction. WTGs can create physical obstructions to aircraft in flight; and
- Aviation radar systems. WTGs can create unwanted interference with radar systems such that 'radar clutter' can appear on radar displays; this can seriously affect air traffic controllers' ability to provide air traffic services in a safe and effective manner.

269. An assessment of the potential effects on aviation has been undertaken by means of a detailed desktop review utilising information collected through existing aviation legislation, policy and guidance documents, studies and datasets; the full details of which are provided in **Volume 3, Chapter 17 Aviation, Military and Radar** of the EIAR. The desktop review identified the potential effects on aviation receptors, and this was also informed by stakeholder responses from the CWP Offshore Scoping Report 2021. Consultation has continued throughout the EIA process with the relevant stakeholders, including Ireland's Department of Defence (DoD), the Irish Aviation Authority (IAA), Met Eireann, United Kingdom Ministry of Defence (MoD) and Newcastle Aerodrome. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 17 Aviation, Military and Radar** of the EIAR.

6.12.1 An overview of the existing environment

270. The aviation study area, which includes the offshore development area, was defined to ensure that all relevant aviation receptors were assessed. The aviation receptors considered included:

- Military aviation operations;
- Military exercise and training areas;

- Civil airports;
- Helicopters; and
- Civil and military radar (including Met Eireann meteorological radar).

271. In terms of military aviation and Irish Coast Guard Search and Rescue (SAR) helicopter operations, pilots are ultimately responsible for seeing and avoiding obstructions. WTGs can be difficult to see from the air, particularly in poor meteorological conditions, leading to a potential increase in obstacle collision risk. In order to alleviate this risk, IAA and DoD have requested that, in the interests of air safety, the WTGs are marked and lit in accordance with their respective guidance and that details of the WTGs are included on aviation charts. The proposed CWP Project is not located in the vicinity of any military exercise and training areas.

272. A consideration of the likely future aviation environment without the CWP Project is described in **Volume 3**, **Chapter 17 Aviation, Military and Radar** of the EIAR.

6.12.2 A summary of the assessment findings

273. A detailed description of the aviation, military and radar assessment methodology that has been applied is presented in **Volume 3**, **Chapter 17 Aviation, Military and Radar** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Potential impact on Dublin Airport Instrument Flight Procedures (IFPs) due to presence of wind turbines.	✓		
Potential impact on low flying aircraft (including IRCG Search and Rescue (SAR) helicopter operations) due to presence of obstacles (cranes, stationary wind turbines, offshore substation structures).	✓		
Potential impact on Dublin Airport Air Traffic Control (ATC) radar due to presence of wind turbines.		✓	
Potential impact on Met Eireann Dublin Airport meteorological radar due to presence of wind turbines.		✓	

274. The assessment concluded that, based on the predicted level of effect, no additional mitigation is required beyond the primary mitigation measures described in **Volume 3**, **Chapter 17 Aviation, Military and Radar** of the EIAR.

275. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 17 Aviation, Military and Radar**, there are **no significant effects** predicted on aviation, military and radar receptors.

276. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of the proposed CWP Project and other planned development. This assessment

is provided in **Volume 4**, **Appendix 17.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects on aviation, military and radar receptors were identified.

6.12.3 Conclusion

277. No significant effects are predicted on aviation, military and radar receptors from the proposed CWP Project alone or cumulatively with other proposed development.

6.13 Material Assets - Marine Infrastructure

278. Material assets are defined as built services and infrastructure that have an economic or otherwise material value. These include those that may be operational or out of service. In the marine environment, material assets take a number of forms, including power and telecommunication cables, pipelines, renewable energy projects, marine aggregate resources, oil and gas assets, and communication structures.

279. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 18 Material Assets - Marine Infrastructure** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

280. The assessment also includes a Television (TV) and Radio Desk-Based Report, provided in **Volume 4, Appendix 18.3 Television and Radio Desk-Based Report** of the EIAR.

6.13.1 An overview of the existing environment

281. The study includes a 10 km radius from the offshore development area. The extent of the study area has been defined based upon the modelling presented in **Volume 4**, **Appendix 6. 3 Marine Geology, Sediments and Coastal Processes Modelling Report** of the EIAR. The modelling identified the greatest direction and distance of dispersion of disturbed material was 10 km to the east of the array site.

282. The study area for the TV and radio reception assessment has been defined as the closest transmitters serving the onshore residential areas relative to the CWP Project.

283. Magnetometer surveys were completed along the offshore development area, which have identified existing subsea cables and pipelines.

284. In summary, the following material assets: marine infrastructure receptors were identified in the study area:

- Subsea utilities (cables and pipelines) - a number of subsea utilities (cables and pipelines) were identified in the study area, including pipelines for gas and sewer systems and four operational telephone / power cables located within the OECC and two out of service cables that are potentially located within the array site;
- Oil and gas licensed exploration areas - one authorised area for oil and gas exploration is located within the study area;
- Marine aggregates and disposal sites (including dredging) - significant marine aggregate deposits were identified in the Irish Sea, some of which overlap the OECC. A number of marine disposal sites were identified within the study area; however, no marine disposal sites occur within the offshore development area;
- Renewable energy (wind, wave and tidal) - no existing renewable energy infrastructure is located within the study area. Arklow Bank Phase 1 (operational offshore wind farm) is located 18 km

south of the CWP Project. The development of proposed offshore wind farms is considered under predicted further baseline conditions and considered in **Volume 4, Appendix 18.1 Cumulative Effects Assessment**;

- Power plants discharge channel - two power plants discharge to the river Liffey within the onshore substation site; and
- TV and radio reception – two transmitters are serving the urban areas closest to the array site.

285. A consideration of the likely future environment without the CWP Project is described in **Volume 3**, **Chapter 18 Material Assets - Marine Infrastructure** of the EIAR.

6.13.2 A summary of the assessment findings

286. A detailed description of the material assets: marine infrastructure assessment methodology that has been applied is presented in **Volume 3, Chapter 18 Material Assets - Marine Infrastructure** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Direct effects on marine infrastructure – i.e. damage to existing marine infrastructure	✓	✓	✓
Indirect effects on marine infrastructure – i.e. disturbance of marine assets through increased suspended sediment concentrations and associated deposition resulting in the reduction or restriction of marine assets use.	✓	✓	✓
Interference of TV and radio reception – i.e. wind turbine generator (WTG) interference with existing transmitters.		✓	

287. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3, Chapter 18 Material Assets - Marine Infrastructure** of the EIAR. In summary, the additional mitigation measures include:

- The CWP Project offshore export cables will cross a number of existing assets. Where the existing assets' depth of burial is sufficiently deep, the offshore export cable will be laid directly on the seabed. However, where the existing asset is too shallow, additional protection will be required to protect both the existing asset and the CWP Project offshore export cables. It is likely that a concrete mattress will be placed over the existing asset, which is known as a separation layer. The offshore export cable will then be laid across this at an angle as close to 90 degrees as possible. The export cable will then be covered by a second mattress to secure the cables in place and ensure that they remain protected. The design and methodology of these crossings will be confirmed in agreement with the asset owners. Furthermore, the cable protection at cable crossings will be inspected during the life of the project and may need to be replenished with additional protection, depending on their condition;
- Consultation with existing cable operators, approval of cable crossing agreements prior to decommissioning and adherence with relevant legislation and guidance at the time of decommissioning will be required to ensure that cable crossings are appropriately designed to mitigate environmental effects and damage to existing operational cables.

288. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 18 Material Assets - Marine Infrastructure** of the EIAR and the additional mitigation measures described above, there are **no significant effects** predicted on material assets: marine infrastructure receptors.

289. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 18.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on material assets: marine infrastructure receptors were identified.

6.13.3 Conclusion

290. No significant effects are predicted on material assets: marine infrastructure receptors from the CWP Project alone or cumulatively with other proposed development.

6.14 Land, Soils and Geology

291. The key findings of the land, soils and geology assessment are summarised below, with full details presented in **Volume 3, Chapter 19 Land, Soils and Geology** of the EIAR. This includes details of the legislation, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

292. The assessment also includes a Contamination Risk Assessment Provided in **Volume 4**, **Appendix 19.5 Contamination Risk Assessment** of the EIAR.

6.14.1 An overview of the existing environment

293. The study was defined as a 2 km radius from the onshore development area. The extent of the study area is aligned with the relevant guidelines from the Institute of Geologists Ireland.

294. Site walkover surveys of the onshore development area were undertaken on 28 June 2022, 5 May 2023 and 1 August 2023 to establish the baseline environment. Historical site investigation reports were reviewed as part of the desk study. Onshore site investigations (SI) were also undertaken within the onshore development area boundary in 2022 and 2023. Further details on these are outlined in in **Volume 3**, **Chapter 19 Land, Soils and Geology** of the EIAR.

295. The GSI produced a modelled depth to bedrock for the greater Dublin Area indicating the bedrock is situated approximately between 30 m below ground level (mbgl) to 45 mbgl within the onshore development area, indicating that the subsoils in this area are up to 45 m thick in areas.

296. The Poolbeg Peninsula has been developed through raising the level of the land, which was originally intertidal, through placement of dredged material and waste from the 1960s onwards.

297. Data from the onshore SI indicated the following for soils and subsoils:

- The landfall site comprises a layer of greyish brown silty sand and gravel with brick and shell fragments, root and rootlets and occasional concrete and plastic pieces. A second layer, encountered in the centre of the site overlying the first layer, contains historical landfilled waste material. Natural soils were then found at depths of from approximately 5 to 30.0 mbgl comprising a sand and gravel overlying a thick clay layer. Bedrock was encountered at depths >24 m, comprising dark grey limestone.
- The onshore substation site comprises made ground material to a depth of 6 mbgl, consisting of brownish grey sandy gravel, overlying dark brown to black gravelly sandy clay. Occasional wood, plastic, rubber, concrete, cardboard and plastic sheets were identified within or below the made

ground clay layer. Natural soils were then identified at depths of up to 39 mbgl, comprising a thick sand and gravel layer overlying a thick clay layer. The bedrock comprises a dark grey limestone.

6.14.2 A summary of the assessment findings

298. A detailed description of the Land, Soils and Geology assessment methodology that has been applied is presented in **Volume 3, Chapter 19 Land, Soils and Geology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Excavation of contaminated land	✓		✓
Potential for release of ground gas	✓		✓
Soil settlement	✓		✓
Risk of leaks or spills impacting on land and soils.	✓		✓

299. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 19 Land, Soils and Geology** of the EIAR. In summary, the additional mitigation measures include:

- The implementation of a **CEMP**, including measures to prevent accidental pollution and to minimise the risk of discharging contaminated materials into the underlying soils and geology environment.
- The implementation of a **Construction Demolition and Waste Management Plan (CDWMP)** that outlines measures for the management of excavated material, including testing, storage, personnel training and the use licensed waste facilities.
- The appointed contractor for the tunnel installation works will produce risk assessments to address ground gas during construction. The appointed contractor will also ensure that any necessary PPE is in place to avoid the exposure of construction workers to ground gases in the tunnel shafts.

300. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 19 Land, Soils and Geology** of the EIAR and the additional mitigation measures above, there are no significant effects predicted on Land, Soils and Geology receptors.

301. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 19.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects on Land, Soils and Geology receptors were identified.

6.14.3 Conclusion

302. No significant effects are predicted on Land, Soils and Geology receptors from the CWP Project alone or cumulatively with other proposed development.

6.15 Hydrology and Hydrogeology

303. Hydrology is the study of the water environment (the hydrological cycle) and surface water bodies (such as rivers, lakes and reservoirs). Hydrogeology deals with groundwater and the underground (or geological) part of the hydrological cycle.

304. The key findings of the hydrology and hydrogeology assessment are summarised below, with full details presented in **Volume 3, Chapter 20 Hydrology and Hydrogeology** of the EIAR. This includes details of the legislation and guidance that has informed the assessment, alongside a summary of the consultation that has been undertaken with relevant stakeholders.

305. The assessment has considered potential impacts during all phases of the CWP Project.

306. The assessment also includes a Site-Specific Flood Risk Assessment, provided in **Volume 4, Appendix 20.2 Site-Specific Flood Risk Assessment** of the EIAR.

6.15.1 An overview of the existing environment

307. The study area was defined as a 2 km radius from the onshore development area.

308. The study area is generally heavily developed, due to its position near to the centre of Dublin. Land use across the study area is dominated by industrial land, including waste management and energy generation activities.

309. The groundwater quality in the Poolbeg peninsula is moderate and reflects a history of landfilling, and soil reclamation of the former intertidal area.

310. The closest waterbodies to the onshore development area include the River Liffey, immediately north of the proposed onshore substation site, and Dublin Bay, immediately to the south of the proposed landfall. These water bodies, amongst others, are designated under Water Framework Directive (WFD).

311. A consideration of the likely future environment without the CWP Project is described in in **Volume 3, Chapter 20 Hydrology and Hydrogeology** of the EIAR.

6.15.2 A summary of the assessment findings

312. A detailed description of the hydrology and hydrogeology assessment methodology that has been applied is presented in **Volume 3, Chapter 20 Hydrology and Hydrogeology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Risk of leaks or spills impacting on groundwater quality.	✓		✓
Mobilisation of historical contamination, resulting in impacts to groundwater quality.	✓		✓
Discharge of water generated during the construction phase, resulting in impacts to groundwater quality	✓		

Impact	Construction	Operation and maintenance	Decommissioning
Alteration of groundwater flow regime as a result of the presence of installed structures.		✓	

313. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 20 Hydrology and Hydrogeology** of the **EIAR**. In summary, the additional mitigation measures include:

314. In summary, the additional mitigation measures include:

- The implementation of a **CEMP**, including measures to prevent accidental pollution and to minimise the risk of discharging contaminated materials into surrounding waterbodies
- Measures to control the use of drilling fluids during tunnelling and HDD installation
- The implementation of a **CDWMP** that outlines measures for the management of excavated material, including testing, storage, personnel training and the use licensed waste facilities.
- Groundwater from the three tunnel shafts and groundwater encountered in excavations will be pumped and tankered off site, for discharge under licence, at a licensed facility

315. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 20 Hydrology and Hydrogeology** of the **EIAR** and the additional mitigation measures described above, there are **no significant effects** predicted on hydrology and hydrogeology receptors.

316. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 20.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on hydrology and hydrogeology receptors were identified.

6.15.3 Conclusion

317. No significant effects are predicted on hydrology and hydrogeology receptors from CWP Project alone or cumulatively with other proposed development.

6.16 Onshore Biodiversity

318. The Onshore Biodiversity chapter describes the potential impacts and likely effects of the onshore transmission infrastructure (OTI) on onshore biodiversity (above the high water mark) with the exception of ornithology, which is assessed separately in **EIAR Chapter 10 Ornithology** and the marine environment, which is assessed separately in **EIAR Chapter 8 Subtidal and Intertidal Ecology**, **Chapter 9 Fish, Shellfish and Turtle Ecology**, **Chapter 11 Marine Mammals** and **Chapter 13 Offshore Bats.**

319. The key findings of the Onshore Biodiversity assessment are summarised below, with full details presented in **Volume 3, Chapter 21 Onshore Biodiversity** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.16.1 An overview of the existing environment

320. The study area comprised of all lands located within the zone of influence (ZoI) of the onshore development area.

321. A range of ecological field surveys were undertaken within the study area between 2021–2024, in order to inform the impact assessment. Surveys undertaken included habitat and botanical surveys, a supratidal habitat survey, protected mammal surveys and habitat assessment surveys for protected amphibian, reptile and invertebrate species. Further details on the methodologies used and the extent of the surveys is provided in EIAR **Chapter 21 Onshore Biodiversity**.

322. Following the habitat and botanical surveys, it was established that the onshore development area predominantly comprises areas of manmade features such as existing roads, areas of gravel, rock armour or areas of disturbed or low ecological value habitat such as recolonising bare ground, amenity grassland, spoil and bare ground and areas of refuse and waste. An area of dense scrub was recorded at the landfall site and within the proposed onshore substation site. Immature treelines were also recorded sporadically within the site.

323. Three invasive non-native species (INNS), namely, Japanese knotweed, bohemian knotweed and sea buckthorn, were identified.

324. During the mammal surveys, evidence of badger was recorded frequently within the onshore substation site and at the landfall site. An artificial badger sett was identified at the northwest corner of the Irishtown Nature Park

325. Otter were also only recorded on two occasions.

326. During the bat surveys, low levels of activity of three bat species, soprano pipistrelle, common pipistrelle and Leisler's bat, were recorded. The three bat species were recorded foraging and commuting, with no bat roosts recorded within the ZoI of the OTI.

327. No other protected terrestrial species were recorded during the surveys.

328. The onshore development area overlaps with the European site, South Dublin Bay SAC. The SAC is designated for four costal habitats, namely, Mudflats and sandflats not covered by seawater at low tide, Annual vegetation of drift lines, Salicornia and other annuals colonising mud and sand and Embryonic shifting dunes. During the supratidal habitat survey, it was confirmed that none of the Annex I habitats are present within the onshore development area, including within the area of the SAC, which overlaps within the Application site boundary. The construction of the OTI will not result in the loss of any Annex I habitat.

6.16.2 A summary of the assessment findings

329. A detailed description of the onshore biodiversity assessment methodology that has been applied is presented in **Volume 3, Chapter 21 Onshore Biodiversity** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impacts associated with temporary and permanent habitat loss	✓		✓
Habitat degradation as a result of INNS and dust impacts	✓		✓

Impact	Construction	Operation and maintenance	Decommissioning
Habitat degradation as a result of air quality impacts (dust).	✓		✓
Impacts associated with the loss of breeding/resting places or commuting and / or foraging habitat for protected terrestrial species.	✓		✓
Impacts associated with disturbance / displacement of protected terrestrial species from noise, vibration and/or lighting	✓	✓	✓

330. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3, Chapter 21 Onshore Biodiversity** of the EIAR. In summary, the additional mitigation measures include:

- The replanting of vegetation within the onshore development area, which includes native woodland, native shrub and wildflower beds
- Undertaking preconstruction mammal surveys, no more than 10–12 months in advance of construction works commencing
- Measures to reduce the potential for disturbance of badgers, including localised screening for noise, and management of construction lighting and monitoring by an Ecological Clerk of Work, appointed by the Applicant
- Provision of four bat boxes, erected on either mature trees or poles at the landfall site
- Lighting at the operational onshore substation will be designed with regard of the Bat Conservation Trust Guidelines (2018)

331. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4, Appendix 21.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on offshore bat receptors were identified.

6.16.3 Conclusion

332. No significant effects are predicted on onshore biodiversity receptors from the CWP Project alone or cumulatively with other proposed development.

6.17 Archaeological, Architectural and Cultural Heritage

333. The assessment describes the likely effects of the onshore and offshore components of the CWP Project during the construction, operation and maintenance and decommissioning phases, upon the existing terrestrial archaeological, architectural and cultural heritage resource.

334. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 22 Archaeological, Architectural and Cultural Heritage** of the EIAR. This includes details of the legislation, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.17.1 An overview of the existing environment

335. The study area for the onshore archaeology, architectural and cultural heritage assessment has been defined as extending 500m from the CWP Project onshore development area.

336. The study area for the onshore cultural heritage receptors that may be affected by the offshore infrastructure is derived from Zone of Theoretical Visibility (ZTV) mapping. Where the mapping within the study area indicates that there may be visibility between the cultural heritage viewpoints, an impact assessment has been carried out. Given the proposed offshore development occupies the marine environment, those coastal sites and structures that have a direct relationship with the coast, have been assessed in order to understand how the proposed development will affect this relationship and thus the setting of the sites or structures.

337. There are four recorded monuments within the onshore development area: the site of a blockhouse, which predates the Pigeon House Fort; Pigeon House Fort itself; the Ballast Wall; and the later Great South Wall.

338. Six protected structures are located within the 500m study area of the onshore development area: The Ballast Wall; the upstanding remains of the Pigeon House Fort; the Great South Wall; the early 20th century Pigeon House Power Station; the Pigeon House Hotel; and the former hospital.

339. For the purposes of this assessment, the Pigeon House Harbour is considered to represent a curtilage structure associated with the Ballast Wall. The surviving section of the Pigeon House Harbour and derelict Pigeon House Power Station are located within a Conservation Area. The Great South Wall is also defined as a Conservation Area.

340. Five features are included in the Dublin City Heritage Record (DCIHR), which makes recommendations for sites to be added to the Record of Protected Structures, within the study area, including the site of a lifeboat house within the onshore development area and part of the early 20th century outfall works.

341. A review of Excavations Bulletin has revealed that a number of investigations have been carried out within the vicinity of the onshore development area. These investigations have identified post-medieval reclamation deposits and fragmentary remains of buried portions of the Ballast Wall (and associated causeway). Stones forming part of the northern side of the Ballast Wall have been identified beneath the existing footpath (within the onshore development area) and these were preserved in situ at the time of discovery in 2008.

342. A full review of the historic sources, cartographic coverage, historic imagery and a field inspection has been carried out as part of this assessment. This resulted in the identification of heritage sites directly associated with the historic development of the Poolbeg Peninsula. These comprise the remains of the Pigeon House Harbour dating 1791 to 1793, which although modified by the construction of the outfall works, retains some of its original 18th century fabric. The north side of the harbour has been clad in concrete, although it is likely that the original masonry fabric survives beneath this. A circular masonry gun emplacement (associated with the fort) is located to the north of the Pigeon House Power Station. The masonry footings of an 19th century fort building are located to the southwest of the former Pigeon House Hotel.

343. The twin red and white metal chimneys, associated with the 1960s and 1970s ESB Poolbeg Generating Station, to the east of the onshore development area, remain present in the landscape, as a significant Dublin landmark. The overall cultural heritage significance of Dublin Port, as a heritage landscape, including the mouth of the River Liffey, the Poolbeg Peninsula and the North Docklands, is also noted.

344. A total of 32 sites and structures of archaeological, architectural and cultural heritage significance have been identified within the 40km study area defined as part of the assessment of offshore infrastructure on onshore cultural heritage receptors. These occupy the coastal margins of Counties Dublin, Wicklow

and Wexford. They represent sites and structures that exist due to the location of the adjacent marine environment, such as lighthouses, Martello towers or promontory forts.

6.17.2 A summary of the assessment findings

345. A detailed description of the archaeological, architectural and cultural heritage assessment methodology that has been applied is presented in **Volume 3, Chapter 22 Archaeological, Architectural and Cultural Heritage** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impacts on the zone of archaeological potential for block house and fort (RMP DU019-027, RPS 6794).	✓	✓	✓
Impacts on the zone of archaeological potential for ballast wall, including Pigeon House Harbour (RMP DU018-066/DU019-029, RPS 6797).	✓	✓	✓
Impacts on previously unrecorded archaeological features or deposits that may survive beneath the current ground level within the onshore development area and outside of the designated zones of archaeological potential.	✓		✓
Impacts to the setting of recorded archaeological and built heritage sites (including Pigeon House Harbour Conservation Area and DCIHR outfall works).	✓	✓	✓
Impacts to the setting of the Dublin Port cultural heritage landscape.	✓	✓	✓
Impacts to the setting of archaeological and architectural heritage sites directly linked to the coast, within the ZTV from offshore infrastructure (Options A and B).	✓	✓	✓

346. The assessment identified the requirement for additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 22 Archaeological, Architectural and Cultural Heritage** of the EIAR. In summary, the additional mitigation measures include archaeological monitoring of all ground disturbances, under licence from the National Monuments Service of the Department of Housing, Local Government and Heritage (DHLGH).

347. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 22 Archaeological, Architectural and Cultural Heritage** of the EIAR and the additional mitigation measures described above, there are **no significant effects** predicted on archaeological, architectural and cultural heritage receptors.

348. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in Volume 4, **Appendix 22.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on archaeological, architectural and cultural heritage receptors are predicted.

6.18 Landscape and Visual Impacts

349. Landscape and visual impact assessment (LVIA) is the assessment of effects that might occur as a result of the OTI on the landscape, and on people's views and visual amenity.

350. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 23 Landscape and Visual Impact Assessment** of the EIAR. This includes details of the legislation, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.18.1 An overview of the existing environment

351. The study area includes a 5 km radius from the onshore development area. Field work was carried out within this area to establish the baseline landscape and visual environment.

352. The study area is generally heavily developed, due to its position near to the centre of Dublin. Land use across the onshore development area is dominated by industrial land, including waste management and energy generation activities. In the wider study area, land use includes residential and mixed-use development within different neighbourhoods of Dublin.

353. Receptors scoped in for detailed assessment within the LVIA comprise landscape features within the onshore development area, including naturally regenerated scrub; landscape / townscape character areas experiencing direct effects as a result of the onshore elements and offshore export cable of the CWP Project; and viewpoints and visual receptors within the 5 km LVIA study area.

354. There are no residential settlements and few other sensitive landscape and visual receptors within close proximity to the onshore elements of the CWP Project. These are not located within an area that is covered by a landscape planning designation, with the closest of these being the North Bull Island Special Amenity Area Order (SAAO), located in the north of the LVIA study area. The industrial and energy development context of the surrounding area will minimise the opportunity for significant effects to occur as a result of the onshore elements of the CWP Project on landscape / townscape and visual receptors. The parts of the onshore development area which will be influenced by the construction and operation of different onshore elements of the CWP Project are separated from each other by relatively extensive existing industrial development, which limits the opportunity for significant effects on the wider landscape / townscape and visual resource. In addition, the architectural design of the onshore substation, in particular, responds to the surrounding context, meaning that the onshore substation will be in keeping with the character and scale of built form within the surrounding area, thus minimising the potential for significant effects to occur.

355. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 23 Landscape and Visual Impact Assessment** of the EIAR.

6.18.2 A summary of the assessment findings

356. A detailed description of the LVIA methodology that has been applied is presented in **Volume 4, Appendix 23.2 LVIA Methodology** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impacts on landscape features.	✓	✓	✓
Impacts on landscape / townscape character.	✓	✓	✓
Impacts on visual amenity.	✓	✓	✓

357. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 23 Landscape and Visual Impact Assessment**, significant effects have been identified in relation to two receptors. These comprise short-term, reversible, construction phase effects on visual receptors at Viewpoint 5: Sandymount Strand, and construction phase effects on visual receptors travelling on the footpath between Sandymount and the Great South Wall. This is largely because the receptors that will gain these views are of medium–high sensitivity so that even medium level magnitude of change to their views, occurring over a short duration, may give rise to significant effects. All other effects have been identified as not significant.

358. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4, Appendix 23.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on landscape and visual receptors are predicted.

6.18.3 Conclusion

359. Whilst short term, reversible significant effects are predicted on two visual receptors from the CWP Project during construction, no significant effects are predicted during the operation of the project. No significant cumulative landscape or visual effects are predicted with other proposed development.

6.19 Noise and Vibration

360. The study of noise and vibration considers the exposure of the general population to various sources, including transportation, construction, industry and windfarms. **Volume 3**, **Chapter 24 Noise and Vibration** of the EIAR considers the airborne noise and vibration impacts on sensitive human receptors, which may affect their health and well-being.

361. Airborne noise and vibration impacts on ecological receptors are assessed in **Volume 3**, **Chapter 10 Ornithology** and **Volume 3**, **Chapter 21 Onshore Biodiversity** of the EIAR**.** Potential underwater noise impacts to marine mammals and fish are addressed in **Volume 3, Chapter 9 Fish, Shellfish and Turtle Ecology** and **Chapter 11 Marine Mammals** of the EIAR**.**

362. An assessment of airborne noise and vibration (hereafter referred to as noise and vibration) has been undertaken for the proposed CWP Project.

363. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 24 Noise and Vibration** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.19.1 An overview of the existing environment

364. A study area for the assessment has been defined to review and characterise the existing environment with respect to noise and vibration and to identify potential human receptors (noise-sensitive locations (NSLs)) against which effects from the CWP Project can be assessed.

365. NSLs include areas where people spend significant periods of time and where concentration, sleep and amenity are important considerations. Examples of these sensitive locations include residential dwellings, schools and other educational establishments, hospitals and nursing homes, hotels and other short-term accommodation buildings, buildings of religious sensitivity, recreational and noise-sensitive amenity areas and offices.

366. There are two distinct study areas:

- The array site is located in the Irish sea off the east coast of Ireland at County Wicklow and the closest onshore noise-sensitive locations to the array site are located in Greystones and Wicklow Town.
- The onshore and intertidal study area is defined by a 2 km radius from the onshore development area. As there are hundreds of NSLs in the area, a representative sample of NSLs have been selected for both baseline surveys and impact assessment. These NSLs are also representative of the NSLs adjacent to them.

367. The baseline noise environment on the Poolbeg Peninsula has been established through noise-monitoring surveys undertaken at nine locations representative of the NSLs surrounding the onshore and intertidal development. The existing noise environment in the vicinity of the closest noise-sensitive locations is dictated by transportation sources, with existing port and docking activities and industry noise also audible.

368. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 24 Noise and Vibration** of the EIAR.

6.19.2 A summary of the assessment findings

369. A detailed description of the noise and vibration assessment methodologies that have been applied is presented in **Volume 3**, **Chapter 24 Noise and Vibration** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impact from construction noise and vibration, including construction traffic noise at NSLs	✓		✓
Impact from operational noise from array site wind turbines and onshore substation plant at NSLs		✓	

370. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 24 Noise and Vibration,** of the EIAR.

371. The appointed contractor will put in place the most appropriate noise control measures to ensure that the works in each area comply with the limits detailed in **Volume 3**, **Chapter 24 Noise and Vibration**

and so that minimisation of noise is achieved by best means practicable. Measures to control noise from construction activities are described in **Volume 3**, **Chapter 24 Noise and Vibration** and the Construction Environmental Management Plan (CEMP). In summary, the additional mitigation measures include:

- Noise control at source, site compound hoarding, hours of operation, liaising with the public, strict construction noise limits, and noise monitoring during this phase will aim to minimise impact of construction noise experienced at noise-sensitive locations.
- Similarly, vibration impacts during the construction phase will be well controlled through the use of low-impact equipment and adherence to strict limit values, which will be subject to monitoring at the nearest sensitive buildings. The harbour wall heritage structure will require a condition survey in advance of the works.

372. During the detailed design of the onshore substation, mechanical and electrical plant will be selected and located in order to ensure that the relevant noise emission limits set out in **Volume 3**, **Chapter 24 Noise and Vibration** for the operational phase are not exceeded.

373. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 24 Noise and Vibration** of the EIAR and the additional mitigation measures described above, there are **no significant noise and vibration effects** predicted on human receptors during both the construction and operational phases.

374. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 24.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant noise and vibration cumulative effects** on human receptors were identified.

6.19.3 Conclusion

375. No significant noise and vibration effects are predicted on human receptors from the CWP Project alone or cumulatively with other proposed development.

6.20 Air Quality

376. Air quality concerns the contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Domestic solid fuel combustion, vehicular emissions, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern relevant for this assessment include particulate matter as PM10 and PM2.5, which are inhalable particles.

377. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 25 Air Quality** of the EIAR. This includes details of the legislation, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.20.1 An overview of the existing environment

378. The study area was defined as a 250 m radius from the onshore development area. The extent of the study area is aligned with the relevant guidelines from the Institute of Air Quality Management.

379. Air-quality high-sensitivity receptors include areas where people spend significant periods of time, such as residential dwellings, schools and other educational establishments, hospitals and nursing homes, as well as designated habitats. Sensitive receptors within the study area include the Coastguard

Cottages, the wider Ringsend residential area, the planned residential development at the former Irish Glass Bottle Site, the South Dublin Bay Special Area of Conservation (SAC) and proposed Natural Heritage Area (pNHA), the South Dublin Bay and River Tolka Estuary Special Area of Protection (SPA), and the Dolphin, Dublin Docks pNHA.

380. Continuous monitoring data collected by the Environmental Protection Agency was reviewed to establish the baseline ambient air quality of the study area in terms of particulate matter (as PM10 and PM2.5). PM10 and PM2.5 concentrations monitored between 2018–2022 at suburban and urban background locations representative of the study area were well below the annual mean air quality limit values as set out in the Ambient Air Quality Standards Regulations 2022

381. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 25 Air Quality** of the EIAR.

6.20.2 A summary of the assessment findings

382. A detailed description of the air quality assessment methodology that has been applied is presented in **Volume 3**, **Chapter 25 Air Quality** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impact of construction dust from demolition, earthworks, construction and trackout in terms of dust soiling, human health and ecosystems.	✓		
Air quality impacts due to decommissioning activities in terms of dust soiling, human health and ecosystems.			✓

383. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 25 Air Quality** of the EIAR. In summary, the additional mitigation measures include:

- The implementation of a Construction Environmental Management Plan (CEMP), including measures to minimise the risk of construction dust from the onshore construction works impacting sensitive air quality receptors;
- The implementation of additional dust control mitigation measures is recommended within the onshore development area as best practice, to reduce the potential for construction dust impacts as much as possible at nearby sensitive receptors, drawing on best practice guidance from the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

384. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 25 Air Quality** of the EIAR and the additional mitigation measures described above, there are **no significant effects** predicted on air quality receptors.

385. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 25.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects on air quality receptors were identified.

6.20.3 Conclusion

386. No significant effects are predicted on air quality receptors from the CWP Project alone or cumulatively with other proposed development.

6.21 Material Assets - Built Services

387. The Material Assets - Built Services assessment relates to the evaluation of the built services (i.e., utilities and services) present within the onshore development area, where there is potential for interface with the OTI.

388. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 26 Material Assets - Built Services** of the EIAR. This includes details of the legislation, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.21.1 An overview of the existing environment

389. The study area is the onshore development area and focused on built services identified in the immediate vicinity (within 50 m) of the OTI that may be affected during the construction, O&M, and decommissioning phases of the OTI associated with the CWP Project.

390. A consideration of the likely future environment without the CWP Project is described in in **Volume 3, Chapter 26 Material Assets - Built Services** of the EIAR.

6.21.2 A summary of the assessment findings

391. A detailed description of the Material Assets - Built Services assessment methodology that has been applied is presented in **Volume 3**, **Chapter 26 Material Assets - Built Services** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Disruption to Utility Assets / Services	✓		✓

392. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 26 Material Assets - Built Services** of the EIAR. In summary, the additional mitigation measures relate to safe construction / operating distances, and includes:

- Design and construction of the OTI will be undertaken in accordance with EirGrid transmission standards and policies, which govern the design and construction of new transmission assets;
- All works undertaken in the vicinity of underground assets will be carried out in accordance with current HSA guidance;
- All works will be undertaken with in accordance with the exclusion and safe operating distances around electricity infrastructure as set out in the ESB Code of Practice, as well as HSA guidance including the 'Code of Practice for Avoiding Danger from Overhead Electricity Lines;
- Utility assets (underground and overhead) will be identified and clearly marked prior to any pre-construction (site clearance) / construction / demolition activity occurring;

- Any proposed building works will require a minimum clearance distance of 1 m either side of electrical cables.

393. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 26 Material Assets - Built Services** of the EIAR and the additional mitigation measures described above, there are no significant effects predicted on Material Assets: Built Services receptors.

394. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 26.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects on Material Assets: Built Services receptors were identified.

6.21.3 Conclusion

395. No significant effects are predicted on Material Assets: Built Services receptors from the CWP Project alone or cumulatively with other proposed development.

6.22 Traffic and Transport

396. Traffic and Transport assesses the potential impact of the CWP Project on the operation of the local receiving road network and users.

397. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 27 Traffic and Transport** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

398. The assessment is supported by a Traffic and Transportation Assessment, provided in **Volume 3**, **Appendix 27.1 Traffic and Transport Assessment** of the EIAR.

6.22.1 An overview of the existing environment

399. The study area for the Traffic and Transport assessment was defined on the basis of the area where there is potential for Traffic and Transport impacts on receptors associated with the OTI works during the construction, O&M and decommissioning phases.

400. The potential Traffic and Transport receptors that were considered include:

- The road network (potential increase in traffic volumes and percentage HV increase);
- Junction assessments (capacity, delays, queue lengths, etc.);
- Site access locations and visibility splays; and
- Pedestrians and cyclists.

401. The haul routes and study area for construction phase Heavy Good Vehicles (HV) are along three routes from the M50 to the onshore development area:

- Route 1: To / from the M50 via the Dublin Tunnel, R131 East Wall Road and the East Link Bridge to / from the Sean Moore Roundabout to / from the South Bank Road to / from Pigeon House Road to the onshore substation;
- Route 2: To / from the M50 via the Dublin Tunnel, R131 East Wall Road and the East Link Bridge to / from the Sean Moore Roundabout to / from the South Bank Road to / from Pigeon House Road to / from Shellybanks Road to construction compound A; and
- Route 3: To / from the M50 via the Dublin Tunnel, R131 East Wall Road and the East Link Bridge to / from the Sean Moore Roundabout to / from the South Bank Road to / from to construction compound B.

402. The haul routes and study area for construction phase Light Good Vehicles (LV) are along three routes from the M50 to the onshore development area:

- Route 1: To / from the M50 via the Dublin Tunnel, R131 East Wall Road and the East Link Bridge to / from the Sean Moore Roundabout to / from the South Bank Road to / from Pigeon House Road to / from Shellybanks Road to construction compound A;
- Route 2: To / from the R801 North Wall Quay, R131 East Wall Road and the East Link Bridge to / from the Sean Moore Roundabout to / from the South Bank Road to / from Pigeon House Road to / from Shellybanks Road to construction compound A;
- Route 3: To / from the Sean Moore Road to / from the Sean Moore Roundabout to / from the South Bank Road to / from Pigeon House Road to / from Shellybanks Road to construction compound A.

403. The cabling works are localised within Poolbeg, and the study area associated with the cabling works is as per the footprint of the onshore cable corridor.

404. Abnormal indivisible loads (AIL) will be transported to the onshore substation. The study area included this route for the AIL from the quay at Hammond Lane over the new access bridge and into the site. The AIL route is within the Poolbeg Peninsula on a private road network and will not access the public road network.

405. In order to determine the baseline, traffic count surveys were conducted in November 2022 and September 2023 for traffic volume data. The traffic count was a Junction Turning Count (JTC) at six locations:

- Junction 1: Roundabout at Tom Clarke Bridge, junction with R801
- Junction 2: Sean Moore Road Roundabout
- Junction 3: T Junction off South Bank Road, onto Pigeon House Road
- Junction 4: Junction Pigeon House Road
- Junction 5: Junction Pigeon House Road
- Junction 6: Private Access

6.22.2 A summary of the assessment findings

406. A detailed description of the Traffic and Transportation assessment methodology that has been applied is presented in **Volume 3, Chapter 27 Traffic and Transport** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Construction Stage Traffic Network	✓		✓
Construction Stage Traffic - Junctions	✓		✓
Construction Stage Traffic – Pedestrian and Cyclists Accessibility	✓		✓

407. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 27 Traffic and Transport** of the EIAR. In summary, the additional mitigation measures include:

- The implementation of a **Traffic Management Plan (TMP)**, including measures and monitoring procedures for managing the potential traffic and transport impacts of constructing the CWP

Project are described in **Volume 3, Appendix 27.2 Traffic Management Plan (Construction Phase)** of the EIAR,

- The appropriate re-use of the excavated material on site will be prioritised over off-site disposal. The re-use of material will be subject to testing to confirm suitability in terms of composition and characteristics for heat dissipation.

408. In summary, taking into account the primary mitigation measures described in **Volume 3**, **Chapter 27 Traffic and Transport** of the EIAR and the additional mitigation measures described above, there are **no significant effects** predicted on Traffic and Transportation receptors.

409. The assessment also considers the potential for significant cumulative effects to occur because of the combined impact of the CWP Project and other planned development. This assessment is provided in **Volume 3**, **Appendix 27.1 Traffic and Transport Assessment** of the EIAR. In summary, no significant cumulative effects Traffic and Transportation receptors are predicted.

6.22.3 Conclusion

410. No significant effects are predicted on Traffic and Transportation receptors from the CWP Project alone or cumulatively with other proposed development.

6.23 Climate - Carbon Balance Assessment

411. Climate is defined as the average weather over a period of time, whilst climate change is a significant change to the average weather.

412. The climate assessment comprises two elements:

413. Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.

414. Climate Change Risk assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a project's vulnerability to climate change and identifies adaptation measures to increase project resilience

415. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 28 Climate - Carbon Balance Assessment** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.23.1 An overview of the existing environment

416. The extent of the study area is aligned with the relevant guidelines from the Institute of Environmental Management & Assessment (IEMA) and Transport Infrastructure Ireland.

417. The study area for GHG impacts on climate due to the CWP Project differs from other aspects of the EIAR as GHG emissions are compared to Ireland's GHG emissions and sectoral (i.e. electricity, industry and transport) GHG emission targets. Sources of GHG emissions from the CWP Project include embodied carbon in the construction materials, road traffic emissions, fuel and water usage during construction, waste disposal and offshore vessel movements. The operation of the CWP Project will also result in emissions savings due to renewable energy production, which has been considered in the GHG assessment.

418. The study area for impacts of climate change, such as flooding and potential increased frequency of storms, on the CWP Project also covers the area within the onshore and offshore CWP Project planning application boundary. It also considers the proximity to areas that are sensitive to future climate change impacts, such as flooding, which can extend to impact the CWP Project planning application boundary.

419. The existing GHG baseline was established by reviewing Ireland's GHG emissions in 2022, published by the EPA. The existing climate change vulnerability baseline was established by reviewing long-term meteorological data published by Met Éireann.

420. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 28 Climate - Carbon Balance Assessment** of the EIAR.

6.23.2 A summary of the assessment findings

421. A detailed description of the climate assessment methodology that has been applied is presented in **Volume 3, Chapter 28 Climate - Carbon Balance Assessment** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Impact on climate of greenhouse gas (GHG) emissions associated with the OTI and offshore infrastructure throughout the CWP Project's lifecycle (construction, O&M and decommissioning phases.	✓	✓	✓
CWP Project OTI and offshore infrastructure vulnerability to climate change (construction, O&M and decommissioning phases.	✓	✓	✓

422. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3**, **Chapter 28 Climate - Carbon Balance Assessment** of the EIAR. In summary, the additional mitigation measures include:

- The implementation of a **Construction Environmental Management Plan (CEMP)**, including measures to prevent idling of construction vehicles and ensure their proper maintenance and regular servicing;
- The implementation of a **Construction Transport Management Plan (CTMP)** will ensure efficient scheduling of deliveries and designated haul routes for construction vehicles.
- O&M phase machinery used will be properly maintained and will be switched off when not in use to avoid unnecessary exhaust emissions from maintenance traffic; and
- CWP Project materials, both for initial construction and later replacement, will be sourced based on IEMA 2020 GHG Management Hierarchy principles, and old parts will be reused or recycled, as far as practicable, reducing the amount of waste which will be disposed of to landfill.

423. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 28 Climate - Carbon Balance Assessment,** of the EIAR and the additional mitigation measures described above, **there are no significant effects** predicted on climate or from climate change.

424. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. By presenting the GHG impact

of the CWP Project in the context of its alignment with Ireland's trajectory of net zero and any sectoral carbon budgets, the assessment demonstrates the potential for the project to affect Ireland's ability to meet its national carbon reduction target and, therefore, the assessment approach is considered to be inherently cumulative. In summary, no significant cumulative effects on climate receptors were identified.

6.23.3 Conclusion

425. No significant effects are predicted on climate from the CWP Project alone or cumulatively with other proposed development.

6.24 Population

426. Population is a broad-ranging topic, and the assessment has considered attributes associated with demographics, residential receptors, community and recreational resources, economic, tourism and employment activities.

427. The key findings of the assessment are summarised below with full details presented in **Volume 3**, **Chapter 29 Population** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

428. The potential for the CWP Project to impact on the population of people who live, work or visit in close proximity to the CWP is primarily concerned with land-based receptors and is most applicable to the onshore components.

429. It is acknowledged, however, that there may be potential for the offshore infrastructure to impact on land-based receptors during the construction, operation and maintenance, and decommissioning phases. Visual impacts for offshore and onshore perspectives are considered in **Chapter 15 Seascape, Landscape and Visual Impacts** and **Chapter 23 Landscape Visual Impact Assessment**, respectively

6.24.1 An overview of the existing environment

430. The onshore study area was defined using a 5 km boundary from the onshore substation. The 5 km study area is aligned with that identified in Chapter 23 Landscape and Visual Impact.

431. The offshore study area has a larger spatial extent given the scale of the infrastructure (primarily, the WTGs) and incorporates the locations from where it is considered that land-based human receptors could see the offshore infrastructure. In that regard, the study area was defined as the region in which the offshore infrastructure will be visible to the public and is termed the Zone of Theoretical Visibility. The Zone of Theoretical Visibility was defined as 50 km from the outermost turbine in that chapter.

432. A consideration of the likely future environment without the CWP Project is described in **Volume 3**, **Chapter 29 Population** of the EIAR

6.24.2 A summary of the assessment findings

433. A detailed description of the Population assessment methodology that has been applied is presented in **Volume 3, Chapter 29 Population** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Recreational Receptors	✓	✓	✓
Tourism Economy	✓	✓	✓
Economic Effects	✓	✓	✓

434. The assessment did not identify the requirement for additional mitigation measures in addition to the primary mitigation measures.

435. In summary, taking into account the primary and additional mitigation measures described in **Volume 3, Chapter 29 Population** of the EIAR, there are **no significant effects** predicted on Population receptors. Additional mitigation includes:

- The CWP Project has a dedicated communications and engagement team to ensure proactive and well informed stakeholder engagement. Central to this is the Community Liaison Officer (CLO) whose role is to establish project awareness among local communities, build local relationships and engage proactively throughout the project area. The CLO will remain in place throughout the construction of the CWP Project to provide a vital link between the project and the local communities and to ensure community needs and any issues are addressed.

436. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 29.1 Cumulative Effects Assessment** of the EIAR. In summary, no significant cumulative effects on Population receptors were identified.

6.24.3 Conclusion

437. No significant negative effects are predicted on Population receptors from the CWP Project alone or cumulatively with other proposed development.

6.25 Human Health

438. The key findings of the assessment on human health are summarised below, with full details presented in **Volume 3, Chapter 30 Human Health** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.25.1 An overview of the existing environment

439. A study area for the assessment has been defined by the individual study areas for each of the environmental factors are outlined in their respective topic chapters of this EIAR; (i.e., **Chapter 25 Air Quality**, **Chapter 24 Noise and Vibration**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 19 Land, Soils and Geology**, **Chapter 27 Traffic and Transport**).

440. Furthermore, a desktop study was undertaken to review and characterise the existing environment with respect to human health in the vicinity of the onshore development area of the CWP Project. A review of the population was undertaken within the Electoral District (ED) in which the OTI is located

(Pembroke East A ED), as well as its immediate surrounding EDs, for which Central Statistics Office (CSO) health status statistics can be identified.

441. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 30 Human Health** of the EIAR.

6.25.2 A summary of the assessment findings

442. A detailed description of the Human Health assessment methodology that has been applied is presented in **Volume 3, Chapter 30 Human Health** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Air Quality – health impacts due to air emissions (dust emissions, traffic emissions)	✓	✓	✓
Noise & Vibration – health impacts due to noise and vibration emissions	✓	✓	✓
Water Quality – health impacts related to water quality (emissions into water, contamination)	✓	✓	✓
Land & Soils - Health impacts due to soil contamination	✓	✓	✓
Traffic - health impacts due to traffic disruption within the local road network	✓	✓	✓

443. In summary, taking into account the primary mitigation measures described in **Volume 3, Chapter 30 Human Health** and additional mitigation measures, where outlined in their respective chapters of the EIAR, (**Chapter 25 Air Quality**, **Chapter 24 Noise and Vibration**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 19 Land, Soils and Geology**, **Chapter 27 Traffic and Transport**, as outlined above), the human health impact assessment concludes that with the standard best practice mitigation measures applied, **no significant effects** on human health receptors from the construction, operation and maintenance, and decommissioning phases of the CWP Project are predicted.

444. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. The cumulative effects assessment for each of the environmental factors reviewed in terms of human health (i.e., air, noise, vibration, water, land and soils) are outlined in their respective topic chapters and associated CEA appendices of this EIAR: **Chapter 25 Air Quality**, **Chapter 24 Noise and Vibration**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 19 Land, Soils and Geology**, **Chapter 27 Traffic and Transport**.

6.25.3 Conclusion

445. No significant effects are predicted on human health receptors from the CWP Project alone or cumulatively with other proposed development.

6.26 Waste & Resource Management

446. The Waste and Resource Management assessment describes the potential impacts of the OTI on waste and resource management during the construction, O&M and decommissioning phases.

447. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 31 Waste & Resource Management** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.26.1 An overview of the existing environment

448. The study area for the Waste and Resource Management assessment was defined on the basis of the availability of capacity for the waste materials generated by the CWP Project to be managed.

449. Based on best-practice guidance, two study areas were defined in terms of waste material generated and requiring management; the development study area and the expansive study area:

- The development study area comprises the scheme or project footprint, i.e., the planning application boundary or limit of deviation, and any areas required for temporary access, site compounds, working platforms and other enabling activities
- The expansive study area extends to the availability of waste management infrastructure capacity, within a defined region (e.g., waste planning region), or across multiple regions as appropriate

450. The development study area was defined as the onshore development area. Dublin City Council are the local authority responsible for the administration of waste and resource management within the development study area.

451. The expansive study area is area was defined as the waste management region where the OTI is located area. At a regional level the CWP Project falls within the Eastern–Midlands Region (EMR). The EMR is one of Ireland's three Waste Management Regions. The EMR has twelve constituent local authorities, stretching from Dublin in the east, Louth to the north and Wicklow to the south. DCC is the lead authority within the EMR acting on behalf of the other local authorities, as well as hosting the Eastern–Midlands Waste Regional Office.

452. A consideration of the likely future environment without the CWP Project is described in in **Volume 3**, **Chapter 31 Waste & Resource Management** of the EIAR.

6.26.2 A summary of the assessment findings

453. A detailed description of the hydrology and hydrogeology assessment methodology that has been applied is presented in **Volume 3**, **Chapter 31 Waste & Resource Management** of the EIAR. The table below provides a summary of the impacts scoped into the assessment.

Impact	Construction	Operation and maintenance	Decommissioning
Generation and management of excavated materials	✓		
Generation and management of construction waste associated with the installation of the OTI (C&D, Municipal etc.)	✓		

Impact	Construction	Operation and maintenance	Decommissioning
Generation of waste associated with the decommissioning of the OTI (C&D, Municipal etc.)			✓

454. The assessment identified the requirement for some additional mitigation measures that are proposed in addition to the primary mitigation measures described in **Volume 3, Chapter 31 Waste & Resource Management** of the EIAR. In summary, the additional mitigation measures relate to safe construction / operating distances, and includes:

- The implementation of a **Construction Demolition and Waste Management Plan (CDWMP)** that outlines measures for the management of excavated material, including testing, storage, personnel training and the use licensed waste facilities.
- During the detailed design stage, maximising beneficial re-use of the excavated material on site will be prioritised over off-site disposal. The re-use of material will be subject to quality and contamination testing to confirm suitability in terms of composition for reuse.
- Additionally, where feasible, classification for re-use as a by-product, on other construction site(s), under Article 27 will be considered.

455. The assessment also considered the potential for significant cumulative effects to occur because of the combined impact of CWP Project and other planned development. This assessment is provided in **Volume 4**, **Appendix 31.1 Cumulative Effects Assessment** of the EIAR. In summary, **no significant cumulative effects** on waste and resource management receptors were identified.

6.26.3 Conclusion

456. No significant effects are predicted on waste and resource management receptors from the CWP Project alone or cumulatively with other proposed development.

6.27 Risk of Major Accidents and Disasters

457. This assessment considered the expected significant adverse effects of the CWP project on the environment deriving from the vulnerability of the project to risks of major accidents and / or natural disasters during the construction, operation and maintenance and decommissioning phases.

458. The risk assessment identified major accidents and / or natural disasters (i.e., unplanned incidents) that the CWP project may be vulnerable to and assessed the likely impacts and consequence of such incidents in relation to the environmental, social and economic receptors that may be affected. The identification, control and management of risk is an integral part of the design and assessment process throughout all stages of a project lifecycle. Where necessary, controls and mitigation measures are required to reduce the likelihood and potential impact of any major accidents and/or natural disasters.

459. The key findings of the assessment are summarised below, with full details presented in **Volume 3**, **Chapter 32 Risk of Major Accidents and Disasters** of the EIAR. This includes details of the legislation, policy, guidance and relevant stakeholder consultation that has informed the approach to the assessment.

6.27.1 An overview of the existing environment

460. The study area for the OTI was defined as the Poolbeg Peninsula, comprising the industrial facilities located in close proximity to the onshore development area. The OTI accounts for the permanent and temporary works associated with the onshore export cables, the onshore substation and works at the landfall to connect the onshore export cables with the offshore export cables at the transition joint bays (TJBs). This includes works to install the offshore export cable ducts between the TJBs and the intertidal area.

461. The study area for the OfTI incorporates the wind turbine generators (WTGs), offshore substation structures (OSSs), inter-array and interconnector cables, and the offshore export cables, which run from the array site to the landfall location.

6.27.2 A summary of the assessment findings

462. A detailed description of the risk assessment methodology that has been applied is presented in **Volume 3**, **Chapter 32 Risk of Major Accidents and Disasters** of the EIAR.

463. The table below provides a summary of the risks scoped into the assessment.

Risk	Construction	Operation and maintenance	Decommissioning
Flooding of site during construction works, resulting in trench collapses and / or flooding of tunnel shafts	✓		✓
Ground / building / structure damage as a result of significant soil settlement	✓		✓
Construction excavation activities resulting in a trench / excavation collapse and personnel injuries	✓		
Major traffic accidents resulting from construction phase traffic or temporary construction traffic management measures	✓		✓
Collapse / damage of structures / infrastructure at onshore substation (Heavy vehicle collision)	✓		
Collapse / damage of structures/infrastructure at onshore substation (vessel collision)	✓	✓	
Unexploded ordnance (UXO) resulting in damage to infrastructure and / or fatalities / injuries.	✓		✓
Sinking / flooding of plant or machinery in intertidal area. This could result in a release of dangerous substances or fatalities / injuries.	✓		✓

Risk	Construction	Operation and maintenance	Decommissioning
Lightning strike resulting in fire risk to structures / buildings and / or failure of control equipment	✓	✓	✓
Incident at nearby Seveso site involving release of dangerous substances.	✓	✓	✓
Striking strategic infrastructure resulting in injuries, fatalities, damage & also disruption to services	✓		✓
Incident at nearby Seveso site involving release of dangerous substances.	✓	✓	✓
Delay in emergency services accessing an incident at a nearby Seveso site. This could result in a release of dangerous substances or fatalities / injuries.	✓	✓	✓
Striking of gas infrastructure resulting in gas explosion and / or fatalities / injuries	✓		
Fire at wind turbines and / or offshore substations resulting in damage to infrastructure and / or injuries	✓	✓	✓
Subsea ground instability resulting in damage to infrastructure and / or injuries.	✓	✓	✓
Impacts on the integrity of the stormwater tanks associated with the Ringsend WWTP due to tunnelling works for the onshore export cable	✓		✓

464. Risks assessed and found to be medium risk scenarios, were subject to implementation of additional mitigation to manage and / or mitigate risks to an acceptable level or as low as reasonably practicable (ALARP).

465. In addition, the summary of the additional mitigation measures includes:

- Development of Method Statements by the appointed contractor (and as part of the CEMP). The Method Statements will address works being undertaken within the intertidal area, including training for personnel, programming of construction activities and equipment selection and maintenance.
- Traffic Management Plan for the construction phase, that will incorporate provisions for regular interface with landowners, key stakeholders and utility service providers. This will include the Health and Safety Authority & operators of the COMAH sites to ensure that any emergency management measures and requirements are accounted for in the CWP Project plans

6.27.3 Conclusion

466. It was found that all reasonable worst consequences will be managed to an acceptable level with primary mitigation measures and / or additional mitigation measures in place. Therefore, it is

considered that there will be **no significant environment effects** arising from the risk of major accidents and / or natural disasters.

7 FURTHER INFORMATION

467. For further details on the environmental assessments undertaken, the complete EIAR, along with all planning documents, is available online at https://codlingwindparkplanningapplication.ie/

468. The EIAR comprises five volumes, as outlined in the table below.

Chapter	Title
Volume 1 – Non-Technical Summary (This document)	
Volume 2 – Introductory Chapters	
Chapter 1	Introduction
Chapter 2	Policy and Legislative Context
Chapter 3	Site Selection and Assessment of Alternatives
Chapter 4	Project Description
Chapter 5	EIA Methodology
Volume 3 – Main EIAR	
Chapter 6	Marine Geology, Sediments and Coastal Processes
Chapter 7	Marine Water Quality
Chapter 8	Subtidal and Intertidal Ecology
Chapter 9	Fish, Shellfish and Turtle Ecology
Chapter 10	Ornithology
Chapter 11	Marine Mammals
Chapter 12	Commercial Fisheries
Chapter 13	Offshore Bats
Chapter 14	Marine Archaeology & Cultural Heritage
Chapter 15	Seascape, Landscape and Visual Impacts
Chapter 16	Shipping and Navigation
Chapter 17	Aviation, Military and Radar
Chapter 18	Material Assets: Marine Infrastructure
Chapter 19	Land Soils and Geology
Chapter 20	Hydrology and Hydrogeology
Chapter 21	Onshore Biodiversity
Chapter 22	Archaeological, Architectural and Cultural Heritage
Chapter 23	Landscape and Visual Impacts
Chapter 24	Noise and Vibration

Chapter	Title
Chapter 25	Air Quality
Chapter 26	Material Assets - Built Services
Chapter 27	Traffic and Transport
Chapter 28	Climate: Carbon Balance Assessment
Chapter 29	Population
Chapter 30	Human Health
Chapter 31	Waste & Resource Management
Chapter 32	Risk and Major Accidents and Disasters
Volume 4 – Appendices	
Contains the technical appendices to support the topic chapters (Chapters 6–32).	
Volume 5 – Summary Chapters	
Chapter 35	Summary of Mitigation and Monitoring
Chapter 36	Summary of Residual Effects