codling wind park

Environmental Impact Assessment Report

Volume 3

Chapter 30 Human Health


codling
wind park

Table of contents

List of tables

List of figures

List of plates

Abbreviations

Abbreviation	Term in full
CEMP	Construction Environmental Management Plan
CSO	Central Statistics Office
CWP	Codling Wind Park
DAS	Dumping at Sea
DCC	Dublin City Council
DCCAE	Department of Communications, Climate Action and Environment
DECLG	Department of Environment, Community and Local Government
EC	European Commission
ED	Electoral district
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
ESBN	ESB Networks
EU	European Union
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
HSA	Health and Safety Authority
HSE	Health Service Executive
HWM	high water mark
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
NSL	noise sensitive locations
OTI	Onshore transmission infrastructure
OWF	Offshore wind farm
O&M	operational and maintenance
SAPS	Small Area Population Statistics
TJBs	Transition joint bays
SDZ	Strategic Development Zone
USEPA	United States Environmental Protection Agency
WHO	World Health Organisation

WtE	Waste to Energy
WWTP	Wastewater Treatment Plant

Definitions

Glossary	Meaning
the Applicant	The developer, Codling Wind Park Limited (CWPL).
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.
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	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.
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.
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). For the CWP Project The landfall works include the installation of the offshore export cables within Dublin Bay out to approximately 4 km offshore, where water depths that are too shallow for conventional cable lay vessels to operate.
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
offshore export cables	The cables which transport electricity generated by the wind turbine generators (WTGs) from the offshore substation structures (OSSs) to the TJBs at the landfall.
offshore infrastructure	The permanent offshore infrastructure, comprising of the WTGs, IACs, OSSs, interconnector cables, offshore export cables and other associated infrastructure such as cable and scour protection.
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.
O&M phase	This is the period of time during which the CWP project will be operated and maintained.
parameters	Set of parameters by which the CWP Project is defined, and which are used to form the basis of assessments.
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
temporary cofferdam	A barrier to tidal inundation whilst the existing stone covered foreshore is temporarily removed to install the landfall cable ducts.
transition joint bay (TJB)	This is required as part of the OTI and is located at the landfall. It is an underground bay housing a joint which connects the offshore and onshore export cables.
tunnel	The onshore export cables will be installed within a tunnel that extends from within Compound A, near the landfall, to the onshore substation site.
tunnel shaft	Located within the temporary tunnel compounds, the tunnel shafts will facilitate the two tunnel drives required to complete the construction of the tunnel.
wind turbine generator (WTG)	All the components of a wind turbine, including the tower, nacelle, and rotor.

30 HUMAN HEALTH

30.1 Introduction

1. Codling Wind Park Limited (hereafter 'the Applicant') is proposing to develop the Codling Wind Park (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.

2. This chapter forms part of the Environmental Impact Assessment Report (EIAR) for the CWP Project. The purpose of the EIAR is to provide the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects resulting from the CWP Project, as required by the European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the EIA Directive).

3. Human health is primarily linked to environmental pathways by which health may be impacted, such as air quality, noise and vibration, water, soils and traffic. This assessment of effects on human health is therefore supported by the findings of other sections of the EIAR so that likely significant effects arising from the CWP Project, and which may result in impacts on human health, during the construction, operational and maintenance (O&M), and decommissioning phases are assessed.

4. This chapter should be read alongside the following chapters of the EIAR, which are referenced throughout this document:

   - **Chapter 4 Project Description**;
   - **Chapter 19 Land, Soils and Geology**;
   - **Chapter 20 Hydrology and Hydrogeology**;
   - **Chapter 24 Noise and Vibration;**
   - **Chapter 25 Air Quality**; and
   - **Chapter 27 Traffic and Transport**.

5. The main interaction between the above environment pathways and human health for the CWP Project is associated with the onshore transmission infrastructure (OTI), given its location on the Poolbeg Peninsula. This chapter therefore focuses on the OTI, which includes the transition joint bays (TJBs), onshore export cables, the onshore substation and the Electricity Supply Board Networks (ESBN) network cables to connect the onshore substation to the Poolbeg 220kV substation. This chapter will also describe the potential impacts of the works at the landfall (landward of the high water mark (HWM)), where the offshore export cables are brought onshore and connected to the onshore export cables at the TJBs.

6. In summary, this EIAR chapter:

   - Details the EIA scoping and consultation process undertaken and sets out the scope of the impact assessment for human health.
   - Identifies the key legislation and guidance relevant to human health, with reference to the latest updates in guidance and approaches.
   - Confirms the study area for the assessment and presents the impact assessment methodology for human health.
   - Describes and characterises the baseline environment for human health, established from desk studies and consultation.
   - Defines the project design parameters for the impact assessment and describes any embedded mitigation measures relevant to the human health impact assessment.
   - Presents the potential impacts on human health and identifies any assumptions and limitations encountered in compiling the impact assessment.

30.2 Consultation

7. Consultation with statutory and non-statutory organisations is a key part of the EIA process. Consultation with regard to human health has been undertaken to inform the approach to and scope of the assessment.

8. The key elements to date have included EIA scoping, consultation events and meetings with key stakeholders. The feedback received throughout this process has been considered in preparing the EIAR. EIA consultation is described further in **Chapter 5 EIA Methodology**, the **Planning Documents** and in the **Public and Stakeholder Consultation Report**, which has been submitted as part of the planning application.

9. Any consultation responses relevant to the environmental factors reviewed (air quality, noise and vibration, water, traffic, recreation and amenity) as part of this chapter are detailed within each of the relevant EIAR chapters. **Table 30-1** provides a summary of the key issues raised during the consultation process relevant to human health and details how these issues have been considered in the production of this EIAR chapter.

Table 30-1 Consultation responses relevant to human health

Consultee	Comment	How issues have been addressed
Scoping responses		
Health and Safety Authority (HSA) (Scoping report issued 14 July 2021)	Response received from the HSA. No specific comments raised relating to human health.	No issues to be addressed.
HSE (Scoping report issued 14 July 2021)	No response received.	No issues to be addressed.
Topic specific meetings		
Health and Safety Authority (HSA) Meeting held on 30 June 2023	Meeting addressed proximity of OTI to Comah sites at the Poolbeg Peninsula. No feedback provided specific to human health.	No issues to be addressed.

30.3 Legislation and guidance

30.3.1 Legislation

10. The legislation that is applicable to the assessment of human health is summarised below. Further detail is provided in **Chapter 2 Policy and Legislative Context**.

11. European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) on the assessment of the effects of certain public and private projects on the environment (the EIA Directive);

- The Planning and Development Act, 2000 (as amended); and
- The Planning and Development Regulations, 2001 (as amended).

30.3.2 Policy

12. The overarching planning policy relevant to the CWP Project is described in EIAR **Chapter 2 Policy and Legislative Context**.

13. The assessment of the CWP Project against relevant planning policy is provided in the **Planning Report**. This includes planning policy relevant to human health.

30.3.3 Guidance

14. The principal guidance and best practice documents used to inform the assessment of potential impacts on human health is summarised below:

- Department of Communications, Climate Action and the Environment (DCCAE) and the Sustainable Energy Authority of Ireland (SEAI), Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (April 2017).
- Department of Environment, Community and Local Government (DECLG), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018).
- EPA, Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) (hereafter referred to as the EPA EIAR Guidelines (2022)).
- European Commission, Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (2017); and
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003).
- Institute of Environmental Management and Assessment (IEMA), Health in Environmental Impact Assessment – A Primer for a Proportionate Approach (2017).
- IEMA, Effective Scoping of Human Health in Environmental Impact Assessment (2022).
- IEMA, Determining Significance for Human Health in Environmental Impact Assessment (2022).
- IEMA, Impact Assessment Outlook Journal Volume 8: Health Impact Assessment in Planning - Thought pieces from UK practice (October 2020);
- Institute of Public Health Ireland, Health Impact Assessment (2009).
- Institute of Public Health Ireland, Health Impact Assessment Guidance: Manual & Technical Guidance (2021);
- International Association for Impact Assessment (IAIA) & European Public Health Association (EUPHA), Summary of Human health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment as per EU Directive 2011/92/EU amended by 2014/52/EU (2020).
- United States Environmental Protection Agency (USEPA), Health Impact Assessment Resource and Tool Compilation (September 2016).
- WEI, Best Practice Guidelines for the Irish Wind Energy Industry (March 2012).

EIA Directive

15. The EIA Directive directs that human health factors be assessed in an EIAR. The EIA Directive does not define the term 'human health', however the 2017 EC Guidance on the preparation of an EIAR states that:

'Human health is a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project,

effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation and decommissioning of a Project in relation to workers on the Project and surrounding population.'

EPA EIAR Guidelines 2022

16. No specific guidance on the meaning of the term human health has been issued in the context of the EIA Directive. However, the EPA EIAR Guidelines (2022) note that the same term was used in the Strategic Environmental Assessment (SEA) Directive (2001/42/EC), and that the European Commission's SEA Implementation Guidance states that 'The notion of human health should be considered in the context of the other issues mentioned in paragraph (f) [of Annex I of the SEA Directive]'. The EPA EIAR Guidelines (2022) then note that paragraph (f) of Annex I of the SEA Directive lists environmental factors including soils, water, air etc.

17. The EPA EIAR Guidelines (2022) state that in an EIAR, 'the assessment of impacts on human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc.'.

18. The EPA EIAR Guidelines (2022) also state that the above health assessment approach is consistent with the approach set out in the original EPA Guidelines from 2002,[1] where health was considered through assessment of the environmental pathways through which health could be affected (i.e., air, water or soil):

'The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment".

19. The 2022 EPA EIAR Guidelines also note that 'assessment of other health & safety issues are carried out under other EU Directives, as relevant. These may include reports prepared under the Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Water Framework Directive, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIAR should take account of the results of such assessments without duplicating them'.

20. It is noted here that the CWP Project itself will not be subject to specific provisions of the above-mentioned Directives other than the Water Framework Directive. There is no environmental licence required under the provisions of the Industrial Emissions or Waste Directives, no substances held which require control under the Seveso III Directive (i.e., control of major-accident hazards involving dangerous substances (COMAH)), or any authorisations required in respect of the Nuclear Safety Directive.

21. That said, the location of the OTI is adjacent to sites to which some of the above provisions apply including the Dublin Waste to Energy (WtE) facility, the Electricity Supply Board (ESB) Poolbeg Power Station and the National Oil Reserves facility. Health and safety in the context of major accidents and

[1] Draft Guidelines on the information to be contained in Environmental Impact Statements were produced in 1995, updated and published in 2002 by the EPA.

disasters, including COMAH establishments is addressed in **Chapter 32 Risk of Major Accidents and Disasters**.

22. An application for a Dumping at Sea (DAS) permit as part of the offshore infrastructure will be required. The agreed approach for the DAS permit is to submit the DAS permit application for the CWP Project once planning permission for the CWP Project is granted or, at the earliest point, following submission of the planning application. Further details on this future consent process are provided in **Chapter 4 Project Description**.

IEMA Discussion Document (2017)

23. IEMA issued a discussion document in 2017 (IEMA, 2017), which it describes as a primer for discussion on the proportionate assessment of the impacts on health within the EIA process and suggests what should be assessed in this context. The IEMA Primer notes with reference to 'proportionate' that 'the scoping of population and human health issues into EIA should focus on whether the potential impacts are likely to be significant. Where they are found likely to be significant, effort should focus on identifying and gaining commitment to avoiding or reducing any adverse effects and to enhancing beneficial effects.

24. The 2017 IEMA Discussion Document notes that Health Impact Assessment (HIA) and EIA are separate processes and that while a HIA can inform EIA practice in relation to human health, a HIA alone will not necessarily meet the EIA human health requirement. HIA is not routinely carried out for major infrastructure schemes in Ireland.

25. The Primer is a useful document when considering what can and should be assessed in the context of EIA. Regard has been given to the general approach put forward in this IEMA discussion document when preparing this chapter.

IEMA Guide on Effective Scoping of Human Health in Environmental Impact Assessment (2022)

26. In November 2022, IEMA published a guide to the 'Effective Scoping of Human Health in Environmental Impact Assessment' for use by EIA practitioners. The guide covers the consideration of health as a topic in EIA. The guide states 'legislation for EIA has left the definition of "human health" to competent experts. This guidance updates and provides further detail on the position from the 2017 IEMA Primer on health in EIA'. The guide is focused on the scoping phase of the EIA process – including input to Scoping Reports and responses within Scoping Opinions. Its aim is to enable those responsible for commissioning, conducting or reviewing an EIA to determine the scope of the human health chapter in EIA. Regard has been given to the general approach put forward in this IEMA guidance when preparing this chapter.

IEMA Guide on Determining Significance for Human Health in Environmental Impact Assessment (2022)

27. In November 2022, IEMA published a guide to the 'Determining Significance for Human Health in Environmental Impact Assessment'. The aim of the guide is to enable those responsible for commissioning, conducting or reviewing an EIA to determine significance in terms of human health in EIA. The guide focuses on and discusses what 'significance' means for 'human health' in terms of EIA. The guide was produced in order to inform current practice and in anticipation of potential changes to the way that EIA is undertaken in the UK and Republic of Ireland. Regard has been given to the general approach put forward in this IEMA guidance when preparing this chapter.

Other guidance – USEPA Guidance

28. The assessment of human health for the CWP Project, in terms of health protection, follows the approach set out in the 2022 EPA EIAR Guidelines and in the EC's Guidance on the preparation of the EIAR.

29. It is also similar in nature to the USEPA Guidance, entitled Health Impact Assessment Resource and Tool Compilation (USEPA, 2016). Human health protection is considered through the individual topic assessments of the environmental pathways through which health could be affected such as air, noise, water and soil. The USEPA Guidance includes a four-step approach which is represented graphically in **Plate 30-1**.

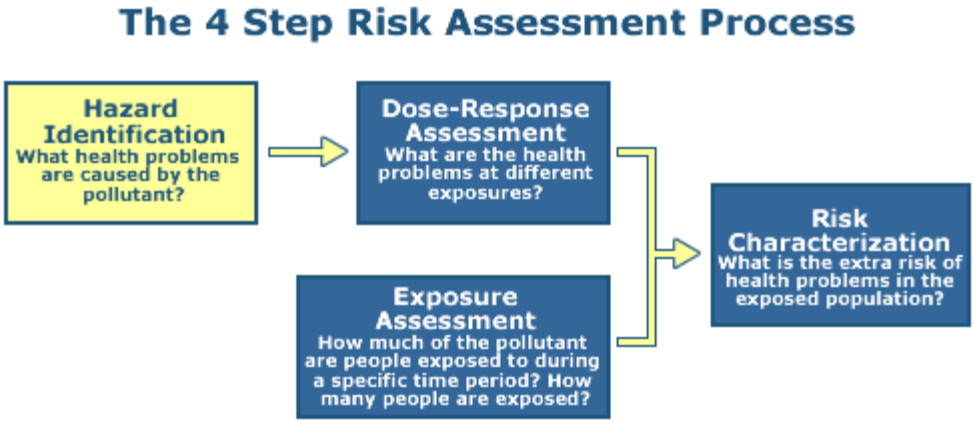


Plate 30-1 Four-step risk assessment process (Source: USEPA, 2016)

30. This USEPA risk assessment process is similar to the 2022 EPA EIAR Guidelines in that the potential noise, air, soil and water impacts which could affect human health are identified (Hazard Identification), the scale of these potential impacts (Dose-Response Assessment) and their duration (Exposure Assessment) are assessed and the significance of the potential impact on human health is determined (Risk Characterisation).

31. It should be noted that the identification of individual environmental factors and the associated potential impacts and duration are undertaken in the individual topic chapters of this EIAR. The associated significance in terms of the potential impact on human health is considered in this chapter.

30.4 Impact assessment methodology

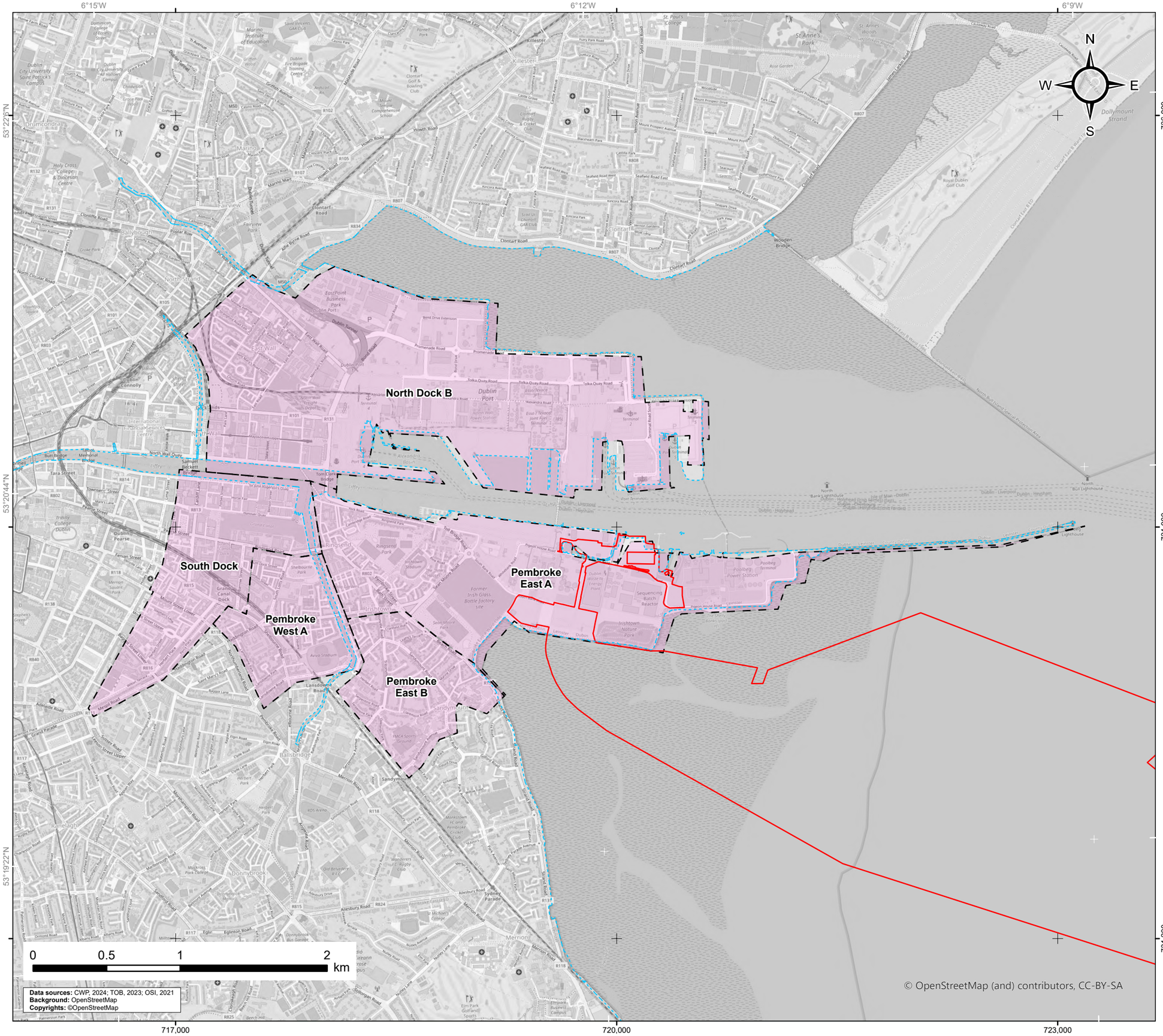
32. **Chapter 5 EIA Methodology** provides a summary of the general impact assessment methodology applied to the CWP Project. The following sections confirm the methodology used to assess the potential impacts on human health.

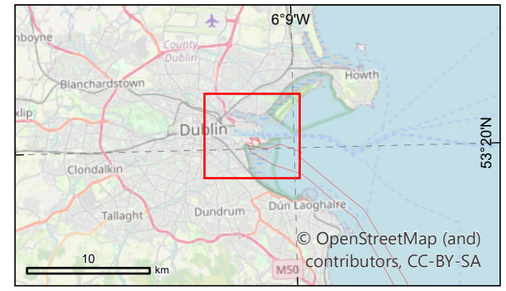
33. It is noted that the assessment methodology and baseline data for the individual environmental topics is defined in detail within each EIAR chapter: **Chapter 19 Land, Soils and Geology, Chapter 20 Hydrology and Hydrogeology, Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport.**

30.4.1 Study area

34. The individual study area for each topic is dependent on each potential impact and is defined in detail within each relevant EIAR chapter: **Chapter 19 Land, Soils and Geology, Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**. The human health assessment takes account of the study areas associated with these environmental topics and from which the human health may be impacted.

35. The study area is comprised of the main communities in proximity to the OTI. Baseline data collection and the assessment has accounted for the electoral districts (EDs) surrounding the onshore development area and on identifying GeoDirectory properties identified within 500 m of the onshore development area.





Legend

- Planning application boundary
- High water mark
- Electoral divisions

codling wind park

Project: Codling Wind Park

Contractor: TOBIN

Website: www.tobin.ie

Figure 30.1
Onshore development area and surrounding electoral divisions

CWP doc. number: CWP-TOB-ENG-08-01-MAP-1764

Internal descriptive code: PB - PAB - ELECTORAL_DIVISIONS..HWM - (OSM..EIAR.Vol.03.Ch.30.FIG.01)

Size: A3

Scale: 1:25,000

CRS: EPSG 2157

Rev.	Updates	Date	By	Chk'd	App'd
00	Final for issue	2024/08/15	SP	DM/EA	ES

30.4.2 Data and information sources

Site specific surveys

36. No site specific field surveys were undertaken as part of this human health assessment. Where applicable, any site specific surveys for each topic are defined in detail within the relevant EIAR chapters.

Desk study

37. Aspects examined primarily relate to the assessment of impacts from the proposed CWP Project OTI in terms of environmental factors (i.e., air, noise, vibration, water, land and soils) on human health receptors.

38. These environmental factors are discussed within this chapter in the context of human health. The full assessment of these environmental factors and their associated potential impacts and duration are undertaken in their respective topic chapters of this EIAR, as outlined in **Section 30.1** above.

39. Key data sources used to inform the assessment are set out in **Table 30-2**.

Table 30-2 Data sources

Data	Source	Date	Notes
Health in Ireland Survey 2023	Government of Ireland	2023	The Survey is a key component of the 'Healthy Ireland Framework'. It is an interviewer-administered survey, commissioned by the Department of Health and carried out by Ipsos of people living in Ireland.
CSO Irish Health Survey 2019	CSO	2020	CSO's second 'Irish Health Survey' the data for which was collected in 2019 and early 2020.
CSO General Health Statistics	CSO Census 2022	2023	CSO's Health Statistics data gathered during the 2022 Census.
GeoDirectory data	An Post GeoDirectory	2023	An Post GeoDirectory data used to identify properties located in an area.
Population statistics	CSO	2023	CSO Population statistics data gathered during the 2022 Census.
Air Quality in Ireland 2022	EPA	2023	EPA's latest annual air quality report for Ireland.
Baseline data	**Chapter 25 Air Quality**	2024	Baseline data relating to the assessment for environmental factors assessed in this Chapter.
Baseline data	**Chapter 24 Noise and Vibration**	2024	Baseline data relating to the assessment for environmental factors assessed in this Chapter.

Water Quality in Ireland 2016–2021 Report	EPA		EPA's latest Water Quality report for Ireland.
Baseline data	**Chapter 19 Land, Soils and Geology**	2024	Baseline data relating to the assessment for environmental factors assessed in this chapter.
Baseline data	**Chapter 20 Hydrology and Hydrogeology**	2024	Baseline data relating to the assessment for environmental factors assessed in this chapter.
Baseline data	**Appendix 19.5 Contamination Risk Assessment**	2024	Baseline data relating to the assessment for environmental factors assessed in this chapter.
Traffic data	**Chapter 27 Traffic and Transport**	2024	Baseline data relating to the assessment for environmental factors assessed in this chapter.
EPA GeoPortal Maps	EPA	2024	EPA web mapping tool used for review of environmental status for environmental factors including air quality and CORINE 2018 land use.

30.4.3 Impact assessment

40. As mentioned, the significance of potential effects from environmental factors and pathways has been evaluated within their respective topic chapters, using a systematic approach, based upon identification of the importance / value of receptors and their sensitivity to the project activity, together with the predicted magnitude of the impact.

41. The terms used to describe impacts on human health are based on those set out in the 2022 EPA EIAR Guidelines. These criteria have been adopted in order to implement a specific methodology for human health.

Significance of effect

42. Due to the variability in human response, the possibility of identifying all potential effects on individual receptors, with regard to human health is not feasible. Therefore, it is considered to be more appropriate to assess the significance of human health effects at a population level for this assessment.

43. The significance criteria for the assessment of human health impacts are, therefore, as outlined in **Table 30-3**, adapted from the EPA EIAR Guidelines (2022).

Table 30-3 Significance criteria used in the assessment of human health impacts

Impact	Significance criteria
Profound	Where the proposed project has a major impact on the health status of an entire community.
Very significant	Where the proposed project has a significant impact on the health status of groups of people within a community.
Significant	Where the proposed project significantly impacts the health status of individuals within a group.
Moderate	Where the proposed project results in a moderate impact on the health status of individuals within a group but does not contribute to a change in illness or death rates.
Slight	Where the proposed project results in noticeable changes in the environment but with very little impact on the health status of individuals within a group and it does not contribute to a change in illness or death rates.
Not significant	Where the proposed project results in noticeable changes in the character of the environment but with no attributable human health impacts.
Imperceptible	Where the proposed project results in measurable effects (on environmental parameters), without human health impacts.

44. **Table 30-3** provides levels of impact significance ranging from imperceptible to profound. For the purposes of this assessment, potential effects identified to be of moderate significance or above are considered to be significant in EIA terms and additional mitigation will be required. Effects identified as less than moderate significance are considered to be not significant in EIA terms.

30.5 Assumptions and limitations

45. The assessment draws from a number of relevant technical chapters. Any limitations and assumptions identified within these chapters apply here also. The relevant chapters are: **Chapter 19 Land, Soils and Geology**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**.

30.6 Existing environment

46. The following sections provide a description of the baseline conditions for human health.

30.6.1 Sensitive receptors

47. A review of the population for the ED within which the onshore development area is located (Pembroke East A ED), as well as its immediate surrounding EDs, has been undertaken.

48. This has been combined with a review of the locations of property and building receptors using address data from the GeoDirectory database which is used to populate Eircodes. The validity of the GeoDirectory data has been checked by way of publicly available mapping, aerial imagery and street-level imagery.

49. The onshore development area is located in the local authority area of Dublin City Council (DCC) and within the Pembroke East A ED. Census data for the adjoining EDs of South Dock, Pembroke West A, Pembroke East B and North Dock B are also presented for comparison along with the DCC and national numbers.

Table 30-4 ED Population Census 2022 for the OTI study area (CSO, 2023)

Area	Population 2022
State	5,149,139
Dublin City Council	592,713
Pembroke East A	5,017
South Dock	8,320
Pembroke West A	5,144
Pembroke East B	3,852
North Dock B	10,173

50. It should be noted that although the onshore development area is situated within the Pembroke East A ED, the CSO provides a further breakdown of this area through Small Area Population Statistics (SAPS) mapping. The SAPs mapping data indicates that the onshore development area is within the 'Small Area: 268110015' with a total population of 283 people. This 'Small Area: 268110015' encompasses all of the Poolbeg Peninsula, including the former Glass Bottle site, Sean Moore Park, Sandymount Beach and parts of Sean Moore Road / R131. This small area data gives an indication of the low level of receptors present within the area of the OTI, which is primarily industrial and commercial in nature, compared to the Pembroke East A ED and surrounding EDs.

51. Using GeoDirectory, 194 no. properties were identified within 500 m of the onshore development area boundary, which are broken down as residential, commercial and vacant as shown in **Table 30-5**.

52. **Table 30-5** shows that properties within 500 m of the onshore development area are primarily commercial in nature and no vacant properties were identified.

53. It also highlights that within the immediate area around the onshore development area, there are no residential receptors. Of the 194 properties identified within 500 m of the onshore development area, 50 were commercial properties and 144 were residential. However, no residential properties were present within 350 m of the onshore development area.

Table 30-5 Breakdown of property types within 500 m of OTI

Description	No. of properties based on GeoDirectory data				
	50 m	100 m	250 m	350 m	500 m
Residential properties	0	0	0	0	144
Commercial properties	19	30	36	40	50
Vacant	0	0	0	0	0
Total	19	3	36	40	**194**

54. Residential receptors would be typically described as being sensitive to new development given the potential for impacts on a person's home. Commercial properties and activities where employees are regularly present may also be sensitive to human health impacts.

55. It is noted that sensitive receptors have been considered within each of their respective topic chapters of this EIAR (i.e., **Chapter 19 Land, Soils and Geology**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**) and assessed in line with their respective study area requirements, guidance and methodologies relevant and specific to those assessments.

30.6.2 Health in Ireland

56. A number of sources were reviewed to establish a current baseline and context in terms of general health in Ireland. The following sections provide a summary of the most recent health surveys and census data gathered and published by the Government and the CSO.

Healthy Ireland Survey 2023

57. In December 2023, the Government released its 'Healthy Ireland Survey' Summary Report. This is an interviewer-administered survey, commissioned by the Department of Health and carried out by Ipsos of people living in Ireland. This is the eighth set of findings and adds to the data collected in previous Healthy Ireland Surveys, published from 2015–2019 and 2021–2022; due to the COVID-19 pandemic it was not possible to complete the 2020 survey.

58. The Survey is a key component of the 'Healthy Ireland Framework' and informs the Healthy Ireland Strategic Action Plan, by contributing to the research, monitoring and evaluation required to assess the impact of policy implementation. Approximately 7,500 individual's representative of the population aged 15 and older are surveyed. The Survey covers a variety of health-related topics, including general health, alcohol, smoking, weight, dental, female health, skin protection and mental health.

59. In terms of general health, respondents were asked to rate their health on a five-point scale from 'very good' to 'very bad'. Overall, 80% of respondents perceived their health as 'good' or 'very good', which is a two-point decline since 2022. 81% of men and 79% of women rated their health as 'good' or 'very good'. Overall, 4% of respondents perceived their health as 'bad' or 'very bad'. General 'good' health decreases with age, with 89% of 15–24-year-olds rating their health as 'good' or 'very good', in contrast to 69% of respondents aged 65 and older.

60. The Survey notes that those with Leaving Certificate education or higher are considerably more likely to report themselves as being in good health than those who did not attain a Leaving Certificate (85% and 66% respectively). Employment status is also stated as indicative of self-reported health, with those who are employed (88%) or students (91%) significantly more likely to report good health than those who are unemployed (71%).

61. With regard to the occurrence of health conditions, the Survey results indicate that two in five people (40%) have a long-standing illness or health problem, which has been confirmed by a medical diagnosis.

62. Females are more likely than males to report being limited or severely limited in their everyday activities because of a health problem (27% and 23% respectively); and respondents aged 65 and older are considerably more likely to report a long-standing illness or health problem than those aged under 45.

63. Furthermore, based on a list of 25 of the most common conditions, respondents were asked to report whether they had been medically diagnosed with a long-term illness. Of the responses, high blood pressure (9%), diabetes (5%), arthritis (6%), asthma (5%), psychiatric diagnoses (such as anxiety or

depression) (4%), and high cholesterol (5%) were the most common conditions reported by respondents.

64. When asked to rate their quality of life, 86% of the population said that their quality of life is good or very good. Just 5% of the population say that their quality of life is poor or very poor. Almost 9 in 10 people (89%) aged 15–24 are likely to say their quality of life is good or very good compared to 81% of those aged 55–64.

65. People with a longstanding illness or health problem are less likely to report a good or very good quality of life (73%) compared to those without an illness or health problem (92%).

CSO Irish Health Survey

66. In 2020, the Central Statistics Office (CSO) published its second 'Irish Health Survey', the data for which was collected in 2019 and early 2020. The first survey was collected for reference year 2015. This publication is part of an EU-wide health survey, and as other EU countries report on their data, it will be possible to compare how the Irish health experience compares to that of our EU neighbours. Some key findings of the survey included:

- 'Affluent people are more likely to feel their health status is Very good or good than people who are disadvantaged – 92% of Very affluent persons compared to 78% of persons who are Very disadvantaged;
- Over a quarter of persons aged 15 years and over report having a long lasting condition, with older persons reporting higher levels;
- Majority of persons (82%) report no limitations in everyday activities due to a health problem;
- Over a fifth (21%) of Unemployed persons report some form of mental ill-health compared to 9% of those in employment;
- Prevalence of hospital in-patient admissions rises with age and disadvantage level;
- In general, females and older people more likely to use a preventive health service;
- Physical activity declines with age and relative disadvantage level;
- Younger persons more likely to drink 6 or more units of alcohol in one sitting; and
- Over half of persons aged 15 years and over in the State are overweight or obese' (CSO 2020).

CSO General Health Statistics (Census 2022)

67. The Census 2022 responses regarding general health found that 83% of the Ireland's population felt they had 'very good' or 'good' health; the Census 2022 indicated the percentage of persons reporting themselves as having 'bad' or 'very bad' health in the state was 1.7%. Census 2022 also indicates the level of those living with disabilities. In Ireland, 1,109,557 persons reported having a disability in Census 2022.

68. Census 2022 responses for Pembroke East A ED indicated the percentage of persons in Pembroke East A ED reporting themselves as having 'Very Good' or 'Good' health was 84%, 'Fair' health was 10%, and 'bad' or 'very bad' health was 2.2%. The 2022 census also indicated that 1,284 persons living in Pembroke East A ED reported disabilities.

Table 30-6 Reported Health Status Census 2022 for the EDs surrounding the OTI (CSO, 2023)

Area	Very good	Good	Fair	Bad	Very bad	Not stated	Total
Pembroke East A	2,702	1,528	497	91	19	180	5,017
South Dock	4,435	2,137	476	72	17	1,183	8,320
Pembroke West A	3,051	1,320	302	34	10	427	5,144
Pembroke East B	2,466	880	242	43	10	211	3,852
North Dock B	4,930	2,633	675	134	30	1,771	10,173

30.6.3 Interaction with environment

69. The following sections present a summary of the baseline environment relative to air quality, noise and vibration, water, land and traffic. Full baseline details and their applicable study areas relative to the onshore development area are presented in: **Chapter 19 Land, Soils and Geology, Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, **and Chapter 27 Traffic and Transport**.

Air quality

70. **Chapter 25 Air Quality and Climate** outlines the baseline environment in terms of air quality in the vicinity of the CWP Project.

71. As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones (A, B, C and D) have been defined in Ireland for air quality management and assessment purposes (EPA, 2022a). Dublin is defined as Zone A, as such, in terms of air monitoring, Poolbeg is located within Zone A.

72. In terms of air quality, exposure to fugitive dust and particulate matter emissions and emissions from equipment and machinery can impact on human health. Particulate matter with a diameter of 10 micrometres (PM_{10}) or 2.5 micrometres ($PM_{2.5}$) is monitored under the EPA Air Quality Monitoring Network.

73. Continuous PM_{10} and $PM_{2.5}$ monitoring has been carried out by the EPA (EPA, 2023) at the suburban and urban background locations of Ballyfermot, Dún Laoghaire (PM_{10} only), Finglas, Marino, Phoenix Park, St. Anne's Park and Rathmines. These showed annual mean concentrations ranging from 11–15 µg/m^3 for PM_{10}, and 6.3–8.9 µg/m^3 for $PM_{2.5}$, in 2022; see **Tables 25-11** and **25-12**, **Chapter 25 Air Quality**.

74. Sufficient data is available for all stations to observe trends over the period 2018–2022 for PM_{10} and $PM_{2.5}$. Average annual mean PM_{10} concentrations ranged from 10–16 µg/m^3 over the period of 2018–2022, suggesting an upper average concentration of 16 µg/m^3. Based on these results, a conservative estimate of the background PM_{10} concentration in the region of the CWP Project is 16 µg/m^3, which is

within legislated limits.[2] Average annual mean $PM_{2.5}$ concentrations ranged from 6–10 µg/m^3 over the period of 2018–2022, suggesting an upper average concentration of 10 µg/m^3. Based on these results, a conservative estimate of the background $PM_{2.5}$ concentration in the region of the CWP Project is 10 µg/m^3, which is within legislated limits.[3]

Noise

75. **Chapter 24 Noise and Vibration** outlines the baseline environment in terms of noise in the area of the CWP Project. The study area for the noise and vibration impact assessment is focused on the areas potentially to be affected by the construction, O&M and decommissioning phases of the OTI and construction OfTI works in the intertidal area. Noise sensitive locations (NSLs) includes the Coastguard Cottages, the wider Irishtown, Ringsend and Sandymount areas, and the planned residential development at the former Irish Glass Site.

76. Baseline noise measurement locations were selected to represent the noise environment at the nearest NSLs and to determine the baseline noise levels at the landfall site.

77. The existing noise sources and types identified during the baseline noise monitoring were typical of those heard in a central port and industrial area. Dependant on the survey location, the main noise sources included a combination of the following:

- Operational noises (port and docking activities, metal recycling plant activities, Ringsend WWTP).
- Distant piling and construction noise.
- Road / traffic noise (cars, HGVs).
- Intermittent bird noise / birdsong.
- Factory chimney and mechanical noise.
- Intermittent noises from activity including bangs / crashes / alarms / chimney and mechanical noises.
- Occasional noise from the public / pedestrians and passing aircraft.

Water

78. **Chapter 7 Marine Water Quality** and **Chapter 20 Hydrology and Hydrogeology** outline the baseline environment in terms of the water environment.

79. There are no surface water features within the onshore development area. Surface water runoff in the area is managed by a series of storm water sewers including along the Shellybanks and Pigeon House roads which discharge to the Liffey estuary. A cooling water discharge channel is located north of the Pigeon House Road and west of the onshore substation. Water from the Dublin Waste to Energy Plant and Dublin Bay Power Generating Station discharges to this channel, which then flows into the River Liffey. The onshore export cables will be tunnelled under the cooling water discharge channel. It is proposed to install a new access bridge which will provide vehicle access to site over the existing cooling water discharge channel.

80. In general, the Water Quality in Ireland 2016–2021 Report (EPA, 2022)indicates that the Liffey Estuary Lower (EA_090_0300) has ‘moderate’ WFD Ecological (2016–2021) status and ‘good’ Chemical

[2] PM_{10} annual mean limit value for the protection of human health: 40 µg/m^3 applicable from 2005. PM_{10} daily limit for the protection of human health: No more than 35 days > 50 µg/m^3 applicable from 2005 (EPA, 2023).

[3] $PM_{2.5}$ annual mean limit value for the protection of human health: 25 µg/m^3 applicable from 2010 (EPA, 2023).

Status (2016-2021). The report (EPA, 2022) indicates that the risk for meeting WFD targets by 2027 is currently under review for some water bodies including the Liffey Estuary Lower. This is either because additional information is required to determine their status before resources and more targeted measures are initiated or the measures have been undertaken.

Land and soils

81. **Chapter 19 Land, Soils and Geology** outlines the baseline environment in terms of land and soils, including soil mapping and site-specific information. The potential for contaminated land is addressed in **Chapter 19 Soils and Geology** and assessed in **Appendix 19.5 Contamination Risk Assessment**.

82. Based on CORINE 2018 (EPA, 2024) land use mapping, the area as a whole can be described as having artificial surfaces consisting of discontinuous urban fabric; industrial and commercial units on the Poolbeg Peninsula, in the North Wall and East Wall areas, and seaports in the area of Dublin Port. The onshore development area in which the CWP Project OTI is located is classified as industrial, commercial and transport units.

83. The Poolbeg Peninsula is essentially an area of land which has gradually been reclaimed over the years. The area is characterised by heavy industrial development including port facilities (including berthing, docking and storage), wastewater treatment and thermal waste treatment. Due to the historic uses and reclaimed nature of the Poolbeg Peninsula, there is potential for contaminated material to be present.

Traffic

84. **Chapter 27 Traffic and Transport** outlines the baseline environment in terms of traffic.

85. As mentioned, the onshore development area can be described as industrial and commercial, with the presence of transport units (e.g., freight).

86. The road network around the Poolbeg Peninsula comprises strategic and local roads. Within the peninsula there is a network of public and private roads. The road pattern is primarily industrial, with the presence of large industrial, waste management and utility plants. There are areas of car parking at the eastern end of the peninsula to service recreational activities in the area, such as the South Bull Wall Walk and sea swimming.

87. There are some pedestrian and cyclist facilities present within the peninsula, including footways. However, generally there is little pedestrian and cyclist footfall within the main peninsula road network as the area is physically constrained due to vehicle traffic and industrial buildings.

30.6.4 Predicted future baseline

88. The predicted future baseline for each of the environmental factors reviewed / assessed in terms of human health (i.e., air, noise, vibration, water, land and soils) are outlined in their respective topic chapters of this EIAR (i.e., **Chapter 19 Land, Soils and Geology, Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**).

89. In the absence of the OTI, the future baseline with regard to human health will continue to evolve with inward and outward movement of the local population from the ED. The population of the Pembroke East A ED has not increased at the same rate as surrounding EDs or the DCC area. It is noted,

however, that parts of the onshore development area are situated within Poolbeg West Strategic Development Zone (SDZ), which has designated zoning for high-density residential development. The strategic zoning of the lands to the west of the onshore development area, including the former Irish Glass Bottle site for high-density development, is likely to result in a large increase in the population within the area (i.e., the Pembroke East A ED), should the development go ahead.

90. The future land use of the onshore substation may be developed for some other form of industrial or similar development in accordance with the land zoning designation for the site, which is 'Employment (Heavy)'. This would align with the existing industrial nature of the development in this part of the Poolbeg peninsula. It is reasonable to assume that if the CWP Project did not proceed, another industrial development would be proposed at the site in future. Similarly, it is likely that there will be future upgrades or improvements in underground electrical transmission infrastructure in the study area which would follow similar routes to those proposed as part of the OTI.

91. Overall, in the absence of the OTI it is predicted that the future baseline with regard to human health will continue to evolve in line with existing and future health and population trends. With climate change, more frequent and extreme weather events may be experienced, which may also result in localised impacts to human health.

30.7 Scope of the assessment

92. An EIA Scoping Report for the OfTI was published on 6 January 2021 with the EIA Scoping Report for the OTI published on 6 May 2021. The Scoping Reports were uploaded to the CWP Project website and shared with regulators, prescribed bodies and other relevant consultees, inviting them to provide relevant information and to comment on the proposed approach being adopted by the Applicant in relation to the offshore and onshore elements of the EIA.

93. There were no direct responses to the scoping reports in relation to human health. General feedback received as part of the EIAR consultation process has been reviewed in the completion of the assessment.

94. Based on responses to the Scoping Reports, further consultation and refinement of the CWP Project design, potential impacts to human health associated with the construction, O&M and decommissioning phases that are scoped into the assessment are listed below in **Table 30-7**.

Table 30-7 Potential impacts scoped into the assessment

Impact no.	Description of impact	Notes
Impact 1 (all phases)	Air quality – health impacts due to air emissions (dusts emissions, traffic emissions)	Consideration of how impacts as a result of the construction, O&M and decommissioning phases may impact human health receptors closest to the onshore development area.
Impact 2 (all phases)	Noise and vibration – health impacts due to noise and vibration emissions	
Impact 3 (all phases)	Water quality – health impacts related to water quality (emissions to water, contamination)	
Impact 4 (all phases)	Land and soils – health impacts due to soil contamination	
Impact 5 (all phases)	Traffic – health impacts due to traffic disruption within the local road network	

95. It is noted that human receptors are considered throughout the EIAR. Other key human-related aspects that are addressed elsewhere in detail in the EIAR are listed below in **Table 30-8**.

Table 30-8 Other key human-related aspects addressed within the wider EIAR

Aspect addressed	Chapter reference
Impacts on recreation / amenity, tourism, economy and employment	**Chapter 29 Population**
Impacts on seascape, landscape and visual amenity	**Chapter 15 Seascape, Landscape and Visual Impact Assessment** and **Chapter 23 Landscape and Visual Impact Assessment**
Impacts on offshore recreation	**Chapter 16 Shipping and Navigation**
Impacts on health and safety in context of major accidents and disasters	**Chapter 32 Risk of Major Accidents and Disasters**

30.8 Assessment parameters

96. The assessment parameters 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 of this EIAR – i.e., **Chapter 19 Land, Soils and Geology, Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**.

30.9 Primary mitigation measures

97. Throughout the evolution of the CWP Project, measures 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. These mitigation measures are referred to as 'primary mitigation'. They are an inherent part of the CWP Project and are effectively 'built in' to the impact assessment.

98. Primary mitigation measures are set out in each of the impact assessment chapters for the environmental factors assessed in terms of human health.

99. Primary mitigation measures relevant to the assessment of human health are set out in **Table 30.9**.

Table 30-9 Primary Mitigation Measures

Project element	Description
Site selection – mitigation by avoidance	The site selection and consideration of alternatives process for the CWP Project (see EIAR Chapter 3 Site Selection and Consideration of Alternatives) considered a number of alternative locations for the onshore substation site. The process evaluated alternative sites using a multi-criteria assessment, which included a consideration of likely environmental effects. The main reasons for selecting the preferred onshore substation site included its proximity to the grid connection point and location within a heavily industrialised area. It is also located away from residential properties and areas of recreational amenity. The selection of the site is therefore considered a key driver for mitigation by avoidance.

30.10 Impact assessment

100. The potential environmental impacts arising from the development of the OTI are listed in **Table 30-7**. A description of the potential effect on human health receptors caused by each identified impact is given below.

30.10.1 Impact 1: Air Quality – health impacts due to air emissions (dusts emissions, traffic emissions)

101. The main pollutants of concern from an air quality perspective (HSE, 2023) are:

- *Nitrogen Dioxide (NO_2), Sulphur Dioxide (SO_2), Ozone (O_3): can irritate the airways of the lungs, increasing symptoms in those with lung diseases.*
- *Particulate matter (PM_{10}, $PM_{2.5}$): Can be carried deep into the lungs causing inflammation and worsening of heart and lung diseases.*
- *Carbon Monoxide (CO): Prevents the uptake of oxygen by the blood and poses a greater risk to those with heart disease.*

102. Short-term exposures to air pollution can cause irritation of the eyes, nose, throat and lungs, and impacts existing conditions such as asthma (HSE, 2023).

103. **Chapter 25 Air Quality** contains a detailed assessment of air quality impacts associated with the OTI.

Construction phase

104. The greatest potential impact on air quality during the construction phase of the OTI is from construction dust emissions and the potential for nuisance dust.

105. While construction dust tends to be deposited within 250 m of a construction site, it is noted that the majority of the deposition occurs within the first 50 m. The air quality assessment outlines that there are 10–100 residential receptors (planned residential development at the former Irish Glass Bottle Site) within 250 m and between 1–10 commercial receptors within 20 m of the onshore development area.

106. Temporary emissions generated during construction activities would arise from earthworks, general construction and trackout activities.

107. The implementation of additional dust control mitigation measures is outlined within **Chapter 25 Air Quality** as best practice and to reduce the potential for construction dust impacts as much as possible at nearby sensitive receptors.

108. In order to ensure that no dust nuisance occurs, a series of measures will be implemented, drawing on best practice guidance from the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024). The dust control measures are described in detail in **Chapter 25 Air Quality** and also captured within the **Construction Environmental Management Plan (CEMP)**. The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies.

109. **Chapter 25 Air Quality** concluded that, with the adoption of the additional mitigation, the significance of the residual effect in terms of construction dust emissions is direct, localised, negative, short-term and **Not Significant**, which is overall not significant in EIA terms.

110. There are low numbers of receptors within direct proximity to the onshore development area. Any dust emissions will be mitigated and are not expected to result in significant air quality effects. On this basis, the significance of residual effects on human health associated with construction dust are also predicted to be **Not Significant**, which is overall not significant in EIA terms.

Operational and maintenance phase

111. The onshore substation will be unmanned during the O&M phase, with the exception of maintenance, repair or inspections activities. Air quality emissions during this phase would primarily be associated with traffic movements and an emergency generator, located within the GIS building.

112. Traffic emissions associated with this phase will be minimal, with only a small number of trips to the onshore substation for the inspection, repairs and maintenance purposes.

113. Furthermore, traffic volumes for the O&M phase were determined to be below the air quality thresholds for traffic emissions set out in Transport Infrastructure Ireland (TII) Guidelines. Therefore, a detailed air quality assessment was not required as part of the **Chapter 25 Air Quality** assessment.

114. **Chapter 25 Air Quality** concluded that the significance of the residual effect during the O&M phase will be a long-term, direct, localised **'Imperceptible'** effect on air quality, which is not significant in EIA terms.

115. On the basis that no air quality standards are exceeded and given the low traffic volumes associated with the O&M phase, the significance of residual effects on human health associated with the O&M phase, would also be **'Imperceptible'**, which is not significant in EIA terms.

Decommissioning phase

116. It is recognised that legislation and industry best practice change over time. However, for the purposes of the EIA, at the end of the operational lifetime of the CWP Project, it is assumed that all OTI will be removed where practical to do so.

117. In this regard, for the purposes of an assessment scenario for decommissioning impacts, the following assumptions have been made:

- The TJBs and onshore export cables (including the cable ducting) shall be completely removed.
- The landfall cable ducts and associated cables shall be completely removed.
- The underground tunnel, within which the onshore export cables will be installed shall be left in situ and may be re-used for the same or another purpose.
- The onshore substation buildings and electrical infrastructure shall be completely removed.
- The reclaimed land, substation platform, perimeter structures and the new access bridge at the onshore substation site will remain in situ and may re-used for the same or another purpose.
- The ESBN network cables (including the cable ducting) shall be completely removed.

118. The general sequence for decommissioning is likely to include:

- Dismantling and removal of electrical equipment;
- Removal of ducting and cabling, where practical to do so;
- Removal and demolition of buildings, fences, and services equipment; and
- Reinstatement and landscaping works.

119. Closer to the time of decommissioning, it may be decided that removal of certain infrastructure, such as the TJBs, landfall cable ducts and associated cables, onshore export cables and ESBN networks cables, would lead to a greater environmental impact than leaving the components in situ. In this case it may be preferable not to remove these components at the end of their operational life. In any case, the final requirements for decommissioning of the OTI, including landfall infrastructure, will be agreed at the time with the relevant statutory consultees.

120. It is anticipated that for the purposes of an assessment scenario, the impacts will be no greater than those identified for the construction phase,

121. However, in terms of air quality, the only exception would be where demolition of the OTI infrastructure is required.

30.10.2 Impact 2: Noise and Vibration – health impacts due to noise and vibration emissions

122. **Chapter 24 Noise and Vibration** contains a detailed assessment of noise and vibration impacts associated with the CWP Project.

123. The assessment is focused on NSLs which included areas proximate to the CWP Project, 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.

124. As set out in the chapter, there is no specific Irish legislation which sets out environmental noise limits that must be achieved. Therefore, the assessment presented in the chapter is based on guidelines set out by regulatory bodies such as Transport Infrastructure Ireland (TII), British Standards and the World Health Organization (WHO), whose guidance and standards are based on international best practice.

Construction phase

125. Noise and vibration emissions sources associated with the OTI will primarily relate to:

- Construction and demolition works;
- Plant and machinery use and movement;
- Piling activity; and
- Traffic movements.

126. Key working times during the construction phase would include:

- General construction activities during daytime weekday periods (07:00 to 19:00 hrs) and Saturday morning periods (07:00 to 14:00 hrs);
- Day, evening and night-time working hours may be required to facilitate specific work activities such as piling works for the temporary cofferdam and tensioner platforms, to capture low tide cycles;
- 24/7 working hours will be required to facilitate specific work activities such as tunnel works for the onshore export cables and horizontal directional drilling (HDD) works for the ESBN networks cables.

127. The implementation of additional mitigation for the OTI is identified in **Chapter 24 Noise and Vibration** and also captured within the **CEMP**. These mitigations require the provision of noise control at source and hoarding of particular works including piling for the temporary cofferdam and tunnelling works. With the implementation of the construction phase mitigation, there will be no exceedances of the noise thresholds, detailed in the assessment.

128. With the adoption of the additional mitigation, **Chapter 24 Noise and Vibration** concludes that the significance of residual effects at the NSLs will be:

- '**Not significant'** to **'Moderate'** for construction activities, which is not significant in EIA terms;
- **'Not significant'** for temporary construction traffic noise levels, which is not significant in EIA terms; and
- **'Not significant'** to **'Moderate'** for construction vibration, which is not significant in EIA terms.

129. When assessing temporary noise levels at the onshore NSLs, the chapter also considered the noise associated with wind turbine generator piling construction installation. The significance of residual effects were determined to be '**Not significant**', which is not significant in EIA terms.

130. No significant residual effects are predicted in the **Chapter 24 Noise and Vibration** assessment and there are no exceedances of noise thresholds. Furthermore, impacts related to noise and vibration emissions are predicted to be temporary to short term in nature. On this basis, the significance of residual effects on human health associated with construction noise and vibration are predicted to be **Not significant**, which is overall not significant in EIA terms.

Operation and maintenance phase

131. The onshore substation will be unmanned during the O&M phase, with the exception of maintenance, repair or inspections activities.

132. A detailed environmental noise model was developed for the onshore substation. The model predicts that noise levels from the onshore substation will be within the adopted noise criteria at all residential NSLs. The assessment also outlines that the noise levels from the onshore substation will be significantly below the existing background sound level at any of the closest residential NSLs.

133. During the detailed design of the onshore substation, the final selection and location of mechanical and electrical plant will be undertaken in order to ensure the noise emission limits will be designed / attenuated to meet the adopted noise criteria for day and night-time periods as set out in **Chapter 24 Noise and Vibration**.

134. When assessing the O&M phase, the chapter also considered the noise associated with wind turbine generator operation for both layout options. It was concluded that the noise levels would be significantly below the adopted thresholds.

135. **Chapter 24 Noise and Vibration** concludes that the significance of residual effects during the O&M phase will be **'Imperceptible'**, which is not significant in EIA terms.

136. No significant residual effects are predicted in the **Chapter 24 Noise and Vibration** assessment and there are no exceedances of the adopted noise criteria. The contribution of the CWP Project to the existing sound levels in the surrounding area will be very low. The significance of residual effects on human health during this phase would be '**Not significant'**, which is not significant in EIA terms.

Decommissioning phase

137. Details relating to the decommissioning phase are set out under Impact 1: Impact 1: Air Quality – health impacts due to air emissions (dusts emissions, traffic emissions).

138. As with air quality effects, it is anticipated that noise effects will be no greater than those identified for the construction phase, and which are not significant in EIA terms.

139. Mitigation measures implemented during decommissioning will be similar to those during the construction phase.

30.10.3 Impact 3: Water Quality – health impacts related to water quality (emissions to water, contamination)

140. The quality of water has an important impact on health; poor quality water can cause illness and infection (HSE, 2024) to those accessing it (either potable water supply or recreational bathing waters).

141. Health impacts related to water are primarily associated with contamination of the water environment, for example from inadequately treated wastewater and run-off from agricultural or contaminated lands. Impacts to water from these sources can occur especially after or be exacerbated by rainfall or with flooding.

142. **Chapter 20 Hydrology and Hydrogeology** contains a detailed assessment of groundwater quality impacts associated with the OTI.

Construction phase

143. The greatest potential for water quality health-related impacts in the construction phase is primarily related to:

- Risks of spills or leaks of hydrocarbons / chemicals from construction plant and machinery and/or from the use of drilling fluids (such as bentonite);
- Mobilisation of historical contamination during excavation works resulting in impacts to groundwater quality i.e., during the excavation of the tunnel shafts; and / or
- Discharge of water generated during the construction phase, resulting in impacts to groundwater quality i.e. from the tunnel shafts.

144. Additional groundwater mitigation measures are outlined within **Chapter 20 Hydrology and Hydrogeology** and also captured in the CEMP.

145. With the adoption of the additional mitigation, **Chapter 20 Hydrology and Hydrogeology** concludes that the significance of residual effects will be **'Imperceptible'**, which are not significant in EIA terms.

146. There are no residential receptors in close proximity to the construction activities. The key receptors are the construction personnel due to the potential for contact with groundwater during the construction activities. It is predicted that should any accidental spillage, release or mobilisation occur, this would be localised, contained and managed in line with the additional mitigation outlined in **Chapter 20 Hydrology and Hydrogeology**. It is therefore not predicted to cause a discernible change to health status of any human health receptors.

147. On this basis, the significance of residual effects on human health associated with water quality are predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Operation and maintenance phase

148. The onshore substation will be unmanned during the O&M phase, with the exception of maintenance, repair or inspections activities.

149. No disturbance to or mobilisation of potentially contaminated groundwater during the O&M phase is expected.

150. There are no residential receptors in close proximity to the operating onshore substation. There is limited potential for inspection/maintenance personnel to encounter spillages or releases in the environment during maintenance, repair or inspections activities. The potential for any such events during the O&M phase is very low. These events would be dealt with immediately and in accordance with the detail outlined in the in **Chapter 20 Hydrology and Hydrogeology**.

151. On this basis, the significance of residual effects on human health associated with contaminated groundwater are predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Decommissioning phase

152. Details relating to the decommissioning phase are set out under Impact 1: Impact 1: Air Quality – health impacts due to air emissions (dusts emissions, traffic emissions).

153. As with air quality effects, it is anticipated that human effects arising from changes to water quality will be no greater than those identified for the construction phase, and which are not significant in EIA terms.

154. Mitigation measures implemented during decommissioning will be similar to those during the construction phase.

30.10.4 Impact 4: Land and Soils – health impacts due to soil contamination

155. In terms of human health, contaminated soil, depending on the chemicals involved, can affect human organs such as the lungs, skin, gut, liver and kidneys. These pollutants can also affect the immune, reproductive, nervous and cardiovascular systems (EEA, 2022).

156. Sources of contaminated soil can include agricultural lands where pesticides, fertilisers, wastewaters and sewage sludge may be used, or industrial production, mining operations and waste management facilities where hazardous materials may be stored or used, leading to emissions to air, water and soil (EEA, 2022). Exposure to contaminated soils can also be through direct skin contact or by breathing in dust when spending time outdoors. The degree of exposure will depend on weather and soil conditions as well as proximity to sources of pollution; receptors may also be indirectly exposed to soil pollutants through contaminated drinking or bathing water (EEA, 2022).

157. **Chapter 19 Land, Soils and Geology** contains a detailed assessment of land, soils and geology impacts associated with the OTI.

Construction phase

158. Human health-related impacts associated with soil contamination during the construction phase are primarily associated with the:

- Risks of spills or leaks of hydrocarbons / chemicals from construction plant and machinery and/or from the use of drilling fluids (such as bentonite);
- Potential for release of ground gas; and
- Mobilisation of historical contamination during excavation works, i.e., encountering historical contamination such as asbestos or organic material, during excavations at the onshore substation and / or landfall.

159. Additional mitigation measures are outlined within **Chapter 19 Land, Soils and Geology** and also captured in the CEMP. These mitigations relate to management, storage and testing of excavated materials, assessment of ground gas risk and the implementation of the **Construction and Demolition Waste Management Plan (CDWMP)**.

160. With the adoption of the additional mitigation, **Chapter 19 Land, Soils and Geology** concludes that the significance of residual effects with regard to mobilisation of historical contamination and accidental spillage or release are not '**Imperceptible - Not significant'**, which is not significant in EIA terms.

161. There are no residential receptors in close proximity to the construction activities. The key receptors are the construction personnel due to the potential for contact with soils during the construction activities. It is predicted that should any accidental spillage, release or mobilisation occur, this would be localised, contained and managed in line with additional mitigation outlined in **Chapter 20 Hydrology and Hydrogeology**. It is therefore not predicted to cause a discernible change to health status of any human health receptors.

162. On this basis, the significance of residual effects on human health associated with contaminated groundwater are predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Operation and maintenance phase

163. The onshore substation will be unmanned during the O&M phase, with the exception of maintenance, repair or inspections activities.

164. No disturbance to or mobilisation of potentially contaminated soils during the O&M phase is expected.

165. There are no residential receptors in close proximity to the operating onshore substation. There is limited potential for inspection / maintenance personnel to encounter spillages or releases and therefore contaminated soils in the environment during maintenance, repair or inspections activities.

166. These events would be dealt with immediately and in accordance with the detail outlined in the chapter.

167. On this basis, the significance of residual effects on human health associated with contaminated soils are predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Decommissioning phase

168. Details relating to the decommissioning phase are set out under Impact 1: Impact 1: Air Quality – health impacts due to air emissions (dusts emissions, traffic emissions).

169. As with air quality effects, it is anticipated that health effects due to soil contamination will be no greater than those identified for the construction phase, and which are not significant in EIA terms.

170. Mitigation measures implemented during decommissioning will be similar to those during the construction phase.

30.10.5 Impact 5: Traffic – health impacts due to traffic disruption within the local road network

171. Health impacts may be experienced by individual receptors using the local road network due to traffic impacts which may cause nuisance, delays and disruption to routes and access. Health impacts can also be related to individual receptors experiencing feelings of anxiety, worry, frustration or irritation caused by such traffic disruption.

172. Health impacts related to air emissions from traffic are addressed under Impact 1: Air Quality above. This Impact 5 relates to health impacts due to traffic disruption within the local road network.

173. **Chapter 27 Traffic and Transport** contains a detailed assessment of traffic and transport impacts associated with the OTI.

Construction phase

174. Human health related impacts associated with traffic and transport, during the construction phase are primarily associated with the:

- Increase in construction phase traffic (light and heavy vehicles) volumes on the local road network;
- Delays and increased queue lengths at junctions on the local road network as a result of construction phase traffic volumes; and
- Impacts on accessibility for pedestrians and cyclists on the local road network.

175. A key aspect to the construction phase assessment will be the adherence to the DCC 5 Axle Management Strategy, where heavy vehicles associated with the CWP Project will be routed away from residential and city centre areas. They will travel to / from the onshore development area via the East Link Bridge and Dublin Tunnel.

176. The chapter also details additional mitigation in the form of a Traffic Management Plan (**Appendix 27.2 Traffic Management Plan (TMP)**). This Plan contains the control measures and monitoring procedures for managing the potential traffic and transport impacts of constructing the CWP Project.

177. The detailed Traffic and Transport Assessment (**Appendix 27.1 Traffic and Transport Assessment (TTA)**) completed for the construction phase undertook a road network analysis and junction assessment. **Chapter 27 Traffic and Transport** concluded that following the implementation of additional mitigation, impacts from construction phase traffic would range from **'Imperceptible' – 'Imperceptible - Slight',** which are not significant in EIA terms. Any impacts on pedestrians and cyclists would be **'Imperceptible'.** Additionally, construction phase impacts related to traffic are predicted to be temporary-short-term in nature.

178. On this basis, it was predicted that there would be no discernible change to the health status of human health receptors. The significance of residual effects on human health associated with traffic and transport were overall predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Operation and maintenance phase

179. The onshore substation will be unmanned during the O&M phase, with the exception of maintenance, repair or inspections activities. The traffic generated during this phase will be minimal, with a small number of trips to the onshore substation for inspection, repairs, monitoring and maintenance purposes.

180. The potential impact of the O&M related traffic for the CWP Project, was determined to be below the thresholds in the TII TTA Guidelines, therefore a TTA was not required for this phase and traffic and transport impacts were scoped out.

181. On this basis, the significance of residual effects on human health associated with traffic and transport were overall predicted to be **'Imperceptible'**, which is not significant in EIA terms.

Decommissioning phase

182. Details relating to the decommissioning phase are set out under Impact 1: Air Quality – health impacts due to air emissions (dusts emissions, traffic emissions).

183. As with air quality effects, it is anticipated that health effects due traffic disruption will be no greater than those identified for the construction phase, and which are not significant in EIA terms.

184. Mitigation measures implemented during decommissioning will be similar to those during the construction phase.

30.11 Cumulative impacts

185. A fundamental component of EIA is to consider and assess the potential for cumulative effects of the CWP Project with other projects, plans and activities (hereafter referred to as 'other development').

186. The CEA 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 the associated CEA appendices: **Chapter 19 Land, Soils and Geology**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**.

187. No significant cumulative effects were determined from these assessments, and it was therefore determined that there were no associated significant cumulative effects, relative to human health.

30.12 Transboundary impacts

188. There are no transboundary impacts with regard to human health impacts, which primarily relates to the OTI, as the onshore development area would not be sited in proximity to any international boundaries. Transboundary impacts are therefore scoped out of this assessment and are not considered further.

30.13 Inter-relationships

189. The inter-related 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 of this EIAR; **Chapter 19 Land, Soils and Geology**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**.

190. Any inter-related effects identified have been addressed within the respective topic chapters, and no additional mitigation is proposed, relative to human health.

30.14 Potential monitoring requirements

191. No monitoring is required in relation to human health.

30.15 Impact assessment summary

192. This chapter of the EIAR has summarised the potential environmental impacts on human health from the construction, O&M and decommissioning phases of the CWP Project.

193. The individual impact assessment summaries 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 of this EIAR: **Chapter 19 Land, Soils and Geology**, **Chapter 20 Hydrology and Hydrogeology**, **Chapter 24 Noise and Vibration**, **Chapter 25 Air Quality**, and **Chapter 27 Traffic and Transport**.

194. Overall, the human health impact assessment concludes that with the standard best practice mitigation measures applied, any effects on human health, from the construction, O&M, and decommissioning phases, would be not significant in EIA terms.

30.16 References

1. Central Statistics Office (CSO) (2024). 2022, 2016, 2011 and 2006 Census and associated data;
2. Central Statistics Office (CSO) (2020). Irish Health Survey 2019;
3. Department of Communications, Climate Action and the Environment (DCCAE) and the Sustainable Energy Authority of Ireland (SEAI) (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (April 2017);
4. Department of Environment, Community and Local Government (DECLG) (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018);
5. European Environment Agency (EEA) (2022). Soil pollution and health. Available at: https://www.eea.europa.eu/publications/zero-pollution/health/soil-pollution [Accessed: March 2024]
6. Environmental Protection Agency (EPA) (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
7. EPA (2003). Advice Notes on Current Practice in the Preparation of Environmental Impact Statements;
8. EPA (2024). EPA GeoPortal - EPAMaps, CORINE 2018 mapping. Available at: https://gis.epa.ie/EPAMaps/ [Accessed: March 2024]
9. EPA (2023). Air Quality in Ireland 2022 Report;
10. EPA (2022). Water Quality in Ireland 2016–2021 Report;
11. EPA, Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022);
12. European Commission (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report
13. Government of Ireland (2023). Healthy Ireland Survey 2022. Available at: gov - Healthy Ireland Survey 2022 (www.gov.ie) [Accessed: March 2024]
14. Health Service Executive (HSE) (2024). Water and Health. Available at: https://www.hse.ie/eng/health/hl/water/ [Accessed: March 2024]
15. HSE (2024). Bathing Water and Health. https://www.hse.ie/eng/health/hl/water/bathing/bathing%20water.html [Accessed: March 2024]
16. HSE (2023). Health Effects of Air Pollution. Available at: https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/env/health-effects-of-air-pollution.html [Accessed: March 2024]
17. Institute of Air Quality Management (IAQM) (2024). Guidance on the Assessment of Dust from Demolition and Construction;
18. Institute of Environmental Management (IEMA) (2017). Health in Environmental Impact Assessment. A Primer for a Proportionate Approach;
19. IEMA (2022). Guide on Determining Significance for Human Health in Environmental Impact Assessment (2022)
20. IEMA (2022). Effective Scoping of Human Health in Environmental Impact Assessment;
21. IEMA (2022). Determining Significance for Human Health in Environmental Impact Assessment;

22. IEMA (2020) Impact Assessment Outlook Journal Volume 8: Health Impact Assessment in Planning - Thought pieces from UK practice (October 2020);

23. Institute of Public Health Ireland (2009). Health Impact Assessment. Available at: https://www.publichealth.ie/hia;

24. Institute of Public Health Ireland (2021). Health Impact Assessment Guidance: Manual & Technical Guidance. Available at: HIA Guidance A Manual_0.pdf (publichealth.ie);

25. Irish Wind Energy Association (IWEA) (2019). Lifecycle of an Onshore Wind Farm (March 2019);

26. Lenus (2023) Health Profile 2015 Dublin City (2015);

27. Ordnance Survey Ireland (OSI) (2023). Mapping and aerial photography;

28. US Environmental Protection Agency (USEPA) (2016). Health Impact Assessment Resource and Tool Compilation (September 2016)