



APPENDIX 8-1

**WATER FRAMEWORK
DIRECTIVE COMPLIANCE
ASSESSMENT - OFFSHORE**

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GLOSSARY OF PROJECTS TERMS

TERM	Definition
Circalittoral	The region of the seabed that is below the depth at which marine plants/algae are typically found and is dominated by animals (i.e. below the photic zone).
Environmental Impact Assessment	EIA is a process used to evaluate the potential environmental effects of a proposed project ensures that environmental considerations are integrated into the planning and decision-making stages, helping to minimize negative impacts on the environment and promote sustainable development
Invasive	An introduced organism that can become overpopulated, outcompete and/or prey upon native species causing adverse ecological effects.
Landfall	The transition between the Offshore and Onshore Developments (referred to as the Landfall Point) is the location at which the offshore export cable and communication cables emerge from the trenchless landfall duct.
Offshore Array Area	Turbines and associated foundations and internal cabling.
Offshore Export Cable	Offshore cable that transports electricity from the Offshore Array Area to the Landfall location.
Offshore Export Cable Corridor	The Offshore Export Cable Corridor (OECC) is approximately 61 km in length, approximately 1 km wide along the majority of its length and has a total area of approximately 82 km ² .
Sceirde Rocks Offshore Wind Farm ('The Project')	<p>Sceirde Rocks Offshore Wind Farm (The Project) is comprised of an Offshore Site and an Onshore Site. The transition between the Offshore and Onshore Sites (referred to as the Landfall Point) is the location at which the offshore export cable and communication cables emerge from the trenchless landfall duct and enter the transition joint bay (TJB). The Offshore Site refers to the Offshore Array Area (OAA) and Offshore Export Cable Corridor (OECC) and the infrastructure within the OAA and the OECC.</p> <p>The OAA infrastructure will include 30 wind turbine generators (WTG), an offshore substation (OSS), 31 Gravity Base Structure (GBS) foundations which support the WTGs and OSS, and Inter-array Cables (IACs) and cable protection. The OECC infrastructure will include Offshore Export Cable (OEC) and cable protection</p>

Suspended sediment	Fine sediment transported by a fluid that allows for turbulent eddies within fluid to outweigh settling of the particles.
The Applicant	In reference to planning – Fuinneamh Sceirde Teoranta (FST).

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AS	Arsenic
BWM	Ballast Water Management
CFE	Controlled Flow Excavator
CR	Chromium
DBT	Dibutyltin
DDT	Dichlorodiphenyltrichloroethane
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved oxygen
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EQSD	Environmental Quality Standards Directive
ERCoP	Emergency Response Co-operation Plan
EU	European Union
GBS	Gravity Base Structure
HDD	Horizontal Directional Drilling
IAC	Inter-array Cables
IDD	Irish Dredge Disposal
IDD-LL	Irish Dredge Disposal Lower Limit
IDD-UL	Irish Dredge Disposal Upper Limit
IMO	International Maritime Organization
INNS	Invasive Non-Native Species

Acronym/Abbreviation	Definition
LoD	Limit of Detection
MARPOL	International Convention for the Prevention of Pollution from Ships
MINNSMP	Marine Invasive and Non-native Species Management Plan
MPCP	Marine Pollution Contingency Plan
MSFD	Marine Strategy Framework Directive
NHA	Natural Heritage Area
OAA	Offshore Array Area
OCC	Onshore Compensation Compound
OECC	Offshore Export Cable Corridor
OEMP	Offshore Environmental Management Plan
OGC	Onshore Grid Connection
OLL	Onshore Landfall Location
OSS	Offshore Substation
pNHA	Proposed Natural Heritage Area
PAH	Polyaromatic hydrocarbons
PCB	Polychlorinated biphenyls
PLONOR	pose little or no risk to the environment
RBMP	River Basin Management Plans
SAC	Special Area of Conservation
SCI	Site of Community Importance
SOPEP	Shipboard Oil Pollution Emergency Plans
SPA	Special Protection Areas
SSC	Suspended Sediment Concentrations
TBT	Tributyltin
TSHD	Trailer Suction Hopper Dredger
UK	United Kingdom
WFD	Water Framework Directive

Acronym/Abbreviation	Definition
WMP	Waste Management Plan
WTG	Wind Turbine Generator

1. INTRODUCTION

1.2 Background

This Water Framework Directive (WFD) compliance assessment has been prepared by Xodus on behalf of Fuinneamh Sceirde Teoranta (FST) (hereafter referred to as the Applicant), for the construction, operation and maintenance, and decommissioning of the Sceirde Rocks Offshore Wind Farm ('the Project'), and all its offshore component parts within the Offshore Site. The Offshore Site refers to the Offshore Array Area (OAA) and Offshore Export Cable Corridor (OECC) and the infrastructure within the OAA and the OECC. The WFD compliance assessment completes the evaluation of the potential impacts as a result of the Project on WFD receptors with respect to the objectives of the WFD.

1.3 Statement of Authority

This Water Framework Directive compliance assessment has been prepared and reviewed by Xodus Group Limited (Xodus). Dr Anna Chaffey CSci, CMarSci, MIMarEST completed a PhD in coastal engineering and has 16 years of industry experience across the offshore wind, cables and pipelines, coastal infrastructure and port and harbour sectors. Through Anna's technical specialism in oceanography and seabed morphodynamics, she has provided input into projects in support of consent applications and front-end engineering design (FEED) for offshore windfarms in UK waters, including leading the physical processes assessment chapter for the West of Orkney Wind Farm. Anna led the production of this report. She has also completed similar assessments for offshore wind (West of Orkney Wind Farm), ports and harbours (Port of Southampton and Lowestoft), cables (CrossChannel) and coastal developments (Fawley power station).

1.4 Purpose of Document

This document, Appendix 8-1: Offshore Water Framework Directive Assessment Report, presents a Water Framework Directive compliance assessment for the offshore aspects of the Project, covering the Offshore Array Area (OAA) and Offshore Export Cable Corridor (OECC), together referred to as the Offshore Site. It is not anticipated that any works associated with the Offshore Site, will affect onshore protected waters (including surface waters of rivers and lakes and groundwater bodies). This is due to the intervening distance, tidal processes and flows being largely parallel to the coast and the rivers flowing into the bays.

A separate WFD compliance assessment has been completed for all onshore aspects of the Project, i.e. the Onshore Site, which includes the Onshore Landfall Location (OLL), the Onshore Grid Connection (OGC) and Onshore Compensation Compound (OCC), and is presented in Appendix 23-1. Consideration of the whole Project effects, i.e. both the Offshore Site and Onshore Site, in terms of the identified WFD receptors is presented within this WFD compliance assessment as relevant. The potential for the whole Project effects only relates to those water bodies at the OECC landfall, with the potential to interact with the OLL, in particular the coastal Doonbeg Bay and transitional Doonbeg Estuary water bodies. It is noted that in the Onshore WFD Compliance Assessment, these two water bodies are not considered to be adversely impacted by the Onshore Site. This is because a large volume of salt water is determined to be present within the water bodies. Therefore, any possible contaminants from the Onshore activities within the OLL, OGC or OCC will be diluted and not affect the quality of the water bodies, with the works having no potential to result in a deterioration in the status of the water bodies. However, as there is the potential direct connectivity between the OECC landfall (associated with the Offshore Site) and OLL, it is relevant to consider the OLL in terms of the whole Project effects.

Works associated with the OGC and OCC are not considered under the whole Project effects for this Offshore Site WFD compliance assessment as they are too far away for direct connectivity with the Offshore Site. This is still the case even with the potential for indirect connectivity with the Doonbeg Estuary transitional water body and Offshore Site, because the OGC and OCC works occur in catchments that discharge into the transitional water body. Mitigation measures associated with both the OGC and OCC, as detailed in the Onshore WFD Compliance Assessment (Appendix 23-2 Onshore WFD Compliance Assessment) further limit the potential for indirect impacts from the onshore works on the transitional water body.

This WFD compliance assessment is informed by the completed assessments within the Environmental Impact Assessment Report (EIAR), drawing on the following topics, assessment chapters and management plans:

- Chapter 7: Marine Physical And Coastal Processes;
- Chapter 8: Water And Sediment Quality;
- Chapter 9: Benthic Ecology;
- Chapter: 10 Fish and Shellfish;
- Appendix 7-1: Sceirde Rocks Offshore Wind Farm Environmental Effects Numerical Modelling Study; and
- Chapter 5 Appendices comprising mitigation, monitoring and management plans comprising:
 - Appendix 5-2: Offshore Environmental Management Plan;
 - Appendix 5-3: Marine Pollution Contingency Plan;
 - Appendix 5-4; Emergency Response Co-operation Plan;
 - Appendix 5-5: Waste Management Plan; and
 - Appendix 5-8 Marine Invasive and Non-Native Species Management Plan.

Key relevant information to inform this WFD compliance assessment is included as required. However, further detail on the completed topic assessments are retained within the respective EIAR chapters, with a cross-reference provided.

2. LEGISLATION AND GUIDANCE

2.1 Water Framework Directive

The EU Water Framework Directive (2000/60/EC), as amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU was established to ensure the protection of the water environment. The Directive was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), as amended. European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. 272/2009) (as amended) and the European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. 9/2010) (as amended) give further effect to the WFD in Ireland. Article 5 of both these regulations provide that public authorities must not undertake their functions in a manner that knowingly causes or allows deterioration in the status of water body.

The WFD requires that all member states protect and improve water quality in all waters, with the aim of achieving good status by 2027 at the latest. Any new development must ensure that this fundamental requirement of the WFD is not compromised. The WFD is given general effect in planning legislation in Section 1A of the Planning and Development Act 2000 (S.I. 30/2000), as amended; and specifically, through amendments made in 2010 which sought to improve how water management and the planning system are integrated.

The WFD is implemented through the River Basin Management Plans (RBMP) which comprises a six-yearly cycle of planning, action and review. RBMPs include identifying river basin districts, surface water bodies, groundwater bodies, protected areas and any pressures or risks, monitoring and setting environmental objectives. In Ireland the first RBMP covered the period from 2010 to 2015 with the second cycle plan covering the period from 2016 to 2021. The Water Action Plan 2024 is Ireland's 3rd River Basin Management Plan (2022 - 2027). The objectives of the Water Action Plan 2024 have been integrated into the design of the Project and include:

- Ensure full compliance with relevant EU legislation;
- Prevent deterioration and maintain a 'high' status where it already exists;
- Protect, enhance and restore all waters with aim to achieve at least good status by 2027;
- Ensure waters in protected areas meet requirements; and,
- Implement targeted actions and pilot schemes in focused sub-catchments aimed at (1) targeting water bodies close to meeting their objectives and (2) addressing more complex issues that will build knowledge for the third cycle.

Of relevance to this WFD compliance assessment with respect to the Offshore Site are surface waters comprising coastal and transitional water bodies, WFD protected areas including bathing waters, shellfish waters and Natura 2000 sites. The WFD through the RBMP assesses the status of protected waters on the basis of the ecological, hydromorphological and chemical status. In terms of the ecological status the possible levels as applied in the RBMP are high, good, moderate, poor and bad. Chemical status with respect to the WFD is recorded as 'good' or 'fail'. Under the WFD, there is the objective to achieve good ecological status and good chemical status and to prevent any deterioration of status associated with the proposed developed. Although Ireland is on its 3rd RBMP cycle, water body status are only available in relation to the 2nd cycle 2016 – 2021 and therefore used to inform this compliance assessment.

Associated with the WFD is the Environmental Quality Standards Directive (EQSD) (2008/105/EC), which identifies priority substances and chemical pollutants that require consideration for coastal and transitional water bodies under the WFD. The priority substances include metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), organotins and Dichlorodiphenyltrichloroethane (DDT). The EQSD aims to protect the most sensitive species from direct toxicity as well as predators and humans that may be exposed to the substance. The EQSD

thresholds are incorporated into the relevant legislation in Ireland and are now monitored as part of the WFD compliance monitoring programme and used to aid classification status for water bodies.

Other relevant legislation relating to protected waters (including bathing waters, shellfish waters, nutrient sensitive areas) and Natura 2000 sites are outlined in the informing EIAR chapters introduced in Section 1.4.

2.2 Guidance

At the time of writing, there is no detailed Irish guidance published on the undertaking of a WFD assessment for marine developments. However, it is noted there is the Common Implementation Strategy (CIS) of May 2001, which was designed to provide coherent and comprehensible guidelines aimed at achieving the aims of WFD. The CIS Guidance Document 36 – “Exemptions to the Environmental Objectives according to Article 4(7)” [6] provides an outline of an approach to WFD assessments and breaks this down into the following sequential steps:

- Screening for Potential Effects - Determine whether the Project could have any direct or indirect effect on the different quality elements relevant to the WFD;
- Scoping of Further Investigations - Outline the information required to determine the significance of any effect on the relevant quality elements; and,
- Data Collection and Assessment - Assess whether any effect could cause deterioration or compromise the status/potential status of a water body.

Given the CIS guidelines, the applied approach involves a combination of the aforementioned staged assessment, along with best-practice implementation following guidance available in the other national jurisdictions. The applied WFD methodology is described in Section 5.1 below.

3. PROJECT PROPERTIES RELEVANT TO WFD

3.1 Project Description

The Offshore Site associated with the Project is detailed in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 5: Project Description, which describes the design details of the Offshore Site and all its component parts, situated off the west coast of Ireland, close to Connemara, Co. Galway. The Offshore Site comprises the OAA and OECC infrastructure.

The OAA infrastructure includes 30 wind turbine generators (WTG), an offshore substation (OSS), 31 Gravity Base Structure (GBS) foundations which support the WTGs and OSS, and Inter-array Cables (IACs) and cable protection. The OECC infrastructure includes the Offshore Export Cable (OEC) and cable protection. The OEC makes landfall at Killard, Co. Clare. The landfall entails the use of trenchless technology, e.g. horizontal directional drilling (HDD), with the offshore exit location expected to occur at around 30 m LAT, approximately 1 km offshore.

The Offshore Site, along with the WTG layout within the OAA and proposed disposal locations is illustrated in Figure 3-1.

3.2 Management Plans

A number of management plans for adherence are being designed into the Project to mitigate and limit the potential occurrence of adverse impacts to receptors (including WFD receptors) as a result of the Project. The over-arching management plan is the Project Offshore Environmental Management Plan (OEMP), with further subsidiary plans feeding into the OEMP. A summary of the plans included in the Project application with direct relevance to the implementation of the WFD is presented in Table 3-1.

Table 3-1 Consent Management Plans

Consents Management Plan	Description
Offshore Environmental Management Plan (OEMP) (Appendix 5-2)	The OEMP will provide the over-arching framework for on-site environmental management during the construction and operation of the Offshore Site. The OEMP will be in accordance with the application to ensure all environmental commitments stated in the EIAR are implemented during the construction, operational and maintenance stages of the Offshore Site. The purpose of the OEMP is to set out the approach to environmental management and mitigation in respect of the Offshore Site. The OEMP is formed of several topic specific management plans that cover the environmental management of the Offshore Site, some of which are included below.
Marine Pollution Contingency Plan (MPCP) (Appendix 5-3)	The MPCP sets out pollution prevention measures such as: a) storage of chemicals in secure designated areas in line with appropriate regulations and guidelines, b) adherence to vessel regulations such as MARPOL to reduce potential for vessel pollution, c) disposal of waste e.g. sewage, oil or litter at an authorised disposal facility. The MPCP also outlines protocols including implementing shipboard oil pollution emergency plans (SOPEP). The MPCP inputs into the OEMP.

Consents Management Plan	Description
Waste Management Plan (WMP) (Appendix 5-5)	The WMP sets out the provisions for waste management for Offshore Site components in line with the waste management hierarchy. The WMP inputs into the OEMP.
Marine Invasive Non-Native Species Management Plan (MINNSMP) (Appendix 5-8)	The MINNSMP sets out the approach to invasive and non-native species (INNS) management and mitigation in respect of the Offshore Site, providing an outline of the proposed measures to be implemented to facilitate biosecurity control and to minimise potential impacts on the local and wider offshore environment. It also includes adherence to protocols associated with Ballast Water Management (BWM) Conventions to limit the transfer of INNS. The MINNSMP inputs into the OEMP.
Emergency Response Co-operation Plan (ERCoP) (Appendix 5-4)	The ERCoP sets out the actions to be taken during an emergency, the resources available to support those actions, and emergency contact details. The ERCoP inputs into the OEMP.

3.3 Summary of Measures, Mitigation and Monitoring Included in the EIAR

The embedded mitigation and monitoring measures detailed within the Sceirde Rocks Offshore Wind Farm EIAR and relevant to this WFD compliance assessment are summarised in Table 3-2.

Table 3-2 Relevant embedded mitigation and monitoring measures detailed in the EIAR

Measures	Justification
Marine Pollution Contingency Plan (MPCP) and pollution planning	An MPCP is prepared for the Offshore Site with consideration of the National Maritime Oil/ Hazardous Noxious Substance (HNS) Spill Contingency Plan. The MPCP outlines procedures to protect personnel working and safeguard the environment should a pollution event occur.
Adherence to the International Convention for the Prevention of Pollution from Ships (MARPOL) and Ballast Water Management (BWM) Conventions	Adherence to the International Convention for the Prevention of Pollution from Ships (MARPOL) and Ballast Water Management (BWM) Conventions, including shipboard oil pollution emergency plans (SOPEP). The risk of marine pollution will be minimised through compliance with the above convention requirements.
Management Plans	A number of management plans are developed for the Project as summarised in Section 3.2 above and included as appendices to the Sceirde Rocks Offshore Wind Farm EIAR.
Avoidance of Sensitive Features	Environmental survey data collected through the site surveys carried out for the Offshore Site has been used to inform cable routing and placement

Measures	Justification
	of GBS foundations and other infrastructure on the seabed, with emphasis on avoiding the most sensitive features to minimise direct disturbance.
Dredge Disposal Method and Locations	The Project has committed to reducing SSCs through using a fall pipe located at 5 m above the seabed, instead of disposal from the sea surface, for disposal of dredged material. Disposal areas were selected on the basis of avoiding sensitive species and habitats and reducing the risk of sediment plume effects to sensitive protected sites. Disposal areas within the OAA are illustrated in Figure 3-1.

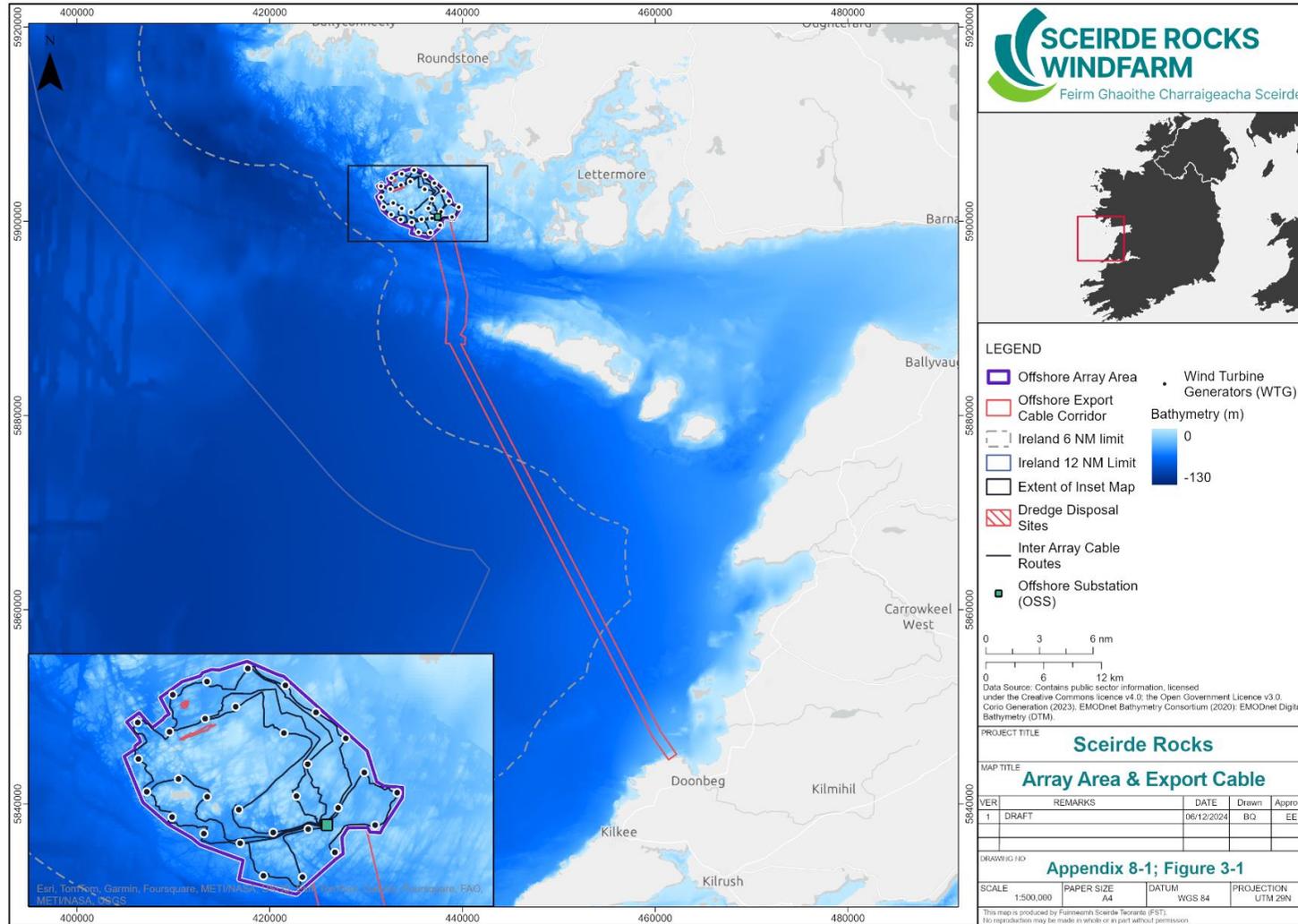


Figure 3-1 Sceirde Rocks Offshore Wind Farm Offshore Site

4. BASELINE ENVIRONMENT

4.1 WFD Study Area

For the purpose of this WFD compliance assessment, the WFD Study Area is a buffer of 2 km around the Offshore Site in line with best practice and guidance from other national jurisdictions (Figure 4-1). The applied buffer distance also accounts for the 1 nautical mile (NM) (1 NM = 1.852 km) jurisdiction in the identification and classification of coastal water bodies in the 2024 Water Action Plan (Section 2.1). It is noted that Chapter 8: Water And Sediment Quality of the Sceirde Rocks Offshore Wind Farm EIA applied a 15 km buffer based on the estimated tidal excursion extent. However, a smaller 2 km buffer is applicable to the WFD given that this is the distance over which the largest impacts with a potential change to the status of WFD receptors could occur, with any impacts reducing considerably with increasing distance.

WFD receptors that are wholly within or intersect the study area are identified as WFD receptors. The WFD receptors considered in this compliance assessment relate only to the Offshore Site and include coastal and transitional water bodies and WFD protected areas including bathing waters, shellfish waters, nutrient sensitive areas and Natura 2000 sites. The following sub-sections characterise the WFD receptors that intersect the WFD Study Area, which are also illustrated in Figure 4-1.

4.2 WFD Receptors

The WFD receptors and associated quality elements for which potential impacts are assessed with respect to the WFD and RBMP objectives are as follows:

- Coastal and transitional water bodies and their elements being monitored under the 2024 Water Action Plan (2022 – 2027), comprising:
 - Hydromorphology;
 - Biological quality elements in the form of benthic habitats and fish and shell fish;
 - Physico-chemical quality elements, in the form of water column properties (water clarity, nutrients, dissolved oxygen etc.); and
 - Priority substances and specific pollutants.
- WFD Protected Areas:
 - Bathing waters;
 - Natura 2000 Designated sites; and
 - Natural Heritage Areas.
- Marine Invasive Non-Native Species.

The relevant WFD receptors that are considered within this compliance assessment based on the above characteristics are detailed in the following sections.

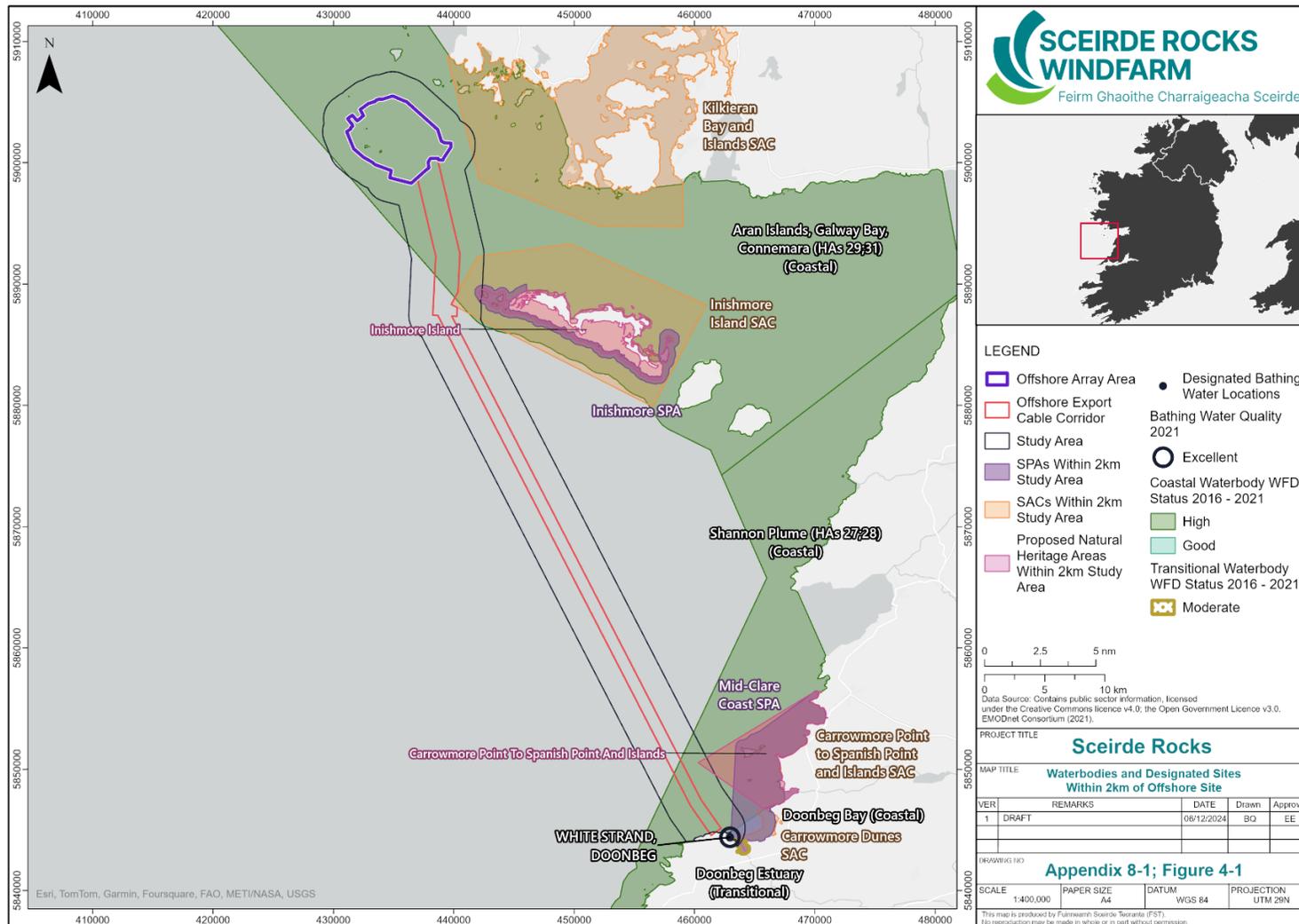


Figure 4-1 WFD Study Area and intersected water bodies and bathing waters.

4.3

Coastal and Transitional Water Bodies

The applied WFD Study Area intersects with three coastal water bodies and one transitional water body, although the Offshore Site only directly intersects two, namely the Aran Islands, Galway Bay, Connemara and Shannon Plume coastal water bodies (Figure 4-1). Details of these coastal and transitional water bodies which are located within the WFD Study Area, including their classification and statuses under the RBMP are summarised in Table 4-1, with the water bodies illustrated in Figure 4-1.

Aran Islands, Galway Bay, Connemara and Shannon Plume coastal water bodies both have a “high” Overall Status, associated with “high” Ecological Status Potential, while the Doonbeg Bay coastal water body has a “good” status. The single transitional water body, i.e. Doonbeg Estuary has a “moderate” Ecological Status Potential, with no further information available on the justification for the status in EPA (2024) and supporting information. No further status information is available for the other water body quality elements including the biological quality, physico-chemical and hydromorphology. It is therefore assumed that these properties are linked to the Ecological Status or Potential and as a result have the same status.

For the majority of water bodies, they are identified to have the same status for repeat monitoring cycles, with the exception of the Doonbeg Bay coastal water body, which has reduced from high to good status, with no information provided in EPA (2019; 2022b) for the change in status. No water body within the WFD Study Area is found to be at risk of not achieving their WFD objectives from the latest RBMP cycle and as such no significant pressures are identified for these specific water bodies. Although Ireland is on its 3rd River Basin Management Plan (2022 - 2027) cycle, the status of water bodies and properties are only available for the 2nd cycle (2016 – 2021), and that is what has informed this WFD compliance assessment.

Table 4-1 Coastal and transitional water bodies and status that intersect the WFD Study Area (EPA, 2024)

Site Name (Site Code)	Water body area (km ²)	Distance from Offshore Site (km)	WFD Risk ¹	Significant Pressures ²	Heavily Modified	Ecological Status or Potential ³		
						2010-2015	2013-2018	2016 – 2021
Coastal								
Aran Islands, Galway Bay, Connemara ⁴ (IE_WE_010_0000)	1,037.98	0 (overlaps the OECC and OAA)	Review	None	No	Unassigned	High	High
Shannon Plume (IE_SH_070_0000)	379.22	0 (overlaps the OECC)	Not at Risk	None	No	Unassigned	High	High
Doonbeg Bay ⁴ (IE_SH_080_0000)	6.34	0.8 (east of Landfall)	Not at Risk	None	No	Unassigned	High	Good
Transitional								
Doonbeg Estuary ⁴ (IE_SH_080_0100)	0.89	1.5 (east of Landfall)	Review	None	No	Unassigned	Moderate	Moderate
¹ Not at Risk - they are achieving the requirements of the Directive and meeting their environmental objective of good or high-status. Review - either the measure is in place, but the water quality improvement has not yet been realised or, more commonly, there is currently inadequate information to determine whether or not the water body is At Risk. At Risk - water body is at risk of not meeting their environmental objective of good or high-status. ² Only identified for those “At Risk” ³ No further status information is available for the other water body quality elements including the biological quality, physico-chemical and hydromorphology. It is therefore assumed that these properties are linked to the Ecological Status or Potential and as a result have the same status. ⁴ Grouped Assessment Technique (i.e., Not monitored individually).								

4.4 Protected Areas

4.4.1 Bathing Waters

The WFD Study Area overlaps with only one designated bathing waters (Marine Institute, 2022), namely the White Strand, Doonbeg, which is located approximately 1 km east of the landfall (Figure 4-1). The White Strand bathing water is noted as having “Excellent” annual bathing water quality between 2018 and 2022 (EPA, 2019; 2020; 2022a; 2023a).

4.4.2 Shellfish Waters

The WFD Study Area does not overlap or intersect any designated shellfish waters, with the closest being the Kilkieran Bay shellfish water, which has an area of 74.8 km², is mainly harvested for oysters and is located 9.3 km to the northeast of the OAA and 10.68 km from the OECC (Irish Government, 2021).

4.4.3 Nutrient Sensitive Areas

Nutrient sensitive areas are identified for natural freshwater lakes, other freshwater bodies, estuaries and coastal waters which are eutrophic or which in the near future may become eutrophic if protective action is not taken. Assessments are carried out on waters downstream of urban waste-water discharges from urban areas above a population equivalent of 10,000. There are no nutrient sensitive areas which are located within the WFD Study Area.

4.4.4 Natura 2000 Sites

The Natura 2000 Network of sites is designated owing to its ecological importance in a European context under the Habitats Directive. Sites within the Natura 2000 Network are referred to as European Sites and comprising:

- A Site of Community Importance (SCI) or candidate SCI;
- An SAC or candidate SAC; and
- An SPA or candidate SPA.

A list of European sites with qualifying features which are sensitive to water quality impacts within the WFD Study Area is provided below in Table 4-2 and illustrated in Figure 4-1. These have been determined based on the EPA Water Map – “SACs / SPAs with Water Dependent Habitats/Species” (EPA, 2024) derived from data provided from Ireland’s National Parks and Wildlife Service (National Parks and Wildlife Service; 2023a; 2023b; 2023c; 2023d; 2023e; 2023f). Inishmore Island Special Area of Conservation (SAC) neighbours the OECC although it does not overlap. Other sensitive European sites which overlap with the WFD Study Area are detailed in Table 4-2 and illustrated in Figure 4-1.

Table 4-2 Designated Natura 2000 designated sites that intersect the WFD Study Area

Site Name	Distance Offshore Site (km) (OAA / OECC)	Qualifying Interests
SACs		
Inishmore Island SAC	<0.5 (OECC)	Reefs; Perennial vegetation of stony banks; Vegetated sea cliffs of the Atlantic and Baltic coasts; Embryonic shifting dunes; Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Dunes with <i>Salix repens ssp. argentea</i> (Salicion

Site Name	Distance Offshore Site (km) (OAA / OECC)	Qualifying Interests
		arenariae); Humid dune slacks; Machairs; European dry heaths; Alpine and Boreal heaths; Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>); Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>); Limestone pavements; Submerged or partially submerged sea caves; <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail); <i>Phocoena phocoena</i> (Harbour Porpoise).
Carrowmore Point to Spanish Point and Islands SAC	1.2 (OECC)	Coastal lagoons; Reefs; Perennial vegetation of stony banks; Petrifying springs with tufa formation (Cratoneurion).
Carrowmore Dunes SAC	1.5 (OECC)	Reefs; Embryonic shifting dunes; Shifting dunes along the shoreline with white dunes; Fixed coastal dunes with herbaceous vegetation (grey dunes); Narrow-mouthed Whorl Snail.
Kilkieran Bay and Islands SAC	1.5 (OAA)	Mudflats and sandflats not covered by seawater at low tide; Coastal lagoons; Large shallow inlets and bays; Reefs; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>); Mediterranean salt meadows (<i>Juncetalia maritimi</i>); Machairs; Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> ; Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>); Harbour porpoise; <i>Lutra lutra</i> (Otter); <i>Phoca vitulina</i> (Harbour Seal); <i>Najas flexilis</i> (Slender Naiad).
SPAs		
Mid-Clare Coast SPA	0.8 (OECC)	Cormorant (<i>Phalacrocorax carbo</i>); Barnacle Goose (<i>Branta leucopsis</i>); Ringed Plover (<i>Charadrius hiaticula</i>); Sanderling (<i>Calidris alba</i>); Purple Sandpiper (<i>Calidris maritima</i>); Dunlin (<i>Calidris alpina</i>); Turnstone (<i>Arenaria interpres</i>); Wetland and Waterbirds.
Inishmore SPA	1.4 (OECC)	Kittiwake (<i>Rissa tridactyla</i>); Arctic Tern (<i>Sterna paradisaea</i>); Little Tern (<i>Sterna albifrons</i>); Guillemot (<i>Uria aalge</i>).

4.4.5 Natural Heritage Areas

Natural Heritage Areas (NHAs) in proximity to the Offshore Site are entirely terrestrial. Additionally, although non-statutory, there are also proposed NHAs (pNHAs), which contain marine components. Only two pNHAs overlap with the WFD Study Area as illustrated in Figure 4-1 and their properties summarised in Table 4-3.

Table 4-3 Designated pNHAs that intersect the WFD Study Area

Site Name (Site Code)	Distance Offshore Site (km) (OAA / OECC)	Synopsis (if available)
Carrowmore Point to Spanish Point and Islands (001021)	1.2 (OECC)	Synopsis unavailable. See Carrowmore Point to Spanish Point and Islands SAC (Table 4-2)
Inishmore Island (000213)	1.7 (OECC)	Synopsis unavailable. See Inishmore Island SPA/SAC (Table 4-2)

5. WFD COMPLIANCE ASSESSMENT

5.1 WFD Assessment Methodology

5.1.1 Screening

Screening is used to inform the Scoping stage and to exclude any activities that do not need to go through the Scoping or Impact Assessment stages as they are low risk. It is applied in this assessment as a high-level characterisation to determine whether the Project could have any direct or indirect effect on the different WFD receptors.

5.1.2 Scoping

The Scoping stage identifies the WFD receptors that are potentially at risk from the proposed activity on the basis of potential impacts to the hydromorphological, ecological and chemical status of the protected WFD receptors. It is used to identify if and what assessment may be required, in addition the information required to determine the significance of any effect on the WFD receptors.

5.1.3 Assessment

Should potential impacts be identified on WFD receptors during the previous stages, this necessitates an impact assessment to evaluate the following:

- Identification of the potential pressures on the receptor as a result of the activity; and
- Determine whether there is potential for deterioration in the status of the water body receptor.

Deterioration is defined as when the status of a quality element reduces by one class. If a quality element is already at the lowest status, then any reduction in its condition counts as deterioration. Temporary effects due to short-duration activities are not considered to cause deterioration if the water body would recover in a short time without any restoration measures. Where relevant, mitigation measures should be included to avoid or minimise risks of deterioration. In the instance an activity causes deterioration to the quality of the receptor or supporting habitat, the assessment should consider the pathway for the impact and how the deterioration could occur, in terms of being:

- Direct and immediate – it will happen at the same time and place as the activity; or
- Indirect – it will happen later or further away, including in other linked water bodies.

The impact assessment is also required to consider the potential risk of jeopardising ‘good’ status or an activity limiting the ability of a water body to achieve ‘good’ status in the future. The completed assessment also includes consideration of cumulative effects on the assessed WFD receptor.

5.2 Screening Outcome

The Sceirde Rocks Offshore Wind Farm will entail activities that may pose a risk to WFD receptors, with the potential impact occurring as a result of Project activities for all Project phases, with the impact being direct and or indirect. On the basis of the potential for impacts to WFD receptors throughout all Project phases, a WFD compliance assessment is required.

5.3 WFD Scoping and Assessment

Best practice in line with guidance available from other national jurisdictions and the staged assessment process as set out in CIS (2001) are used in completing the WFD scoping assessment for potential impacts on WFD receptors. Where the requirement for an assessment is determined based on the WFD Scoping outcome, the assessment is presented for the same WFD receptor, in consideration of the Project activity and impact pathways.

5.3.1 Coastal and Transitional Water Bodies

5.3.1.1 Hydromorphology

Scoping

None of the water bodies that intersect the WFD Study Area are classified as heavily modified water bodies, meaning that it is not modified to provide the same function as the Offshore Site. Works within the Offshore Site, and in particular the OAA, would be directly within the Aran Islands, Galway Bay, Connemara coastal water body, with the construction, operation and decommissioning phase activities as described in Sceirde Rocks Offshore Wind Farm EIAR, Chapter 5: Project Description. The OECC overlaps both the Aran Islands, Galway Bay, Connemara and Shannon Plume coastal water bodies. Therefore, cable and or landfall installation during the construction and decommissioning phases and any necessary operational repair within the OECC would occur within the water bodies. It is considered that works during the construction phase associated with the OEC installation within the OECC and HDD at landfall, can be scoped out, despite being a direct impact associated with the installation directly within the water body, as any disturbance will be localised to the installation activity and be transient, with no permanent changes to the water body. In consideration of the potential for whole Project effects, accounting for both the Offshore Site and Onshore Site, there is not considered to be any hydromorphological connectivity between the Offshore and Onshore works, with the latter being entirely terrestrial and above the high water mark. Therefore, there is not considered to be the potential for any whole Project effects leading to the deterioration of status of the Doonbeg Bay coastal and Doonbeg Estuary transitional water bodies.

The construction phase cable and landfall installation and operational presence once buried, will not impact on the hydromorphological condition of the coastal or transitional water bodies, even those that are at a high status or less. There is however the potential for direct impacts associated with the construction and operational presence of the Offshore Site, particularly the OAA on the hydromorphological status of the intersected water body, so an assessment is completed as presented below.

Assessment

In terms of the OAA construction and presence during the operational phase, the OAA area is small in comparison to the Aran Islands, Galway Bay, Connemara coastal water body area, with the OAA having an area of 37.22 km² and the coastal water body having an area of 1,038 km², with the OAA overlapping approximately 3.6% of the water body. As the OAA is located within the water body, any potential impacts would be direct. The OAA is also located approximately 5 km from the Galway coast. Although, the completed modelling in Appendix 7-1: Sceirde Rocks Offshore Wind Farm Environmental Effects Numerical Modelling Study, showed that changes to the tidal and wave properties did occur within the OAA and its immediate vicinity, the changes were primarily localised to within 2 km of the OAA and did not extend beyond this distance. Therefore, the localised extent of changes to the tidal and wave processes means that the presence of the OAA will not ultimately impact the hydromorphological status of the water body even at a high status.

Given the described impact pathways above and the detailed assessment presented in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 7: Marine Physical And Coastal Processes, it is considered that there would be no deterioration to the high hydromorphology status of the Aran Islands, Galway Bay, Connemara coastal water body from the Project. Furthermore, the presence of the Offshore Site would not jeopardise the ongoing attainment of the high hydromorphology status. On the basis of the above, it is considered that the Project is compliant with respect to the hydromorphological properties for all water bodies.

Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site. Although there are other developments that would overlap with the same coastal water bodies as the Offshore Site, such as ports and harbours, these are completely distinct from the Offshore Site, with no potential for cumulative impacts with the Offshore Site.

5.3.1.2 **Biology Quality Elements**

5.3.1.2.1 **Habitats**

Scoping

Evaluation of the potential impact to habitats is based on the physical footprint of the Project directly overlapping with sensitive benthic habitats. Therefore, the impact assessment results as presented in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 9: Benthic Ecology are used to inform this assessment. Benthic habitats as identified across the Offshore Site are as follows:

- Within the Offshore Site, habitat resembling Annex I stony and bedrock reef is present across 30.3 km² (21.1 km² within the OAA and 9.2 km² along the OECC). These areas of reef were delineated as high energy infralittoral rock and high and moderate energy circalittoral rock interspersed with circalittoral coarse or mixed sediment which resembled 'low' and 'medium' stony reef. While some of the rock habitats observed across the array met the qualifying criteria of Annex I reef, being a complex of bedrock reef and low and medium stony reefs, there is no overlap with the boundaries of a designated site (e.g., SAC) and therefore these reef features are not protected as a qualifying interest of a protected site designated under the EU Habitats Directive;
- Site specific surveys also identified the presence of subtidal sands and gravels representative of EUNIS habitats including circalittoral coarse sediment, deep circalittoral coarse sediment, circalittoral fine sand, circalittoral muddy sand, deep circalittoral sand, circalittoral mixed sediments and deep circalittoral mixed sediments;
- Subtidal muds were less prevalent throughout the Offshore Site as a whole, with the highest subtidal mud concentrations along the OECC and smaller proportions observed within the OAA; and
- Maerl beds were identified at two locations within the OAA and classified as the habitat complexes A5.51 'Maerl beds' and A5.511 'Phymatolithon calcareum maerl beds in infralittoral clean gravel or coarse sand', located ~ 6.5 km from the closest known maerl beds occurring at the Kilkieran Bay and Islands SAC. The maerl observed consisted of pink encrusting algae, hedgehog maerl, maerl nodules and maerl gravel (Ocean Ecology Limited, 2024).

The impact pathways to this WFD receptor is through the temporary / permanent loss and or disturbance of habitats, through all Project phases, with the impact being direct. Given the presence of sensitive benthic habitats within the water bodies that intersect the Offshore Site, and the specific presence of such sensitive features directly within the Offshore Site, it is considered that the benthic habitat is scoped in for assessment under the WFD, with the assessment provided below.

Assessment

The construction of the Project would have a direct temporary effect (in terms of loss and or disturbance) on the aforementioned features across the entire Offshore Site as they occur within the three coastal and one transitional water bodies. While the placement of the OAA infrastructure will have a long-term loss or damage effect only to the habitats that occur within the OAA, located within the Aran Islands, Galway Bay, Connemara coastal water body.

With respect to the direct temporary loss and or disturbance effects, relevant to all water bodies, the identified habitats are located in a moderate to high energy environment and are characteristic of such conditions. They are therefore expected to be of a high tolerance, adaptability and recoverability to the temporary effects (i.e. associated with the construction and decommissioning Project phases), with no impact to the ecological status of the intersected water bodies, which includes the good and high-status coastal water bodies. In terms of the moderate status Doonbeg Estuary transitional water body, located 1.5 km east of the landfall (and around a headland), the landfall works would be localised and temporary. In the highly dispersive and energetic environment that occurs at the coast, any habitats would again be resilient and adaptable to temporary construction works, with no deterioration to the moderate status. It is noted that the WFD objective is for the enhancement and restoration of water bodies not at good status. The reason for the moderate status for the Doonbeg Estuary transitional water body is not available. Although, from EPA (2024), the three dominant pressures for transitional waterbodies from the largest includes agriculture, urban waste water and urban run-off. It is not documented, which pressure specifically applies to the Doonbeg Estuary transitional water body. It is however assumed the justification for the moderate assessment would not be due to HDD landfall operations, and the likely cause having no association with the Project landfall installation activities. Therefore, the mechanism for improving to good is more likely in relation to management associated with one or more of the aforementioned pressures. As a result, the temporary loss and disturbance effects associated with the Project are not considered to negatively impact on the status of any of the intersected water bodies, with the potential for improvement of the Doonbeg Estuary transitional water body being entirely in relation to external and completely unrelated factors, and no bearing from the Project or Offshore Site.

With respect to the potential direct long-term loss or damage effect, this would only be in relation to the habitats that occur within the OAA, comprising mainly stony and bedrock reef, subtidal sands and gravels and maerl beds, relevant to only the Aran Islands, Galway Bay, Connemara coastal water body. As introduced in Section 3.3, mitigation by design has been incorporated into the Project, with the avoidance where possible of sensitive benthic features. Furthermore as assessed within the EIAR, an important aspect that has been taken into consideration when determining the significance of the long-term effect is whether the effect is likely to incur a change in biological diversity or community composition that may affect ecosystem function and higher trophic levels including birds, fish and mammals. When considering the extent of all the potential sensitive benthic habitats present within the OAA as a whole, their ecological function and general character are all expected to remain in line with the baseline conditions and therefore there will be no effect on ecosystem function. As there is no impact or change to the ecological and ecosystem function of the benthic habitats, there is not considered to be any impact to the high Ecological Status Potential of the Aran Islands, Galway Bay, Connemara coastal water body, within which the OAA is located entirely. With the mitigation by design through avoidance where possible, the resilience, high tolerance and adaptability of the habitats given the moderate to high energy environment, the Project and OAA are unlikely to bring about a deterioration to the high status of the coastal water body.

On the basis of the above, it is considered that the Project is compliant with respect to the benthic habitat properties for all water bodies. In consideration of the potential for whole Project effects, accounting for both the Offshore Site and Onshore Site, it is understood from the Onshore WFD compliance assessment that mitigation measures associated with the OLL works would limit the release of contaminants. Furthermore, with the large water volumes present in the coastal and transitional water bodies, dilution would occur. However, as there is no habitat connectivity between the Offshore and Onshore works, with the latter being entirely terrestrial and above the high water mark, there is not

considered to be the potential for any whole Project effects leading to the deterioration of the Doonbeg Bay coastal and Doonbeg Estuary transitional water bodies. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.1.2.2 Fish and Shellfish

Scoping

Evaluation of the potential impact to fish and shellfish ecology is in terms of the Project location (i.e. in proximity or not to an estuary), impacts on fish behaviour and potential for entanglement. The impact assessment results as presented in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 10: Fish and Shellfish Ecology are used to inform this assessment. The main characteristics for fish and shellfish relevant to this WFD compliance assessment are as follows:

- The Offshore Site overlaps with nursery and to a lesser degree spawning grounds for fish and shellfish species that are of commercial and or conservation importance, with such species also being present within the Offshore Site, as identified through eDNA analyses as detailed in the EIAR; and
- There is the potential for diadromous fish species to migrate to and from Irish rivers in the vicinity of the Offshore Site. Although site specific eDNA analyses did not identify any species, it is not considered unusual, as these species are transient, so evidence of such species may be limited or absent;

The impact pathways to this WFD receptor is as described for the habitat receptor above (Section 5.3.1.2.1), through all Project phases, being a direct impact. The Offshore Site is not within an estuary, although the OAA is west of Galway Bay and the landfill is close to the Doonbeg Estuary. Given the proximity to the estuary and the presence of fish and shellfish species of conservation and or commercial importance, it is considered that fish and shellfish are scoped in for assessment under the WFD, with the assessment provided below.

Assessment

Potential impacts to fish and shellfish as detailed in the EIAR are in relation to the damage or disturbance associated with underwater noise, temporary or long term habitat loss, changes in water column properties and electromagnetic field (EMF) and barrier effects. The physical presence of the Offshore Site, particularly the OAA, has the potential to impact the nursery and spawning grounds. However, as these grounds occur over a much larger area than the Offshore Site, the actual impact from the Project is considered to be minimal due to the relatively small footprint within the wider nursery and spawning grounds. With respect to the potential for changes to water column properties, this could be through increased suspended sediment concentration (SSC) or the disturbance of contaminants within sediments. Seabed disturbance mechanisms and any resulting plume has been assessed in Chapter 7: Marine Physical And Coastal Processes, to be temporary, of limited spatial extent, with a maximum duration of approximately up to one flood – ebb tidal cycle (at around 14-hours). In a moderate to high energy environment such changes in SSC would not be uncharacteristic to the water column. Furthermore, site specific sediment sampling for contaminants, identified little to no presence of chemical contaminants. Therefore, the Project and Offshore Site are not considered to impact water column properties to ultimately influence fish and shellfish species. Consideration of the temporary and long term habitat loss is as described for benthic habitats in Section 5.3.1.2.1 above, with the Offshore Site not considered to lead to impacts to fish and shellfish using the same habitats.

With respect to underwater noise and EMF effects, the disturbance mechanisms are similar with these potentially leading to barrier effects. In terms of underwater noise, the assessment presented in Sceirde Rocks Offshore Wind Farm EIAR, Chapter 10: Fish and Shellfish Ecology, summarised that underwater noise generated during the construction phase has the potential to adversely affect a small

proportion of the local fish and shellfish population for a short-term period during the construction phase, while the noise generated from the operational WTGs and OSS would be far less and highly unlikely to cause any damage. Mortal and potential mortal effects will only occur to fish within close proximity to UXO clearance activities should this be required. Recoverable injury, Temporary Threshold Shift (TTS), masking and behavioural effects may occur over larger ranges, however, a degree of recovery would be expected for these sub-lethal effects with no material effects on the fish and shellfish. Any effects associated with vessel sound and cable installation would be short-term (the duration of the construction period), highly localised, intermittent / transient, and all effects are predicted to be recoverable. Underwater noise modelling results presented in the EIAR assume that individuals remain stationary in respect of the noise source, which is highly unlikely. In reality, most fish and shellfish will be able to vacate areas experiencing high levels of underwater sound to reduce their potential susceptibility to injury. Fish with a swim bladder involved in hearing are the most vulnerable to impacts from underwater sound (e.g. herring, and gadoids such as haddock, whiting and cod), however, these species would be able to temporarily leave the area. Several of these species also have spawning or nursery areas which overlap with the Offshore Site and many of these species are of commercial value. However, their spawning and nursery grounds are typically very large and widespread, relative to any transient, short duration and highly localised underwater noise generated during pre-construction and construction. Furthermore, it should be highlighted that UXO clearance is very unlikely to be required owing to the low risk of UXO being present in the Offshore Site, and has been considered here in a highly precautionary approach.

In terms of EMF, the localised occurrence of these in proximity to cables could potentially affect the sensory mechanisms of certain fish and shellfish species, in particular, elasmobranchs, diadromous fish, lobsters and crabs, which are known to be electrosensitive (CMACS, 2003; Hutchison *et al.*, 2018; 2020; 2021). The completed EIA assessment summarised that as the EMF from the Project cables would be low, typically below the strength of the background geomagnetic field, and will occur over a local spatial extent and dissipating rapidly from the source, such effects would have limited impact to fish and shellfish species. As construction works noise would be temporary, operational noise would be limited, and EMF operational effects would be limited, the EIAR determined that the potential for barrier effects would primarily relate only to the migrations of diadromous fish. However as the noise and EMF effects would be continuous, of a local spatial extent and long term, the Project is unlikely to substantially reduce the successful migrations of diadromous fish. There is not considered to be any barrier impacts to other fish and shellfish species as a result of the Project and Offshore Site.

Given the above and the fact that the Project is not considered to ultimately impact the migrations of diadromous fish, or impact normal fish behaviour aside from the short term construction phase, the Project is unlikely to impact the status of the intersected water bodies and it is considered that the Project is compliant with respect to the fish and shellfish properties for all water bodies. In consideration of the potential for whole Project effects again, considering both the Offshore Site and Onshore Site, there is the potential for indirect connectivity for diadromous fish that migrate into rivers. However, it is understood from the Onshore WFD compliance assessment that mitigations in place associated with the OLL works, would limit the releases of sediment and pollutants into surface water bodies including water courses. Therefore, given the mitigations in place, for both the Offshore Site and the Onshore Site for the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of the Doonbeg Bay coastal and Doonbeg Estuary transitional water bodies. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.1.3 Physico-Chemical Quality Elements

5.3.1.3.1 Scoping

Consideration of the coastal and transitional water bodies water column properties entails evaluation of the potential for impacts on water quality indicators including changes in water clarity, temperature, salinity, oxygen levels etc., or if the phytoplankton status is moderate or worse or with a history of

harmful algae. The impact assessment results as presented in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 7: Marine Physical And Coastal Processes and Chapter 9: Water and Sediment Quality are both used to inform this assessment. The impact pathways to this WFD receptor is associated with the increase in SSC as a result of Project activities primarily through the construction and decommissioning phases, associated with seabed clearance (including dredge disposal) and cable and HDD landfall installation, with the impacts being direct to the intersected water bodies. As project activities particularly during the construction and decommissioning phases associated with the entire Offshore Site can lead to changes in water column properties, resulting in a direct impact to the intersected water bodies, an assessment is completed as presented below.

5.3.1.3.2 Assessment

On the basis of any sediment disturbance that occurs associated with Project activities including seabed clearance (including dredge disposal) and cable and HDD landfall installation, there is the potential that a plume could be formed. However, any plume would be transient in relation to the Project activity, temporary only lasting approximately up to a flood – ebb tidal cycle (of around 14-hours), of limited spatial extent of a few kilometres with respect to the flow orientation (i.e. in a northwest to southeast axis) and low concentrations background levels of <5 mg/l with increasing distance from the disturbance event. With limited, temporary and spatially limited changes to the SSC, there will be no onward effects to oxygen levels. In addition, Project activities are not considered to be able to alter the salinity and temperature water column properties. The Offshore Site, particularly the OAA is within a well-mixed environment given the water depth and the characteristic current and wave regimes detailed in Sceirde Rocks Offshore Wind Farm EIAR, Chapter 7: Marine Physical And Coastal Processes.

With regards to the potential for a plume in relation to HDD activities at the landfall on the coast, it is estimated up to 200 m³ of PLONOR fluid (i.e. substances used and discharged Offshore which are considered to Pose Little or No Risk to the environment) could be released at the HDD pop out or through fractures along the drilled duct. The PLONOR fluid would comprise mostly water and approximately 20 m³ of solids (i.e. bentonite clay), for which medium silt is applied as a proxy. Given the low solids content, any plume would be considerably less than that estimated for the construction activities in the OAA and detailed in Sceirde Rocks Offshore Wind Farm EIAR, Chapter 7: Marine Physical And Coastal Processes.

Given the short-term and limited spatial nature of sediment disturbance impacts, there would be no opportunity to alter the status of the intersected water bodies. Therefore, the Project is considered to be compliant with respect to the water quality properties for all water bodies. In consideration of the potential for whole Project effects, accounting for both the Offshore Site and Onshore Site, it is understood from the Onshore WFD compliance assessment that mitigation measures associated with the OLL works would limit the release of contaminants. Furthermore, with the large water volumes present in the coastal and transitional water bodies, dilution would occur. Given the mitigation for both the Offshore Site and the Onshore Site for the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of the Doonbeg Bay coastal and Doonbeg Estuary transitional water bodies. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site. Although there are other developments that would overlap with the same coastal water bodies as the Offshore Site, such as ports and harbours, these are completely distinct from the Offshore Site, with no potential for cumulative impacts with the Offshore Site.

5.3.1.4 Priority Substances

5.3.1.4.1 Scoping

This considers the potential presence of and disturbance of chemicals on the EQSD list, including metals, PCBs, PAHs, organotins and DDT. The impact assessment results as presented in the Sceirde

Rocks Offshore Wind Farm EIAR, Chapter 9: Water and Sediment Quality are used to inform this assessment.

- Site specific sampling for contaminants were completed for 22 samples, comprising 16 in the OAA and six in the OECC, with a summary of the results as follows:
 - From the sampled results, only four samples were above the Irish Dredge Disposal Lower Limit (IDD LL) EQSD threshold. Three (two in the OAA and one in the OECC) were in relation to arsenic (AS) and one (in the OECC) in relation to chromium (CR). All other metals were below the IDD LL threshold;
 - No organotins were detected;
 - For PAHs, concentrations across the Offshore Site were very low and generally below the level of detection (LoD). The sum of all 16 measured PAHs for the sampled locations was between 3.29 µg/kg and 8.29 µg/kg for samples within the OAA and between 2.32 µg/kg and 24.72 µg/kg for samples within the OECC, which are all significantly lower than the IDD LL concentration of 4,000 µg/kg; and
- For PCBs, there was only one sample location where measurements were above LoD.
- Site specific sampling for water quality from 33 sample locations comprising, 17 within the OAA and 16 within the OECC, demonstrated that dissolved inorganic nutrients (and associated nitrate, nitrite and ammonia) phosphate across the Offshore Site are not indicative of a eutrophic environment.

Project activities particularly during the construction and decommissioning phases can lead to disturbance and dispersion of contaminants contained within sediment, which would be direct impact to the intersected water bodies. Given the presence, albeit very limited, of contaminants within the Offshore Site, an assessment is completed as presented below.

5.3.1.4.2 Assessment

During construction and decommissioning only, Project activities on the seabed such as seabed clearance, trenching, dredging and disposal activities have the potential to disturb and release sediment bound contaminants. However, as demonstrated through the site specific sampling, the occurrences of contaminants across the Offshore Site is considered to be a low to very low likelihood. Where contaminants were over the IDD LL threshold, they were just over the lower level and well below the upper level. No other priority substances were above the IDD LL, with the majority of sampling being below the LoD. It is therefore considered that the potential release of contaminants bound in sediments is minimal. For any potential occurrence within the disturbance footprint, the contaminants would largely be attached to sediment particles. In the event of disturbance, only very small concentrations of contaminants enter to the dissolved phase, with the vast majority remaining adhered to the sediment particles when temporarily entering suspension in the water column. Should contaminants enter the dissolved phase, partition coefficients would indicate that concentrations, which are observed at below-threshold levels, would typically reduce by several orders of magnitude than the concentrations associated with suspended sediments through dilution. Therefore, should any contaminants, in particular AS or CR, be disturbed and released during the construction activities, these would largely settle and remain within the Offshore Site boundaries. Should any proportion of contaminants dissolve into the water column, these would be of very low concentrations and would be rapidly dispersed and further reduce in concentration through tidal processes. For water chemistry, dissolved inorganic nutrient concentrations for nitrate and phosphate were generally low across the Offshore Site, indicating that the Offshore Site is not within a eutrophic environment, which is supported through evidence for the regional waters through comparison with the EPA monitoring data.

Mitigation by design inherent within the Project, including the adherence to the MARPOL and BWM conventions (Section 3.3), will limit vessel discharges and accidental releases of polluting materials. However, should any occur, it would be within the moderate to high energy and dispersive environment resulting in the dilution of polluting materials.

Given the low to very low likelihood of occurrence of contaminants within the Offshore Site, with a low potential for disturbance during Project activities and the adherence to conventions preventing the occurrence of pollution events from vessels, it is again considered that the Project is unlikely to impact the status of the intersected water bodies and the Project is compliant with respect to the water quality properties for all water bodies. In consideration of the potential for whole Project effects, accounting for both the Offshore Site and Onshore Site, the summary applied for the physico-chemical elements in Section 5.3.1.3.2 above again applies. Given the mitigation for both the Offshore Site and the Onshore Site for the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of the Doonbeg Bay coastal and Doonbeg Estuary transitional water bodies as a result of the release and dispersion of chemical contaminants. This is still the case despite the onshore works associated with the OGC occurring within catchments that discharge into the Doonbeg Estuary transitional water. As introduced in Section 1.4, mitigation measures associated with the onshore works for the OGC limit the potential for indirect impacts, despite the indirect connectivity. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.2 WFD Protected Areas

5.3.2.1 Bathing Waters

5.3.2.1.1 Scoping

The WFD Study Area overlaps with one designated bathing water as introduced in Section 4.4.1. The White Strand, Doonbeg, bathing water is located approximately 1 km east of the landfall (Figure 4-1) and has had an “Excellent” annual bathing water quality between 2018 and 2022 (EPA, 2019; 2020; 2022; 2023). Only the landfall installation and cable trenching along the OECC and near the landfall could interact with the bathing water, associated with the potential for increases in SSC (from trenching or dispersion of HDD fluids) or disturbance and dispersion of contaminants contained within sediment. As the Project does not directly overlap with the bathing water and it is only located within the 2 km buffer WFD Study Area, the potential impact to the bathing water as a result of Project activities, would only be indirect. Given the potential pathway for impacts to the bathing water associated with the Project activities an assessment is completed as presented below. This WFD compliance assessment is completed on the basis of the construction and decommissioning phases only, as any operational phase disturbance would be considerably less than that which occurs during the construction phase. The impact assessment results as presented in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 7: Marine Physical And Coastal Processes and Chapter 9: Water and Sediment Quality are both used to inform this assessment.

5.3.2.1.2 Assessment

The assessment completed for the physico-chemical quality elements in Section 5.3.1.3.2 is relevant here. The impact pathways associated with Project activities, with the potential for indirect impacts to the bathing water WFD receptor are associated with increase SSC and disturbance of contaminants during cable trenching operations or increases in turbidity as a result of HDD installation and release of PLONOR drilling fluids. Discharges from vessels are assumed to be limited to negligible given the adherence to management protocols such as the MARPOL convention, introduced in Section 3.3. As described in Section 5.3.1.3.2, increases in SSC or turbidity associated with Project activities would be temporary only lasting approximately up to a flood – ebb tidal cycle (of around 14-hours), of limited spatial extent with respect the flow orientation and low concentrations with increasing distance from the disturbance event. With limited, temporary and spatially limited changes to the SSC or turbidity, there will no onward impacts to other water column properties that determine the status of the bathing water. Therefore, the Project is considered to be compliant in that it will not bring about any deterioration to the bathing water or its status. With respect to the potential for whole Project effects (in terms of both the Offshore Site and Onshore Site), the summary applied for the physico-chemical elements in Section 5.3.1.3.2 above again applies. Given the mitigation for both the Offshore Site and the Onshore Site for

the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of the bathing water. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.2.2 Natura 2000 Protected Sites

5.3.2.2.1 Scoping

The WFD Study Area intersects six designated sites as summarised in Section 4.4.4. The sites comprise four SACs and two SPAs, with one SAC intersecting the buffer in relation to OAA and all other designated sites occurring with respect to the OECC as demonstrated in Table 4-2. The impact pathways to these WFD receptors are primarily through the Project construction, with any operational phase impacts being considerably less than that during the construction phase. The impact pathways are indirect, associated with the potential for increases in SSC or disturbance and dispersion of contaminants contained within sediment being transported into the designated sites, thereby impacting their status. Given the potential pathway for impacts to the protected sites associated with the Project activities, during the construction phase only, an assessment is completed as presented below.

5.3.2.2.2 Assessment

The assessment as presented for the bathing water WFD protected area above in Section 5.3.2.1.2 is relevant to the Natura 2000 protected sites WFD receptor. Given the temporary and spatially limited indirect impacts as detailed in Section 5.3.2.1.2, with no onward impacts to the designated site properties, the Project is considered to be compliant as it will not cause any deterioration to the designated sites. With respect to the potential for whole Project effects (in terms of both the Offshore Site and Onshore Site), given the mitigation for both the Offshore Site and the Onshore Site for the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of any protected sites. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.2.3 Natural Heritage Areas

5.3.2.3.1 Scoping

The WFD Study Area intersects two pNHAs associated with the OECC, as summarised in Section 4.4.5, with both having marine components, in relation with the SAC they overlap. The impact pathways to these WFD receptors are primarily through the Project construction, with any operational phase impacts being considerably less than that during the construction phase. The impact pathways are indirect, associated with the potential for increases in SSC or disturbance and dispersion of contaminants contained within sediment being transported into the designated sites, thereby impacting their status. Although pNHAs are non-statutory, given the potential pathway for impacts to the protected sites as described in Section 5.3.2.3, the same can be considered to apply to the pNHAs. Therefore, an assessment is completed in relation to the construction phase as presented below.

5.3.2.3.2 Assessment

The assessment as presented for the Natura 2000 protected sites above in Section 5.3.2.2.2 is relevant to this pNHA WFD receptor. Given the temporary and spatially limited indirect impacts as detailed in Section 5.3.2.1.2, with no onward impacts to the designated site properties, the Project is considered to be compliant as it will not cause any deterioration to the designated sites. With respect to the potential for whole Project effects (in terms of both the Offshore Site and Onshore Site), given the mitigation for both the Offshore Site and the Onshore Site for the OLL works, there is not considered to be the potential for any whole Project effects leading to the deterioration of any protected sites. Cumulatively,

there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

5.3.3 Invasive Non-Native species (INNS)

5.3.3.1 Scoping

The consideration of the potential presence of INNS in the marine environment is not an element that is included in Ireland's Water Action Plan (2022 – 2027) or earlier revisions, although the property is considered for canal water bodies. As a result no information is available on the status of INNS for coastal and terrestrial water bodies and the WFD Protected Areas. Nonetheless, as this is an important aspect to the Project, with the incorporation of a Marine Invasive Non-Native Species Management Plan (MINNSMP), it is considered and assessed with respect to the WFD. The developed baseline and impact assessments in the Sceirde Rocks Offshore Wind Farm EIAR, Chapter 9: Benthic Ecology is used to inform this assessment. Impacts associated with this WFD receptor are considered to be both direct and indirect and are applicable through all Project phases.

With respect to the presence of INNS within the Offshore Site, Sceirde Rocks Offshore Wind Farm EIAR, Chapter 9: Benthic Ecology provides the following:

- Two non-native taxa were identified during the benthic survey in low abundance, with occurrences across the OAA and OECC, with their occurrence considered to be low risk;
- Additional taxa recorded within the sediment eDNA samples include two INNS Japanese seaweeds: *Fibrocapsa Japonica*, and *Dasysiphonia Japonica* (Ocean Ecology Limited, 2024). While specimens of these seaweeds were not actually observed in the survey area, their DNA presence possibly indicate their presence in the area. While such red seaweed species have not been identified as particularly problematic in Ireland, there is evidence to suggest that *D. Japonica* is invasive and can have toxic effects on invertebrates and fish species (Young et al., 2022), no live specimens were observed therefore their presence within the Sceirde Rocks area cannot be verified; and
- In addition to the above, two invasive species are known to have been recorded in the Shannon Estuary where temporary anchorage may be provided for the gravity foundations. These species are the pacific oyster (*Magallana gigas*) and the bryozoan *Bugula neritina* (O'Shaughnessy et al., 2023).

The impact pathway associated with this WFD receptor is the increased risk of introduction and spread of INNS during all Project phases associated with Project activities and vessel movements given the known presence in the area. The impact would be direct in relation to the water bodies that intersect the WFD Study Area. Given the potential presence of INNS within the Offshore Site and in locations to be used during the Project construction, the topic is scoped in for assessment under the WFD, with the assessment provided below.

5.3.3.2 Assessment

There is potential for the increased risk of introduction and spread of INNS as a result of seabed preparation and construction activities, as well as during the operational Project phase. Marine INNS may be introduced or transferred by vessels, such as through biofouling (e.g. attachment of organisms to boat hulls) or discharge of ballast water. INNS may also be introduced through towing of infrastructure to the site, such as with the temporary anchorage. INNS can have a detrimental effect on benthic ecology through predation on existing wildlife or outcompeting for prey and habitat. This can result in biodiversity changes in the existing habitats present in the benthic ecology study area. Depending on the INNS species introduced, this could potentially lead to complete loss of certain species and may result in new habitats forming (e.g. reef-forming species).

Mitigation by reduction will be employed, through the implementation of the OEMP (Section 3.2) including adherence to protocols for pollution prevention, biosecurity and waste management. Also a MPCP and MINNSMP are to be adhered to as part of the OEMP. The management plans detail the measures being taken to avoid the introduction and spread of INNS, including adherence to the BWM Convention and other applicable international regulations, as well as containment procedures in the unlikely event that INNS are found. Also, standard mitigation will also be undertaken, including for swapping out ballast water, cleaning hulls, floating structures. Further specific mitigation measures included in the MINNSMP are summarised in Sceirde Rocks Offshore Wind Farm EIAR, Chapter 9: Benthic Ecology.

On the basis of the mitigation and management measures designed into the Project, it is considered that the Project is unlikely to impact the status of the intersected water bodies and the Project is compliant with respect to the water quality properties for all water bodies. Given the mitigation for Offshore Site with respect to the MPCP and MINNSMP, there is not considered to be the potential for any whole Project effects leading to the deterioration of the intersected water bodies as a result of INNS. Cumulatively, there is not considered to be any change to the completed WFD assessment, there are no other developments or projects within the 2 km buffer of the Offshore Site.

6. **CONCLUSION**

A WFD compliance assessment has been completed for the offshore component of the Sceirde Rocks Offshore Wind Farm, evaluating the potential for impacts as a result of the Project on WFD receptors. In particular and in line with the WFD and RBMP objectives, the assessment is completed to ensure Project activities would not bring about or contribute to the deterioration of status or prohibit the potential for water bodies to achieve at least good status by 2027.

The overall conclusion of the WFD compliance assessment is that there will be no risk of deterioration in status or the prevention of the achievement of the objectives for the relevant water bodies nor will the protected area objectives be compromised. This is assessed to be the case for the Offshore Site in isolation, in consideration of the whole Project effects (i.e. accounting for both the Offshore Site and Onshore Site) and cumulatively with other projects and developments, noting that there are no other projects within the applied WFD Study Area.

7.

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