Bowdun Offshore Wind Farm, Offshore EIA Report

Volume 3, Technical Appendix 7.5: Water Framework Directive Technical Report

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Glossary

Defined Term	Definition
Additional Mitigation	Also referred to as secondary mitigation which is defined by The Institute of Sustainability and Environmental Professionals (ISEP) (formerly Institute of Environmental Management and Assessment (IEMA)) as: Actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the EIA Report (sic).
Annex VIII Substances (also referred to as Specific Pollutants)	These are pollutants listed in Annex VIII of the Water Framework Directive (WFD) that are not necessarily priority substances but are still regulated due to their harmful effects on water bodies.
Annex X Substances	Annex X substances include priority substances and priority hazardous substances identified by the European Union due to their significant risk to or via the aquatic environment. These substances are selected based on their toxicity, persistence, bioaccumulation potential, and widespread presence in the aquatic environment.
Applicant (the)	Bowdun Offshore Wind Farm Limited (BOWFL).
Appropriate Assessment (AA)	An assessment to determine the implications of a plan or project for a European site in view of that site's conservation objectives. An Appropriate Assessment forms part of the Habitats Regulations Appraisal (HRA) and is required when a plan or project (either alone or in combination with other plans or projects) is likely to have a significant adverse effect on a European site.
Array Area	The Array Area is the area in which the Offshore Generation Assets will be located.
Benthic	Living on or in the seabed.
Ecological Potential	Ecological potential in artificial and heavily modified water bodies is determined by an assessment of whether measures are properly in place to mitigate the impacts of any modification on the ecology of the water body.
Effect	Term used to express the consequence of an impact (i.e. the result of change or changes) on specific environmental resources or receptors. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity of the receptor or resource in accordance with defined significance criteria.
Embedded Mitigation	Measures that are adopted as part of the Proposed Development and therefore assessed within the EIA. The proposed approach for the EIA for the Proposed Development is that Embedded Mitigation includes both primary mitigation and tertiary mitigation. These are defined by the ISEP as follows: Primary: Modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project, and do not require additional action to be taken. Tertiary: Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.

Defined Term	Definition
Environmental Impact Assessment (EIA)	Process for the assessment of likely significant environmental effects of a project on the physical, biological and human environment during construction, Operation and Maintenance (O&M) and decommissioning.
European Sites	This term recognises SACs, candidate SACs (cSACs), Sites of Community Importance (SCIs), Special Protection Areas (SPAs), possible SACs (pSACs), potential SPAs (pSPAs) and Ramsar sites (where also designated as another European Site), which protect species and habitats shared across Europe and were originally designated under European legislation.
Export Cable Corridor	The area seaward of Mean High Water Springs (MHWS) which connects the Array Area with the Landfall within which the Offshore Export Cables will be installed.
Good Status	A collective term used to refer to the status achieved by a surface water body when both its ecological status and its chemical status are at least good or, for groundwater, when both its quantitative status and chemical status are at least good.
Groundwater	All water which is below the surface of the ground in the saturated zone and in direct contact with the ground or subsoil.
Habitats Regulations	A term that refers to the collective legislation that translates the Habitats Directive into specific legal obligations in Scotland, namely: The Conservation (Natural Habitats, &c.) Regulations 1994; The Conservation of Habitats and Species Regulations 2017; and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (in each case as amended).
Heavily Modified Water Bodies (HMWB)	A body of surface water which, as a result of physical alterations by human activity, is substantially changed in character, as designated in accordance with the provisions of Annex II of the WFD.
Hydromorphology	A study of the quantity and dynamics of water flow within a water body that has variations in its width, depth, structure and substrate of bed and riparian zone.
Impact	A change caused by an action that occurs during a project's lifetime.
Inter-Array Cables (IAC)	Cables which link the Wind Turbines to each other and with the Offshore Substation Platforms (OSPs).
Interconnector Cables	Cables which will connect individual OSPs to each other to provide redundancy against cable failure elsewhere.
Intertidal Area	The area between MHWS and Mean Low Water Springs (MLWS).
Landfall	The area in which the Offshore Export Cables make landfall and is also the transitional area between the Offshore Transmission Assets and the Onshore Transmission Assets. Located in the Intertidal Area at Benholm.
Likely Significant Effect (LSE)	A significant effect on a designated site that has the potential to occur as a result of the Proposed Development (as determined by the LSE Screening Report). Where a LSE cannot be ruled out, further assessment is needed as part of the AA.

Defined Term	Definition
Marine Directorate (MD)	The Marine Directorate of the Scottish Government, formerly known as Marine Scotland. The planning and licensing authority for Scotland's seas and custodian of Scotland's National Marine Plan (NMP). The Marine Directorate - Licensing Operations Team (MD-LOT) are specifically responsible for managing Section 36 Consent and Marine Licence Applications seaward of MHWS.
Marine Licence	A Marine Licence permits the undertaking of different activities in the marine environment, including construction, the deposition or removal of substances or objects, and dredging. The Marine (Scotland) Act 2010 requires Marine Licences to be obtained for licensable activities taking place within Scottish Territorial Seas (MHWS to 12 nm). The Marine and Coastal Access Act (MCAA) 2009 requires a Marine Licence to be obtained for licensable marine activities within the Scottish offshore region (12 nm – 200 nm).
Marine Protected Areas (MPAs)	MPAs are designated under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act (MCAA) 2009. The MPA network protects nationally and internationally important marine wildlife, habitats, geology, and underwater landforms. Scotland's MPAs are significantly important for European, North-East Atlantic, and global MPA networks.
Maximum Design Scenario (MDS)	The scenario within the design envelope likely to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
Mean High Water Springs (MHWS)	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean Low Water Springs (MLWS)	The average tidal height throughout the year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mitigation	Measures to avoid, prevent, reduce or control effects on the environment. See also definitions for Embedded Mitigation and Additional Mitigation.
Offshore Environmental Impact Assessment (EIA) Report (hereafter, 'Offshore EIA Report')	Document prepared to report the findings of the EIA for the Proposed Development and produced in accordance with the EIA Regulations. The Offshore EIA Report is submitted to support the Offshore Application for the Proposed Development, and to comply with EIA Regulations.
Offshore Export Cables	Subsea cables used to transmit electricity generated offshore by the Wind Turbines from the OSPs to shore. The Transition Joint Bay (TJB) is the location where the Offshore Export Cables terminate, and the onshore cabling begins.
Offshore Infrastructure	All of the Offshore Infrastructure associated with the Proposed Development that is located seaward of MHWS, comprising the Offshore Generation Assets and the Offshore Transmission Assets.
Offshore Scoping Report	The report that presents the findings of the EIA scoping process undertaken for the Proposed Development with the purpose of obtaining a Scoping Opinion. The Offshore Scoping Report defines what is intended to be assessed and reported as part of the EIA.
Offshore Substation Platform(s) (OSPs)	OSPs comprise the support structure, topside and electrical components used for collecting and/or converting electricity generated by the Wind Turbines for transmission by the Offshore Export Cables.

Defined Term	Definition
Offshore Transmission Assets	The infrastructure of the Proposed Development required to transmit the generated electricity comprising of the OSPs, Offshore Export Cables and associated infrastructure up to MHWS.
Operation and Maintenance (O&M)	The phase of the Proposed Development following completion of construction. This phase of development includes routine inspections, repairs and replacement of infrastructure and equipment (including Interconnector Cables and IACs), Scour Protection replenishment or replacement, major component replacement, painting and/or other coating works, removal of marine growth, and replacement of access ladders.
Programme of Measures	Those actions, defined in detail, which are required to achieve the Environmental Objectives of the WFD within a river basin district.
Project (the)	An overarching term for the Bowdun Offshore Wind Farm (Bowdun OWF) comprising the offshore and onshore infrastructure required to generate and transmit electricity from the Array Area to the onshore Grid Connection Point (GCP). The Project includes the Offshore Generation Assets, the Offshore Transmission Assets and the Onshore Transmission Assets.
Project Design Envelope (PDE)	A description of the range of possible elements that make up the design options for the Proposed Development under consideration when the exact engineering parameters are not yet known.
Proposed Development	Term used to define the Offshore Infrastructure associated with the Project seaward of MHWS for which consent is being sought. Further details of the parameters are included in Volume 1, Chapter 3: Project Description.
Qualifying Features	The features for which a European Site has been officially designated to protect.
Recorded Loss	Dataset entry of a maritime or aviation record that has no specific location attached to them but are given often arbitrary spatial attribution.
Report to Inform Appropriate Assessment (RIAA)	The RIAA provides detailed information to support the process of AA (undertaken by the competent authority) as part of the HRA, which evaluates the potential impacts of a project or plan on European Sites.
River Basin District (RBD)	Administrative area for coordinated water management, composed of multiple river basins (or catchments).
River Basin Management Plan (RBMP)	The purpose of a RBMP is to provide a framework for protecting and enhancing the benefits provided by the water environment.
Scoping Opinion	A document produced by MD-LOT which is issued in response to submission and review of the Offshore Scoping Report. The Scoping Opinion is supported with feedback and advice from consultees, which details what is expected to be included in the Offshore EIA Report and what can be scoped out of the EIA process.
Scottish Ministers (the)	The decision makers with regard to Marine Licence(s) and Section 36 Consent applications in Scottish Offshore Waters and Scottish Marine Area.
Scottish Territorial Waters	The territorial waters of Scotland that extend out from MHWS to 12 nm.

Defined Term	Definition
Scour Protection	Protective materials installed to avoid sediment being eroded away from the base of the foundations and/or buried subsea cable due to the flow of water.
Sectoral Marine Plan (SMP)	A plan developed by the Scottish Government which provide the strategically planned spatial footprint for offshore wind development in Scotland.
Significance	Effect factor that is determined by the magnitude of impact along with the sensitivity of the receptor.
Site Boundary	The boundary within which all elements of the Proposed Development will be located. The Site Boundary comprises the Array Area and Export Cable Corridor which ends at MHWS.
Special Areas of Conservation (SACs)	SACs are areas designated for the conservation of certain plant and animal species listed in the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
Special Protection Areas (SPAs)	SPAs are sites that are designated to protect rare or vulnerable birds (as listed on Annex I of the Directive 2009/147/EC on the conservation of wild birds), as well as regularly occurring migratory species.
Spring Tidal Excursion	The distance suspended sediment is transported prior to being carried back on the returning tide.
Study Area	For each environmental topic, the baseline environment will be characterised, and the potential environmental impacts will be described within a topic-specific study area. Specific study areas are defined for each topic and are based on the maximum spatial extent across which potential impacts of the Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Surface Water	Waters on the land surface (such as reservoirs, lakes, rivers, transitional waters, coastal waters) within a river basin.
Water Framework Directive (WFD)	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy. The WFD promotes water management through river basin planning. It covers inland surface waters, estuarine waters, coastal waters and groundwater.
Wind Turbines	Structures comprising of a tubular tower, rotor blades, and a nacelle which houses the Wind Turbine generator.
Zone of Influence	The geographical area within which the Proposed Development may have environmental effects.

Acronyms

Acronym	Definition
ADD	Acoustic Deterrent Device
AWB	Artificial Water Body
BOWFL	Bowdun Offshore Wind Farm Limited
CaP	Cable Plan
CBA	Cable Burial Assessment
CBRA	Cable Burial Risk Assessment
CMS	Construction Method Statement
CoCP	Code of Construction Practice
CSIP	Cable Specification and Installation Plan
DO	Dissolved Oxygen
EA	Environment Agency
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EMP	Environmental Management Plan
ERCoP	Emergency Response Cooperation Plan
EU	European Union
GES	Good Ecological Status
HES	High Ecological Status
HDD	Horizontal Directional Drilling
HMWB	Heavily Modified Water Body
HSE	Health and Safety Executive
IAC	Inter-Array Cable
IEF	Important Ecological Feature
INNS	Invasive Non-Native Species
IRBD	International River Basin District
MCA	Maritime & Coastguard Agency
MDS	Maximum Design Scenario
MD-LOT	Marine Directorate - Licensing Operations Team
MFE	Mass Flow Evacuation
MHWS	Mean High Water Springs
MINNSBP	Marine Invasive Non-Native Species Biosecurity Plan
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Mammal Observer
MPA	Marine Protected Area
MPCP	Marine Pollution Contingency Plan
NMPi	National Marine Plan interactive

Acronym	Definition
NSVMP	Navigational Safety and Vessel Management Plan
O&M	Operation and Maintenance
OMP	Operation and Maintenance Programme
OSP	Offshore Substation Platform
OSPAR	Oslo and Paris Convention
OWF	Offshore Wind Farm
PAM	Passive Acoustic Monitoring
PCB	Polychlorinated Biphenyl
PDE	Project Design Envelope
PEMP	Project Environmental Monitoring Plan
POA	Plan Option Area
PoM	Programme of Measures
RBD	River Basin District
RBMP	River Basin Management Plan
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SMP	Sectoral Marine Plan
SPA	Special Protection Area
SSC	Suspended Sediment Concentration
SWMI	Significant Water Management Issues
UK	United Kingdom
UXO	Unexploded Ordnance
WEWS Act	Water Environment and Water Services (Scotland) Act 2003
WFD	Water Framework Directive
ZoI	Zone of Influence

Table of Units

Units	Definition
km	Kilometre
km^2	Square kilometre
m^2	Square metre

1 Introduction

1.1.1 This Water Framework Directive (WFD) Technical Report presents the baseline characterisation of WFD Water Bodies and WFD Protected Areas for the offshore elements of the Bowdun Offshore Wind Farm (OWF) Project (hereafter referred to as the Proposed Development). The Proposed Development covers the Option Lease Area (OLA) which is located in the E3 Plan Option Area (POA), detailed in the Sectoral Marine Plan (SMP) for Offshore Wind Energy (Scottish Government, 2020), and the Export Cable Corridor. The Array Area is located 38 km from the Aberdeenshire coast at its closest point, covering an area of 187 km^2 (Figure 2.1). The Proposed Development will comprise of Wind Turbines (fixed foundation), Inter-Array Cables (IACs), Offshore Substation Platforms (OSPs), Interconnector Cables, Offshore Export Cables and any necessary scour/cable protection. The Export Cable Corridor will include up to three High Voltage Alternating Current (HVAC) Offshore Export Cables, each with a length of up to 70 km and will make Landfall at Benholm, Aberdeenshire.

1.1.2 Data was collated through a detailed desktop study of existing resources available for Water Bodies and protected areas within the WFD Study Area as defined in Section 2 to assess the potential impact of the Proposed Development on the water environment.

1.1.3 The information from this technical report informs the technical baseline and the assessment of the likely significant environmental effects of the Proposed Development on the Environmental Objectives of the WFD Water Bodies within the WFD Study Area. This report accompanies the Offshore Environmental Impact Assessment (EIA) Report to support the consent application for the Proposed Development. Water Quality as an Offshore EIA Report topic has been scoped out, as agreed with Marine Directorate - Licensing Operations Team (MD-LOT) and Scottish Environmental Protection Agency (SEPA), see Table 3.2.

1.1.4 The purpose of this WFD technical report is to demonstrate that the Proposed Development does not increase the risk of deterioration in any of the contributing elements to the overall status of WFD Water Bodies.

1.1.5 The aim of this WFD technical report is to:

- characterise the WFD Water Bodies within and surrounding the Proposed Development; and
- assess the potential impacts of the Proposed Development upon the Environmental Objectives of those Water Bodies and demonstrate compliance with the requirements of the WFD.

2 WFD Study Area

2.1.1 The WFD Study Area is the area of coastal Water Bodies and marine area that intersects the boundary of one Spring Tidal Excursion. Coastal Water is defined in the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act) as *"water (other than groundwater) within the area extending landward from 3 nm limit up to the limit of the highest tide or, where appropriate, the seaward limits of any bodies of transitional water, but does not include any water beyond the seaward limits of territorial sea of the United Kingdom (UK) adjacent to Scotland"* (Scottish Government, 2003). One Spring Tidal Excursion is the maximum distance suspended sediment, and therefore potential bound contaminants, may be transported prior to being carried back on the returning tide. The WFD Study Area is consistent with the Physical Processes Study Area, which was also agreed with MD-LOT and NatureScot during Scoping, and represents the maximum spatial extent across which potential impacts of the Proposed Development may be experienced by relevant receptors.

2.1.2 The WFD Study Area is shown in Figure 2.1. The WFD Study Area was submitted to MD-LOT and detailed in the Offshore EIA Scoping Report (Bowdun Offshore Wind Farm Limited (BOWFL), 2024) with no comments received. The area has been delineated to comprehensively encompass the Zone of Influence (ZoI) associated with the Proposed Development.

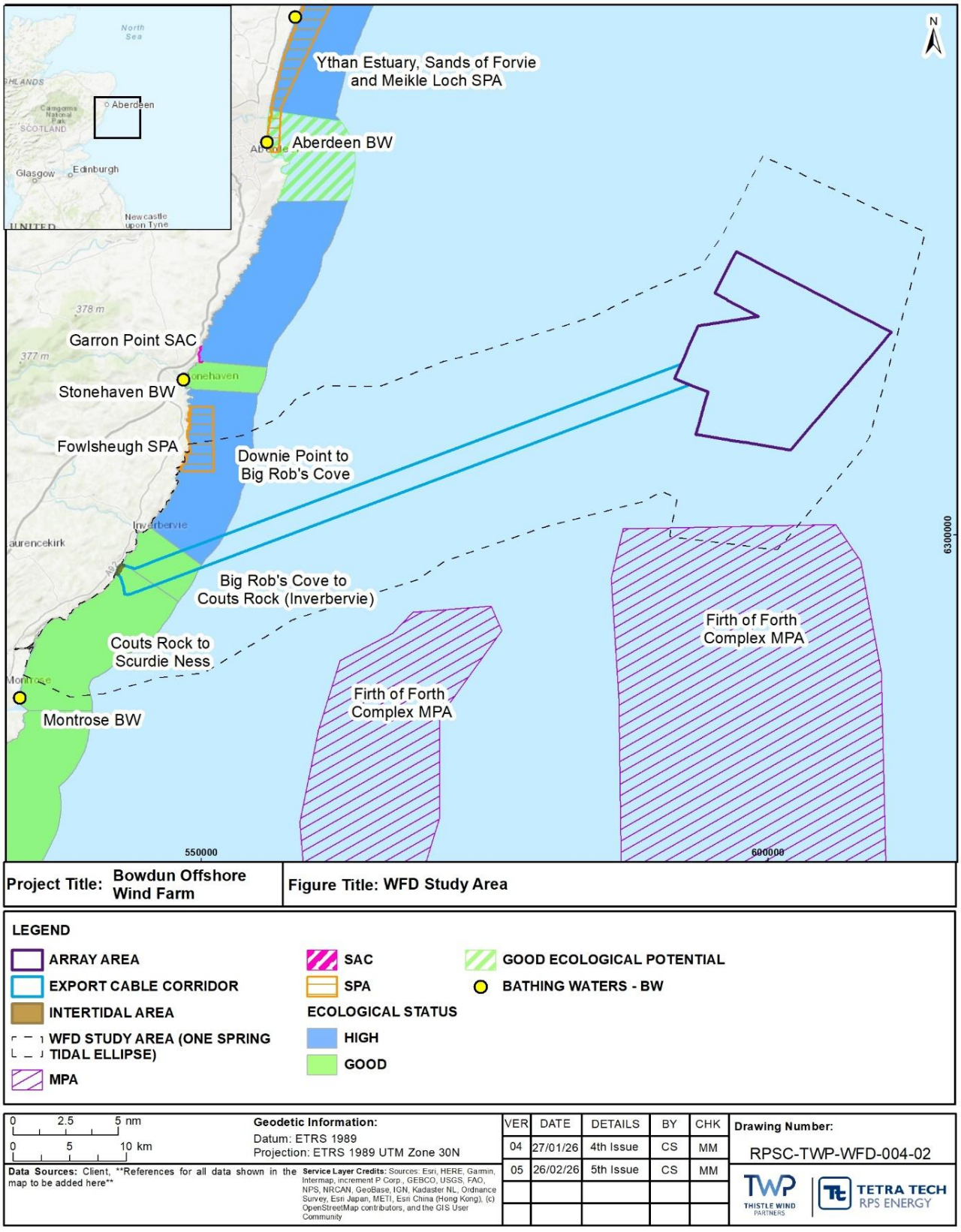

Figure 2.1: WFD Study Area

3 Methodology

3.1 Introduction

3.1.1 SEPA and the Marine Directorate are the relevant authorities tasked with implementation of the WFD in Scotland. A key requirement of the WFD is for surface Water Bodies to attain at least good surface water status, requiring both ecological status and chemical status to reach at least Good Status, and there should be no deterioration in existing status.

3.1.2 To facilitate implementation of the WFD, Scotland is divided into three River Basin Districts (RBDs); the Scotland RBD, the Solway Tweed RBD and a small area of the Northumbria RBD which is located in both Scotland and England. Each RBD contains several Water Bodies which must be assessed and managed to meet WFD objectives. The WFD requires the preparation of a Programme of Measures (PoMs) outlining the steps that will be taken to meet WFD objectives as applicable to each Water Body. This PoMs is contained within an overarching River Basin Management Plan (RBMP). In the case of International River Basin Districts (IRBDs), a separate RBMP has been published with harmonised status, objectives and programmes of measures for cross border Water Bodies. SEPA published the third RBMP 2021 to 2027 in December 2021. As illustrated in Figure 2.1, the Proposed Development is located within the Scotland RBD with the Export Cable Corridor traversing the Couts Rock to Scurdie Ness coastal Water Body (Water Body ID: 200084), Big Rob's Cove to Couts Rock (Inverbervie) coastal Water Body (Water Body ID: 200087) and Downie Point to Big Rob's Cove coastal Water Body (Water Body ID: 200092).

3.1.3 It will be a requirement that the Proposed Development does not result in any deterioration of the current status of the relevant Water Bodies and does not prevent the improvement in status where it is required under the WEWS Act. It will also be necessary to demonstrate that the objectives of hydrologically linked Water Dependent Protected Areas, as listed in the Register of Protected Areas under the RBMP, will not be significantly affected. Any new development must ensure these fundamental objectives of the WFD are not compromised.

3.1.4 SEPA and the MD-LOT consider that any impact from a development that compromises the achievement of WFD objectives or causes deterioration in the status of waters, to be a significant environmental effect.

3.1.5 The WFD objectives apply to WFD Water Bodies. The consideration of the offshore proposals under the WFD will therefore apply to all surface Water Bodies that have the potential to be impacted by the Proposed Development.

3.1.6 To achieve the aims set out in Paragraph 1.1.4, a staged approach has been adopted in undertaking the WFD Assessment in accordance with the WFD and the Planning Inspectorate Advice Note 18: Water Framework Directive (Planning Inspectorate, 2017) and the Environment Agency (EA) Guidance on Water Framework Directive assessment: estuarine and coastal waters, also known as Clearing Our Waters for All (EA, 2017).

3.1.8 SEPA does not issue specific guidance on the WFD Assessment for marine Water Bodies and although the Planning Inspectorate and EA jurisdictions does not extend to Scottish Waters, the guidance contained within 'Clearing the Waters for All' provides and appropriate outline for WFD Assessment in Scotland.

3.2 Sources of Information

3.2.1 Information on the status, objectives and PoMs for the Water Bodies within the WFD Study Area was collected through a detailed desktop review of existing datasets used to inform the WFD Assessment, which are summarised in Table 3.1.

Table 3.1: Information Sources

Title	Source	Extent	Year	Author
The Marine Scotland National Marine Plan Interactive (NMPi) Maps	Marine Scotland	Scottish Waters	2026	Marine Scotland
WFD Cycle 3 Coastal Water Bodies	Water Classification Hub	Scottish Waters	2023a	SEPA
RBMP Measures and Objectives	Water Environment Hub	Scotland	2023b	SEPA
RBMP 2021-2027 Register of Protected Areas	RBMP	Scotland	2023c	SEPA
Montrose Bathing Water Profile	SEPA	Montrose Bathing Waters	2024a	SEPA
Stonehaven Bathing Water Profile	SEPA	Stonehaven Bathing Waters	2024b	SEPA
NatureScot Conservation Advice Package and Conservation Management Objectives	NatureScot	Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)	2008; and 2019.	NatureScot
Scotland's Marine Protected Areas (MPAs)	NatureScot	MPAs	2023	NatureScot

3.2.2 This WFD Technical Report also draws upon information contained within the following documents:

- Technical Appendix 4.1: Scoping Report;
- Volume 2, Chapter 7: Physical Processes;
- Volume 2, Chapter 8: Benthic Ecology; and
- Volume 2, Chapter 9: Fish and Shellfish.

3.3 Water Bodies Within the WFD Study Area

3.3.1 For the purposes of this WFD Assessment, Water Bodies that are within, intersect or which are hydrologically connected to the WFD Study Area have been identified and considered as relevant Water Bodies for the different stages of the WFD Assessment (i.e. the WFD Study Area). The Stage 1 screening assessment that was undertaken within the Offshore EIA Scoping Report (BOWFL, 2024) identified these Water Bodies as the ZoI. The MD-LOT confirmed in their consultation response that they agreed with the scoping assessment.

3.3.2 The WFD Study Area falls within three coastal Water Bodies namely Couts Rock to Scurdie Ness (Water Body ID: 200084), Big Rob's Cove to Couts Rock (Inverbervie) (Water Body ID: 200087), Downie Point to Big Rob's Cove (Water Body ID: 200092). The Proposed Development has the potential to impact on the biological elements, physico-chemical support conditions, hydromorphological supporting conditions (physical processes) and chemical status of these Water Bodies, illustrated in Figure 2.1.

3.3.3 A number of WFD Protected Areas are connected to the Water Bodies within the WFD Study Area and are discussed in Section 4.5 and are presented in Figure 2.1. The EA Guidance 'Clearing Our Waters for All' (Environment Agency, 2017) recommends that protected areas that are greater than 2 km from the Proposed Development Area can be scoped out of the WFD Assessment.

3.4 Consultation

3.4.1 A summary of the key comments from MD-LOT applicable to the WFD Assessment are presented in Table 3.2, together with how these issues have been considered in the production of this technical report.

Table 3.2: Summary of Key Topics and Responses Raised From the EIA Scoping Report Relevant to the WFD Assessment

Date	Consultee and type of response	Topics	Response to comment/feedback and were considered within this Technical Report
25/11/2024	MD-LOT agree with impacts to be scoped in and scoped out of Offshore EIA Report. MD-LOT advise to consult with SEPA regarding WFD Assessment	Marine Water Quality and WFD	This WFD Technical accompanies the Offshore EIA Report as a Technical Appendix.

3.5 WFD Assessment Stages

3.5.1 The WFD Assessment is typically undertaken in three stages:

1. Screening – excludes any activities that do not need to go through the scoping or impact assessment;
2. Scoping – identifies the receptors that are potentially at risk form the activity and need impact assessment; and
3. Impact assessment – considers the potential impacts of the activity, identifies ways to avoid or minimise impacts, and shows if the activity may cause deterioration or jeopardise the Water Body achieving Good Status.

3.5.2 A flow chart, taken from Planning Inspectorate Advice Note 18 for assessing activities and projects for compliance with the WFD (Planning Inspectorate, 2017) has been included in Figure 3.1. This provides an overview of the recommended process to address the WFD during the pre-application process.

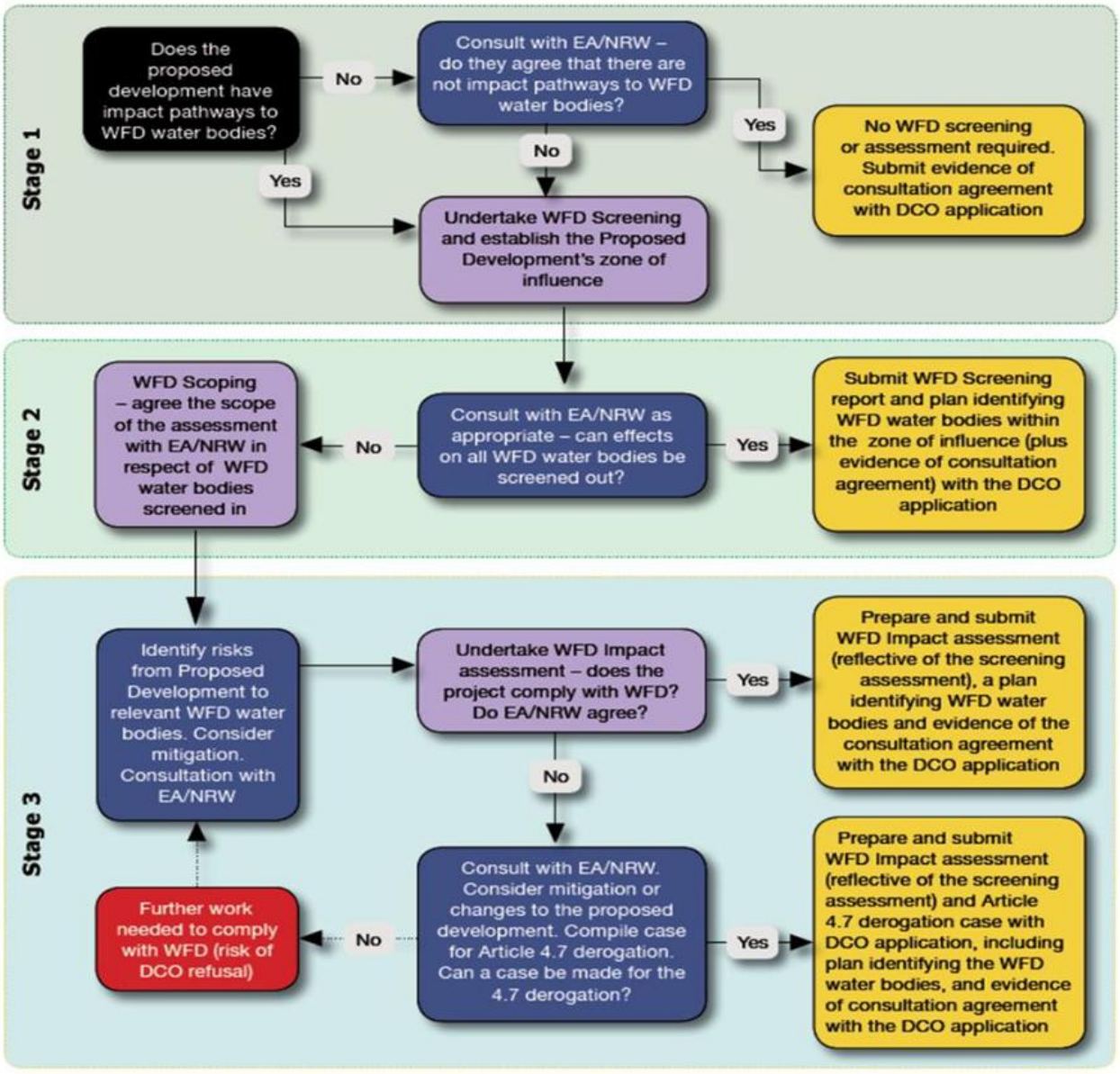

Figure 3.1: Flow Chart Illustrating the WFD Assessment Process

Screening Assessment

3.5.3 The screening assessment was undertaken within the Offshore Scoping Report (BOWFL, 2024) which identified the WFD Water Bodies within the ZoI. The Proposed Development was reviewed in terms of potential impact to the Environmental Objectives of the surface Water Bodies that could be impacted. The screening assessment concluded by summarising the potential impact on the water environment for each component of each WFD quality element within the ZoI illustrated in Figure 2.1.

Scoping Assessment

3.5.4 The WFD scoping identifies links between the proposed activities and every WFD quality element that could be affected. It is also necessary at this stage to consider activities and how they affect the morphological mitigation measures for Water Bodies, where applicable.

3.5.5 For all activities, the scoping phase involves considering each WFD quality element to identify all those where a possible causal link exists. That is, where Water Body status or Environmental Objectives could be affected at Water Body level by the proposed activities.

3.5.6 The scoping assessment has been applied for each activity type based on the Maximum Design Scenario (MDS) outlined in Table 5.1. The potential impacts for each activity are provided in Table 5.2 which has informed the selection of the activities which will be scoped into the assessment.

3.5.7 Note that the scoping assessment for coastal Water Bodies (Couts Rock to Scurdie Ness, Big Rob's Cove to Couts Rock (Inverbervie) and Downie Point to Big Rob's Cove) follows the EA Guidance, 'Clearing the Waters for All' (EA, 2017). The scoping template contained in this guidance has been used for these Water Bodies and is included in Table 5.2.

3.5.8 Table 5.3 provides a summary of the outcome of the scoping assessment and concludes that water quality (physico-chemical supporting conditions and chemical status) in these transitional and coastal Water Bodies require further detailed assessment.

Detailed Assessment

3.5.9 The detailed assessment examines the potential impact on Water Bodies, suggesting Embedded Mitigation measures and enhancements where appropriate. This also considers whether the Proposed Development will contribute to the delivery of the relevant RBMP (i.e. Scotland RBMP 2021 to 2027).

3.6 Water Body Classification

3.6.1 The WFD specifies the quality elements that are used to assess the ecological and chemical status of a Water Body. Quality elements are generally biological (e.g. fish, invertebrates, macrophytes) or chemical (e.g. heavy metals, pesticides, nutrients). Classifications indicate where the quality of the environment is good, where it may need improvement, and what may need to be improved. They can be used, over the years, to plan improvements, show trends and to monitor the effectiveness of the PoMs identified.

3.6.2 Chemical status is assessed from compliance with environmental standards for chemicals that are priority substances and/or priority hazardous substances for surface Water Bodies. These are known as 'Annex X' substances listed in the 2017 WFD Regulations. Chemical status is recorded as 'pass' or 'fail.' The chemical status of a Water Body is determined by the worst scoring chemical (one-out-all-out approach).

3.6.3 Ecological status classifications can be composed of up to four different assessments and apply to surface Water Bodies only.

- An assessment of status indicated by a biological quality element such as fish, invertebrates, or algae. The presence of invasive species is also assessed as a separate test.
- An assessment of compliance with environmental standards for supporting physio-chemical conditions, such as Dissolved Oxygen (DO), nitrogen, or ammonia.
- An assessment of compliance with environmental standards for concentrations of specific pollutants, such as zinc, cypermethrin or arsenic (these are known as 'Annex VIII' substances).
- In determining high status only, a series of tests is included to make sure that hydromorphology is largely undisturbed.

3.6.4 Ecological status is recorded as high, good, moderate, poor, or bad. 'High' represents 'largely undisturbed conditions.' Other classes show increasing deviation from undisturbed or reference conditions. This deviation is expressed as an ecological quality ratio which ranges from zero for bad status to one for high status. As with chemical atus, ecological status is determined by the worst scoring component (one-out-all-out approach).

3.6.5 Biological status is a sub-set of ecological status where the results of the biological quality elements are assessed (and so ignore physio-chemical and Annex VIII substances and hydromorphology). The one-out-all-out rule is also applied to give a biological status classification.

3.6.6 Invasive species designated as high impact are included in assessments of ecological status within Scotland. All high status waters are screened for the presence of established high impact species, if present, the status class is downgraded to good. SEPA will assess Invasive Non-Native Species (INNS) impacts at Good Status Water Bodies where high impact species are established until there is an improved understanding of the impacts of INNS on the ecology of the UK's waters and the way in which ecological status is measured.

3.6.7 Overall status is a composite measure that looks at ecological status, chemical status, and quantitative status dependent on the Water Body type. So, in assessing overall status for surface waters, all four assessment types under ecological status (biology, physio-chemical, Annex VIII substances and hydromorphology) as well as incorporating the results of the chemical status assessment (priority substances and priority hazardous substances) contribute to the classification of the Water Body status. The one-out-all-out rule is also applied in this situation, meaning a surface Water Body must have a good or better ecological status and good chemical status to be given a good overall status.

3.6.8 Artificial Water Bodies (AWBs) and Heavily Modified Water Bodies (HMWBs) are subject to an additional set of rules that need to be implemented prior to running the one-out-all-out calculation. These rules determine which biological elements should be used in the Water Body Ecological Potential classification. Under normal circumstances, Water Bodies, AWBs/HMWBs are classified according to an assessment of mitigation measures, defined as such:

- good Ecological Potential - Water Bodies where all applicable mitigation is in place; and
- moderate Ecological Potential - Water Bodies where some or all relevant mitigation is missing.

3.6.9 However, to prevent AWBs/HMWBs being incorrectly classified as good potential in situations where all mitigation is in place, but other pressures are causing an impact (e.g. nutrient enrichment or pollution from toxic substances), the methodology adopted in the UK additionally considers biological indicators providing they are not sensitive to the heavily modified nature of the Water Body. In situations where the physical modification has impacted on hydrology to such extent that flow conditions are failed, all biological indicators will be considered.

3.6.10 All surface Water Bodies will be classified as good Ecological Potential where all appropriate mitigation is in place, or moderate Ecological Potential in other cases, with a number of exceptions. This includes the following situation:

- In surface Water Bodies where the flow conditions are unaffected by the physical modification (flow conditions pass). In this situation, the Water Body potential will be determined by the worst of either the mitigation measures assessment, or any element that is not sensitive to the modified nature of the Water Body.

- For rivers, fish, invertebrates and macrophytes are considered to be sensitive to physical modification.

3.6.11 The Couts Rock to Scurdie Ness, Big Rob's Cove to Couts Rock (Inverbervie) and Downie Point to Big Rob's Cove coastal Water Bodies are not HMWBs.

3.7 Water Body Objectives

3.7.1 The completion of a WFD Assessment is a staged process where data on the Water Bodies within the WFD Study Area and the Proposed Development are assessed with respect to the requirements of the WFD. This is to ascertain if the Proposed Development has the potential to have a detrimental impact on the achievement of the Environmental Objectives of Water Bodies within the WFD Study Area. If the assessment concludes, after taking account of the mitigation proposed, that the Proposed Development may either reduce the quality of any of the contributing elements of the status of the Water Bodies or prevent the quality elements from achieving the standards required in the RBMP, then this represents a failure to achieve the WFD objectives and the proposal should not go ahead unless justification for the new modification is demonstrated under Article 4.7 of the WFD. The four objectives of the WFD Assessment are follows:

- Objective 1: To prevent deterioration of any contributing quality element to the status of the Water Body.
- Objective 2: To prevent the introduction of impediment to the attainment of good WFD status for the Water Body.
- Objective 3: To ensure the attainment of the WFD objectives for the Water Body are not compromised.
- Objective 4: To ensure the achievement of WFD objectives in other Water Bodies within the same catchment are not permanently excluded or compromised.

4 Baseline Characterisation

4.1.1 This section provides a summary of the offshore Water Quality baseline environment, based on desktop data. This section also considers relevant designations such as the status/classification of WFD Water Bodies, Bathing Waters, Shellfish Water Protected Areas, nutrient sensitive areas, SACs, SPAs and MPAs.

4.2 Desktop Study

4.2.1 Information on WFD Water Bodies and protected areas within the WFD Study Area was collected through a detailed desktop review of existing studies and datasets used to inform this WFD technical report are summarised in Section 3.2.

4.3 WFD Status

4.3.1 The WFD Study Area crosses or is close to the boundary of the following Water Bodies, outlined in Table 4.1 and is illustrated in Figure 2.1:

- Couts Rock to Scurdie Ness – the Export Cable Corridor is located within this Water Body;
- Big Rob's Cove to Couts Rock (Inverbervie) - the Export Cable Corridor is located within this Water Body; and
- Downie Point to Big Rob's Cove - the Export Cable Corridor is located within this Water Body.

4.3.2 Baseline data has been collated from existing sources (Table 3.1) such as the Water Environment Hub, Water Classification Hub and water quality monitoring stations included in the SEPA WFD monitoring programme, as part of their RBMP reporting.

4.3.3 The current WFD Environmental Objectives for the Water Bodies that could potentially be impacted by the Proposed Development have been collated form SEPA's Water Classification Hub to ensure the potential impacts form the Proposed Development do not compromise the achievement of the WFD objectives.

4.3.4 The most recent available WFD monitoring data available sourced from the SEPA's Water Classification Hub is outlined below in Table 4.1 (SEPA, 2023a). Figure 2.1 illustrates the surface water status for the Water Bodies in the WFD Study Area.

Table 4.1: WFD Water Bodies

Water Body Name	Water Body Code	Water Body Type	WFD Ecological Status 2024	WFD Chemical Status 2024	HMWB
Couts Rock to Scurdie Ness	200084	Coastal	Good	Pass	No
Big Rob's Cove to Couts Rock (Inverbervie)	200087	Coastal	Good	Pass	No
Downie Point to Big Rob's Cove	200092	Coastal	High	Pass	No

4.4 River Basin Management Plan Objectives

4.4.1 As required under the WEWS Act, SEPA and other relevant public bodies aim to implement measures to achieve good overall status/potential for surface and groundwaters by 2027. Alternatives to that objective are allowable which may result in two additional options.

- An objective of less than good by 2027 (less stringent objective) due to technical infeasibility (no known technical solution is available) or disproportionate cost (unfavourable balance of costs and benefits).
- An extended deadline of Good Status/potential beyond 2027 for reasons of natural conditions (ecological recovery) or technical infeasibility for a small number of chemicals.

4.4.2 The Environmental Objectives for the Water Bodies within the WFD Study Area are outlined in Table 4.2.

Table 4.2: Water Body objectives from Scotland River Basin Management Plan

Water Body Name	Type	Water Body Status	Objectives	Derogation Type	Reason
Couts Rock to Scurdie Ness	Coastal Water Body	Ecological – Good Chemical – Pass	Good by 2027	Not Available	Not Applicable
Big Rob's Cove to Couts Rock (Inverbervie)	Coastal Water Body	Ecological - Good Chemical – Pass	Good by 2027	Not Available	Not Applicable
Downie Point to Big Rob's Cove	Coastal Water Body	Ecological - High Chemical – Pass	High by 2027	Not Available	Not Applicable

4.4.3 As outlined in Table 4.2, all Water Bodies are currently achieving their target 2027 ecological and chemical status'.

4.5 Protected Areas

4.5.1 One of the objectives of the WFD Assessment is to demonstrate the Proposed Development will not prevent the achievement of the objectives of the Water Dependent Protected Areas associated with the Water Bodies affected, including Bathing Waters, nutrient sensitive waters, Shellfish Waters and the National Site Network.

4.5.2 Within the wider area there are several offshore protected areas as outlined in Table 4.3. These protected areas have their own monitoring and assessment requirements to determine their condition. They are often assessed for additional pollutants or requirements relevant to their designation.

Table 4.3: Designated Sites within the WFD Study Area

Designated Sites	Site
Designed Bathing Waters	No designated areas near WFD Study Area
Urban Wastewater Treatment Directive ((UWWTD) Sensitive Areas – Lochs and Estuaries	No designated areas within WFD Study Area
SACs	No designated areas within WFD Study Area
SPAs	Fowlsheugh
MPAs	Firth of Forth Banks Complex
Designated Shellfish Waters	No designated areas within WFD Study Area

Bathing Water Protected Areas

4.5.3 There are no bathing water protected areas within the ZoI of the WFD Study Area.

Nutrient Sensitive Areas – Lochs and Estuaries

4.5.4 There are no waters designated under the UWWTD within the WFD Study Area.

SACs and SPAs

4.5.5 The National Site Network for SACs and SPAs are included in the Register of Protected Areas included within the RBMP which helps to ensure that Water Bodies within these areas are managed and that they achieve the objectives required by the WEWS Act and the Water Environment (Register of Protected Areas) (Scotland) Regulations 2004 to protect the Conservation Objectives of water dependent SACs and SPAs. SACs and SPAs of most relevance to the Proposed Development is Fowlsheugh SPA, situated within the WFD Study Area (Figure 2.1).

MPAs

4.5.6 MPAs are designated under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act (MCAA) 2009. The MPA network protects nationally and internationally important marine wildlife, habitats, geology, and underwater landforms (NatureScot, 2023). The MPAs of most relevance to the Proposed Development is the Firth of Forth Complex MPA situated within the WFD Study Area (Figure 2.1).

Shellfish Water Protected Areas

4.5.7 Shellfish Water Protected Areas are designated as a protected area under the WFD and all shellfish protected waters have an objective that 'good' Water Quality, as defined by the Shellfish Directive (Council Directive 2006/113/EC) (European Union (EU), 2006) is maintained within these areas to ensure the protection of high quality shellfish.

4.5.8 There are no designated Shellfish Water Protected Areas within the WFD Study Area.

5 Scoping Assessment

5.1 Maximum Design Scenario

5.1.1 It is necessary to identify links between the potential impacts and on each quality element of the overall status that could be affected. Where a Water Body has been designated as a HMWB it would also be necessary at this stage to consider how the potential impacts could affect the morphological mitigation measures for that Water Body proposed within the RBMP, where applicable. However, given that both coastal Water Bodies within the WFD Study Area are not HMWBs and are currently achieving their Environmental Objectives, including high hydromorphological supporting conditions, the focus of the assessment will be on the risk of the deterioration in the status of the Water Bodies.

5.1.2 The scoping phase involves considering the potential impact of the Proposed Development could have on each quality element contributing to the status of the Water Body. That is where Water Body status or objectives could be affected at Water Body level by the proposed activities.

5.1.3 The scoping assessment has been applied for each potential impact based on the MDS outlined in Table 5.1. The MDS for the potential impacts identified in Table 5.1 have been selected as having the potential to result in the greatest effect on WFD quality elements of the Water Bodies within the WFD Study Area and have been used in the scoping process. These scenarios have been selected from Volume 1, Chapter 3: Project Description. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Description (e.g. different Offshore Infrastructure layout), to that assessed here will be taken forward in the final design scheme.

5.1.4 The outcome of this initial assessment for coastal Water Bodies is summarised in Table 5.2 and all elements of ecological and chemical status have been scoped in for assessment across the different potential impacts identified in the MDS. The scoping assessment for coastal Water Bodies (Couts Rock to Scurdie Ness, Big Rob's Cove to Couts Rock (Inverbervie) and Downie Point to Big Rob's Cove) follows the Environment Agency Guidance, 'Clearing Our Waters' (EA, 2017). The scoping template contained in this guidance has been used for these Water Bodies and is included in Annex B.

Table 5.1: Maximum Design Scenario Considered for Each Impact as part of the Assessment of Likely Significant Environmental Effects on the WFD Study Area

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		

Increased Suspended Sediment Concentrations (SSC) and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features
 	
Construction Phase
The MDS corresponds to (a combination of) the greatest amount of material disturbed and the greatest geographical extent of the impact
 	
O&M Phase
The MDS for sediment disturbance during operation will be no greater than that set out for the construction phase of the Proposed Development
	✓	✓	✓	**Construction phase**
				<u>Offshore Export Cable Installation</u>
				• Maximum number of Offshore Export Cables: 3;
				• Maximum length of each Export Cable in each water body;
				  • Couts Rock to Scurdie Ness: 3 km;
				  • Big Rob's Cove to Couts Rock (Inverbervie): 4.8 km;
				  • Downie Point to Big Rob's Cove: 3.9 km;
				• Trench dimensions: up to 6 m wide, 0.5 m minimum depth; 'V' shape profile;
				• Excavation method: Jetting, Mass Flow Evacuation (MFE), Ploughing/Pre-Ploughing, Trenching/Pre-Trenching (incl. dredging, cutting); and
				• MFE Pre-lay trenching rate: 400 m/hour.
				
				<u>Sandwave clearance</u>
				• Sandwave clearance width along Export Cable Corridor: 58.6 m;
				• Area of Export Cable Corridor sandwave clearance in each Water Body;
				  • Couts Rock to Scurdie Ness: 39,159 m^2;
					The MDS corresponds to (a combination of) the greatest amount of material disturbed and the greatest geographical extent of the impact.
					
					Construction phase
					<u>Offshore Export Cable Installation</u>
					Pre-layi trenching by MFE will give MDS for sediment disturbance. Conservatively assumes 100% fluidisation of material expelled from trench. In reality pre-lay jetting will move a proportion of material rather than bringing it fully into suspension. Export Cable Corridor pre-lay trenching modelling assumes sediment release along the whole Export Cable Corridor.
					
					<u>Sandwave clearance</u>
					Sandwave clearance/levelling activities may be undertaken using a range of techniques – MFE and suction hopper dredging. Releases via both are modelled. A MFE near-bed sediment release rate of 1,000 kg/s is conservatively estimated based

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				• Big Rob's Cove to Couts Rock (Inverbervie): 62,655 m^2; • Downie Point to Big Rob's Cove: 50,907 m^2; • Assumes 4.95% requires clearance with a 58.6 m width of disturbance; and • Clearance method: MFE and/or Dredger. <u>Trenchless solution (e.g. Horizontal Directional Drilling (HDD)) exit pit excavation</u> • Number of exit pits: 3 • 2,800 m3 excavated material for the 220 kV scenario (8,400 m3 for all pits) • Exit pit dimensions: 2.2 m x 50 m <u>Trenchless solution drilling fluid release (at Landfall)</u> • Number of exit/release events: up to 3 • Up to 2,870 m^3 drilling mud generated per duct, based on bore diameter of 2.2 m and duct length of 755 m (8,610 m3 total for all 3 ducts); • 100,000 mg/l (100 kg/m^3) assumed conservative maximum concentration of bentonite in drilling mud; and • Wet punch-out.	on the MDS trench cross section dimensions, the speed of progress of the tool, and the bulk density of the local sediment type. Dredge spoil release is simulated as an instantaneous release at the water surface. 10% of an 11,000 m^3 hopper is assumed to form the passive phase of the plume. Other seabed preparation such as boulder clearance is not considered here as the activity does not represent the MDS in terms of potential increases in SSC and associated changes to seabed substrate. <u>Exit pit excavation</u> Based on maximum exit pit dimensions <u>Trenchless drilling fluid release (at Landfall)</u> Based on maximum duct dimensions. Assumes a conservative bentonite concentration of 100 kg/m^3 in drilling mud. Other stages of drilling (pilot hole drilling and stages of reaming) may result in smaller release events separated in time. But the MDS is considered as a release of drilling mud from a single conduit.

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				O&M phase <u>Cable repairs</u> • Number of annual static Offshore Export Cable repairs: 1 • Maximum annual length of Offshore Export Cable reburial: 6,390 m **Decommissioning phase** A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Project's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS total removal of all Offshore Infrastructure including buried cables and cable protection has been assumed, and as such the environmental impact of decommissioning will be the same if not lower than construction.	**O&M phase** The MDS for sediment disturbance during operation will be no greater than set out for the construction phase of the Proposed Development. <u>Cable repairs</u> These limited activities would disturb a much smaller volume of material for each repair/reburial event than simulated for the construction phase. **Decommissioning phase** The MDS for sediment disturbance during decommissioning will be no greater than that set out for the construction phase of the Proposed Development.

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
The impact of short term habitat loss/disturbance and its impact on the overall status of Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development **The MDS for this impact considers the maximum seabed footprint of temporary habitat loss and/or disturbance during the construction, O&M, and decommissioning phases of the Proposed Development**	✓	✓	✓	**Construction phase – Subtidal** Up to **19,414,805 m²** of subtidal temporary habitat loss and/or disturbance in total for the 50 x 20 MW Wind Turbine layout, this represents up to **6.66%** of the total area of the Site Boundary. The area of subtidal temporary habitat loss within the coastal Water Bodies considered in the WFD Assessment is outlined below: <u>Exit Pit Excavation (e.g. HDD)</u> Up to 17,130 m² of habitat disturbance associated with excavation of exit pits comprising: • Up to 16,800 m² from deposition of 8,400 m3 of HDD excavation material; and • Up to 330 m2 of habitat disturbance from the installation of up to 3 HDD exit pits.	The MDS for this impact considers the maximum seabed footprint of temporary habitat loss and/or disturbance during the construction, O&M, and decommissioning phases of the Proposed Development. **Construction phase – Subtidal** <u>Exit Pit Excavation</u> Based on up to: • 110 m² per exit pit.

				<u>Sandwave clearance</u> Up to 152,721 m^2 of habitat disturbance associated with sandwav clearance in the coastal Water Bodies comprising: • Couts Rock to Scurdie Ness: 39,159 m^2; • Big Rob's Cove to Couts Rock (Inverbervie): 62,655 m^2; and • Downie Point to Big Rob's Cove: 50,907 m^2. <u>Sandwave clearance material deposition</u> Up to 1,140,321 m^2 of habitat disturbance associated with the deposition of sandwave clearance material in the coastal Water Bodies comprising the following areas of Offshore Export Cables in each Water Body: • Couts Rock to Scurdie Ness: up to 292,390 m2 from deposition of 146,195 m3 of sandwave clearance material; • Big Rob's Cove to Couts Rock (Inverbervie): up to 467,824 m2 from deposition of 233,912 m3 of sandwave clearance material; and • Downie Point to Big Rob's Cove: up to 380,107 m2 from deposition of 190,054 m3 of sandwave clearance material. <u>Cable installation (including boulder clearance)</u> Up to 64,497 m^2 of habitat disturbance associated with Offshore Export Cable installation in the coastal Water Bodies. The habitat disturbance from Offshore Export	<u>Sandwave clearance</u> Based on up to: • 35 km total length of Offshore Export Cables. <u>Sandwave clearance material deposition</u> The area of seabed affected by the placement of sandwave clearance material has been calculated based on the maximum volume of sediment to be placed on the seabed, assuming all this sediment is coarse material (i.e. is not dispersed through tidal currents; see " Potential changes to SSCs" impact below). The total footprint of seabed affected has been calculated, for the purposes of the MDS, assuming a mound of uniform thickness of 0.5 m height. Temporary loss of benthic habitat is assumed beneath this. <u>Cable installation (including boulder clearance)</u> Based on the assumption that the width of disturbance for sandwave and boulder clearance also includes subsequent cable installation as repeat disturbance. As such

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				Cable installation and boulder clearance within the coastal Water Bodies comprises: • Couts Rock to Scurdie Ness: 16,538 m^2; • Big Rob's Cove to Couts Rock (Inverbervie): 26,460 m^2; and • Downie Point to Big Rob's Cove: 21,499 m^2. <u>Jack-up events</u> Up to 126 m^2 of disturbance due to jack-up vessel use for the installation of up to 3 trenchless solution exit pits. <u>Additional Subtidal Information</u> In addition, up to 13,987 m^2 of temporary habitat loss and/or disturbance could occur due to crater formation from the clearance of Unexploded Ordnance (UXO). This value has not been included in the total disturbance presented above, as the footprint from UXO clearance will likely overlap with area subject to short term habitat disturbance from other site preparation activities. Additionally, the footprint associated with the UXO clearance has not been derived from Volume 1, Chapter 3: Project Description. Instead, it has been calculated based on appropriate crater sizes estimated in Ordtek (2018) and applied to the 40 UXOs that may require clearance during the construction phase of the Proposed Development (30 in the Array Area and 10 along the Export Cable Corridor).	up to 95.05% of the length of Offshore Export Cables <u>Jack-up events</u> Based on the assumption that there will be up to a maximum of 2 jack-up positions per HDD exit pit. <u>Additional Subtidal Information</u> UXO clearance MDS calculated from the maximum estimated crater diameter of 21.10 m in Ordtek, 2018.

				Construction phase – Intertidal There is no impact in the intertidal zone as cables will be installed via a trenchless solution with exit pits located below Mean Low Water Springs (MLWS) and above Mean High Water Springs (MHWS). **O&M phase** A total of **4,792,500 m²** of temporary subtidal habitat loss and/or disturbance in the coastal Water Bodies caused by repair of the export cables, this represents up to **0.08%** of the area of coastal Water Bodies, over the 30-year life cycle of the Proposed Development. The temporary subtidal habitat loss comprises: • Up to 6,390 m of cable reburial which may be required per year for repair of Offshore Export Cables. The width of the minimum installation corridor is up to 25 m. <u>Jack-up events</u> Up to 63 m² of disturbance due to jack-up vessel use for repair and reburial event at the 3 trenchless solution exit pits. **Decommissioning Phase** A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Project's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS total removal of all Offshore Infrastructure including buried cables and	**O&M phase** <u>Disturbance caused by Offshore Export Cables</u> Based on the assumption of up to 1,170 m of cable per cable type each year, with repair and subsequent reburial/protection occurring at the same time.

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				cable protection has been assumed, and as such the environmental impact of decommissioning will be the same if not lower than construction.	

The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development				**Construction and O&M phases**
				
				The long term subtidal habitat loss in the coastal Water Bodies caused by disturbance from the export cables comprises:
				• Footprint area of 117,000 m^2 due to cable protection for Offshore Export Cables (up to 11.7 km of cable requiring protection with a cable protection width of 10 m);
				  • Couts Rock to Scurdie Ness: 3.0 km;
				  • Big Rob's Cove to Couts Rock: 4.8 km;
				  • Downie Point to Big Rob's Cove: 3.9 km; and
				• Footprint area of 27,000 m^2 due to cable crossing protection for Offshore Export Cables (up to 6 crossings, with a length of 500 m and width up to 9 m each), assumes all crossings are within the coastal Water Bodies.
				The O&M phase will last up to 30 years.
				
				Decommissioning phase
				
				A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Project's lifespan to take account of changing best practice and new technologies.
					Construction and O&M phases
					
					The MDS for this impact considers the maximum seabed footprint of Offshore Infrastructure installed during construction phase. This will persist through the up to 30-year O&M phase. This impact considers the design parameters that will result in the greatest footprint of habitat loss and disturbance.
					
					Decommissioning phase
					
					In the decommissioning phase, the MDS accounts for the maximum seabed footprint of Offshore Infrastructure that could remain *in situ*. It should be noted that after an up to 30 year O&M phase, these artificial hard

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				The approach for decommissioning is yet to be determined, however, for the purposes of this MDS it has been assumed that all Scour Protection, cable protection, and cable crossing protection will be left in situ. Therefore, up to **144,000 m²** of long term habitat loss will persist in the Coastal Water Bodies past the decommissioning phase. This value is the total footprint area for all Scour Protection, cable protection, and cable crossing protection. This represents up to **0.07%** of the total area of the coastal Water Bodies.	structures left *in situ* on the seabed would represent established habitats within the Site Boundary. The MDS assumes that the Scour Protection is pre-installed, with the pile then installed through the Scour Protection. The total footprint therefore remains the same as with Scour Protection only.
Impact of INNS during construction, O&M and decommissioning	✓	✓	✓	**Construction phase** Increased risk of introduction or spread of INNS due to: • Introduction of artificial structures: up to 144,000 m² comprising a footprint area of 117,000 m² from cable protection and footprint area of 27,000 m² from cable crossings and subsequent colonisation impact; and • Vessel movement: vessels associated with Wind Turbine installation, OSP installation, IACs and Interconnector Cables installation, with up to 2,120 vessel return trips in total over the construction phase. Maximum duration of the construction phase is up to 5 years.	INNS could adversely affect the status of native protected or notable habitats and species and present a risk in the achievement of the Environmental Objectives of the Water Bodies affected where the INNS are considered as High Impact species based on United Kingdom Technical Advisory Group's (UKTAG) alien species classification list (UKTAG, 2021) There is potential for the increased risk of introduction and spread of INNS during all phases of the Proposed Development. This is due to vessel movements into the Proposed Development Area, which may act as vectors facilitating the spread of INNS. In addition, the installation of artificial hard structures (such as foundations, Scour Protection and cable protection) may represent increased available habitat for INNS to colonise in the O&M phase.

				O&M phase Increased risk of introduction or spread of INNS due to: • Introduction of artificial structures: up to 144,000 m^2 comprising a footprint area of 117,000 m^2 from cable protection and footprint area of 27,000 m^2 from cable crossings and subsequent colonisation impact; and • Vessel movement: up to 713 vessel return trips per year during the O&M phase. In addition to this, a further number of vessels will undertake another 260 return trips spread over the 30 year O&M phase. The O&M phase will last up to 30 years. **Decommissioning phase** Increased risk of introduction or spread of INNS due to: • artificial structures: The approach for decommissioning is yet to be determined, however, for the purposes of this MDS it has been assumed that all cable protection, and cable crossing protection will be left *in situ*. Therefore, up to **1,996,000 m^2** of hard structures will be left *in situ* on the seabed within coastal Water Bodies, allowing this impact to persist past the decommissioning phase; and • vessel movement: the approach for decommissioning is yet to be determined, however, for the purposes of this MDS it has been assumed that the number of	

Potential Impact	Phase*			Maximum Design Scenario	Justification
	C	O	D		
				vessel return trips will be equal to or lesser than the construction phase. A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Project's lifespan to take account of changing best practice and new technologies.	
Electromagnetic Fields (EMFs) from cabling during the operational phase	×	✓	×	**O&M phase** EMFs may be emitted to the marine environment from and Offshore Export Cables. Where burial is required, a minimum burial depth of 0.5 m applies to all cables, however, there will be a target burial depth of 1.5 m. Where burial is not possible, cable protection will be used. The footprint within the coastal Water Bodies is comprised of: • up to 35 km of 275 kV HVAC Offshore Export Cables (up to 3 Offshore Export Cables, with a maximum length of 11.7 km each within the coastal Water Bodies). The O&M phase will last for 30 years.	EMF from subsea electrical cabling could have an impact on fish and shellfish species, such as impaired navigational ability and effects on fish and shellfish behaviours and predator/prey relationships. The MDS for this impact is based on the greatest cable lengths proposed in the Water Bodies, in the water column, buried in the seabed, and protected where burial is not possible.
Changes in Physical Processes and potential impact on supporting hydromorphological conditions	✓	✓	✓	The MDS for this impact has been informed by the conclusions of the assessment of significance for the Physical Processes assessment in Volume 2, Chapter 7: Physical Processes and considers a range of potential impacts, such as changes to Seabed Morphology, the tidal regime, wave regime, sediment transport regime, stratification and frontal systems, and scour.	The MDS for this impact considers all activities which have the potential to create changes in Physical Processes.

*Proposed Development Phase refers to construction (C), O&M (O) and decommissioning (D).

Table 5.2: Summary of WFD Scoping Undertaken in Accordance with the Guidance Clearing our Waters for All (EA, 2023)

Receptor	Water Body	Potential Risk to Receptor	Note The Risk/Issue(s) for Impact Assessment
Hydromorphology	Couts Rock to Scurdie Ness	Yes	The Couts Rock to Scurdie Ness, Big Rob's Cove to Couts Rock (Inverbervie) and Downie Point to Big Rob's Cove coastal Water Bodies are not HMWBs. The hydromorphological status of these Water Bodies is high which is a contributing element of the overall ecological status. Big Rob's Cove to Couts Rock (Inverbervie) and Couts Rock to Scurdie Ness are currently at Good Ecological Status (GES) and Downie Point to Big Rob's Cove is at High Ecological Status (HES) due to the water quality. The laying of the Offshore Export Cables within the Water Body may cause localised sediment plumes to form due to the displacement of sediment during trenching. The installation works of the Offshore Export Cables will take place solely within the Export Cabel Corridor. However, adjacent Water Bodies may be indirectly affected by trenching works. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Increased SSC and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features; • The impact of short term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions during construction, O&M and decommissioning of the Proposed Development; • The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development; and • Changes in physical processes and potential impact on supporting hydromorphological condition.
	Big Rob's Cove to Couts Rock (Inverbervie)	Yes	
	Downie Point to Big Rob's Cove	Yes	
Biology: habitats	Couts Rock to Scurdie Ness	Yes	The footprint of the works within the Water Body is 0.34 km^2 and therefore less than 1% of the Water Body area, the threshold above which impacts are considered to be possible. This footprint accounts for the maximum seabed disturbance along the Export Cable Corridor within the Water Body, which based on the PDE is 25 m for boulder clearance. A conservative approach has been adopted in that it has been assumed boulder clearance would be required along the entire 3 km length of Offshore Export Corridor within the Water Body. The EA Guidance for the Transitional and Coastal Water Bodies recommends

Receptor	Water Body	Potential Risk to Receptor	Note The Risk/Issue(s) for Impact Assessment
			that a factor of 1.5 is applied to the footprint of the development where trenching or dredging is proposed to account for sediment plumes. Therefore the 0.34 km^2 is based on the following calculation: 3 (trenches) x 25 m (maximum seabed disturbance) x 1.5 x 3000 m = 337,500 m^2 or 0.34 km^2. Lower sensitivity habitats are likely to be impacted as the Offshore Export Cables traverse these areas. The higher sensitivity habitat; Saltmarsh, is also located within this Water Body but is not located in close proximity to the proposed Offshore Export Cables. Further assessment is required to account for this higher sensitivity habitat. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Increased SSC and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features. • The impact of short term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions during construction, O&M and decommissioning of the Proposed Development. • The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development. • Changes in physical processes and potential impact on supporting hydromorphological condition.
	Big Rob's Cove to Couts Rock (Inverbervie)	Yes	The footprint of the Offshore Export Cables within the Water Body is 0.54 km^2 and therefore less than 1% of the Water Body area, the threshold above which impacts are considered to be possible. This footprint accounts for the maximum seabed disturbance along the Export Cable Corridor within the water body, which based on the PDE is 25 m for boulder clearance. A conservative approach has been adopted in that it has been assumed boulder clearance would be required along the entire 4.8 km length of Offshore Export Corridor within the water body. The EA Guidance for the Transitional and Coastal Water Bodies recommends that a factor of 1.5 is applied to the footprint of the development where trenching or dredging is proposed to account for sediment plumes. Therefore the 0.54 km^2 is based on the following calculation:

Receptor	Water Body	Potential Risk to Receptor	Note The Risk/Issue(s) for Impact Assessment
			3 (trenches) x 25 m (maximum seabed disturbance) x 1.5 x 4,800 m = 540,000 m^2 or 0.54 km^2. The Offshore Export Cables transverse lower sensitivity habitats. These include subtidal rocky reef, subtidal soft sediment, and gravel, cobbles, and shingle. Saltmarsh habitats are present in the foreshore area of the Water Body and is not in the path of the Offshore Export Cables. However, these habitats are within the ZoI and should be scoped in for further assessment. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Increased SSC and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features; • The impact of short term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions during construction, O&M and decommissioning of the Proposed Development; • The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development; and • Changes in physical processes and potential impact on supporting hydromorphological condition.
	Downie Point to Big Rob's Cove	Yes	The footprint of the Offshore Export Cables within the Water Body is 0.43 km^2 and therefore less than 1% of the Water Body area, the threshold above which impacts are considered to be possible. This footprint accounts for the maximum seabed disturbance along the Export Cable Corridor within the water body, which based on the PDE is 25 m for boulder clearance. A conservative approach has been adopted in that it has been assumed boulder clearance would be required along the entire 3.9 km length of Offshore Export Cable within the water body. The EA Guidance for the Transitional and Coastal Water Bodies recommends that a factor of 1.5 is applied to the footprint of the development where trenching or dredging is proposed to account for sediment plumes. Therefore the 0.59 km^2 is based on the following calculation: 3 (trenches) x 25 m (maximum seabed disturbance) x 1.5 x 3,900 m = 438,750 m^2 or 0.43 km^2.

Receptor	Water Body	Potential Risk to Receptor	Note The Risk/Issue(s) for Impact Assessment
			The Offshore Export Cables transverse lower sensitivity habitats. These include subtidal rocky reef, subtidal soft sediment, and gravel, cobbles, and shingle. Subtidal kelp beds, a higher sensitivity habitats, are present in this Water Body but not within the Offshore Export Cables. However, these habitats are within the ZoI and should be scoped in for further assessment. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Increased SSC and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features. • The impact of short term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions during construction, O&M and decommissioning of the Proposed Development; • The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development; and • Changes in physical processes and potential impact on supporting hydromorphological condition.
Biology: Fish	Couts Rock to Scurdie Ness	Yes	The Export Cable Corridor and Landfall will not create any physical barrier which would prevent normal fish behavioural from occurring. However, the potential impact to the impairment of fish migration and navigation from EMFs needs to be considered. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Increased SSCs and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features; • The impact of short term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions during construction, O&M and decommissioning of the Proposed Development; • The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development; • EMFs from cabling during the operational phase of the Proposed Development.
	Big Rob's Cove to Couts Rock (Inverbervie)	Yes	
	Downie Point to Big Rob's Cove	Yes	

Receptor	Water Body	Potential Risk to Receptor	Note The Risk/Issue(s) for Impact Assessment
Water Quality	Couts Rock to Scurdie Ness	No	The Embedded Mitigation outlined in Section 6.2 will ensure that the impact on Water Quality from the construction, O&M and decommissioning of the Export Cable Corridor and Landfall is not likely to be significant. Originally Water Quality was scoped in to the WFD Assessment during the EIA Scoping stage as it was unknown if sediments that will be disturbed as a result of cable laying process are likely to contain contaminants above Cefas Action Level 1 and 2. However, as outlined in Table 5.3, the site-specific sampling within the Local Benthic Ecology Study Area showed that levels of sediment contaminants were low to very low. Therefore, Water Quality can be scoped out of the detailed assessment.
	Big Rob's Cove to Couts Rock (Inverbervie)	No	
	Downie Point to Big Rob's Cove	No	
Protected Areas	Couts Rock to Scurdie Ness	No	The Proposed Development is situated more than 2 km away from all of the WFD Protected Areas. Therefore, WFD Protected Areas are not at risk from the Proposed Development.
	Big Rob's Cove to Couts Rock (Inverbervie)	No	
	Downie Point to Big Rob's Cove	No	
INNS	Couts Rock to Scurdie Ness	Yes	All Water Bodies potentially affected by the Proposed Development are considered to be free from invasive species. Construction, O&M and decommissioning of the Offshore Export Cables may cause the spread of INNS, which could adversely affect the status of native protected or notable habitats and species and present a risk in the achievement of the Environmental Objectives of the Water Bodies affected. The potential impacts on the supporting hydromorphological conditions scoped into the assessment include: • Introduction of artificial structures: up to **1,996,000 m²** as set out in the impact of INNS; and • Vessel movement: vessels associated with the construction, O&M and decommissioning of the Proposed Development.
	Big Rob's Cove to Couts Rock (Inverbervie)	Yes	
	Downie Point to Big Rob's Cove	Yes	

Table 5.3: Impacts to be Scoped Out of the WFD Assessment

Potential Impact	Phase*			Justification
	C	O	D	
Accidental pollution to the surrounding environments	✓	✓	✓	There is a risk of accidental pollution from vessels and equipment during all phases. However, this risk is mitigated by the implementation of measures set out in the Embedded Mitigation in Table 6.1. These include the Environmental Management Plan (EMP), which contains a Marine Pollution Contingency Plan (MPCP). These measures will include planning for accidental spills, address the sources of all potential contaminants which could be released, and include key emergency contact details. They will also set out good industry practice and relevant guidelines for preventing pollution at sea (such as those from Oslo and Paris Convention (OSPAR), International Maritime Organisation, and the International Convention for the Prevention of Pollution from Ships). Thus, it is unlikely that accidental pollution will occur. In the unlikely event that it did, the magnitude will be minimised through measures such as the MPCP. Therefore, this impact has been scoped out of further consideration, as agreed by MD-LOT in the Scoping Opinion (MD-LOT, 2024).
Release of sediment bound contaminants	✓	✓	✓	Activities in all phases could result in seabed disturbance and the remobilisation of sediment bound contaminants. These contaminants could have adverse effects on benthic communities, However, sediment chemistry analyses from recent site-specific surveys of other OWFs in the Regional Benthic Study Area have recorded low to very low levels of contamination (Beatrice OWF Limited 2012, Moray Offshore Renewables Limited 2019, Moray West OWF Limited, 2018). The potential impact from the release of sediment bound contaminants was scoped out during the EIA Scoping phase, as agreed by MD-LOT in the Scoping Opinion (MD-LOT, 2024). The site-specific sampling within the Local Benthic Ecology Study Area showed that levels of sediment contaminants were low to very low (see Volume 3, Technical Appendix 8.1: Benthic Ecology Technical Report). Specifically, sediment contamination analysis identified that all stations were below marine Scotland Action Level (AC) 1 and AL2 and Canadian Environmental Quality Guidelines (CSQG) CSQG (TEL) and Permissible Exposure Limit (PEL) for Polycyclic Aromatic Hydrocarbons (PAHs), organotins, and Polychlorinated Biphenyls (PCBs). Metal contamination was mostly below these thresholds, except for arsenic, with 24 stations exceeding the CSQG TEL, but below the PEL. These stations were distributed throughout the Proposed Development and in the north of the Export Cable Corridor. The site-specific sampling has demonstrated that the contamination across the stations is low, providing further justification for scoping out of any potential impact from the release of sediment bound contaminants.

Potential Impact	Phase*			Justification
	C	O	D	
Impacts to benthic ecology due to heat from subsea electrical cables	×	✓	×	Heat emitted from electrical cables may impact benthic receptors in the O&M phase, and has been scoped out of the construction and decommissioning phases due to cables not being in operation during these phases. However, there is limited evidence that these cables can significantly change the temperature of the seabed and surrounding water. For example, a field study at the Nysted OWF in Denmark recorded an average temperature difference of 1°C between sediments at a power cable and those 25 cm away (Meißner *et al.*, 2006). Furthermore, this study at Nysted OWF also found a maximum temperature increase of 2°C in the top 30 cm of sediment (where the majority of Benthic species live) above a high voltage cable of 132 kV (Meißner *et al.*, 2007). This is well within the thermal tolerance for most Benthic species, which are typically subject to wide seasonal variations in temperature, particularly in the North Sea. More recently, a review by the Renewables Grid Initiative (2016) concluded that although there was a lack of field data on the thermal effects of subsea cabling, potential impacts to Benthic ecology would only be possible within a few centimetres from the cable. A report on subsea power cables between Denmark and the UK concluded that only deep burrowing invertebrates could potentially be exposed to non-trivial thermal effects from cables, although the footprint of temperature increases would be very low (National Grid and Viking Link, 2017). Finally, a review by (Taormina *et al.*, 2018) concluded that heat generation from subsea cables would not significantly impact benthic species due to the small area associated with cable corridors and the weakness of thermal radiation. Subsea power cables have negligible capacity to heat the surrounding water column, due to the very high heat capacity of water (Meißner *et al.*, 2006). Heat produced by unburied cables (such as the dynamic cables that will be present near the seabed of the Proposed Development) is typically dissipated by the movements of the water (Taormina *et al.*, 2020). For example, studies in France at the Jersey-Cotentin cable connection and the Ushant and SEM-REV test sites showed no heating of the surface of the cables, and therefore the immediate water column (Taormina *et al.*, 2020). The authors concluded that the ecological impact would be negligible. Overall, it is unlikely that benthic ecology will be impacted by heat generated by buried or dynamic subsea electrical cables. Furthermore, the Embedded Mitigation (Table 6.1) includes a Cable Plan, which will include concrete or rock cable protection where cable burial is not possible, with the density of the rocks likely to reduce the already minimal heat conduction. Therefore, this impact is scoped out of further consideration, as agreed by MD-LOT in the Scoping Opinion (MD-LOT, 2024).

Potential Impact	Phase*			Justification
	C	O	D	
Subsea noise from vessels impacting fish and shellfish	✓	✓	✓	The presence of vessels associated with all phases of development is not likely to represent a significant change from the baseline vessel traffic in the Fish and Shellfish Ecology Study Area. Therefore, this impact was scoped out of further consideration within the Offshore EIA Report, and this approach was agreed upon by stakeholders in the Scoping Opinion (MD-LOT, 2024).
Impacts to fish and shellfish from INNS	✓	✓	✓	There is potential for the increased risk of introduction and spread of INNS during all phases of development. This is due to vessel movement which may act as vectors facilitating the spread of INNS. In addition, the installation of artificial hard structures (such as foundations, Scour Protection, and cable protection), may represent increased available habitat for INNS to colonise in the O&M phase. This impact has been scoped in for benthic ecology (see Volume 2, Chapter 8: Benthic Ecology). However, given the wider ranging nature and habitat use of fish and shellfish species in comparison to benthic species, this impact is not likely to represent a significant impact to fish and shellfish ecology. This, in combination with the Embedded Mitigation of an INNS management plan, was deemed sufficiently rational to scope this out of further assessment within the Offshore EIA Report, and this approach was agreed upon by stakeholders in the Scoping Opinion (see Volume 2, Chapter 9: Fish and Shellfish Ecology).

*Proposed Development Phase refers to construction (C), O&M (O) and decommissioning (D)

6 Detailed Assessment

6.1 Introduction

6.1.1 Based on the outcome of scoping assessment, the detailed assessment establishes whether the activities associated with the Proposed Development will:

- cause deterioration in Water Body status;
- impinge upon protected areas designated under the European Directives listed in Article 5 of the WFD; and
- prevent the achievement of WFD status objectives.

6.1.2 This section provides evidence to demonstrate the Proposed Development is compliant. Specifically for each quality element it must be shown that the activities scoped into the assessment will not cause a deterioration in status of any of the contributing quality elements nor prevent the achievement of WFD objectives. Where appropriate, it is also the stage where to recommend Additional Mitigation, aimed at reducing the effect of an activity, is considered.

6.1.3 The assessment examines each individual Water Body transversed by the Proposed Development in the context of its status, the main contributing elements to the status classification, the objective of the Water Body and the potential impacts scoped into the assessment.

6.2 Embedded Mitigation

6.2.1 Embedded Mitigation measures that will form part of the final design (and/or are established legislative requirements/good practice) have been considered as part of the initial assessment presented in Section 6.3 and Section 6.4 below (i.e. the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures to which the Applicant is committed are considered in the assessment of effects.

6.2.2 Where an assessment identifies likely significant adverse effects, further or 'Additional Mitigation' measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by Institute of Sustainability and Environmental Professionals (ISEP) formerly Institute of Environmental Management and Assessment (IEMA) as actions that will require further activity in order to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the Offshore EIA Report (referred to as secondary mitigation measures in IEMA, (2016).

Table 6.1: Measures Adopted as Part of the Proposed Development

ID*	Embedded Measures Adopted as Part of the Proposed Development	Justification	Means of Implementation	Corresponding Management Plan within the Application
1	Development of, and adherence to, a Cable Specification and Installation Plan (CSIP) post consent.	The CSIP will outline the technical specifications of the cables in the Proposed Development and describe the relevant cable installation methodology, and identify risks of cable burial, and any measures required to address these risks to limit the disturbance of the seabed as far as practicable.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a CSIP	
2	Use of anti-corrosion protective coatings and Scour Protection will be used where there is potential for scour to develop around the Offshore Infrastructure, and it is appropriate to do so.	There is potential for scouring of the seabed sediments to occur through interactions of the metocean regime (including waves, sand, and currents), and the foundations or other artificial structures. This scouring has the potential to develop into depressions around the structures, and therefore to prevent this, the use of Scour Protection will be employed around foundations (as per Volume 1, Chapter 3: Project Description). The Scour Protection has been included in the modelled scenarios used within the assessment of Physical Processes effects (see Volume 2, Chapter 7: Physical Processes) and therefore the potential for hydromorphological changes to the Water Bodies affected.	Secured in the Section 36 Consent and Marine Licences, via the Scour Management Plan	Volume 4, Appendix 30: Outline Scour Protection Management Plan
4	Development of, and adherence to, a Cable Burial Risk Assessment (CBRA) and the Cable Burial Assessment (CBA). Implementation, management and monitoring of cable protection, via burial or external protection where adequate burial depth is not feasible, will be undertaken as informed by these assessments. Results of these assessments, and commitments to	The potential impacts of cable installation can be mitigated through burying cables to a target cable burial depth, as detailed in the CBRA and Cable Burial Assessment (CBA). This, alongside the cable installation strategy, should provide sufficient depth to avoid most exposure through metocean processes. Details of any required cable protection will be included in the CaP.	Secured in the Section 36 Consent and Marine Licences, via the CBRA. CBA and CaP.	

ID*	Embedded Measures Adopted as Part of the Proposed Development	Justification	Means of Implementation	Corresponding Management Plan within the Application
	post construction monitoring, will be provided in the Cable Plan (CaP).			
5	Development of, and adherence to, an Environmental Management Plan (EMP), including a Marine Pollution Contingency Plan (MPCP) and a Biosecurity Plan with commitments to environmental monitoring and actions to minimise Invasive Non-Native Species (INNS).	Measures will be adopted to ensure that the potential for release of pollutants from construction, O&M and decommissioning plant is reduced as far as reasonably practicable. The EMP will include measures that will cover all aspects of environmental management including environmental awareness training, auditing, environmental reporting and waste management. An MPCP will be developed, which will include planning for accidental spills and sources of contaminant releases, and an Marine Invasive Non-Native Species Biosecurity Plan (MINNSBP), to provide measures for controlling the introduction and spread of INNS.	Secured in the Section 36 Consent and Marine Licences, via the requirement for an EMP, MPCP, MMMP, and Biosecurity Plan.	Volume 4, Appendix 24: Outline Environmental Management Plan Volume 4, Appendix 25: Marine Pollution Contingency Plan Volume 4, Appendix 26: Marine Invasive and Non Native Species Biosecurity Plan
7	Development of, and adherence to, a Construction Method Statement (CMS) along with a Code of Construction Practice (CoCP).	Construction procedures will follow the CMS and CoCP, with measures to control risks of deterioration in Water Quality or the status of the marine Water Bodies affected included in the documentation.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a CMS.	
8	All relevant Health and Safety Executive (HSE) procedures will be followed.	As with the CMS, construction procedures will consider all relevant health and safety risks and follow HSE legislation and guidance to mitigate these potential identified risks.	Required in accordance with relevant health and safety legislation.	

ID*	Embedded Measures Adopted as Part of the Proposed Development	Justification	Means of Implementation	Corresponding Management Plan within the Application
9	Development of, and adherence to, a combined Navigational Safety and Vessel Management Plan (NSVMP), describing Project vessels' requirements, passages, monitoring and controls.	This plan will help to mitigate against any collisions between marine vessels that could result in a pollution incident within marine Water Bodies within the WFD Study Area thereby prevent the risk of deterioration in the chemical and ecological status of these Water Bodies.	Secured in the Section 36 Consent and Marine Licences, via the requirement for an NSVMP	Volume 4, Appendix 29: Outline Navigational Safety and Vessel Management Plan
22	Development of, and adherence to, an Emergency Response Cooperation Plan (ERCoP) in consultation with the Maritime & Coastguard Agency (MCA).	The ERCoP will be a structured and coordinated framework that outlines the roles, responsibilities, communication protocols, and actions to be taken by multiple stakeholders—such as government agencies, maritime operators, environmental organisations, and local communities—in the event of a marine emergency. These emergencies may include oil spills, vessel collisions, hazardous material releases or other incidents that pose risks to marine safety, environmental protection, and public health. The ERCoP aims to ensure a rapid, effective, and collaborative response to minimise damage, protect marine ecosystems, safeguard human life, and facilitate recovery efforts.	Secured in the Section 36 Consent and Marine Licences, via the requirement for an ERCoP	
23	Development and adherence to an Operation and Maintenance Programme (OMP) in conjunction with approved post-consent construction plans.	This will ensure that the Proposed Development will be subject to appropriate maintenance and that measures to protect Water Quality are included in the maintenance programme (e.g. ensuring containment is not compromised).	Secured in the Section 36 Consent and Marine Licences	

ID*	Embedded Measures Adopted as Part of the Proposed Development	Justification	Means of Implementation	Corresponding Management Plan within the Application
34	Drafting and implementation of a decommissioning programme, prepared in accordance with requirements of the Energy Act 2004, which will set out the extent of infrastructure to be removed as well as the methods and processes which will be used.	The aim of this plan is to adhere to the existing UK and international legislation and guidance (at the time of writing) during the decommissioning phase. This programme will be developed to reduce the amount of long term disturbance to the environment as far as reasonably practicable.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a decommissioning programme.	
40	Creation of a Waste Management Plan (WMP), which will describe the processes for handling and managing any waste materials.	The WMP will be implemented throughout the duration of the Proposed Development taking into consideration the waste management hierarchy to encourage sustainable development, circular economy, environmental protection, and optimum use of resources.	Secured in the Section 36 Consent and Marine Licences, via the requirement for an EMP	Volume 4, Appendix 24: Outline Environmental Management Plan
43	Use of a trenchless technique (e.g. Horizontal Directional Drilling (HDD) or tunnelling) as the Landfall installation option.	Landfall installation methodology will avoid direct impacts to the Intertidal Area	Secured in the Section 36 Consent and Marine Licences	
54	Development of, and adherence to, a Project Environmental Monitoring Plan (PEMP) to include details of any agreed surveys or monitoring requirements. The PEMP will provide the mechanism to validate the impact assessment, assess the effectiveness of mitigation measures throughout the construction and O&M phases of the Proposed Development.	This will ensure that the Proposed Development will be subject to effective mitigation and monitoring measures to reduce any impact where possible.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a PEMP	

*See Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments

6.3 Deterioration in Water Body Status

6.3.1 As part of the project design process, a number of Embedded Mitigation measures have been proposed to reduce the potential impacts for the water environment. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Proposed Development and have therefore been considered in the assessment presented in this detailed WFD technical report. These measures are considered standard industry practise for this type of development.

6.3.2 The current Water Body classification is the baseline from which deterioration is not permitted. Therefore, this is the status classification that must not deteriorate when considering the impact of the Proposed Development on the deterioration of Water Body status objective.

6.3.3 The detailed assessment demonstrates that taking into consideration the mitigation measures outlined in this WFD technical report, there will not be deterioration in the individual elements of ecological and chemical status and therefore no deterioration in the overall WFD status classification outlined in Table 6.2.

6.3.4 Table 6.2 provides the justification for this assessment based on the different quality elements, the potential impacts scoped into the WFD Assessment and Embedded Mitigation for the Proposed Development.

Table 6.2: Summary of Significance of Effects and Assessment on the Potential for WFD Status Deterioration

Activity	Biological Elements				Hydromorphological Supporting Elements		Physico-chemical supporting elements	Chemical	
	Fish	Invertebrates	Macrophytes	Macrophytes And Phytobenthos	Hydrological Regime	Morphology		Priority Hazardous Substances	Priority Substances
Increased SSC and associated deposition due to construction, O&M and/or decommissioning related activities, and potential impact to physical features	Physical processes modelling, presented in full in Volume 3, Technical Appendix 7.1: Physical Processes Technical Report, has been used to inform the assessment of potential increased SSCs, which occurs predominantly within the passive phase of the plume when material enters suspension in the water column and subsequent deposition. The site preparation activities and installation of Offshore Infrastructure associated with the Proposed Development may lead to increased SSCs and associated deposition. During the construction phase, these activities within the WFD Study Area will include Offshore Export Cable installation, sandwave levelling, trenchless solution exit pit and drilling fluid release. As outlined in Volume 2, Chapter 8: Benthic Ecology, most receptors have a low sensitivity to increased SSCs, however, some tide-swept algal communities have a high sensitivity. The magnitude of the impact from increased SSCs was assessed to be low during the construction phase, negligible during the O&M phase and negligible to minor during the decommissioning stage. The chapter has concluded that the significance of effect will be minor, when the Embedded Mitigation is considered (Table 6.1), which is not significant in EIA terms. As outlined in Volume 2, Chapter 9: Fish and Shellfish, the magnitude of the impact from increased SSCs is assessed as low due the local spatial extent, short term duration, intermittent and high reversibility of increased in SSCs. Marine fish Important Ecological Features (IEFs) are considered to have a low sensitivity to this impact with the exception of sandeel and herring which are assessed as medium. Diadromous Fish and Shellfish IEFs are also considered to have a low sensitivity to this impact. The significance of effect is therefore considered to be minor adverse for all fish and shellfish IEFs which is not significant and will not result in the deterioration in the biological elements of the ecological status in each Water Bodies No Additional Mitigation was considered necessary because the likely effect in the absence of mitigation is not significant in EIA terms.				SSC settlement which could occur in each Water Body from the seabed preparation, cable installation and trenchless solution exit pit and drilling fluid release include: • Settlement thickness resulting from plumes from MFE trenching • Settlement thickness resulting from plumes from releases of dredged sediment • Spoil mounds in the Export Cable Corridor As outlined in Volume 2, Chapter 7: Physical Processes the predicted thickness of settlement for the finer sediments dispersed more widely in the passive phase plume is very limited, in the order of <2 mm in all sites, over a dispersed area of effect. Sediment accumulation of <1 mm would not cause a measurable change in bed level or sediment type in practice. Fine sediments that do settle are also likely to be subject to further erosion and dispersion during subsequent tides. On this basis the impact of changes in seabed morphology as a result of settlement of suspended solids will be of a negligible magnitude and considering that certain areas of the seabed morphology are designated the sensitivity would be considered as high. The significance of effect is therefore minor which is not significant. No deterioration in the hydromorphological supporting elements of the ecological status of each Water Body is therefore predicted.	The Embedded Mitigation (Table 6.1) to prevent accidental pollution during all phases of the Proposed Development will ensure that there will be no significant effects on the physico-chemical supporting elements or the chemical status of any Water Body. The potential for sediment bound contaminants from the habitat disturbance has been scoped out with the justification provided in Table 5.3. No deterioration in the supporting elements of the ecological status or in the chemical status of each Water Body is therefore predicted.		
The impact of short term habitat loss/disturbance and its impact on the supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development	There is potential for temporary habitat loss/disturbance of subtidal and intertidal habitats for the duration of the Proposed Development. As outlined in Volume 2, Chapter 8: Benthic Ecology, there are sensitive receptors such as offshore subtidal sands and gravels, kelp beds and algal communities that may be impacted. The chapter has concluded that the effect will be of minor adverse significance, when the Embedded Mitigation is considered (Table 6.1), which is not significant in EIA terms. This assessment was based on the MDS for the entire Offshore Infrastructure whereas the Offshore Infrastructure in the Water Bodies associated with the WFD Study Area is restricted to the Offshore Export Cable and Landfall in each Water Body as outlined in Table 5.1. Therefore, based on this conservative assessment this an effect of minor significance will not result in a deterioration in the biological elements of ecological status. As outlined in Volume 2, Chapter 7: Fish and Shellfish the potential effects on a number of IEFs including marine fish (e.g. sandeel, shellfish and Diadromous Fish) has been assessed to be minor for all stages of the Proposed Development which is not significant in EIA terms.				As outlined in Volume 2, Chapter 7: Physical Processes the impact to designated seabed morphology arising from seabed preparation and/or cable installation would be negligible. Any impact is predicted to be of local spatial extent, short to medium term duration, intermittent and of medium to high reversibility. The sensitivity of the receiving environment is assessed as high and therefore the significance of effect is minor. The impact to coastal morphology is predicted to be of local extent, short term duration, intermittent and medium reversibility across all phases of the development. The magnitude of the impact for all phases of the Proposed Development is therefore considered to be low.	The Embedded Mitigation (Table 6.1) to prevent accidental pollution during all phases of the Proposed Development will ensure that there will be no significant effects on the physico-chemical supporting elements or the Chemical Status of any Water Body. The potential for sediment bound contaminants from the habitat disturbance has been scoped out with the justification provided in Table 5.3. No deterioration in the supporting elements of the ecological status or in the chemical status of each Water Body is therefore predicted.		

Activity	Biological Elements				Hydromorphological Supporting Elements		Physico-chemical supporting elements	Chemical	
	Fish	Invertebrates	Macrophytes	Macrophytes And Phytobenthos	Hydrological Regime	Morphology		Priority Hazardous Substances	Priority Substances
	No deterioration in the biological elements of the ecological status of each Water Bodies is therefore predicted.				The sensitivity of the coast at this location is therefore, considered to be medium. Overall, the magnitude of the impact as outlined in Volume 2, Chapter 7: Physical Processes is deemed to be low, and the sensitivity of the receptor is considered to be medium. The effect will therefore be of minor adverse significance for all phases of the Proposed Development, which is not significant in EIA terms. No Additional Mitigation is considered necessary because the likely effect in the absence of Additional Mitigation is not significant. No deterioration in the hydromorphological supporting elements of the ecological status of each Water Body is therefore predicted.			
The impact of long term habitat loss/disturbance and its impact on the overall status of the Water Bodies and supporting hydromorphological conditions of Water Bodies during construction, O&M and decommissioning of the Proposed Development	Long term habitat loss and/or disturbance will occur during the construction, O&M, and decommissioning phases of the Proposed Development. The MDS for this impact is summarised in Table 5.1. This impact does not represent a complete removal of habitat, but rather a physical change from a predominantly sandy sedimentary habitat to an artificial, hard substratum. As outlined in Volume 2, Chapter 8: Benthic Ecology a trenchless techniques will be used for cable installation at the Landfall and therefore there will be no long term habitat loss and/or disturbance to intertidal habitats as a result of construction and O&M activities. The significant effect of long term habitat loss and/or disturbance on intertidal receptors has therefore been ruled out. As outlined in Volume 2, Chapter 8: Benthic Ecology subtidal IEFs where considered to have a high sensitivity to long term habitat loss/disturbance however the magnitude of the impact on subtidal IEFs was considered to be low and given the small footprint of the long term habitat loss and/or disturbance compared to the total area of the each Water Body, and the widespread availability of alternative suitable habitat for ocean quahog, the effect was concluded to be of minor adverse significance for the construction, O&M and decommissioning phases. As outlined in Volume 2, Chapter 9: Fish and Shellfish, overall, the impact is predicted to be of local spatial extent particularly within the WFD Study Area, long term duration, continuous, and of low reversibility during the construction and O&M phases. The magnitude of the impact is considered to be low. Marine fish IEFs are considered to have a low sensitivity to this impact with the exception of sandeel, herring and Norwegian lobster which are assessed as medium. Diadromous Fish and shellfish IEFs are also considered to have a low sensitivity to this impact. The significance of effect is therefore considered to be minor adverse for all fish and shellfish IEFs which is not significant and will not result in the deterioration in the biological elements of the Ecological Status in each water body No Additional Mitigation was considered necessary because the likely effect in the absence of mitigation is not significant in EIA terms.				As per the assessment of the impacts of short term habitat loss/disturbance		The Embedded Mitigation (Table 6.1) to prevent accidental pollution during all phases of the Proposed Development will ensure that there will be no significant effects on the physico-chemical supporting elements or the chemical status of any Water Body. The potential for sediment bound contaminants from the habitat disturbance has been scoped out with the justification provided in Table 5.3. No deterioration in the supporting elements of the ecological status or in the chemical status of each Water Body is therefore predicted.		

Activity	Biological Elements				Hydromorphological Supporting Elements		Physico-chemical supporting elements	Chemical	
	Fish	Invertebrates	Macrophytes	Macrophytes And Phytobenthos	Hydrological Regime	Morphology		Priority Hazardous Substances	Priority Substances
	No deterioration in the biological elements of the Ecological Status of each Water Body is therefore predicted.								
Impact of INNS during construction, O&M, and decommissioning	Although it is anticipated that most vessels will utilise ports and harbours on the east coast of Scotland, delivery of some materials to site may take place directly from fabrication yards located in international ports or harbours, which could increase risk of introduction or spread of INNS, but all vessels will be required to comply with the MINNSBP. No INNS were recorded during the site-specific surveys for the Proposed Development (see Volume 3, Technical Appendix 8.1: Benthic Ecology Technical Report) The MINNSBP, as described in Table 6.1, will contain measures to manage and reduce the potential risk of introduction and spread of INNS as far as reasonably practicable. As outlined in Volume 2, Chapter 8: Benthic Ecology, the magnitude of the impact is considered to be low during all phases of the Proposed Development. The sensitivity of the receptors range from medium (kelp and tide-swept algal communities and offshore muddy and mixed sediments) to high (Intertidal rocky and mixed sediment communities and offshore subtidal sands and gravels). The assessment of significance was determined to be minor adverse for all phases of the development which is not significant in EIA terms. As outlined in Volume 2, Chapter 9: Fish and Shellfish Ecology, given the wider ranging nature and habitat use of fish and shellfish species in comparison to benthic species, this impact is not likely to represent a significant effect to fish and shellfish ecology. This, in combination with the Embedded Mitigation of an MINNBP, was deemed sufficiently rational to scope this out of further assessment within the Offshore EIA Report, and this approach was agreed upon by stakeholders in the Scoping Opinion. No Additional Mitigation was considered necessary because the likely effect in the absence of mitigation is not significant in EIA terms. No deterioration in the biological elements of the ecological status of each water body is therefore predicted.				N/A		N/A	N/A	
EMFs from cabling during the operational phase on the benthic ecology, fish and shellfish	As outlined in Volume 2, Chapter 8: Benthic Ecology, the magnitude of the impact during the O&M phase was predicted to be of local spatial extent, long term duration, continuous and high reversibility when cables are removed or are no longer operating in the decommissioning phase. The magnitude was therefore considered to be negligible. As no IEFs are directly assessed within the literature, and the evidence of impacts varies, a precautionary approach was applied with a medium sensitivity applied to the subtidal ad intertidal IEFs. The effect will therefore be of minor adverse significance, which is not significant in EIA terms. As outlined in Volume 2, Chapter 9: Fish and Shellfish the magnitude of the impact is predicted to be of local spatial extent, long term duration (over the O&M phase), intermittent (as effects could only occur within metres of cables), and high reversibility. The magnitude is therefore considered to be low. Marine Fish IEFs, Diadromous Fish IEFs and Shellfish have all be assigned a low sensitivity to EMFs and therefore the significance of effect is assessed as minor adverse. No Additional Mitigation was considered necessary because the likely effect in the absence of mitigation is not significant in EIA terms. No deterioration in the biological elements of the ecological status of each Water body is therefore predicted.				N/A		N/A	N/A	

6.4 Protected Area Objectives

6.4.1 There are two protected areas listed on the WFD Register of Protected Areas are located within the ZoI of the WFD Study Area namely Fowlsheugh SPA and the Firth of Forth Banks Complex MPA. These protected areas have their own monitoring and assessment requirements to determine their condition. They are often assessed for additional pollutants or requirements relevant to their designation. For example faecal coliform levels are assessed within shellfish and Bathing Waters. Therefore, it is important that the standards required for these protected areas are also met. If they are not met, a Water Body which could have otherwise meet the requirement of the WFD, may have the status reduced to 'less than good' as it is not meeting the protected area objectives. The Water Bodies within the WFD Study Area that contain protected areas listed in the register of protected areas are detailed in Table 4.3. As outlined in Section 4.5 and Table 4.3, the protected areas linked to the Water Bodies with the WFD Study Area include SPAs, and Bathing Waters within the Couts Rock to Scurdie Ness, Big Rob's Cove to Couts Rock (Inverbervie) and Downie Point to Big Rob's Cove coastal Water Bodies.

Bathing Water Protected Areas

6.4.2 The Montrose bathing water area is located within the Couts Rock to Scurdie Ness coastal Water Body however is located outside of the WFD Study Area. This bathing water area will not be directly affected by the Proposed Development; however, it is hydrologically connected to the Proposed Development which may give rise to potential indirect effects associated with generation of suspended sediment and during cable laying activities.

Nutrient Sensitive Areas – Lochs and Estuaries

6.4.3 There are no nutrient sensitive waters within the ZoI of the WFD Study Area.

SACs and SPAs

6.4.4 The provisions of the WEWS Act only relate to water dependant habitats and species. The objective is to protect and, where necessary, improve water environment to work towards achieving the conservation objectives for the water dependent features of these sites.

6.4.5 SPAs associated with the Water Bodies that have the potential to be affected by the Proposed Development include the Fowlsheugh SPA. This SPA overlaps with the WFD Study Area and is located entirely within the Downie Point to Big Rob's Cove coastal Water Body. Coastal habitats and species associated with this European Site will not be directly affected by the Proposed Development. However, they are hydrologically connected to the Proposed Development within the ZoI which may give rise to potential indirect effects associated with generation of suspended sediment during cable laying activities, excavation of trenchless solution exit pits and drilling fluids. All potential impacts are outlined within Table 5.2.

6.4.6 Suspended sediment could be dispersed within the WFD Study Area due to the one Spring Tidal Excursion in addition to other contaminants from the Proposed Development.

6.4.7 The EA Guidance 'Clearing the Waters for All' (EA, 2017) recommends that protected areas that are greater than 2 km from the development area can be scoped out of the WFD Assessment. The European Sites that are located within 2 km from the Export Cable Corridor are illustrated in Figure 2.1. There is just one SPA within the WFD Study Area; Fowlsheugh SPA which is located approximately 5.5 km from the Export Cable Corridor. There is not expected to be any impact from the Proposed Development on this protected site.

6.4.8 The potential effects on the relevant Qualifying Features of other identified Protected Areas have been assessed in accordance with the Habitats Regulations in the Report to Inform Appropriate Assessment (RIAA) (TWP-BOW-RPS-ENV-RPT-00013).

Marine Protected Areas

6.4.9 The Firth of Forth Complex MPA is hydrologically connected to the Proposed Development within the WFD Study Area. However, it is unlikely that the Proposed Development will affect this MPA. As only the Proposed Developments ZoI overlaps with the Firth of Forth Banks MPA and the impact of habitat loss and/or disturbance will only occur within the Site Boundary, the relevant features of the MPA (i.e. Ocean quahog) will not be significantly affected. An MPA Assessment was undertaken, see Volume 3, Appendix 8.4: MPA Assessment. The Assessment concluded that the Proposed Development will not result in significant effects on any MPA and will not compromise the achievement of the associated conservation objectives.

Shellfish Water Protected Areas

6.4.10 There are no Shellfish Water Protected Areas within the ZoI of the WFD Study Area.

6.5 Achievement of the WFD Objectives

6.5.1 During the RBMP cycle characterisation of the Water Bodies to establish the key pressures and associated pathways that are resulting in a status classification of less than Good Status was undertaken. A PoMs is then put in place to assist in the achievement of the WFD objectives. The key objective of the WFD was to achieve GES by 2015, however extended timelines can apply where there are justifiable reasons (e.g. due to issues with disproportionate cost, affordability, technical difficulties, or natural recovery times). In these instances, the objective of the achievement of Good Status may be the end of the second cycle RBMP in 2021, or in the third RBMP cycle in 2027. Where Good Status is unlikely to be achieved then less stringent objectives can apply to a Water Body.

6.5.2 Table 6.1 outlines the objectives for each Water Body within the ZoI of the Proposed Development and the key quality elements driving the status. The Significant Water Management Issues where known, resulting in a status of less than good are summarised and the measures that are recommended in the RBMP to achieve the WFD objectives are identified. Currently, each coastal Water body is achieving Good Status or higher as highlighted in Table 6.1 and therefore the objective is to protect the Good Status classification. Table 6.1 assesses the potential impact of the Proposed Development on achievement of

the WFD objective and concludes for all Water Bodies, the Proposed Development will not prevent the achievement of the WFD objectives.

Table 6.1: SWMI, Source, Programme of Measures and assessment of impact of the Proposed Development on the WFD Objectives

Water Body Name	Type	Overall Status/ Potential	Significant Water Management Issue	Source Activity	Examples of RBMP Measures	Objective	Derogation Type	Reason	Impact on WFD Objectives
Couts Rock to Scurdie Ness	Coastal	Ecological – Good	No pressures present for this Water Body	N/A	Maintain Good Status	Good by 2027	N/A	N/A	This Water Body is achieving its Environmental Objective. The Embedded Mitigation committed to as part of the Proposed Development will ensure that there will be no deterioration in status of this Water Body and that the achievement of the Environmental Objectives will not be compromised as a result of the Proposed Development.
		Chemical – Pass		N/A	Maintain Good Status	Good by 2027	N/A	N/A	
Big Rob's Cove to Couts Rock (Inverbervie)	Coastal	Ecological - Good	No pressures present for this Water Body	N/A	Maintain Good Status	Good by 2027	N/A	N/A	This Water Body is achieving its Environmental Objective. The Embedded Mitigation committed to as part of the Proposed Development will ensure that there will be no deterioration in status of this Water Body and that the achievement of the Environmental Objectives will not be compromised as a result of the Proposed Development.
		Chemical – Pass		N/A	Maintain Good Status	Good by 2027	N/A	N/A	

Water Body Name	Type	Overall Status/ Potential	Significant Water Management Issue	Source Activity	Examples of RBMP Measures	Objective	Derogation Type	Reason	Impact on WFD Objectives
Downie Point to Big Rob's Cove	Coastal	Ecological - High	No pressures present for this Water Body	N/A	Maintain High Status	High by 2027	N/A	N/A	This Water Body is achieving its Environmental Objective. The Embedded Mitigation committed to as part of the Proposed Development will ensure that there will be no deterioration in status of this Water Body and that the achievement of the Environmental Objectives will not be compromised as a result of the Proposed Development.
		Chemical - Pass		N/A	Maintain Good Status	Good by 2027	N/A	N/A	

7 Summary

7.1.1 A WFD technical assessment has been undertaken for the WFD Study Area. This assessment is based on guidance developed by the EA and Marine Directorate and is undertaken in a staged approach to ensure that the Proposed Development is assessed in the context of the quality elements that contribute to overall WFD status.

7.1.2 The key focus of the assessment was to ensure that the Proposed Development does not result in a deterioration in the current WFD status based on the 2022 baseline as reported in the RBMP 2021 to 2027 and also to ensure that the project does not compromise the achievement of the WFD objectives for the improvement in the overall status of the Water Bodies that could be affected. The assessment also considers the protected areas linked to the Water Bodies in question and ensures that the protected area objectives are also unaffected.

7.1.3 The scoping stage of the WFD Assessment has concluded that there were potential impacts associated with the Proposed Development that represented a risk of the WFD status and objectives and therefore were scoped into the assessment. The relevant quality elements contributing to the overall status were considered and how each potential impact could affect these.

7.1.4 The overall conclusion of the WFD technical assessment is that there will be no risk of deterioration in status or in the prevention of the achievement of the objectives for the relevant Water Bodies nor will the protected area objectives be compromised.

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