Bowdun Offshore Wind Farm, Offshore EIA Report

Volume 4, Appendix 24: Outline Environmental Management Plan

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Contents

1 Introduction 1
1.2 Aims 3
1.3 Other Relevant Consent Management Plans 4
1.4 Key Programme Dates 4
2 Regulatory Requirements and Legislation 6
3 Environmental Management Framework 7
3.1 Overview 7
3.2 Health, Safety and Environment Policy and Objectives 7
3.3 Organisation, Roles, Responsibilities and Competences 8
3.4 Ongoing Training, Awareness and Engagement 12
3.5 Communications and Reporting 13
3.6 Monitoring 17
4 Environmental Management, Compliance and Mitigation 18
4.1 Introduction 18
4.2 Marine Pollution Mitigation 18
4.3 Marine Ecology 25
4.4 Invasive Non-Native Marine Species 29
4.5 Marine Archaeology 30
4.6 Commercial Fisheries 32
4.7 Unexploded Ordnance 37
5 Waste Management Plan 38
5.1 Objectives and Responsibilities 38
5.2 Definitions and Legal Compliance 38
5.3 Waste Streams Identification and Forecasting 40
5.4 Storage, Segregation Procedures and Transfer Disposal 42
5.5 Recycling and Other Waste Management 43
5.6 Reporting 44
References 45
Annex A. Marine Pollution Contingency Plan 48
A1 Introduction 48
A2 Prevention and Response 51
A3 Spill Accidents Risk Assessment 51
A4 Spills Response Procedures 61
A5 Seabed Deposits and Notification of Dropped Objects 78
A6 Information Directory 79
Annex B. Marine Invasive and Non-Native Species Biosecurity Plan 83
B1 Objectives 83
B2 Risk Assessment 84
B3 Biosecurity Control Measures 88
B4 Monitoring and Inspection 89
B5 Response Strategy 90

B6 Monitoring and Review 91

Annex C. Forms 92

C1 Incident Information Form 93

C2 MCA Pollution Report Form 94

C3 MD-LOT Offshore Renewable Energy - Accidental Deposit of an Object at Sea Reporting 95

Annex D. Actions CHECKLIST During a Vessel Incident 96

Annex E. Actions CHECKLIST During an Installation Incident 99

List of Tables

Table 1.1: Other Relevant Consent Management Plans 4
Table 1.2: Indicative Proposed Development Programme 5
Table 2.1: Section 36 and Marine Licence Conditions to be Discharged by this Outline EMP 6
Table 3.1: Roles and Responsibilities Relevant to the Outline EMP 9
Table 3.2: Regular Reporting Requirements 15
Table 4.1: Embedded and Additional Mitigation Measures Relevant to Marine Pollution 19
Table 4.2: Embedded and Additional Mitigation Measures Relevant to Marine Ecology 25
Table 4.3: Embedded and Additional Mitigation Measures Relevant to Marine Archaeology 31
Table 4.4: Embedded and Additional Mitigation Measures Relevant to Commercial Fisheries 33
Table 5.1: Typical Waste Types 41

List of Figures

Figure 1:1: Proposed Development Site Boundary 2
Figure 5.1: Waste Hierarchy Principle According to the WFD (2008/98/EC) (from most to least preferred) 41

Glossary

Defined term	Definition
Additional Mitigation	Also referred to as secondary mitigation which is defined by 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).
Bowdun Offshore Windfarm Limited (BOWFL)	A Special-Purpose Vehicle (SPV) (legal entity) for the purpose of developing the Project. Bowdun Offshore Wind Farm Limited will be the Applicant for the Offshore Application.
Developer (the)	Bowdun Offshore Wind Farm Limited (BOWFL) (also known as 'the Applicant' in pre-application and application documentation)
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 IEMA 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.
Environmental Impact Assessment (EIA)	Assessment of the potential likely significant effects of the Proposed Development on the physical, biological, and human environment during construction, Operations and Maintenance (O&M) and decommissioning.
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.
Section 36 Consent	Scottish Ministers' consent under Section 36 of the Electricity Act 1989 required for the generating assets of the Proposed Development.
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.

Acronyms

Acronym	Definition
ADD	Acoustic Deterrent Device
AEZ	Archaeological Exclusion Zone
ALARP	As Low As Reasonably Practicable
API	American Petroleum Institute oil gravity scale
AtoN	Aids to Navigation
BAOAC	Bonn Agreement Oil Appearance Code
BAT	Best Available Techniques
BEP	Best Environmental Practice
BWM	International Convention for the Control and Management of Ships' Ballast Water and Sediments
BOWFL	Bowdun Offshore Windfarm Limited
CaP	Cable Plan
CBA	Cable Burial Assessment
CBRA	Cable Burial Risk Assessment
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CFLO	Company Fisheries Liaison Officer
CGOC	Coastguard Operations Centre
CHARM	Chemical Hazard Assessment and Risk Management
CMS	Construction Method Statement
CoCP	Code of Construction Practice
COLREGs	Collision Regulations
COSHH	Control of Substances Hazardous to Health
CSIP	Cable Specification and Installation Plan
DCO	Development Consent Order
DENZ	Department for Energy Security and Net Zero
DSLP	Development Specification and Layout Plan
ECoW	Environmental Clerk of Work
EEZ	Exclusive Economic Zone
EMP	Environment Management Plan
ERCoP	Emergency Response Cooperation Plan
ESP	European Protected Species
FMS	Fisheries Management Scotland
FMMCP	Fisheries Mitigation, Monitoring and Communication Plan
FMMS	Fisheries Liaison with Offshore Wind and Wet Renewables Group
FTRAG	Forth and Tay Regional Advisory Group
GB	Great Britain
GMP	Garbage Management Plan

Acronym	Definition
HOCNF	Harmonised Offshore Chemical Notification Format
HDD	Horizontal Directional Drilling
HSE	Health, Safety and Environment
IACs	Inter-Array Cables
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IC	Incident Commander
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
INNS	Invasive Non-Native Species
ITOPF	International Tankers Owners Pollution Federation
JNCC	Joint Nature Conservation Committee
LMP	Lighting Marking Plan
MCA	Maritime and Coastguard Agency
MARPOL	International Convention for the Prevention of Pollution from Ships
MMO	Marine Management Organisation
NCP	National Contingency Plan
NSP	Navigation Safety Plan
NtMs	Notices to Mariners
MD-LOT	Marine Directorate Licensing Operations Team
MGN	Marine Guidance Note
MGO	Marine Gas Oil
MHWS	Mean High Water Spring
MINNSBP	Marine Invasive Non-Native Species Biosecurity Plan
MMMP	Marine Mammal Mitigation Protocol
MMS	Man Made Structures
MPCP	Marine Pollution Contingency Plan
MRCC	Maritime Rescue Coordination Centres
NOAA	National Oceanic and Atmospheric Administration
OCM	Offshore COSHH Method
OCNS	Offshore Chemical Notification Scheme
OCR 2002	Offshore Chemical Regulations 2002
OMP	Operation and Maintenance Programme
OSPs	Offshore Substation Platforms
PAD	Protocols for Archaeological Discoveries
POA	Plan Option Area
REACH	Registration, evaluation, authorisation and restriction of chemicals
ROV	Remotely Operated Vehicle
RSPB	Royal Society for the Protection of Birds

Acronym	Definition
SDS	Safety Data Sheet
SEPA	Scottish Environment Protection Agency
SLAR	Side-Looking Airborne Radar
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SOSREP	Secretary of State Representative
TAR	Transport Audits Records
TBM	Tool Box Meeting
TEAZ	Temporary Archaeological Exclusion Zones
UKCS	United Kingdom Continental Shelf
UXO	Unexploded Ordnance
UV	Ultraviolet
VMP	Vessel Management Plan
WBM	Water Based Muds
WCN	Waste Consignment Note
WDC	Whale and Dolphin Conservation
WMP	Waste Management Plan
WSI	Written Schemes of Investigation
WTN	Waste Transfer Note

Table of Units

Units	Definition
km	Kilometre
km²	Square kilometre
Kts	Knots
l	Litres
m	Metre
m²	Square Metre
m³	Cubic Metre
ml	Millilitres
mLAT	Metres above/below Lowest Astronomical Tide
nm	Nautical mile
µm	Micrometres
°	Degrees
%	Percent

1 Introduction

1.1.1 This Outline Environmental Management Plan (EMP) has been prepared by ERM on behalf of Bowdun Offshore Wind Farm Limited (BOWFL) (hereafter referred to as the Developer) for the Bowdun Offshore Wind (OWF) Farm Project (hereafter referred to as the Proposed Development).

1.1.2 The Proposed Development covers the Option Lease Area which is located in the E3 Plan Option Area (POA) detailed in the Scottish Sectoral Marine Plan (SMP) (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 1.1). The Proposed Development will comprise of Wind Turbines (fixed foundations), 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 a maximum of 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.

1.1.3 The Proposed Development is located seaward of Mean High Water Springs (MHWS) out to Scottish Offshore Waters. The Onshore Infrastructure, located in Aberdeenshire, is subject to a separate onshore planning application under The Town and Country Planning (Scotland) Act 1997, and is located landward of Mean Low Water Springs (MLWS). The onshore planning application was submitted in November 2025 (Planning reference: APP/2025/1952).

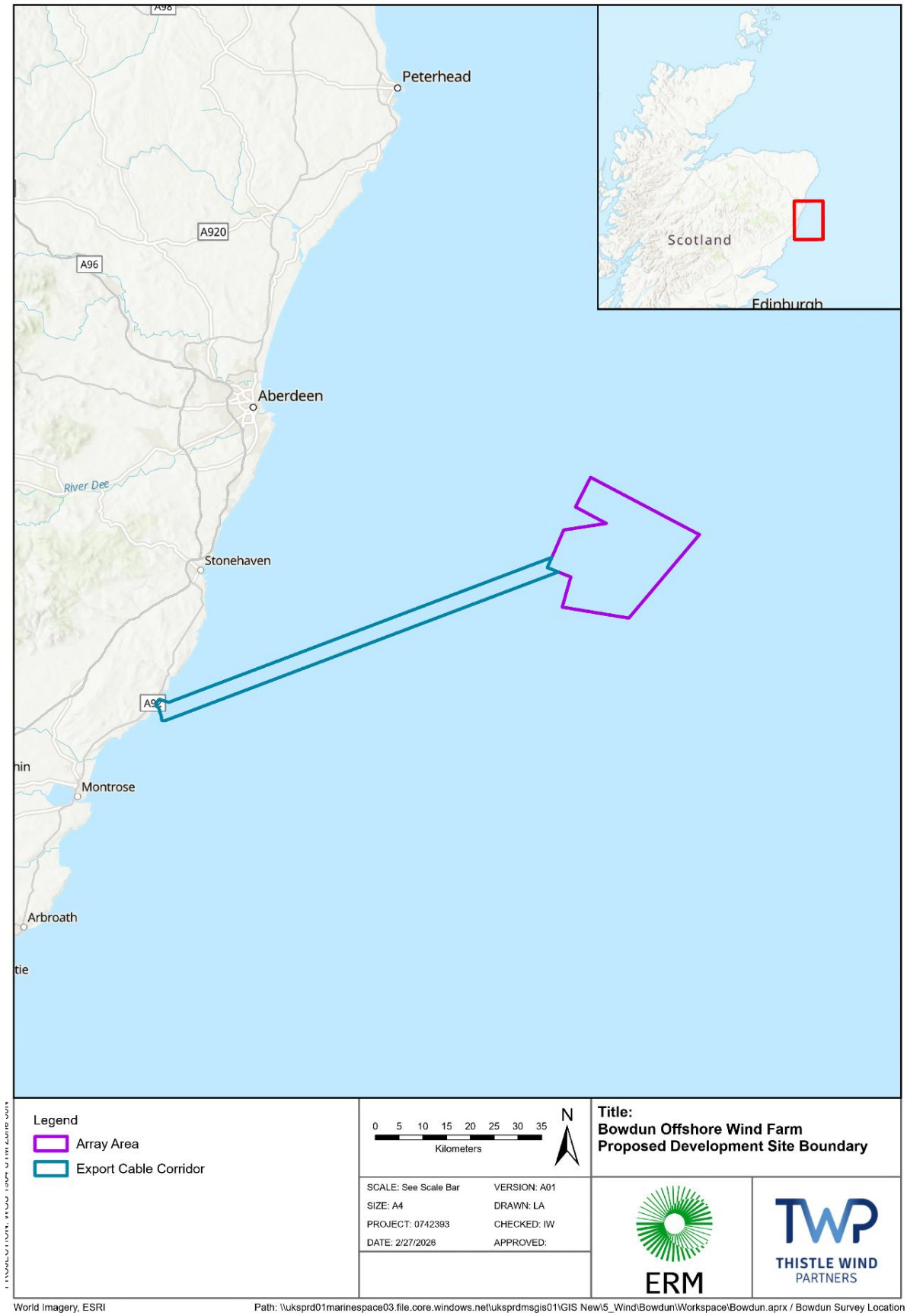


Figure 1:1: Proposed Development Site Boundary

1.2 Aims

1.2.1 The aim of this Outline EMP is:

- To provide a mechanism to ensure that measures to mitigate potentially adverse environmental effects are implemented during the construction and Operation and Maintenance (O&M) phases of the Proposed Development (a separate document will be prepared for the decommissioning stage);
- To promote and meet good practice standards throughout construction and O&M of the Proposed Development; and
- To provide a framework for compliance auditing and inspection to enable the Developer to be assured that the necessary levels of environmental performance are being met.

1.2.2 The Outline EMP will cover the following:

- Offshore personnel, roles and responsibilities and reporting structures in relation to environmental management, including for Contractors and Subcontractors;
- The potential for environmental impacts and control measures required to ensure that the environmental effects are minimised;
- The procedure for communicating and reporting any environmental compliance matters associated with the Outline EMP with the Marine Directorate – Licensing Operations Team (MD-LOT) and relevant stakeholders;
- A Waste Management Plan (WMP) that will outline proposed waste management procedures related to construction and O&M of the Proposed Development, and provide specifics on anticipated waste generation, and propose the methods intended for waste management.
- A Marine Pollution Contingency Plan (MPCP) (Annex A) that describes the measures that will be put in place to minimise and respond to accidental pollution incidents during the construction and O&M phases of the Proposed Development; and
- A Marine Invasive Non-Native Species Biosecurity Plan (MINNSBP) (Annex B) that describes the mitigation measures, including monitoring, that will be implemented to avoid or minimise the risk of introducing or spreading marine Invasive Non-Native Species (INNS) into the waters in and adjacent to the Proposed Development during the construction, O&M and decommissioning phases;

1.2.3 The Outline EMP is a ‘live’ document that will be updated periodically during key project milestones and annually, once construction commences. The Outline EMP therefore reflects the stage of the Proposed Development and information available at the time of writing. As such consultants, Contractors and Subcontractors are required to update their own Environmental Management Plans (EMP) and other relevant documents for the Proposed

Development construction activities in accordance with the revisions to the Outline EMP.

1.2.4 This Outline EMP does not apply to the onshore aspects of the Project (landward of MLWS).

1.3 Other Relevant Consent Management Plans

1.3.1 This document is one of several consent management plans which requires approval from MD-LOT regarding the compliance with relevant Section 36 and Marine Licence conditions.

1.3.2 Where additional information which is linked to this Outline EMP is provided in a separate document, these will be referenced. These documents have been summarised in Table 1.1 below.

Table 1.1: Other Relevant Consent Management Plans

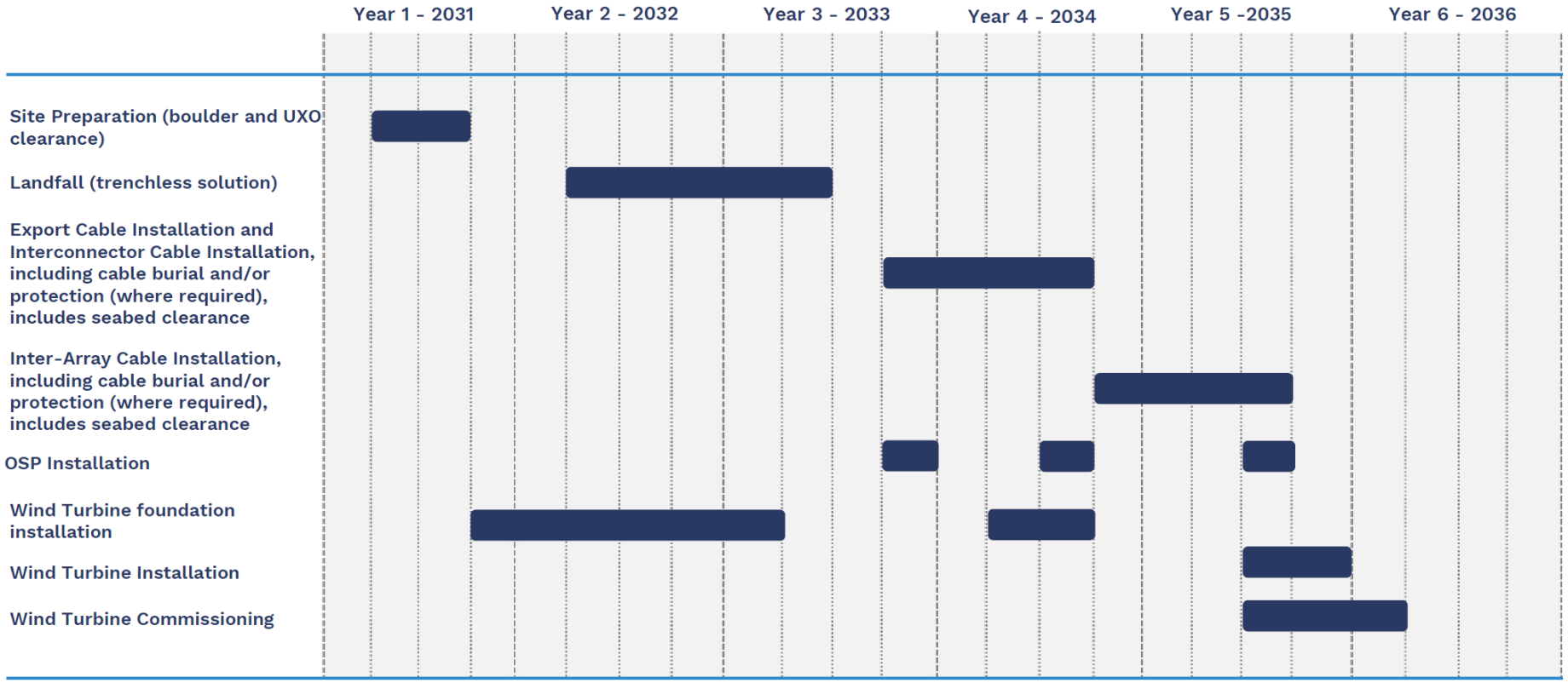
Relevant Plan	Link to Outline EMP	Relevant Section
[to be updated pre-construction]	[to be updated pre-construction]	[to be updated pre-construction]

1.4 Key Programme Dates

1.4.1 An indicative construction schedule for the Proposed Development is shown in Table 1.2. The total estimated construction period for the Proposed Development is five years.

1.4.2 It is currently anticipated that the offshore construction works will be carried out around the clock (i.e. 24 hour working seven days a week).

Table 1.2: Indicative Proposed Development Programme



2 Regulatory Requirements and Legislation

2.1.1 The specific consent requirements for an EMP, including information of Section 36 and Marine Licence conditions which are linked to environmental management, are set out below in Table 2.1.

Table 2.1: Section 36 and Marine Licence Conditions to be Discharged by this Outline EMP

Offshore Consents Reference	Condition	How this Consent Condition will be Addressed
[to be updated pre-construction]	[to be updated pre-construction]	[to be updated pre-construction]

3 Environmental Management Framework

3.1 Overview

3.1.1 This section sets out the over-arching environmental management framework for the construction phase of the Proposed Development. This includes:

- Health, safety and environmental policy objectives;
- Organisation, roles, responsibilities and competences;
- Communications and reporting; and
- Monitoring.

3.2 Health, Safety and Environment Policy and Objectives

3.2.1 The objectives of the Health, Safety and Environment (HSE) policy is to:

- Ensure full adherence to all relevant HSE laws, regulations, and industry best practices;
- Continuously assess and review the HSE performance of employees and Contractors involved in the construction of the Proposed Development;
- Maintain open and transparent communication regarding HSE matters with stakeholders and the general public;
- Provide necessary information, guidance, training, and oversight to employees and Contractors to foster a proactive HSE culture and ensure compliance;
- Dedicate sufficient resources to support the effective implementation of the HSE Plan's principles wherever required; and
- Minimise environmental impact.

3.2.2 To successfully meet the outlined objectives of the HSE Policy, the following actions will be undertaken:

- Establish clear responsibilities and communication between parties: Define and communicate the roles and responsibilities of all personnel involved in the Proposed Development to ensure accountability in HSE matters;
- Develop and maintain procedures: Implement robust management procedures, standards and protocols (shared in advance with all parties) aligned with legal and industry standards to manage risks and promote collaboration and safe working practices;
- Risk assessments for all elements of the Proposed Development will be undertaken as per the relevant government guidance and the Developer's good practice procedures;

- Develop emergency response plans in collaboration with all parties: In order to minimise impacts to the environment and personnel, the Developer's policy is to ensure that there is a continuous capability for a rapid and effective response to any emergency occurring during current activities and all future operations;
- Conduct regular training: Deliver ongoing HSE training sessions tailored to specific roles and activities, ensuring all staff and Contractors are equipped with the knowledge and skills required;
- Monitor and evaluate performance: Use audits, inspections, and performance reviews to assess compliance and identify areas for improvement;
- Encourage reporting and feedback: Promote a culture where employees and Contractors feel empowered to report hazards, near misses, and incidents without fear of reprisal;
- Engage stakeholders: Maintain open lines of communication with stakeholders, including the local community, to share updates and receive input on HSE performance;
- Review and improve: Periodically review the HSE Plan and management procedures to incorporate lessons learned, adapt to changes in regulations, and continuously enhance safety and environmental practices; and
- Minimise environmental impacts: by operating within approved limits, applying the Best Available Techniques (BAT) to mitigate environmental risks and demonstrate real progress towards reducing carbon emissions, waste, water use and impact on biodiversity. Focus efforts on areas where the greatest progress can be made in reducing the Developer's climate footprint, while supporting a cleaner, healthier, and more resilient environment that serves both societal and economic interests.

3.3 Organisation, Roles, Responsibilities and Competences

3.3.1 The roles and responsibilities relevant to the construction of the Proposed Development, are detailed in Table 3.1.

Table 3.1: Roles and Responsibilities Relevant to the Outline EMP

Role	Reports to	Responsibilities
Project Director	Senior Management	• Ensure adequate resources and systems are in place to support the implementation of the EMP and manage environmental risks; • Integrate environmental considerations into progress meetings and staff inductions; and • Establish contractual requirements for environmental compliance across all Contractors.
Construction Manager	Project Director	• Lead the coordination of construction activities, ensuring environmental measures outlined in the EMP are applied; • Monitor implementation of environmental controls during both construction and O&M phases; • Support the Offshore Consents Manager and HSE Manager during audits and ensure audit findings are addressed; and • Report and resolve any Contractor or Subcontractor non-compliance issues.
Package Manger	Project Director	• Manage delivery of specific work packages (e.g. marine installation, transmission systems, turbine supply and maintenance); • Ensure environmental obligations are embedded in contracts and that resources are in place to meet EMP requirements; • Include environmental topics in work package meetings and ensure relevant personnel receive appropriate training; and • Support reporting and site inspections, and ensure corrective actions are implemented where necessary.
HSE Manager	Project Director	• Provide expert guidance on HSE matters throughout the Proposed Development; • Monitor HSE performance during both construction and O&M phases; • Support the Construction Manager during HSE audits; • Oversee the development and execution of HSE plans aligned with the EMP; and • Advise and mentor the team to enhance HSE performance and awareness.
Development Manager	Project Director	• Maintain overall responsibility for environmental compliance, supported by the Offshore Consents Manager; • Ensure the Offshore Consents Manager has the necessary resources to implement and audit EMP processes; and • Oversee the application of environmental measures during construction and operation.
Biosecurity Manager	Project Director	• Responsible for implementing the Marine Biosecurity Plan. • Review and refine the Marine Biosecurity Plan. Regular reviews, for example once a year, will ensure that the plan remains relevant and effective.

Role	Reports to	Responsibilities
Environmental Clerk of Work (ECoW)	Construction Manager	• Monitor site activities to ensure they comply with environmental legislation, planning conditions, and mitigation measures outlined in EIAs or Marine Licences; • Ensure that pollution prevention and ecological protection measures (e.g. silt curtains, spill kits, noise reduction protocols) are properly implemented and maintained; • Support the implementation of MPCPs, ensuring readiness and coordination in the event of a spill or environmental incident. Act as the main point of contact for statutory agencies and stakeholders in the event of a marine pollution accident; • Provide environmental induction and training to site personnel, raising awareness of sensitive habitats, species, and pollution risks.
Contractors	Package Manger	• Align internal procedures with the EMP and ensure full implementation of mitigation and management measures (contractual obligation); • Develop task-specific EMPs, MPCPs and Method Statements in accordance with the overarching EMP and MPCP; • Monitor and report environmental performance and compliance; • Ensure that the EMP is implemented by reviewing task specific Method Statements and Risk Assessments to ensure consistency and compliance with the overarching EMP; • Ensure that sufficient resources and processes are in place to deliver/comply with this EMP and manage potential environmental impacts; • Responsible for reporting to the management team via the relevant Package Manager; • Responsible for implementing and discharging the required mitigation (control) measures on behalf of the Developer; • Ensuring that Subcontractors adhere to the requirements of the overarching EMP, and the Contractor EMP and Method Statements; and • Producing and maintaining records of activity on site and communicating those to the relevant team members to enable reporting of compliance to MD-LOT.
Offshore Consent Manager	Development Manager	• Ensuring ongoing compliance with the EMP; • Manage all reporting and notifications to regulatory bodies; • Act as the main point of contact for statutory agencies and stakeholders; • Review Contractor documentation for alignment with EMP requirements; • Manage consultants and provide input at meetings regarding environmental matters; • Where necessary, managing the process of obtaining new consents (if a result of originated activities) or monitoring consent applications made by Contractors originated activities; and • Attendance at meetings, providing environmental management input.

Competence

3.3.2 The Developer is committed to ensuring that all personnel involved possess the necessary skills, qualifications, and awareness to effectively manage environmental responsibilities outlined in the EMP and meet HSE objectives.

3.3.3 All construction personnel and Contractors will receive an induction.

Internal Staff Competence

3.3.4 All staff engaged in the Proposed Development will be appropriately trained and experienced in environmental management practices relevant to their roles. This includes understanding the requirements of the EMP, being familiar with site-specific environmental sensitivities, and being capable of implementing mitigation measures as required. Ongoing training and refresher sessions will be provided to maintain high standards of environmental awareness and performance throughout the lifecycle of the Proposed Development.

Contractor Competence

3.3.5 During the procurement phase, the Developer team will assess the environmental competence of consultants and Contractors through a structured evaluation of their tender submissions. This assessment will focus on their demonstrated understanding of environmental risks, mitigation strategies, and compliance with relevant legislation and best practices.

3.3.6 Prior to commencing work on site, all Contractors will undergo a comprehensive induction process designed to familiarise them with the environmental conditions, constraints, and expectations of the Proposed Development. This induction may take various forms, including but not limited to:

- Kick-off meetings to outline project-specific environmental requirements;
- Workshops focused on key environmental risks and controls;
- Tool Box Meetings (TBM) tailored to specific tasks or locations; and
- Digital or in-person briefings, depending on the nature of the work and the Contractor's role.

3.3.7 The format and content of the induction will be agreed upon between the Developer and the relevant Contractor to ensure it is fit for purpose and effectively communicates the necessary information.

3.4 Ongoing Training, Awareness and Engagement

3.4.1 Training and environmental awareness will be reinforced throughout the construction and O&M phases via regular communications, updates, and engagement activities. These may include:

- Site walkdowns with environmental focus;
- Distribution of environmental bulletins or updates;
- Inclusion of environmental topics in daily briefings and progress meetings;
- Recognition of good environmental practices to encourage continuous improvement; and
- Identification of specific environmental risks associated with the work to be undertaken on site.

3.4.2 By embedding environmental competence and awareness into all levels of the Proposed Development, it aims to foster a proactive culture of environmental responsibility and ensure full compliance with the EMP.

Tool Box Meetings

3.4.3 As part of the Proposed Development's commitment to environmental protection during the construction and O&M phases, regular TBM will be integrated into daily and weekly briefings. These sessions will be tailored to the specific activities being undertaken and will serve to raise awareness among personnel of the environmental risks associated with their tasks, while reinforcing the control measures required to prevent or minimise impacts.

3.4.4 TBMs will be delivered by supervisors, HSE personnel, or designated environmental leads, and may be conducted onshore or offshore depending on the location of the work. The format may include short presentations, interactive discussions, or visual demonstrations, and will be adapted to suit the audience and operational context.

Key Topics for Offshore Tool Box Meetings

3.4.5 Subjects relevant to offshore construction activities may include, but are not limited to:

- Awareness of Archaeological Exclusion Zones (AEZs) and protocols for working near sensitive areas;
- Spill prevention and response procedures, including handling of fuels, lubricants, and chemicals in line with the MPCP;
- Waste minimisation and management, including segregation, storage, and disposal of materials in accordance with site-specific waste protocols;

- General environmental good practice, such as maintaining clean work areas, avoiding unnecessary disturbance to marine habitats, and reducing noise and light pollution;
- Reporting of environmental incidents and near misses, including the use of designated reporting channels and documentation procedures; and
- Measures, including monitoring, that will be implemented to avoid or minimise the risk of introducing or spreading INNS and what to do if an INNS is discovered on site.

Supporting Materials and Communication

3.4.6 To reinforce the messages delivered during TBMs, the Proposed Development will produce a range of environmental awareness materials. These may include:

- Training packs for new starters and refresher sessions;
- Posters and signage displayed in site offices, welfare units, and onboard construction vessels, highlighting key procedures and environmental responsibilities;
- Newsletters or bulletins issued periodically to share updates, lessons learned, and examples of good practice; and
- Digital resources, such as short videos or interactive modules, accessible to personnel working remotely or offshore.

Training Records and Review

3.4.7 All environmental training activities, including TBMs, will be documented. Records will include:

- The content and objectives of each session;
- A log of attendees, including names, roles, and dates of participation; and
- A schedule for review and updates to ensure training remains relevant and effective as the project progresses.

3.4.8 These records will be maintained by the HSE team and will be available for audit and compliance reporting purposes.

3.5 Communications and Reporting

3.5.1 Effective communication is essential to ensure that environmental responsibilities are clearly understood and consistently applied throughout the construction of the Proposed Development. This includes both internal coordination among project teams and external engagement with regulators and stakeholders.

Internal Communications

3.5.2 The Construction Manager will act as the primary liaison with the Contractor and will ensure that regular project coordination meetings are held. These meetings will include environmental performance as a standing agenda item, allowing for the review of compliance, discussion of emerging issues, and planning of mitigation measures.

3.5.3 The Development Manager will support this process by keeping the Construction Manager informed of:

- Progress against environmental commitments and Section 36 and Marine Licence conditions;
- Any known environmental sensitivities relevant to upcoming activities; and
- Required mitigation measures and their implementation status.

3.5.4 Internal communication mechanisms will include:

- Project and site inductions, which will include HSE awareness components;
- Daily and weekly briefings, incorporating TBM focused on environmental topics;
- Monthly Contractor coordination meetings, with HSE updates;
- Dedicated HSE and environmental meetings, held regularly to allow staff to raise concerns and receive feedback;
- Environmental bulletins or safety messages, shared across the team and displayed in site offices and on vessels;
- Monthly environmental performance reports, summarising key indicators, incidents, and compliance status.

External Communications

3.5.5 The Developer will maintain transparent and timely communication with statutory bodies and stakeholders, in line with Section 36 and Marine Licence conditions and best practice.

3.5.6 The Environmental Manager will be responsible for:

- Issuing Notices to Mariners (NtMs) related to environmental surveys;
- Coordinating with the Contractor, who will issue NTMs for construction activities; and
- Ensuring all NtMs are prepared and distributed in accordance with the agreed NtM Protocol.

3.5.7 The Offshore Consents Manager, supported by the environmental team, will lead engagement with external stakeholders, including:

- MD-LOT;
- NatureScot, Scottish Environment Protection Agency (SEPA), Joint Nature Conservation Committee (JNCC), Royal Society for the Protection of Birds (RSPB) Scotland, Maritime and Coastguard Agency (MCA), and the Northern Lighthouse Board (NLB); and
- Company Fisheries Liaison Officers (CFLOs) and archaeological consultants, where relevant.

3.5.8 The external reporting requirement are shown in Table 3.2.

3.5.9 Some of the reporting under 'Others' will be finalised and determined by the Section 36 and Marine Licence conditions of the Proposed Development. Additional reporting will also be established upon receiving the list of conditions and this table therefore should be updated accordingly.

Table 3.2: Regular Reporting Requirements

Communication Type	Frequency	Recipients
Regular		
Compliance reports and construction progress	Monthly	MD-LOT, other key stakeholders
Stakeholder liaison meetings	As required	MD-LOT, Forth and Tay Regional Advisory Group (FTRAG), other key stakeholders
Construction progress updates	Weekly	MCA*
Consenting process updates	As required	Relevant stakeholders
Others - licence conditions dependent		
HSE	Monthly/As Required	MD-LOT
Chemical usage and approval request	As required, prior to chemical usage	MD-LOT
Incident and response reporting and Force Majure	As required	MD-LOT and/or SEPA
Deposits: detailed Transport Audit Report (TAR) each month during the construction phase of the Works	As required	MD-LOT
Marine mammal observations	Within 6 months	MD-LOT
Noise registry	Within 12 weeks	MD-LOT, JNCC

*To maintain situational awareness of a changing maritime domain, developers must ensure that MCA is included in their distribution of a weekly update notification. These should be sent to oelo@mcga.gov.uk and to renewables@hmcg.gov.uk (MGN 654 Annex 5).

3.5.10 Compliance reports include, but are not limited to, compliance with environmental management measures, mitigation measures, conditions of the licence, HSE and other commitments made by the Developer and the Contractor. These are detailed in the Schedule of Mitigations and Commitments, found in the Volume 3, Technical Appendix 4.6: Schedule of Mitigations and Commitments.

3.5.11 The Contractor will have the responsibility to promptly and proactively respond to any incident and report it to the Developer. This is in addition to any legal requirements or other recognised industry best-practice.

3.5.12 For incident reporting (responsibility of the ECoW) includes unplanned events such as (but not limited to):

- Pollution incident: oil or chemical spill;
- Archaeology incident: infringement on AEZs or archaeological discoveries;
- Dropped objects offshore; and
- Non-compliance: e.g. with Section 36 and Marine Licence conditions or legal requirements.

3.5.13 There are formal procedures and forms for reporting environmental accidents during offshore wind farm construction in Scotland. Spill accidents are to be reported to SEPA (up to 12 nm) and the MCA (includes HM Coastguard as the operator of Maritime Rescue Coordination Centres (MRCC)) (up to 200 nm). Spill accidents response plans are discussed in Annex C.

3.5.14 Dropped objects response plan and reporting timings are covered in the MPCP in Annex A. In terms of reporting requirements, MD-LOT states that "*No material should be intentionally discarded at sea, except under conditions of force majeure. Force majeure only applies if the dumping is necessary to secure the safety of the vessel, installation or crew. Objects deposited under force majeure must be reported to the Licensing Authority*" (MD-LOT, 2024).

3.5.15 This report also includes the following supporting documents:

- Contact List (Annex A: Section: A6.1);
- Overview of statutory bodies' roles in responding to marine pollution incidents (Annex A; Section A6.3.2);
- Pollution Incident Report Form (SEPA, 2025; MCA, 2022) (Annex C); and
- Dropped Objects Reporting Form (MD-LOT, 2024) (Annex C).

3.6 Monitoring

3.6.1 Monitoring is a critical component of the EMP, ensuring that environmental commitments are upheld and that construction activities are carried out in accordance with regulatory requirements and best practice standards.

3.6.2 All monitoring activities will be documented and reported through structured channels as discussed in Section 3.5.

Monitoring Responsibilities

3.6.3 The HSE Manager and the ECoW will lead the monitoring of EMP implementation across all phases of the Proposed Development. This includes tracking compliance with Section 36 and Marine Licence conditions, identifying environmental risks, and verifying that mitigation measures are effectively applied.

3.6.4 The HSE Manager will support this process also by reviewing Contractor HSE procedures and performance, ensuring alignment with the EMP and broader project objectives.

Monitoring Activities

3.6.5 Monitoring activities will include:

- Routine site inspections (onshore and offshore) to assess environmental performance and identify any non-compliances;
- Review of Contractor documentation, including Method Statements, Risk Assessments, and task-specific EMPs;
- Verification of mitigation measures, such as spill prevention controls, waste management practices, and noise reduction strategies;
- Near Miss reports conducted in response to observed non-compliances or emerging risks, with immediate corrective actions documented and implemented; and
- Environmental audits scheduled periodically or triggered by incidents, to evaluate the effectiveness of EMP procedures and identify areas for improvement.

External Oversight

3.6.6 Regulatory bodies such as MD-LOT may conduct independent inspections to verify compliance with Section 36 and Marine Licence conditions and approved plans. The Developer will facilitate access to offshore construction sites upon request and provide necessary documentation and support.

4 Environmental Management, Compliance and Mitigation

4.1 Introduction

4.1.1 This section outlines the environmental mitigation framework for the Proposed Development, ensuring compliance with Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments, relevant Section 36 and Marine Licence conditions and best practice standards. The mitigation measures described here are designed to minimise adverse impacts during the construction and O&M of the Proposed Development.

4.1.2 All parties involved in the Proposed Development, including the Developer, Contractors, and Subcontractors, are required to comply with:

- Conditions set out in statutory consents and Marine Licences;
- Mitigation commitments made in the Offshore EIA Report; and
- Any additional measures agreed with regulators or stakeholders during pre-construction planning.

4.1.3 Copies of all relevant consents and licences will be maintained and made accessible to the project team. These may include:

- Section 36 consent under the Electricity Act;
- Marine Licences for offshore works;
- Safety zone declarations;
- European Protected Species (EPS) Licences;
- Cable crossing agreements and proximity protocols; and
- Decommissioning programme.

4.1.4 The mitigation measures the Developer has committed to undertaking during the construction and O&M of the Proposed Development and applicable to the relevant physical, biological and human environments presented in the Offshore EIA Report, are discussed below.

4.2 Marine Pollution Mitigation

4.2.1 The Proposed Development is committed to preventing marine pollution throughout the construction and O&M phases of the Proposed Development. This section outlines the framework for managing pollution risks, including the responsible use of chemicals, in line with regulatory requirements and industry best practice. Emergency response measures are outlined in the MPCP in Annex A.

Pollution Prevention Strategy

4.2.2 Marine pollution risks may arise from a range of activities, including vessel operations, equipment maintenance, chemical handling, and accidental releases (e.g., from operative spills and shipping accidents). To mitigate these risks, the following overarching measures will be implemented:

- Strict adherence to Section 36 and Marine Licence conditions;
- Development and implementation of a MPCP (Annex A), covering spill response procedures, reporting protocols, and resource deployment;
- Routine inspections and audits to verify compliance and identify areas for improvement;
- Implementation of accidents and disasters prevention measures such as navigation risks management as detailed in:
  - Volume 3, Technical Appendix 14.1: Shipping and Navigation Navigational Risk Assessment (NRA);
  - Volume 4, Appendix 29: Outline Navigation Safety and Vessel Management Plan;
  - Volume 4, Appendix 31: Outline Lighting and Marking Plan; and
  - Volume 4, Appendix 32: Outline Aids to Navigation Management Plan; and
- Training and awareness programmes for all personnel involved in offshore activities.

4.2.3 Table 4.1 lists the marine pollution Embedded and Additional Mitigation measures for the construction and O&M of the Proposed Development, stated in Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments.

Table 4.1: Embedded and Additional Mitigation Measures Relevant to Marine Pollution

ID*	Mitigation Measure	Means of Implementation
1	Development of, and adherence to, a Cable Specification and Installation Plan (CSIP) post-consent.	Secured in the Section 36 Consent and Marine Licence, 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.	Secured in the Section 36 Consent and Marine Licences, via the Scour Management Plan
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 monitoring and actions to minimise Invasive Non-Native Species (INNS).	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP.

ID*	Mitigation Measure	Means of Implementation
7	Development of, and adherence to a Construction Method Statement (CMS) along with a Code of Construction Practice (CoCP).	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CMS.
8	All relevant Health and Safety Executive (HSE) procedures will be followed.	Required in accordance with relevant health and safety legislation.
17	Any objects dropped on the seabed during works associated with the Proposed Development will be reported in line with MD-LOT procedures and objects will be recovered where they pose a hazard to other marine users and where recovery is possible.	Secured in the Section 36 Consent and Marine Licence, via the Dropped Object Procedure.
23	Development of, and adherence to, an Operation and Maintenance Programme (OMP) in conjunction with approved post-consent construction plans.	Secured in the Section 36 Consent and Marine Licence.
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.	Secured in the Section 36 Consent and Marine Licence, 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.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP.
51	Safety margin within the Wind Turbine design to be fitted with automatic shutdowns/lockdowns with regards to spinning too fast.	Secured in the Section 36 Consent and Marine Licence.
4, 9, 11, 12, 13, 16, 18, 20, 21, 22, 24, 41, 42, 43, 48, 49, 50	Navigational safety procedures must be followed to minimise accidents risks. Shipping and navigation mitigation measures for the reduction and management of navigational risks are stated in Volume 2, Chapter 14 Shipping and Navigation.	Secured in the Section 36 Consent and Marine Licence and additional implementations as stated in Volume 2, Chapter 14 Shipping and Navigation.

*see Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments of the Offshore EIA

Vessel Usage Management and Pollution Mitigation

4.2.4 In terms of vessels operations, the following supplemental mitigation measures apply:

- Vessels and plant relating to construction and O&M activities will follow best practice and guidance for pollution at sea, detailed in the final EMP to reduce and coordinate response to pollution events if they were to occur (see Annex A: MPCP);
- Vessels will strictly adhere to the UK and Scottish maritime legal framework (e.g. the Merchant Shipping Act (1995) and Regulations (2024)), Oslo and Paris (OSPAR) Convention, International Maritime Organization (IMO) and International Convention for the Prevention of Pollution from Ships (MARPOL) guidelines and industry best practices regarding pollution at sea. The EMP will be finalised prior to construction;
- Provision for storage of pollutants and identification of products suitable for use in the marine environment (as per guidelines); and
- All protective coatings and paints will be suitable for use in the marine environment. The coatings/paints should be utilised in accordance with Best Environmental Practice (BEP).

4.2.5 Specifically, in relation to pollutions, the treaties and conventions' guidelines cover:

- OSPAR: Focuses on protecting the marine environment of the North-East Atlantic. For vessels' pollution, the relevant aspects include:
  - Apply BAT and BEP to minimise pollution;
  - Avoid introducing hazardous substances into the marine environment; and
  - Confined disposal for contaminated material to prevent leaching.
- IMO: Sets global standards for safety and environmental pollution prevention, including:
  - Ship routing systems, reporting systems, and navigational safety. E.g. ISM Code (International Safety Management) mandatory for safe operation and pollution prevention; and
  - Guidelines for safe towing, mooring, and emergency preparedness.
- MARPOL: has six technical annexes:
  - Annex I: Oil pollution prevention (e.g., double hulls, oily water separators);
  - Annex II: Control of pollution by noxious liquid substances in bulk;
  - Annex III: Harmful substances in packaged form (International Maritime Dangerous Goods (IMDG) Code compliance);

- Annex IV: Sewage discharge regulations (treatment plants or distance limits);
- Annex V: Garbage management (strict ban on plastics at sea);
- Annex VI: Air pollution (limits on SOx, NOx, particulate matter, and GHG measures); and
- Special Areas: Stricter discharge rules in designated zones.

- London Protocol (1996), an international agreement under the London Convention (1972) (it's relevance to wind farms development is context dependent): prohibits the dumping of most types of waste at sea unless specifically permitted or exempted. The UK is a signatory and enforces it through domestic legislation, including the Marine and Coastal Access Act 2009;
- Industry best practices: Beyond legal compliance, industry standards emphasise proactive environmental management:
  - ISM Code & Integrated Management Systems:
    - Risk-based approach to safety and environmental protection; and
    - Regular audits, training, and emergency drills.
  - Pollution Prevention Measures:
    - Proper handling of bilge water and ballast water;
    - Zero discharge of plastics and strict garbage segregation; and
    - Energy efficiency measures (e.g., slow steaming, hull cleaning).
- Adoption of ISO Standards:
  - ISO 14001 (Environmental Management);
  - ISO 45001 (Occupational Health & Safety); and
  - ISO 50001 (Energy Management).

Chemical Usage and Management and Pollution Mitigation

4.2.6 Chemical usage is a key area of focus within the marine pollution mitigation strategy. All chemicals used during construction will be selected, stored, and handled to minimise environmental risk. A Section 36 and Marine Licence condition may dictate the chemical usage and management standards, therefore, the following requirement will be updated in the due course:

- Pre-approval of chemicals: Any chemical intended for use in open systems offshore must be submitted to MD-LOT (and Centre for Environment, Fisheries and Aquaculture Science (Cefas)) for approval

prior to use. Chemicals selected should be listed under the Offshore Chemical Notification Scheme (OCNS) (following the Offshore Chemical Regulation 2002 (as amended) (OCR 2002)). In the event a chemical is not OCNS listed, approval should be requested (this step is Section 36 and Marine Licence condition dependent);

- Contractor compliance: All Contractors must comply with the OCR 2002[1] and project-specific chemical management protocols (this step is Section 36 and Marine Licence condition dependent). All Contractors shall have in place appropriate procedures for the use, transport and storage of chemicals;
- Control of Substances Hazardous to Health (COSHH) assessments: Required for all hazardous substances used during construction; and
- Safety Data Sheets (SDS): Must be available and accessible for all chemicals on site.

4.2.7 Each Contractor is required to include a comprehensive chemical inventory within their risk assessments. This inventory must specify the intended use, storage conditions, and transport arrangements for all substances, in accordance with established best practice and applicable regulatory frameworks. Relevant considerations include, but are not limited to:

- Transport: Compliance with the International Maritime Dangerous Goods (IMDG) Code for the safe carriage of hazardous substances by sea, including classification, packaging, stowage, and segregation requirements;
- Storage: Adherence to the COSHH Regulations 2002 (as amended), the Registration, evaluation, authorisation and restriction of chemicals (REACH) Enforcement Regulations 2008, and the Classification, Labelling and Packaging (CLP) Regulation (EC No. 1272/2008). Offshore-specific guidance, such as HSE's Offshore COSHH Method (OCM) Note 8, should also be followed to ensure appropriate ventilation and containment measures; and
- Use: Chemical products must be handled and applied strictly in accordance with manufacturer specifications, including SDS and operational instructions.

4.2.8 A designated individual on each vessel shall be accountable for the secure storage and protection of all chemical substances. In coordination with project and marine teams, this person will oversee the implementation of

[1] OWF developments are not directly subject to the OCR 2002. These regulations were specifically designed for the oil and gas sector, covering the use and discharge of chemicals in offshore petroleum activities. However, OWFs located in Scottish Waters are regulated in terms of chemical use, through Section 36 and Marine Licence conditions, which refer to the OCR 2002 where applicable.

a robust stock control system. This system must maintain accurate records of chemical receipt, distribution, and inventory levels. All chemicals associated with a specific system or project must be clearly labelled with the relevant project number and stored in a dedicated area. Where feasible, chemical storage must be secured under lock and key.

4.2.9 The responsible individual shall also ensure strict adherence to supplier-specific handling instructions and delivery documentation. Safe lifting techniques must be employed to facilitate the secure and efficient movement of chemical containers. All personnel involved in chemical handling must be informed of relevant safety precautions.

4.2.10 SDS and COSHH documentation for each chemical must be reviewed as part of the risk assessment process and appended to the associated assessments. These documents must also be readily accessible at the location where the chemicals are stored or used. Risk Assessments and Method Statements must incorporate appropriate control measures to mitigate potential impacts on the marine environment during chemical use, storage, and transport.

4.3 Marine Ecology

4.3.1 The Developer recognises the importance of protecting marine ecological receptors throughout the construction and O&M phases of the Proposed Development. This section outlines the mitigation measures designed to minimise impacts on marine habitats, species, and ecological processes, in accordance with the Offshore EIA Report, Section 36 and Marine Licence conditions, and relevant legislation.

4.3.2 The primary objectives of marine ecology mitigation are to:

- Avoid or minimise disturbance to sensitive marine habitats and species;
- Prevent degradation of the marine environment;
- Comply with statutory obligations and Section 36 and Marine Licence conditions; and
- Support the long-term ecological integrity of the development area and surrounding waters.

4.3.3 Mitigation measures will be targeted to protect the following key ecological receptors:

- Benthic habitats, including seabed communities designated protected features and Priority Marine Features;
- Fish and shellfish populations, particularly spawning and nursery grounds;
- Marine mammals;
- Seabirds, especially during breeding and foraging periods; and
- Bats, migrating offshore.

4.3.1 Table 4.2 lists the marine ecology Embedded and Additional Mitigation measures for the construction and O&M of the Proposed Development, stated in Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments. Justifications are provided in the relevant Offshore EIA Report chapters.

Table 4.2: Embedded and Additional Mitigation Measures Relevant to Marine Ecology

ID*	Mitigation Measure	Topic	Means of Implementation
1	Development of, and adherence to, a Cable Specification and Installation Plan (CSIP) post-consent.	Benthic, fish and shellfish	Secured in the Section 36 Consent and Marine Licence, 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	Benthic ecology	Secured in the Section 36 Consent and Marine

ID*	Mitigation Measure	Topic	Means of Implementation
	around the Offshore Infrastructure, and it is appropriate to do so.		Licences, via the Scour Management Plan
3	Development of, and adherence to, a Piling Strategy. This will detail use of Acoustic Deterrent Devices (ADDs), slow start, soft start, and ramp up procedures, as appropriate, as well as any Additional Mitigation measures, where determined to be required, in consultation with stakeholders including NatureScot and Marine Directorate-Licensing Operations Team (MD-LOT).	Fish and shellfish, marine mammals	Secured in the Section 36 Consent and Marine Licence, via the Piling Strategy.
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 post construction monitoring, will be provided in the Cable Plan (CaP).	Benthic ecology, fish and shellfish	Secured in the Section 36 Consent and Marine Licence, via the CBRA, CBA and 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 monitoring and actions to minimise Invasive Non-Native Species (INNS).	All	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP.
6	Development of, and adherence to, a Marine Mammal Mitigation Protocol (MMMP), to minimise the risk of auditory injury to marine mammals from noise generating activities resulting from the construction of the Proposed Development. Mitigation will include measures such as Marine Mammal Observers (MMOs), Passive Acoustic Monitoring (PAM) and Acoustic Deterrent Devices (ADDs).	Marine mammals	Secured in the Section 36 Consent and Marine Licences, via the requirement for an MMMP.
7	Development of, and adherence to a CMS along with a CoCP.	All	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CMS.
8	All relevant HSE procedures will be followed.	All	Required in accordance with relevant health and safety legislation.

ID*	Mitigation Measure	Topic	Means of Implementation
9	Development of, and adherence to, a combined Navigational Safety and Vessel Management Plan (NSVMP), describing Project vessels' requirements, passages, monitoring and controls.	Fish and shellfish, marine mammals, offshore ornithology	Secured in the Section 36 Consent and Marine Licence, via the requirement for an NSP and VMP.
13	Development of, and adherence to, a Lighting and Marking Plan (LMP). The LMP will confirm compliance with legal requirements with regards to shipping, navigation and aviation marking and lighting.	Fish and shellfish	Secured in the Section 36 Consent and Marine Licence, via the requirement for an LMP.
16	Application for, and use of, Safety Zones of up to 500 m during construction, major maintenance, and decommissioning phases. Advisory safe passing distances of up to 500 m will also be applied for mobile installation vessels.	Fish and shellfish	Secured via an application for Safety Zones prior to construction commencing.
18	All vessels working on the Proposed Development will meet the required certification standards and carriage requirements along with following international marine regulations.	Fish and shellfish	Secured in the Section 36 Consent and Marine Licence, via the requirement for a VMP.
20	Suitable Aids to Navigation (AtoN) lighting and marking of the Proposed Development including construction buoyage and the use of a Cable Marker Board shall be implemented complying with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendations G1162 (IALA, 2021), to be finalised and approved in consultation with the Maritime and Coastguard Agency (MCA) and Northern Lighthouse Board (NLB) through a LMP..	Fish and shellfish	IALA Recommendations G1162.
21	Wind Turbine design to have a minimum lower blade tip height of 33.12 m above Lowest Astronomical Tide (LAT).	Fish and shellfish, offshore ornithology, offshore bats	Secured in the Section 36 Consent and Marine Licence
23	Development of, and adherence to, an Operation and Maintenance Programme (OMP) in conjunction with approved post-consent construction plans.	Fish and shellfish	Secured in the Section 36 Consent and Marine Licence
24	Development of, and adherence to, a Development Specification and Layout Plan (DSLP). The development of the DSLP includes consultation with the relevant authorities for approval, including the MCA and NLB.	Fish and shellfish, marine mammals, offshore ornithology	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CMS

ID*	Mitigation Measure	Topic	Means of Implementation
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.	Benthic ecology, fish and shellfish, marine mammals	Secured in the Section 36 Consent and Marine Licence, via the requirement for a decommissioning programme
36	Where practicable, the use of low order disposal of Unexploded Ordnance (UXOs) will be implemented (i.e. deflagration).	Fish and shellfish, marine mammals, offshore ornithology	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP
37	Adoption of Joint Nature Conservation Committee (JNCC) guidelines for minimising the risk of injury to marine mammals from geophysical surveys, piling noise and use of explosives if and where required.	Marine mammals	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP
40	Creation of a Waste Management Plan (WMP), which will describe the processes for handling and managing any waste materials.	Fish and shellfish, marine mammals, offshore ornithology	Secured in the Section 36 Consent and Marine Licence, via the requirement for a WMP
42	Compliance of project vessels with international marine regulations as adopted by the Flag State, including International Regulations for Preventing Collisions at Sea (COLREGS) (IMO, 1972) and International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).	Fish and shellfish	Secured in the Section 36 Consent and Marine Licence
43	Use of a trenchless technique (e.g. Horizontal Directional Drilling (HDD) or pipe jacking tunnelling) as the Landfall installation option.	Benthic ecology, offshore ornithology	-
52	Low order clearance techniques are the default method for UXO clearance (Mitigation measure 36) and would not require Additional Mitigation over and above the Embedded Mitigation measures within the outline MMMP (Volume 4, Appendix 27: Outline Marine Mammal Mitigation Protocol). However, should high order clearance be unavoidable Additional Mitigation may be required dependant on the results of the UXO Risk Assessment. Appropriate mitigation measures will be discussed and agreed with MD-LOT and NatureScot with the detail to be agreed for the finalised MMMP.	Fish and shellfish, marine mammals, offshore ornithology	Secured in the Section 36 Consent and Marine Licences

ID*	Mitigation Measure	Topic	Means of Implementation
53	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, and inform adaptation of mitigation measures throughout the construction and O&M phases of the Proposed Development.	Fish and shellfish, marine mammals, offshore ornithology	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 of the Offshore EIA

4.3.2 Appropriate supplemental measures are to be discussed and agreed with stakeholders and secured as part of a Piling Strategy post-consent. The EMP will be updated to reflect any additional measures agreed.

4.4 Invasive Non-Native Marine Species

4.4.1 The introduction and spread of INNS pose a significant threat to marine biodiversity, ecosystem function, and the long-term sustainability of marine industries. The Developer is committed to implementing robust mitigation measures to prevent the introduction and transfer of INNS during all phases of the Proposed Development.

4.4.2 INNS may be introduced or spread through several pathways associated with offshore construction, including:

- Vessel hull fouling and ballast water discharge;
- Movement of construction equipment between ports and offshore sites;
- Installation of subsea infrastructure and cable laying; and
- Transfer of materials from international or non-local sources.

4.4.3 Mitigation of INNS is a legal and ecological requirement under:

- The Marine (Scotland) Act 2010 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended);
- Section 36 and Marine Licence conditions issued by MD-LOT; and
- Relevant guidance from NatureScot, JNCC, and the GB (Great Britain) Non-Native Species Secretariat.

4.4.4 To minimise the risk of INNS introduction and spread, the following measures will be implemented:

- Vessel and Equipment Management:
  - All vessels operating within the Proposed Development must comply with the IMO Ballast Water Management Convention and relevant UK regulations;
  - Hull cleaning and anti-fouling treatments will be conducted prior to mobilisation, especially for vessels arriving from outside UK waters; and
  - Equipment and materials transferred between sites will be inspected and cleaned to remove biological material.
- Contractors will be required to follow biosecurity protocols as part of their EMP obligations. A MINNSBP, outlining procedures for inspection, cleaning, and reporting, is detailed in Annex B, including compliance with:
  - The Merchant Shipping (Anti-Fouling Systems) Regulations 2024;
  - Aberdeenshire Council Harbour's General Directions 2022 (Aberdeenshire Council, 2022);
  - International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) (2004); and
  - IMO Guidelines MEPC.378(80) (2023) for the Control and Management of Ships' Biofouling to Minimise the Transfer of Invasive Aquatic Species.
- High-risk activities (e.g. cable laying in sensitive areas) will be subject to additional controls and monitoring.

4.4.5 Further information is available in Annex A: MINNSBP.

4.5 Marine Archaeology

4.5.1 The Developer acknowledges the importance of safeguarding Scotland's rich marine archaeological heritage. Construction activities in the marine environment have the potential to disturb known or unknown archaeological features, including shipwrecks, submerged landscapes, and artefacts of historical significance. This section outlines the mitigation measures to be implemented to protect marine archaeology and cultural heritage in accordance with regulatory requirements and best practice guidance.

4.5.2 Marine archaeology mitigation will be undertaken in compliance with:

- Merchant Shipping Act 1995 (as amended);
- Protection of Military Remains Act 1986 (as amended);
- Marine and Coastal Access Act 2009 (as amended);

- The Marine (Scotland) Act 2010 (as amended);
- Town and Country Planning (Scotland) Act 1997 (onshore elements) (as amended);
- Historic Environment Scotland Act 2014;
- Section 36 and Marine Licence conditions issued by MD-LOT;
- Guidance from the Crown Estate Scotland; and
- Guidance from Historic Environment Scotland (HES) and relevant archaeological bodies.

4.5.3 Applicable standard protocols and guidance include:

- Volume 4, Technical Appendix 33: Written Scheme of Investigation and Protocol for Archaeological Discoveries. A formal document outlining how archaeological surveys, assessments, and mitigation will be conducted and how unexpected finds during construction are reported and managed appropriately. Required under Section 36 and Marine Licence conditions and EIA submissions;
- Guidance from HES;
- Crown Estate Guidance. Offers best practice for archaeological mitigation in offshore wind farm projects, including:
- AEZs;
- Geoarchaeological assessments;
- ROV surveys; and
- Post-construction monitoring.

4.5.4 Table 4.3 lists the marine archaeology Embedded and Additional Mitigation measures for the construction and O&M of the Proposed Development, stated in Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments. Justifications are provided in the relevant Offshore EIA Report chapters.

Table 4.3: Embedded and Additional Mitigation Measures Relevant to Marine Archaeology

ID*	Mitigation Measure	Means of Implementation
7	Development of, and adherence to, a Construction Method Statement (CMS) along with a Code of Construction Practice (CoCP).	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CMS.
8	All relevant Health and Safety Executive (HSE) procedures will be followed.	Required in accordance with relevant health and safety legislation.
24	Development of, and adherence to, a Development Specification and Layout Plan (DSLP). The development of the DSLP includes consultation with the relevant authorities for approval, including the MCA and NLB.	Secured in the Section 36 Consent and Marine Licences and the requirement for a DSLP.

ID*	Mitigation Measure	Means of Implementation
29	The identification and implementation of Archaeological Exclusion Zones (AEZs) around receptors identified as having a known archaeological potential.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a WSI and PAD
30	The development and implementation of a Written Schemes of Investigation (WSI) and Protocol for Archaeological Discovery (PADs).	Secured in the Section 36 Consent and Marine Licence, via the requirement for a WSI and PAD.
31	Archaeological input into the specifications of relevant site geophysical, geotechnical and Remotely Operated Vehicle (ROV) surveys with appropriate monitoring or analysis, if necessary.	Secured in the Section 36 Consent and Marine Licence, via the requirement for a WSI.
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.	Secured in the Section 36 Consent and Marine Licence, via the requirement for a decommissioning programme.
38	Identification and implementation of Temporary Exclusion Zones (TEZs) around encounters of previously unknown archaeological sites.	Secured in the Section 36 Consent and Marine Licence.
39	Design and micrositing of Offshore Infrastructure to avoid known archaeological receptors, including those identified in pre-construction surveys.	Secured in the Section 36 Consent and Marine Licence.

*see Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments of the Offshore EIA

4.6 Commercial Fisheries

4.6.1 The Developer acknowledges the importance of Scotland's commercial fisheries sector and is committed to minimising disruption to fishing activities throughout the construction and O&M of the Proposed Development. This section outlines the mitigation measures designed to safeguard fishing interests, maintain navigational safety, and promote effective communication with fisheries stakeholders.

4.6.2 The key objectives of commercial fisheries mitigation are to:

- Minimise spatial and temporal conflicts between construction activities and fishing operations;
- Ensure the safety of fishing vessels and personnel operating near the development area;
- Facilitate transparent and timely communication with fisheries stakeholders; and
- Comply with Section 36 and Marine Licence conditions and relevant Scottish Government guidance.

Fisheries Liaison and Engagement

4.6.3 A dedicated CFLO will be appointed to act as the primary point of contact between the Proposed Development and the fishing community. The CFLO will:

- Maintain regular contact with local fisheries organisations, individual fishers, and relevant authorities;
- Coordinate the dissemination of project updates, including construction schedules and vessel movements;
- Facilitate dialogue to address concerns and gather feedback from fisheries stakeholders;
- Support the resolution of any disputes or incidents related to fishing activity.

4.6.4 Table 4.4 lists the commercial fisheries Embedded and Additional Mitigation measures for the construction and O&M phases of the Proposed Development, stated in the Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments. Justifications are provided in the relevant Offshore EIA Report chapters.

Table 4.4: Embedded and Additional Mitigation Measures Relevant to Commercial Fisheries

ID*	Mitigation Measure	Means of Implementation
1	Development of, and adherence to, a Cable Specification and Installation Plan (CSIP) post-consent.	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CSIP.
2	Use of Scour Protection where there is potential for scour to develop around the Offshore Infrastructure, and it is appropriate to do so.	Secured in the Section 36 Consent and Marine Licence.
3	Development of, and adherence to, a Piling Strategy. This will detail use of Acoustic Deterrent Devices (ADDs), slow start, soft start, and ramp up procedures, as appropriate, as well as any Additional Mitigation measures, where determined to be required, in consultation with stakeholders including NatureScot and MD-LOT.	Secured in the Section 36 Consent and Marine Licence via the requirement for a Piling Strategy.
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 post construction monitoring, will be provided in the Cable Plan (CaP).	Secured in the Section 36 Consent and Marine Licence, via the CBRA, CBA and 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 monitoring	Secured in the Section 36 Consent and Marine Licence, via the requirement for an EMP

ID*	Mitigation Measure	Means of Implementation
	and actions to minimise Invasive Non-Native Species (INNS).	
7	Development of, and adherence to, a Construction Method Statement (CMS) along with a Code of Construction Practice (CoCP).	Secured in the Section 36 Consent and Marine Licence, via the requirement for a CMS.
8	All relevant Health and Safety Executive (HSE) procedures will be followed.	Required in accordance with relevant health and safety legislation.
9	Development of, and adherence to, a combined Navigational Safety and Vessel Management Plan (NSVMP), describing Project vessels' requirements, passages, monitoring and controls.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an NSP and VMP.
10	Development of, and adherence to, a Fisheries Mitigation, Monitoring and Communication Plan (FMMCP). The FMMCP includes details of the measures which are proposed to be implemented to reduce impacts on commercial fishing, the approach to monitoring fisheries activity and the approach to fisheries liaison and procedures to manage interactions between the Proposed Development and the fishing industry.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an FMMCP.
11	Appointment of a Company Fisheries Liaison Officer (CFLO). The CFLO will support ongoing liaison and ensure clear communication between the Developer and commercial fishers.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an FMMCP.
12	Advance warning and accurate location details of planned operations, associated Safety Zones and advisory passing distances will be given via Notices to Mariners (NtMs) and Kingfisher Bulletins.	Secured in the Section 36 Consent and Marine Licence, via the requirement for advance warnings
13	Development of, and adherence to, a Lighting and Marking Plan (LMP). The LMP will confirm compliance with legal requirements with regards to shipping, navigation and aviation marking and lighting.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an LMP.
14	Adherence to best practice guidance with regards to fisheries liaison and procedures in the event of interactions between the Proposed Development and fishing activities (e.g. FLOWW, 2025).	Secured in the Section 36 Consent and Marine Licence, via the requirement for an FMMCP.
15	Participation in relevant commercial fisheries working group.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an FMMCP.
16	Application for, and use of, Safety Zones of up to 500 m during construction, major maintenance, and decommissioning phases. Advisory safe passing distances of up to 500 m will also be applied for mobile installation vessels.	Secured via an application for Safety Zones prior to construction commencing.
17	Any objects dropped on the seabed during works associated with the Proposed Development will be	Secured in the Section 36 Consent and Marine

ID*	Mitigation Measure	Means of Implementation
	reported in line with MD-LOT procedures and objects will be recovered where they pose a hazard to other marine users and where recovery is possible.	Licences, via the Dropped Object Procedure detailed in EMP (this document).
18	All vessels working on the Proposed Development will meet the required certification standards and carriage requirements, along with following international marine regulations.	Secured in the Section 36 Consent and Marine Licence, via the requirement for a VMP.
20	Suitable Aids to Navigation (AtoN) lighting and marking of the Proposed Development including construction buoyage and the use of a Cable Marker Board shall be implemented complying with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendations G1162 (IALA, 2021), to be finalised and approved in consultation with the Maritime and Coastguard Agency (MCA) and Northern Lighthouse Board (NLB) through a LMP.	IALA Recommendations G1162
22	Development of, and adherence to, an Emergency Response Cooperation Plan (ERCoP) in consultation with the Maritime & Coastguard Agency (MCA).	Secured in the Section 36 Consent and Marine Licence, via the requirement for an ERCoP.
23	Development of, and adherence to, an Operation and Maintenance Programme (OMP) in conjunction with approved post-consent construction plans.	Secured in the Section 36 Consent and Marine Licence.
24	Development of, and adherence to, a Development Specification and Layout Plan (DSLP). The development of the DSLP includes consultation with the relevant authorities for approval, including the MCA and NLB.	Secured in the Section 36 Consent and Marine Licence and the requirement for a DSLP.
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.	Secured in the Section 36 Consent and Marine Licence, 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.	Secured in the Section 36 Consent and Marine Licence, via the requirement for a WMP.
41	The Proposed Development will be marked on admiralty charts including an appropriate chart note.	Secured in the Section 36 Consent and Marine Licence.
42	Compliance of project vessels with international marine regulations as adopted by the Flag State, including International Regulations for Preventing Collisions at Sea (COLREGS) (IMO, 1972) and International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).	Secured in the Section 36 Consent and Marine Licence.

ID*	Mitigation Measure	Means of Implementation
48	Where boulder removal is required during site preparation, the location of large boulders that are relocated and may pose a snagging risk for fishing gear, will be disclosed to the fishing industry within a timely manner and in an accessible format.	Secured in the Section 36 Consent and Marine Licence, via the requirement for an FMMCP
49	Where appropriate, guard vessels will also be used to ensure adherence with Safety Zones or advisory passing distances to mitigate any impact which poses risk to surface navigation during construction, O&M and decommissioning phases. Such impacts may include partially installed structures or cables, extinguished navigation lights or other unmarked hazards.	Secured in the Section 36 Consent and Marine Licences
50	MGN 654 Annex 4 (MCA, 2021a) requires that hydrographic surveys will fulfil the requirements of the IHO Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager and the UKHO.	Secured in the Section 36 Consent and Marine Licence.
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, and inform adaptation of mitigation measures throughout the construction and O&M phases of the Proposed Development.	Secured in the Section 36 Consent and Marine Licences, via the requirement for a PEMP.
54	The Developer will enter into Disruption Agreements, where appropriate, to mitigate justifiable disturbance to fishing activity experienced through temporary loss of access due to offshore works associated with the Proposed Development. Agreements will be evidence-based and implemented where demonstrable disruption to fishing activity occurs.	Secured in the Section 36 Consent and Marine Licences, via the requirement for an FMMCP.

*see Volume 3, Technical Appendix 4.6: Schedule of Mitigation and Commitments of the Offshore EIA

4.7 Unexploded Ordnance

4.7.1 The presence of UXO in the marine environment poses a significant safety and environmental risk during construction and O&M activities. UXO may originate from historical military activity and can be found on the seabed in areas targeted for infrastructure installation. In the unlikely event of needing to detonate a UXO, MD-LOT will be consulted and licences sought as appropriate.

4.7.2 The Developer will implement a comprehensive UXO mitigation strategy (as follows) to ensure the safety of personnel, vessels, and the marine environment. The UXO mitigation strategy will entail the following:

- Prior to construction, a UXO survey will take place and a detailed UXO Risk Assessment will be undertaken with review of the site specific geophysical data;
- Identify and assess potential UXO risks within the Site Boundary area;
- Prevent accidental detonation or disturbance of UXO during construction;
- Establish exclusion zones around UXO targets until they are assessed and cleared;
- Ensure compliance with HSE regulations;
- Where UXO is confirmed or suspected, specialist Contractors will be engaged to conduct clearance operations. MD-LOT, the MoD, HSE and other stakeholders will be notified and activities documented;
- Ensure minimal disruption to marine ecology (e.g. acoustic deterrent devices implementation) and archaeological features during UXO clearance.

5 Waste Management Plan

5.1 Objectives and Responsibilities

5.1.1 This overarching WMP outlines the procedures and controls for the identification, storage, handling, transportation, and disposal of waste generated during the construction and O&M of the Proposed Development.

5.1.2 All Contractors will be required to produce tailored WMPs to reflect their operational needs and comply with the requirements of the overarching aims of this WMP. The WMPs produced must be provided to the Developer and the HSE Manager (see Table 3.1) for approval prior to commencement of the activities. The Developer is ultimately responsible for the handling and fate of all wastes generated during its offshore (and onshore) operations. This WMP therefore demonstrates that the handling and treatment of waste and disposals will be in line with regulatory requirements. Contractors will be responsible for implementing the WMPs on site. Compliance will be monitored accordingly. The WMP will be updated for the O&M phase of the Proposed Development.

5.2 Definitions and Legal Compliance

5.2.1 The definition of 'waste' is "any substance or object which the producer or person in possession of it discards, or intends to discard, or is required to discharge" (Article 3(1) of the Waste Framework Directive (WFD) 2008/98/EC). 'Discard' includes the recovery and recycling of a subject or object as well as its disposal.

5.2.2 Waste is broadly categorised into hazardous and non-hazardous (general) waste streams, if any waste from an unidentified source is discovered, it will be treated as hazardous (following a precautionary approach). All wastes generated by the Proposed Development shall be classified in accordance with waste regulations. These categories are defined as follows:

- Hazardous Waste: classified in the WFD (2008/98/EC) as waste that is too difficult or dangerous to dispose of by standard routes such that special provisions are required for its disposal (e.g. explosive, flammable, toxic, infectious, carcinogenic, radioactive, etc.); and
- Non-Hazardous (General) Waste: can be divided into putrescible solids (sewage, grey waters and kitchen/food waste) and inert solids (scrap materials, packaging, wood, cardboard, paper etc.).

5.2.3 The WMPs produced by the Contractor must take into consideration that the primary objective of a WMP is to ensure that waste generated during the construction and O&M of the Proposed Development, is handled in a manner that protects the marine and terrestrial environment, complies with legal obligations, and supports the principles of sustainability and circular economy. The specific aims of a WMP are, namely:

- Ensure legal compliance with Scottish legislation;
- Minimise waste generation;
- Promote waste segregation and recycling;
- Prevent pollution and environmental harm;
- Ensure safe and responsible disposal;
- Raise awareness and build capacity;
- Monitor, audit and improve; and
- Support stakeholder engagement.

5.2.4 Specific waste regulatory frameworks include, but are not limited to the following legislation:

- European Waste Framework Directive (2008/98/EC) (as amended). Transposed in Scotland by the:
  - Waste (Scotland) Regulation 2011 (as amended);
  - Waste (Miscellaneous Amendments) (Scotland) Regulations 2020;
  - Waste (Scotland) Regulations 2012;
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex IV (sewage) and Annex V (garbage);
- Environmental Protection Act 1990 (as amended);
- Controlled Waste Regulations 1992 (as amended);
- Special Waste (Scotland) Regulations 1996 (as amended);
- Waste and Emissions Trading Act 2003 (as amended);
- Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 (as amended);
- Waste Management Licensing (Scotland) Regulations 2011 (as amended);
- Pollution Prevention and Control (Scotland) Regulations 2012 (as amended);
- Environmental Protection (Duty of Care) (Scotland) Regulations 2014 (as amended); and
- Producer Responsibility Obligations (Packaging and Packaging Waste) Regulations 2024.

5.2.5 Specific waste management guidance, to be consulted in the production of specific WMPs, include:

- Marine Licensing (Scotland) Act 2010: requires a Marine Licence for depositing, removing, or transporting waste in the marine environment;
- Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012: Identifies activities exempt from marine licensing, including recovery of dropped objects under certain conditions;
- Duty of Care Code of Practice 2016 (DEFRA);
- Marine Policy Statements (2011); and
- SEPA Guidance on Offshore Waste Management (2018). Provides best practice for managing waste from offshore activities, including construction and decommissioning.

5.3 Waste Streams Identification and Forecasting

5.3.1 Effective waste management begins with the accurate identification and forecasting of waste types and volumes expected throughout the lifecycle of the Proposed Development. The objectives of waste identification and forecasting are to:

- Understand the nature and quantity of waste streams likely to be produced;
- Enable proactive planning for segregation, storage, transport, and disposal;
- Support compliance with waste regulations and Section 36 and Marine Licence conditions; and
- Facilitate opportunities for waste minimisation, reuse, and recycling.

5.3.2 The WFD (2008/98/EC) waste hierarchy principles to be applied throughout all phases of the Proposed Development, are shown in Figure 5.1. The foundation of this waste management is the five-step 'waste hierarchy'. It establishes an order of preference for managing and disposing of waste.

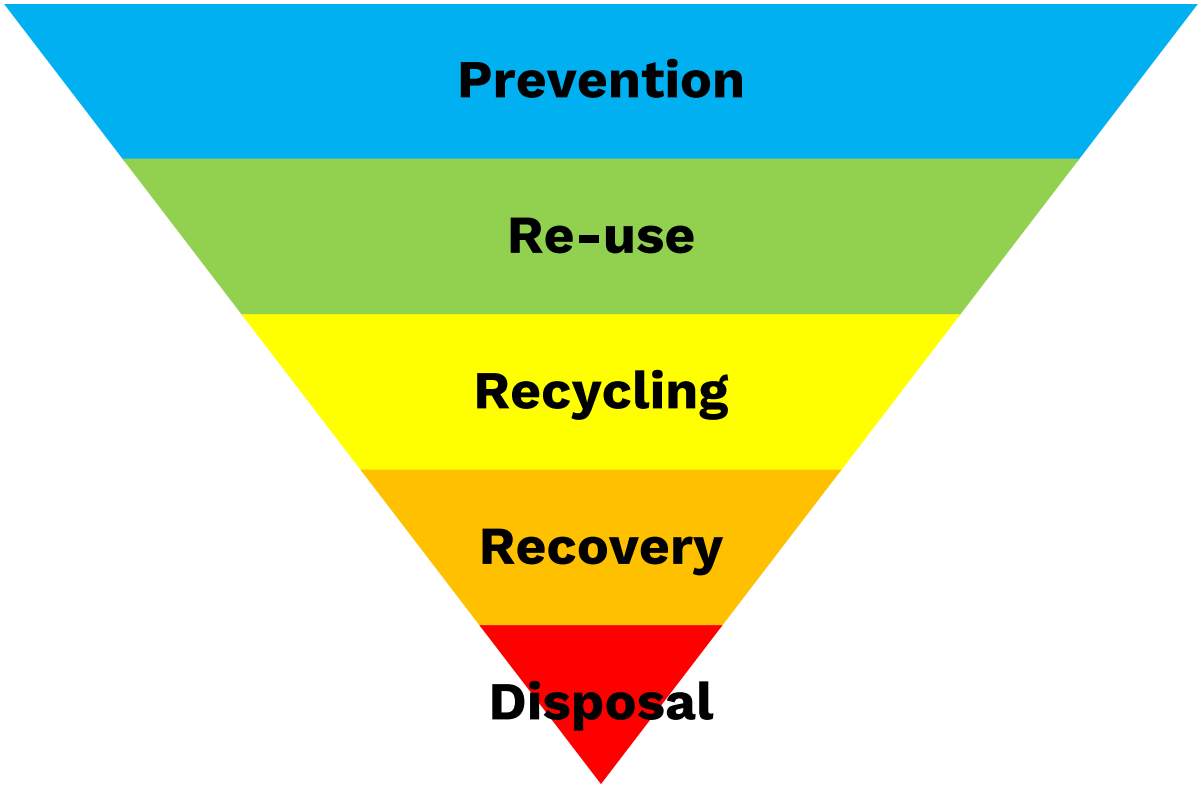


Figure 5.1: Waste Hierarchy Principle According to the WFD (2008/98/EC) (from most to least preferred)

5.3.3 Typical Waste Streams during construction are shown in Table 5.1.

Table 5.1: Typical Waste Types

Category	Waste Type
Non-Hazardous	General domestic waste
	Plastic
	Wood
	Paper
	Concrete and other masonry
	Scrap metal
	Electric scraps
Hazardous	Oil rags, oil filters and drums that contained hydrocarbons or chemicals
	Used oil and lubricants
	Batteries
	Sewage
	Drilling muds

5.3.4 The WMPs provided by the Contractor shall include:

- The description of each waste type expected to be produced;
- An estimate of the amount of each different waste type expected;
- Procedures for identifying waste management actions (Reuse, Recycle, Recover, Dispose);
- A written statement demonstrating what actions were taken to minimise the volume of each type of waste produced prior to commencement of the activity generating the waste (Reuse, Recycle, Recover, Dispose) including any treatment;
- Storage arrangements information for each type of waste; and
- Details on waste handling facilities and final waste disposal locations.

5.4 Storage, Segregation Procedures and Transfer Disposal

5.4.1 The Contractor's WMPs will detail the proposed methods of storing and handling the various types of waste produced by the offshore operations, including how it will be segregated, how waste containers will be handled to ensure no waste runoff, and how it will be transported off site.

5.4.2 Importantly, all waste generated must be adequately handled, controlled and transported. These include:

- Use of suitable containers and in good conditions, special containers are to be used for hazardous waste (risk minimisation);
- Storage containers to be appropriately sealed, fastened and labelled indicating the contents and characteristics of the waste (e.g. solid, liquid, hazardous, etc.);
- Waste should be segregated at the source of generation and as soon as possible, in accordance with the type;
- Hazardous waste storage must be carried out in accordance with SDS and any COSHH assessments with the relevant documentation being clearly provided at the storage point. Storage areas must also be suitably ventilated and access to hazardous waste areas should be restricted to relevant personnel only;
- Utilise only authorised and registered Contractors for transport and treatment of waste material;
- Ensure that procedures are followed correctly such as the transfer of waste is covered by a Controlled Waste Transfer Note (WTN) or Hazardous Waste Consignment Note (WCN) as appropriate, and ensure copies are available for spot audits.

5.4.3 Where materials of unknown type or composition are identified, they will be presumed to be hazardous waste until further investigation (which may

include sampling) can be undertaken to provide sufficient information about the composition or origin of the material and then it will processed accordingly.

5.5 Recycling and Other Waste Management

5.5.1 The Developer is committed to designing out waste opportunities as far as reasonably practicable. Opportunities for designing out waste will be identified during detailed design and set out alongside recycling targets within the WMPs produced by the Contractors.

5.5.2 A summary of the activities and volumes of material that may be disposed of within the site will be provided by the Contractor.

Chemical Waste

5.5.3 Chemical usage is a key area of focus within the marine pollution mitigation strategy. All chemicals used during construction will be selected, stored, and handled to minimise environmental risk.

5.5.4 Chemical waste classified as hazardous, is to be re-used and recycled where possible. Unused chemicals shall be returned to the supplier. All the chemical waste will be handled and disposed of at an authorised facility.

5.5.5 A Spill Response Plan is discussed in the MPCP in Annex A.

Vessel Generated Waste

5.5.6 Notably, under MARPOL Annex V, all vessels >400 gross tonnage and/or those carrying >15 persons, are required to carry a Garbage Management Plan (GMP) on board and must carry a Garbage Record Book to document volumes and types of waste generated and their fates (under responsibility of the vessel's Master).

Drilling Waste

5.5.7 In the event that a drilling methodology is used (as detailed in Volume 1, Chapter 3: Project Description), Water Based Muds (WBM) mixed with seawater will be prioritised during drilling. No Oil Based Muds (OBMs) will be discharged. Muds will be selected based on soil characteristics. The optimal type of mud will be determined prior to drilling and it may include (but not limited to):

- Prehydrated Bentonite/Seawater Lime;
- Water Based Mud; and
- WARP (Schlumberger) Water Based Mud (unlikely case scenario).

5.5.8 Drill spoils will be reused when possible (returned to surface and treated) and then disposed either by seabed deposit (due to overflow) or surface discharge upon prior approval. The foundation drilling and seabed preparation works will be closely monitored to confirm that the

authorised volume and activities identified and permitted, are not exceeded.

5.6 Reporting

5.6.1 The appointed Contractor's designated Construction Manager will be responsible for compiling and maintaining records of all waste generated and its final destination. To ensure compliance with relevant legislation, company policies, and the WMP, regular spot checks and audits will be conducted on-site and aboard vessels. These inspections will assess procedures, working practices, and waste management facilities.

5.6.2 Any non-conformances or incidents are to be reported via the incident report system as outlined in Section 3.5 of this Outline EMP, to be finalised in final EMP.

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ANNEX A. MARINE POLLUTION CONTINGENCY PLAN

A1 Introduction

A1.1 Objectives

A1.1.1 This Annex of the Outline EMP aims to describe the measures that will be put in place to respond to accidental pollution incidents during the construction and O&M phases of the Proposed Development.

A1.1.2 In the event of a wider emergency, reference should also be made to the ERCoP, which is developed in consultation with the MCA and HM Coastguard.

A1.1.3 The MPCP is designed to minimise environmental impacts in response to an oil spill or other marine pollution events (e.g. cement or chemical spillage) associated with the Proposed Development. The MPCP also covers the management of environmental risks related to spills and objects lost overboard from vessels, and the relevant authorities to contact in case of an emergency.

A1.1.4 Specifically, the MPCP aims to:

- Safeguard the marine environment;
- Ensure regulatory compliance;
- Define roles and responsibilities;
- Establish response procedures;
- Promote risk awareness and preparedness;
- Facilitate coordination with stakeholders; and
- Support continuous improvement.

In the event of a SPILL, refer to Section A4

In the event of a DROPPED OBJECT, refer to Section A5

A1.1.5 The Developer will require that this MPCP is circulated to all relevant personnel and, in the event of a marine pollution event, is complied with in accordance with the procedures outlined and as approved by the Scottish Ministers. Copies of this MPCP are to be held in the following locations:

- The Developer's Head Office;
- At the premises of any agent, key Contractor or Subcontractor acting on behalf of the Developer;

- All site offices dealing with marine operations;
- All vessels involved in construction and O&M activities; and
- With the HSE Manager and ECoW(s).

A1.1.6 Any updates to this MPCP will be communicated by the Developer's Offshore Consent Manager to MD-LOT, acting on behalf of the Scottish Ministers, and by the HSE Manager to the approved changes/amendments to responsible parties. See Section A6 of the Outline EMP for roles and responsibilities.

A1.1.7 Each Contractor is required to develop and implement a MPCP or a bridging document that is specific to the scope of their contracted activities. These documents must be fully aligned with the requirements outlined in this overarching MPCP. Where Contractor operations involve vessels, the Contractor's MPCP or bridging document must clearly interface with the vessel's Shipboard Oil Pollution Emergency Plans (SOPEP) or an equivalent spill response plan. This ensures coordinated response measures for any pollution incidents originating from the vessel or from vessel-based operations related to the Contractor's work.

General Useful Information on the Environment

A1.1.8 The bathymetry within the Export Cable Corridor ranges from 0 m (at the Landfall) to a maximum depth of -113 m Lowest Astronomical Tide (LAT); within the Array Area, water depths are typically in the range -54 m to -91 m (LAT). Within the Array Area, mean spring tidal range is typically between 2.7 m and 3.0 m, with a mean neap range of approximately 1.5 m. Tidal currents are generally of moderate strength, with mean spring peak current speeds typically less than approximately 0.7 m/s. Some of the strongest currents are found just to the north of the Landfall, with peak current speeds on spring tide reaching ~0.8 m/s.

A1.1.9 Detailed information regarding the environmental conditions at the Proposed Development can be found in Volume 2, Chapter 7: Physical Processes.

A1.2 Guidance and Legislation

A1.2.1 A number of stakeholders and regulatory bodies provide guidance regarding the production of a MPCP. Namely:

- MD-LOT;
- MCA;
- SEPA;
- NatureScot;
- Industry Best Practice and standards.

A1.2.2 This annex has been written in line with the MCA MGN 654 (Annex 5) Offshore Renewable Energy Installations: Requirements, guidance and

operational considerations for SAR and Emergency Response. And with MD-LOT and SEPA standing advice is that best practice should be followed to minimise environmental impact.

A1.2.3 All necessary licences and permissions are to be obtained by the Contractors and Subcontractors, through conditions of contract and by an appropriate auditing process.

A1.2.4 The regulatory framework pertaining to the MPCP is a combination of international conventions, UK-wide legislation, and specific Scottish regulations, including but not limited to:

- MARPOL: Primarily for ships, its principles for preventing pollution by oil, noxious liquid substances, harmful substances carried by sea in packaged form, sewage, and garbage are fundamental;
- The Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amendment) Regulations 2021: While specifically for petroleum, the principles of requiring an environmental permit, having a pollution prevention and control plan, and reporting incidents are highly relevant and often adapted for other offshore industries;
- The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998: Implements the OPRC Convention and mandates oil pollution emergency plans for certain ships and offshore units;
- Environmental Protection Act 1990 & Water Resources Act 1991 (as amended): These provide the overarching framework for environmental protection and pollution control in the UK;
- The Pollution Prevention and Control (Scotland) Regulations 2012: Regulates industrial activities that could cause pollution, requiring permits where relevant, and BAT;
- Marine (Scotland) Act 2010: This is the cornerstone of marine management in Scotland;
- Conservation of Habitats and Species Regulations 2017 (as amended): Protects marine protected areas and species;
- Water Environment and Water Services (Scotland) Act 2003: Supports the protection and improvement of Scotland's water environment, aligning with the EU Water Framework Directive principles; and
- Scottish National Marine Plan: This overarching plan sets the strategic objectives for marine activities in Scotland.

A2 Prevention and Response

A2.1.1 In line with the guidance provided by the MCA, the construction phase will prioritise proactive risk management to prevent and avoid emergency situations. This will involve identifying potential hazards early and implementing strict control measures. For example, any necessary offshore refuelling will be carried out in accordance with established industry protocols.

A2.1.2 The Developer will require that all key Contractors and Subcontractors have completed audited Risk Assessments for HSE risks associated with construction and O&M activities, and that adequate control measures and actions are in place to reduce the impact of such activities to **As Low As Reasonably Practicable** (ALARP).

A2.1.3 Should an incident occur despite these precautions, the focus will shift to controlling marine pollution, aiming to reduce any discharges and mitigate their impact. This response will include the deployment of appropriate equipment and services such as oil containment booms, absorbent materials, pollution response training, and environmental monitoring and clean-up operations.

A2.1.4 The key objectives of this response strategy are to:

- Protect the safety of personnel and maintain vessel integrity;
- Limit environmental and socio-economic damage and support rapid recovery of affected areas;
- Where feasible, make use of prevailing environmental conditions to support the response effort; and
- Implement pre-established procedures tailored to anticipated incident scenarios.

A2.1.5 Mitigation measures and protocol advice are provided in Section 4.2 of the Outline EMP under:

- Pollution Prevention Strategy;
- Vessel Usage Management and Pollution Mitigation; and
- Chemical Usage and Management and Pollution Mitigation.

A3 Spill Accidents Risk Assessment

A3.1.1 Spill accidents pose a significant environmental risk during offshore wind farm construction, and O&M. This section identifies potential spill scenarios, evaluates their likelihood and consequences, and outlines mitigation and response measures to reduce environmental impact.

A3.2 Pollution Types

A3.2.1 In this MPCP, the types of pollution accidents considered include a range of scenarios that could result in the release of harmful substances into the marine environment originating from the Proposed Development. These are assessed based on the nature of the operations, the materials involved, and the environmental sensitivities of the area. Include:

- Oil spills;
- Chemical spills; and
- Dropped objects.

A3.2.2 Under MCA guidance, the level of risk of the emergency is classified in tiers, as detailed in Table A.1.

Table A.1: Pollution Tier Classification

Tier	Classification
Tier 1	Response within the capability of onsite resources.
Tier 2	Activation of external support from regional Contractors or response organisations. This tier addresses medium-scale spills that exceed the capacity of Tier 1 resources and may require additional equipment, personnel, and coordination. The response requires regional resources.
Tier 3	Reserved for large-scale or complex spill events that pose significant environmental risks. The response requires national/international resources.

A3.2.3 The three tiers are primarily defined based on the scale of resources required to manage and control the incident. These are in turn defined by the characteristics of the spills as shown in Figure A.1.

TIER 1	
Small spills. Response within the capability of onsite or local resources.	
☐ Spill is localised and confined within accident site	☐ Source of spill is contained and no longer releasing
☐ Spill is confined in proximity of the accident site	☐ Oil is evaporating with no danger of explosive vapours (e.g., Diesel)
☐ Spill occurred during daylight hours	☐ Spill and slick likely to disperse rapidly (naturally)
☐ The spill was noticed immediately and the response occurred instantly	☐ No media interest or public concern
TIER 2	
Activation of external support from regional contractors or response organisations. This tier addresses medium-scale spills that exceed the capacity of Tier 1 resources and may require additional equipment, personnel, and coordination. The response requires regional resources.	
☐ Danger of fire and/or explosion	☐ The spill was not noticed immediately and it has spread
☐ The spill is continuously releasing	☐ There the potential to effect third party installations
☐ The spill oil/chemical is concentrating hazardously near the incident site	☐ Requirement for Tier 2 resources (Tier 1 overwhelmed)
☐ Spill occurs withing near the installations site	☐ Potential impact to environmentally sensitive areas
☐ Release occuring during the hours of darkness	☐ Local and/or national media interest
TIER 3	
Reserved for large-scale or complex spill events that pose significant environmental risks. The response requires national/international resources.	
☐ Potential or actual threat to life, infrastructure and industry	☐ Requirement for Tier 3 resources (spill contractor)
☐ Release occuring during the hours of darkness	☐ Spill is likely to reach other countries EEZ and/or territorial waters
☐ Shoreline impact possible	☐ Major spread of the spill
☐ Communities impact is likely	☐ International media interest

Figure A.1: Spill Classification Details and Checklist

A3.2.4 The likely spill scenarios occurring during the construction and O&M phases of the Proposed Development, their classification and risk assessment, are discussed in Section A3.3 below.

A3.3 Spill Scenarios

A3.3.1 Spill incidents may arise from the following sources:

- Marine vessels (e.g. jack-up barges, cable-laying ships, crew transfer vessels):
  - Fuel or oil leaks during bunkering or transfer operations;
  - Hydraulic fluid leaks from cranes or winches;
  - Accidental discharge from bilge or ballast systems;
- Offshore construction activities:
  - Spills from equipment failure (e.g. hydraulic hoses, generators);

- Loss of containment during cable installation or foundation grouting;
- Accidental release of chemicals (e.g. lubricants, solvents, antifoulants);

- Subsea infrastructure:
  - Leaks from cable joints or fluid-filled components; and
  - Damage to subsea equipment during installation or maintenance.

A3.3.2 The environmental impact of a spill depends on a range of interrelated factors, including:

- The quantity of oil or chemical released;
- The physical and chemical properties and toxicity of the substance;
- The location of the spill, particularly its proximity to sensitive coastal or marine habitats;
- Prevailing weather and sea conditions at the time of the incident; and
- Local hydrographic characteristics, such as currents and tides.

A3.3.3 Due to the variability of these factors, predicting the exact consequences of a spill in advance is challenging. Therefore, timely access to accurate environmental data and site-specific information is critical to informing an effective response.

A3.3.4 The likelihood and nature of potential spill incidents are primarily influenced by the types and quantities of hydrocarbons and chemicals stored or used aboard vessels and offshore installations associated with the Proposed Development. While these inventories present inherent risks, the implementation of robust safety measures, including personnel training, standard operating procedures, and engineered containment systems, significantly reduces the probability of large-scale spills. As a result, most spill events that may occur during construction or O&M are expected to be minor in scale.

A3.3.5 Additionally, a key factor in understanding spill scenarios and quantifying the associated risks of each possible incident, is predicting the fate and behaviour of the compound released. Some materials, once released, undergo weathering which include physico-chemical changes in the form of evaporation, spreading, dispersion, dissolution, oxidation, biodegradation, etc. The fate of the material spilled, will consequently determine the response measures required to manage the incident and the clean-up procedures.

A3.3.6 In offshore environments, oil spills typically present the greatest environmental concern due to their persistence and potential to spread widely across the marine surface. Chemical spills, while potentially

hazardous to personnel and capable of causing acute localised impacts, generally pose a lower environmental risk. This is largely because chemical inventories are smaller and many substances are water-soluble, leading to rapid dilution upon release.

A3.3.7 In contrast, hydrocarbons such as diesel and lubricating oils do not dissolve in water. They tend to float initially, though some may eventually sink or disperse depending on their composition and environmental conditions. These substances can remain in the marine environment for extended periods, increasing the risk of harm to marine life and habitats.

A3.3.8 Oil spilled into the marine environment undergoes physical-chemical changes. The nature of the change depends on the type and volume of oil spilled and the prevailing weather and sea conditions (International Tanker Owners Pollution Federation (ITOPF), 2020). Typically, evaporation and dispersion act to remove oil from the sea surface (ITOPF, 2020). Spilled oil containing light hydrocarbon fractions (e.g., diesel) tends to evaporate quickly compared to heavier (crude) spills.

A3.3.9 Upon release into the marine environment, lubricants and hydraulic oils rapidly disperse across the water surface, forming a thin film or sheen. Compared to diesel, these substances exhibit slower evaporation rates, even under warm sea conditions. Due to their chemical composition, they are considered persistent and can remain on the surface for extended periods.

A3.3.10 Freshly spilled hydraulic oils are known to exert toxic effects on marine organisms. While initial evaporation may occur quickly in warmer waters, the residual components typically consist of highly refined synthetic hydrocarbons. These are characterised by low aromatic content and reduced toxicity to marine life. However, the expected inventory of such materials during construction and O&M is minimal (ITOPF, 2020).

A3.3.11 Table A.2 shows the oil classification and the expected behaviours if released in the marine environment. Group 5 oils are denser than seawater and pose unique challenges due to their tendency to sink. This classification is widely used by organisations like National Oceanic and Atmospheric Administration (NOAA), ITOPF, and spill response agencies.

Table A.2: Oil Groups and Behaviour in the Marine Environment (ITOPF, 2020)

Group	Oil Type	Typical Density (g/cm³ - 15°C)	API Gravity	Examples	Behaviour in Marine Environment
Group 1	Non-persistent light oils	<0.80	>40	Gasoline, jet fuel, naphtha	Evaporate rapidly, minimal residue, high flammability.
Group 2	Persistent light oils	0.80 – 0.85	35 – 40	Diesel (including marine), light crude, kerosene	Moderate evaporation, some residue, toxic to marine life.
Group 3	Medium oils	0.85 – 0.93	22 – 35	Most crude oils, IFO 180	Partial evaporation, sticky residues, harmful to wildlife.
Group 4	Heavy oils	0.93 – 1.00	10 – 22	Bunker C, No. 6 fuel oil, heavy crude	Very persistent, low evaporation, difficult to clean.
Group 5	Sinking oils	>1.00	<10	Orimulsion, residual oils, slurry oil	Tend to sink/submerge, long-term seabed contamination.

A3.3.12 A preliminary Risk Assessment has been undertaken to identify and evaluate potential spill scenarios across both the construction and O&M phases of the Proposed Development. This assessment considers the likelihood of occurrence, potential environmental consequences, and the effectiveness of proposed mitigation measures. The findings are summarised in Table A.3.

A3.3.13 Key Notes:

- Likelihood is based on vessel traffic density, weather conditions, and operational controls;
- Impact considers structural damage, chemical release, and environmental sensitivity;
- Tier Response Level aligns with UK National Contingency Plan (NCP) thresholds as shown in Table A.1; and
- Mitigation Measures reflect standard offshore wind farm marine safety protocols.

A3.3.14 NOTE: This Risk Assessment will be reviewed periodically and updated as necessary to ensure it remains accurate and reflective of current operations.

Table A.3: Selected Spill Accidents Risk Evaluation

Spill Type	Control Measures	Summary of Potential Impact	Tier Level	Residual Likelihood
Hydrocarbons: Marine diesel and intermediate fuel oil spill during refuelling	• Adherence to MSN 1829 (M) – Ship to Ship Transfer Regulations 2020[1]; • Operational planning, Risk Assessments in place; • Daylight and good weather refuelling; • Use of non-return valves; • Training and supervision by responsible officer; • Spill kits; • Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified; • Bunding of storage areas; • Regular inspection and maintenance; • TBM; • Vessels over 400 GRT will carry a SOPEP and Oil Record Book[2] in compliance with The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996 and Ship to Ship Transfer Regulations 2020.	**Moderate**: Localised marine pollution, harm to marine fauna	Tier 2	**Low**
Hydrocarbons: Equipment refuelling – loss of fuel during refuelling of equipment on vessel or turbine.		**Low**: Localised marine pollution, harm to marine fauna	Tier 1	**Low**
Hydrocarbons: Major fuel spill from vessel collision and from damage to single or multiple turbines	Compliance with Navigational Safety and Vessel Management Plan (NSVMP).	**Significant**: Widespread pollution, significant ecological and reputational impact	Tier 2-3 (vessel size dependent)	**Very Low**
Hydrocarbon and chemicals: Major fuel and/or chemical spill from	Compliance with NSVMP.	**Significant**: Widespread pollution, significant ecological and	Tier 3	**Very Low**

Spill Type	Control Measures	Summary of Potential Impact	Tier Level	Residual Likelihood
multi-vessel collision		reputational impact		
Hydrocarbons: Hydraulic oil leak from installations, equipment and during usage	• Operational planning, Risk Assessments in place; • Spill kits; • Operated by adequately trained and competent personnel; • Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified; • Routine maintenance; • Bunded nacelle area; • Turbine sensors for leak detection.	**Low**: Localised seabed contamination, potential harm to benthic species	Tier 1	**Low**
Hydrocarbons: Lubricating oil leakage from installations, equipment and during usage		**Low**: Localised seabed contamination, potential harm to benthic species	Tier 1	**Low**
Chemical spill during use, from vessels or installations (paints, solvents, cleaning fluids)	• Review of task-specific Risk Assessments and Method Statements; • Training, spill kits, SDS compliance, COSHH assessments, segregated storage; • Adherence to OCR 2002; • Vessels will comply with NSVMP; • Equipment will be routinely checked and maintained; • Installations will have sensors and detection systems. The nacelles will be equipped with a bunded area.	**Low**: Localised water quality degradation	Tier 1	**Low**

[1] See industry guidance *https://assets.publishing.service.gov.uk/media/61854445e90e07197b571e2d/MSN_1829_-_Revised_Industry_guidance-Final-June21.pdf*.

[2] *Vessels over 400 GT must maintain an Oil Record Book, documenting:*

- *Bunkering operations;*
- *Bilge water discharges;*
- *Sludge disposal;*
- *Any accidental discharges.*

Note: Risk levels are based on qualitative assessment using likelihood vs. consequence matrices in line with industry best practice.

A3.3.15 Based on the current risk assessment, the most probable spill scenarios are small-scale operational spills (Tier 1), such as minor fuel leaks during refuelling or hydraulic fluid releases from equipment. These are expected to be manageable with on-site resources and standard procedures.

A3.3.16 However, the contingency plan remains flexible and scalable to ensure readiness for more severe incidents. The tiered response structure ensures that appropriate escalation protocols are in place, and that coordination with relevant authorities and response partners can be initiated promptly when required.

A3.4 Use of Chemicals

A3.4.1 The use of chemicals and mitigation measures have been discussed in Section 4.2 of the Outline EMP. The Offshore Chemical Notification Scheme (OCNS) is the practical system through which the Offshore Chemical Regulations 2002 are enforced. The OCNS is regulated in the UK by the Department for Energy Security and Net Zero (DESNZ) using scientific and environmental advice from Cefas (Cefas, 2025). OCNS provides the scientific and environmental Risk Assessment of chemicals proposed for offshore use, based on submitted HOCNF (Harmonised Offshore Chemical Notification Format) data.

A3.4.2 Offshore wind farm developments are not directly subject to the OCR 2002. These regulations were specifically designed for the oil and gas sector, covering the use and discharge of chemicals in offshore petroleum activities. However, offshore wind farms are regulated in terms of chemical use, through Section 36 and Marine Licence conditions which refer to the OCR 2002 where applicable. These have yet to be finalised however, it expected that the Developer will be required to comply to strict controls of chemical use.

A3.4.3 Operators must ensure that all chemicals used offshore are OCNS registered with Cefas, and that substitution candidates are replaced where possible. The chemicals inventory includes chemicals and products that, due to their functional application, are anticipated to be discharged in varying quantities. This includes substances such as wash solutions, pipe dopes, jacking greases, and hydraulic control fluids (the majority are non-CHARMable products). In addition to chemicals directly involved in hydrocarbon production processes, any substances synthesized offshore, such as sodium hypochlorite, are also subject to notification requirements.

A3.4.4 The scheme does not apply to chemicals that might otherwise be used on a ship, helicopter or other offshore structure. Products used solely within domestic accommodation areas, such as additives to potable water systems, paints and other coatings, fuels, lubricants, fire-fighting foams, hydraulic fluids used in cranes and other machinery are also exempt.

A3.4.5 See Section 4.2 of the Outline EMP for comprehensive information on chemicals storage, procedures and mitigations. If there is any doubt about whether a chemical should be included in a UK Risk Assessment, then operators are advised to consult MD-LOT and Cefas. For additional information regarding the OCNS, see: https://www.cefas.co.uk/data-and-publications/ocns/.

A3.5 Estimated Hydrocarbon and Chemical Inventory

A3.5.1 During both the construction and O&M phases of the Proposed Development, a range of hydrocarbons and chemicals may be present onboard vessels and within equipment and installations. These substances are categorised in Table A.4 according to the classification system developed by ITOPF as shown in Table A.2.

Table A.4: Hydrocarbons and Chemicals Inventory for Vessels and Offshore Installations

Type of Substance	ITOPF Oil Group	Typical Use
Intermediate Fuel Oil (IFO)	Group 3	Fuel for construction and O&M vessels, including jack-up units.
Marine Gas Oil (MGO/Diesel)	Group 2	Fuel for vessels involved in routine and major maintenance activities.
Lubricating Oil	Group 3	Used in vessel engines and rotating equipment during construction and O&M.
Hydraulic Oil	Group 2/3	Used in hydraulic systems across plant and vessel equipment.
Transformer Oil	Group 3	Synthetic ester oil used in offshore transformer modules (OTMs) and Wind Turbines.
Gear Oil	Group 3	Lubrication for yaw gear mechanisms in Wind Turbines
Chemicals	N/A	Includes paints, thinners, solvents, coolants, and cleaning agents used routinely across operations.

A3.5.2 The quantity of hydrocarbons onboard at any given time will vary depending on the specific vessels and equipment deployed. Contractors are required to submit vessel specifications and data sheets for all primary construction and maintenance vessels. In the event of a pollution incident, this information will be made available to the designated response team or relevant authorities to support containment and mitigation efforts.

A3.5.3 The primary hydrocarbon sources associated with the Proposed Development are expected to be MGO (Group 2) and IFO (Group 3), which are used to power vessels during both construction and O&M activities. The volume of these fuels onboard will be limited by the individual vessel's bunkering capacity. The most severe credible spill scenario, Tier 3, would involve the total release of fuel from two large vessels, either due to a direct collision between project vessels or as a result of an impact involving a third party vessel and a wind farm asset. Mitigation measures are discussed in the Volume 3, Technical Appendix 14.1: Shipping and Navigation Navigational Risk Assessment and Volume 4, Appendix 29: Outline Navigation Safety and Vessel Management Plan.

A3.5.4 The chemical and hydrocarbon inventory associated with offshore Wind Turbine installations is limited to essential operational substances such as lubricants, hydraulic fluids, and transformer oils, all contained within closed systems with limited volume (typically hydraulic fluid is <200 l, turbine size dependent). Accidental releases can occur due to leaks, maintenance activities, or weather-

related damage. Most offshore incidents associated with Offshore Wind Farms, such as mechanical failures, oil leaks, or dropped objects, tend to be isolated to individual Wind Turbines.

A3.5.5 While the risk of incidents involving multiple turbines is considered low due to spatial separation and Embedded Mitigation measures, contingency planning acknowledges that extreme weather or systemic failures could result in multi-unit impacts. However, such scenarios remain unlikely and are not expected to exceed Tier 1 response thresholds under the UK NCP (except in extreme cases where Tier 2 response may be triggered).

A4 Spills Response Procedures

A4.1.1 This section outlines the procedures to be followed in the event of a hydrocarbon or chemical spill associated with the Proposed Development. The response framework is aligned with the UK NCP and the MCA's Contingency Planning Guidelines, ensuring a coordinated and effective approach to pollution incidents in Scottish marine waters.

A4.1.2 In the event of a spill, the immediate priority is to safeguard personnel, offshore assets, and vessels, while implementing measures to prevent the incident from escalating further.

A4.1.3 The MPCP response plan is designed to:

- Minimise environmental harm from accidental releases;
- Ensure rapid containment and recovery;
- Comply with statutory obligations under the Marine (Scotland) Act 2010, Section 36 and Marine Licence conditions; and
- Integrate with wider emergency response protocols, including SAR coordination as outlined in MGN 654 Annex 5.

A4.1.4 All spill response actions will be undertaken in consultation with MD-LOT and relevant authorities, including the MRCC and MCA.

A4.1.5 Other pollution contingency plans, which interact with this MPCP in the event of a spill originating from the Proposed Development, include:

- SOPEPs/equivalent vessel-specific spill plan for each vessel (MCA national requirement);
- Port and Harbour Oil Spill Contingency Plans; and
- Oil Pollution Emergency Plans for oil installations.

A4.2 Response Team

A4.2.1 The spill response team will operate under a clear command and communication structure to ensure efficient decision-making and coordination. Roles and responsibilities are defined as follows:

- Incident Commander (IC) (typically the Construction Manager):

- Responsible for initiating the MPCP, assessing the severity of the incident, and activating the appropriate tier response;
- Maintains communication with the Vessel Master;
- Maintains or delegates responsibility to maintain logs and records of incident progression and response actions; and
- Liaises directly with MD-LOT, MCA, and other statutory bodies during the accident.

- ECoW:
  - Provides technical input on environmental risks and mitigation measures;
  - Ensures compliance with Section 36 and Marine Licence conditions;
  - Supports impact assessment and reporting;
  - Maintain a record of any observed mortality or other effects on marine biota (such as marine mammals, birds and fish); and
  - Receive a copy of the final incident report incorporating details of the incident and response measures taken and will be responsible for making the required submissions to MD-LOT following conclusion of the incident.
- Vessel Master:
  - Leads onboard containment and clean-up operations;
  - Ensures crew safety and implements vessel-specific spill protocols;
  - Issues CG77 POLREP to MCA; and
  - Maintains communication with the IC.
- Contractor Spill Response Lead:
  - Coordinates contractor resources and ensures adherence to the MPCP; and
  - Provides vessel data sheets and hydrocarbon inventories as required.

A4.3 Response Strategy – Spills from a Vessel

A4.3.1 In the event of an emergency, the following guidelines must be consulted:

- How to respond to marine pollution incidents (MMO, 2018): https://www.gov.uk/guidance/how-we-respond-to-marine-pollution-incidents

A4.3.2 NOTE: If a major oil spill occurs requiring a Tier 2 or Tier 3 response (see Section A3), the MCA may choose to activate the NCP. In such cases, the MCA will assume responsibility for offshore pollution control and set up a Marine Response Centre. If formal responsibility for managing the incident is transferred to the MCA, the Key Contractor's oil spill response equipment and facilities will be made available to support their operations. The NCP (MCA, 2022):

https://www.gov.uk/government/publications/the-national-contingency-plan.

A4.3.3 In the event that the NCP is implemented then the Secretary of State's Representative (SOSREP) will assume full command of the spill response operation.

A4.3.4 An example of the overall process and response in the event of spill, is summarised in Figure A.2. Incident levels Tier 1 to Tier 3 can occur as a result of vessel related incidents. The tier level will be determined upon initial assessment and classified in accordance with MCA's three tier system detailed in Section A3.

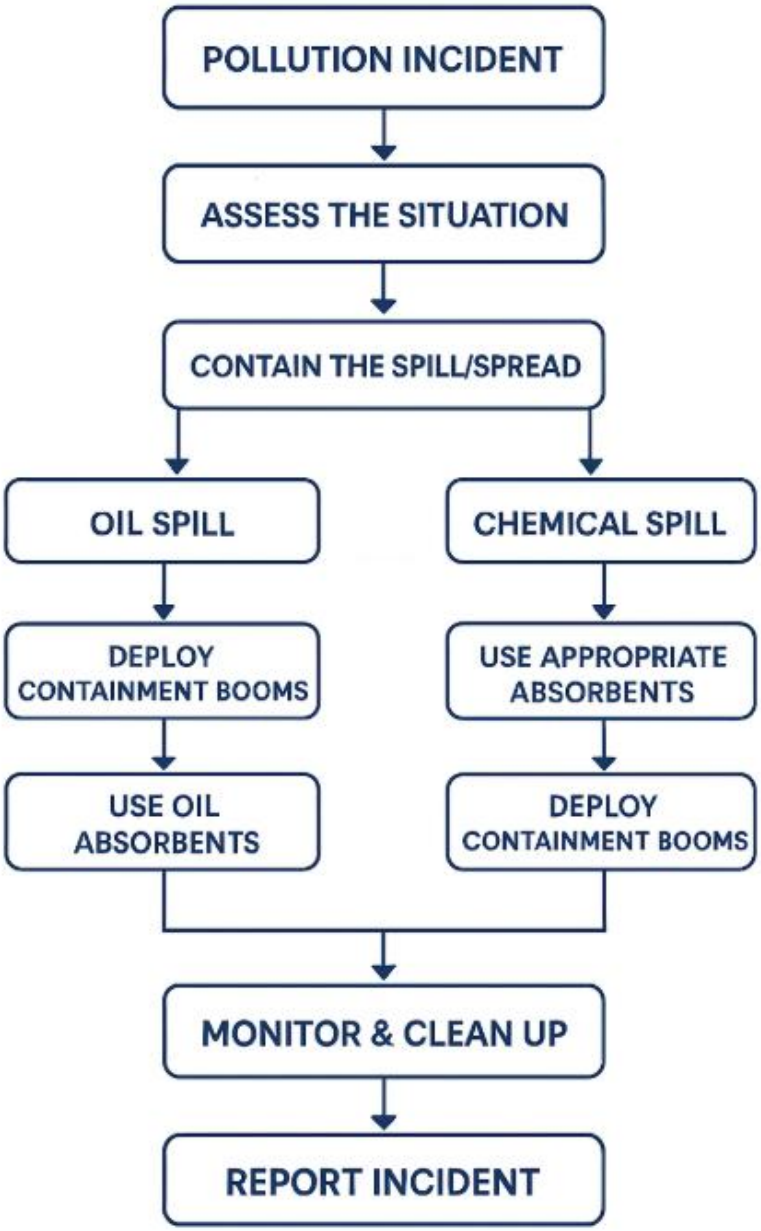


Figure A.2: Pollution Incident Response Plan

A4.3.5 Figure A.3 summarises the response stages, procedures, responsibilities and information flow upon discovery of the spill. **Procedures checklists, are provided in Annex D.**

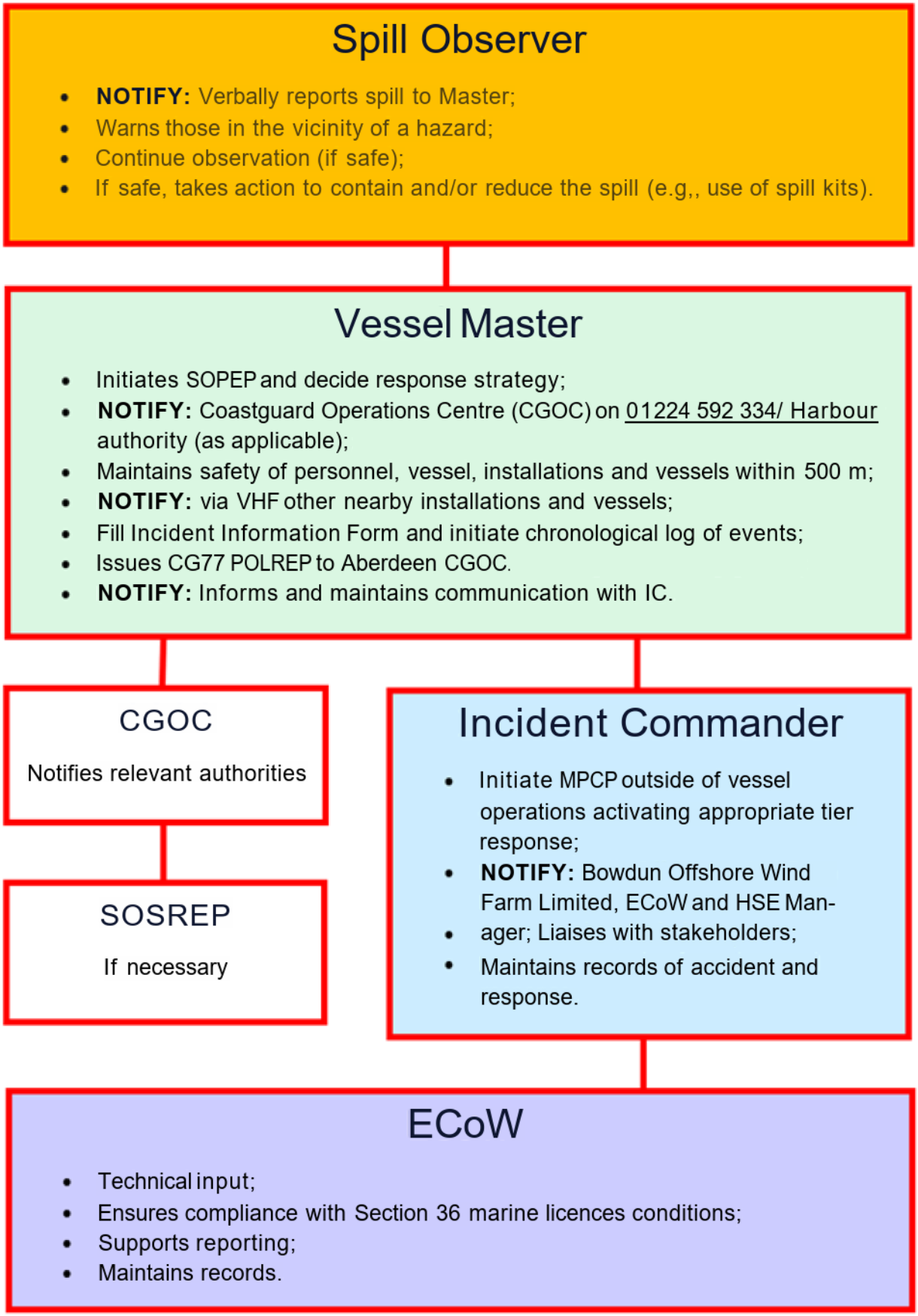


Figure A.3: Responsibilities, Response Stages and Information Flow in a Spill from a Vessel Incident

A4.3.6 During the **POLLUTION INCIDENT** phase, when a spill is observed, the observer will immediately report it to the Vessel Master. Information should include, but not limited to:

- Time;
- Location;
- Source/type of spill;
- Quantity; and
- Any other relevant information.

A4.3.7 The Vessel Master will engage the MPCP and assume primary respondent role. The Master will activate the vessel SOPEP and fill the Incident Information Form (Annex C). This includes initiating containment and clean-up actions, maintaining regular updates on spill status, and ensuring compliance with reporting protocols. The use of dispersants and spill containment plans are covered in the SOPEP.

A4.3.8 The Master will report the spill as soon as it is safe to do so, to the MCA via the Aberdeen Coastguard Operations Centre (CGOC) (that covers Aberdeenshire) via phone, and then to the Incident Commander (IC) (or Offshore Construction Manager) via phone.

A4.3.9 Verbal notification should be followed up when practicable with the submission by the vessel master of a POLREP via email to the CGOC and the IC. Aberdeen CGOC will pass the POLREP (Annex C) on to the MCA Counter Pollution and Response Branch, who will advise on actions to be taken, and at the same time issue it to other relevant authorities.

A4.3.10 Where additional support is required, the Contractor will engage a specialist spill response Contractor to assist with mitigation efforts. Throughout the incident, the IC will provide operational support, facilitating communication between the response team, Contractors, and relevant authorities including the CGOC and MD-LOT.

A4.3.11 Initial actions by the Master include **ASSESS THE SITUATION** phase initiation with classification and quantification of the spill:

- Confirm source and quantity of oil/chemical spilled including quantification of spill size and movement;
- Assess ongoing nature of spill and hazard and requirement for additional resources; and
- Continuous monitoring must be enforced if safe to do so, information to be collected include:
  - Extent of slick;
  - Direction of movement noting nearby infrastructure;
  - Proximity to environmentally sensitive areas;
  - Priority areas in need of urgent interventions;

- Need of assistance and/or additional resources.
- If possible, sample and/or photos of the spill should be taken by trained personnel (if no risk to personnel).

A4.3.12 The Master, in cooperation with the relevant authorities, will decide the response strategy to attempt **CONTAIN THE SPILL/SPREAD**. Possible spill containment measures include (as part of the SOPEP):

- Deployment of onboard spill kits and absorbents;
- Activation of containment booms and skimmers; and
- Isolation of spill source and shutdown of affected systems.

A4.3.13 The Master will maintain communication with the IC. Recovery operations will be guided by the IC in consultation with environmental specialists and response Contractors. All actions must be documented and reported.

Stand Down and Incident Conclusion

A4.3.14 The Vessel Master will:

- Assess and decide the stand down and demobilisation procedure;
- Notify relevant authorities and IC of stand down procedures initiation;
- Prepare incident report and provide incident logs to IC and ECoW; and
- Ensure all waste arising from the incident (spill waste and contaminated clean-up material) is managed according to the Section 5: Waste Management Plan.

A4.3.15 The ECoW will be provided with copies of logs and notifications setting out details of the incident and will provide an incident report to the MCA, MD-LOT and SEPA.

A4.3.16 Following conclusion of the incident, the Developer and the Contractor will undergo all relevant internal processes and reviews and update them where necessary.

A4.3.17 **Procedures checklists, are provided in Annex D.** Checklists should be referred to and completed in the event of a spill and actions and notifications checked off during incident response.

A4.4 Response Strategy – Spills from Offshore Installation

A4.4.1 In the event of an emergency, the following guidelines must be consulted:

- How to respond to marine pollution incidents (MMO, 2018): https://www.gov.uk/guidance/how-we-respond-to-marine-pollution-incidents.

A4.4.2 Figure A.4 summarises the initial phases response stages, procedures to follow, responsibilities and information flow upon discovery of the spill. **Procedures checklists, are provided in Annex E.**

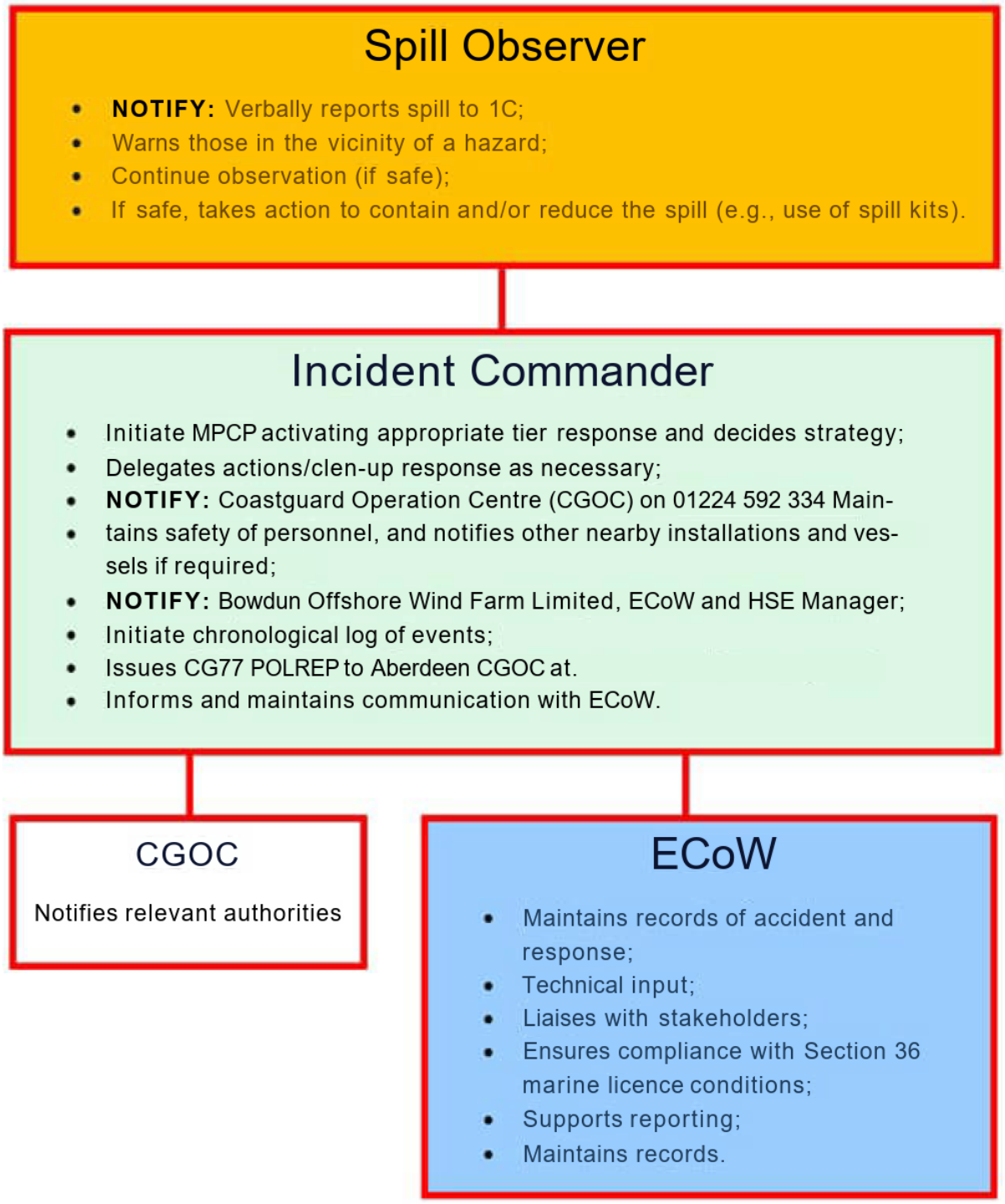


Figure A.4: Responsibilities, Response Stages and Information Flow in a Spill from an Offshore Installation Incident

A4.4.3 During the **POLLUTION INCIDENT** phase, when a spill is observed, the observer will immediately report it to the IC and attempt to classify/quantify the spill. Information should include, but not limited to:

- Time;
- Location;
- Source/type of spill;
- Quantity; and
- Any other relevant information.

A4.4.4 Samples and images should be collected if safe to do so and under the instruction of the IC. The observer should keep monitoring and evaluating the spill throughout the incident. Clean-up and containment procedures should be started only upon instruction of the IC and if safe to do so.

A4.4.5 The IC will then engage the MPCP and assume primary respondent role. The IC is to liaise with Contractors and vessels and request and coordinate support if required. The IC will report the spill to Aberdeen CGOC and the ECoW and maintain communication throughout the incident, updating on the status as necessary.

A4.4.6 The incident tier level will be determined upon initial assessment and classified in accordance with MCA's three tier system detailed in Section A3. As discussed in Section A3, the oil and chemical inventory contained in an offshore installation, is not sufficient to trigger a Tier 2 or Tier 3 response. Only Tier 1 responses are expected as a result of an incident occurring within an offshore installation. Tier 1 response is considered within the capability of onsite resources. In the event the assistance of the spill response Contractor on standby is required, the incident will be escalated to Tier 2.

A4.4.7 The IC will be responsible for ongoing reporting on spill status, maintaining a chronological log and will coordinate an initial response with the spill observer who may attempt containment if safe to do so and/or the application of spill kits on the offshore installation.

A4.4.8 Throughout the duration of an incident the ECoW will remain available to provide advice to the IC on environmental sensitivities for consideration when developing a response strategy.

A4.4.9 Verbal notification should be followed up when practicable with the submission by the vessel master of a POLREP via email to the CGOC and the IC. Aberdeen CGOC will pass the POLREP on to the MCA Counter Pollution and Response Branch, who will advise on actions to be taken, and at the same time issue it to other relevant authorities.

A4.4.10 Where additional support is required, the Contractor will engage a specialist spill response Contractor to assist with mitigation efforts. Throughout the incident, the IC will provide operational support, facilitating communication between the response team, Contractors, and relevant authorities including the CGOC and MD-LOT. The ECoW will maintain responsibility for making the required submissions to MD-LOT following conclusion of the incident (within

24 hours for serious accidents and 72 hours for less serious). The ECoW will provide the incident report when available and liaise with MD-LOT on any further actions to be taken.

A4.4.11 **Procedures checklists, are provided in Annex E.** Checklists should be referred to and completed in the event of a spill and actions and notifications checked off during incident response.

A4.5 Strategy Selection, Estimations and Key Response Considerations

A4.5.1 The response strategies available are dependent on the nature and characteristics of the spill and the environmental conditions at the time of the incident. They can be categorised as:

- Main strategies which are applicable to the majority of oil spills (group 1-3) and Tier 1 incidents, include:
  - Monitoring; and
  - Natural dispersion: for light non-persistent oil (e.g., diesel and MGO).
- Alternative strategies which are applicable to larger, Tier 2-3 oil spills include:
  - Chemical dispersion (use of dispersants);
  - Mechanical containment and recovery; and
  - Onshore clean-up.

A4.5.2 Monitoring and evaluation is the primary response strategy for oil spills that do not pose an immediate threat to the coastline or sensitive marine resources. Due to the typically high-energy offshore conditions on the UK Continental Shelf (UKCS), natural dispersion is often sufficient to break up and degrade spilled oil.

A4.5.3 It is essential that all oil spills are actively monitored until full dispersion is confirmed. Surveillance should begin immediately and continue throughout the duration of the incident. Where vessel-based observation is inadequate, aerial surveillance should be deployed to ensure comprehensive coverage.

A4.5.4 During operational activities, small spills occurring near installations can be effectively monitored using a nearby support vessel equipped with appropriate observation tools.

A4.5.5 Table A.5 summarises the appropriate response strategies that are generally followed in the UKCS. These are listed according to Tier and oil type as discussed in Section A3.

Table A.5: A Spill Response Strategies

Tier Level	Non-Persistent Oil	Persistent Oil
Tier 1	Where conditions permit, natural dispersion of light oils (e.g., diesel or hydraulic fluid) may be supported	Where appropriate, allow for natural dispersion of spilled oil while maintaining active monitoring using support vessels. If

Tier Level	Non-Persistent Oil	Persistent Oil
	through active monitoring and vessel-based agitation. If deemed safe, a standby vessel may assist by passing through the slick at speed, using its propeller wash to help break up the oil. Coordination with the designated spill response subcontractor should be initiated as necessary to ensure appropriate support and compliance with response protocols.	feasible, deploy mechanical recovery equipment to contain and remove oil from the water surface. Engage with the spill response subcontractor appointed by the Contractor to coordinate additional resources and ensure compliance with response protocols.
Tier 2	For medium-scale spills, allow for natural dispersion where appropriate, supported by continuous monitoring using vessels and aerial surveillance. Chemical dispersants may be considered only when there is a clear risk to safety or sensitive environmental areas. Any use must be approved by the relevant authorities, including MD-LOT, and should follow strict regulatory guidance. Engage the Contractor's designated spill response subcontractor to provide specialist advice and operational support throughout the response.	Engage the Contractor's designated spill response subcontractor to provide expert guidance and operational support. Maintain continuous monitoring and evaluation of the slick using aerial surveillance and vessel-based observation. Where feasible, deploy mechanical recovery equipment to contain and remove oil from the water surface. If the slick poses a risk to the shoreline, initiate shoreline containment and recovery operations. The spill response subcontractor may mobilise additional resources as required. Boat-based dispersant application may be considered in consultation with the spill response subcontractor. This method requires prior approval from MD-LOT.
Tier 3	For large-scale spills, initiate continuous monitoring using aerial surveillance to assess slick movement and behaviour. Natural dispersion should be supported where feasible, with regular evaluation of environmental impact. Chemical dispersants may only be considered if there is a direct and significant threat to human safety or sensitive ecological areas. Any application must be authorised in advance by MD-LOT. Specialist input and operational support must be sought from the Contractor's appointed spill response subcontractor to ensure appropriate escalation and coordination of response activities.	Activate specialist support from the Contractor's designated spill response subcontractor to lead and coordinate response efforts. Maintain continuous monitoring and evaluation of the slick using aerial surveillance to track movement and assess environmental impact. Where feasible, deploy mechanical recovery equipment to contain and remove oil from the water surface. If the slick threatens the shoreline, initiate shoreline containment and recovery operations. The spill response subcontractor may mobilise additional resources as required. Aerial dispersant application may be considered in consultation with the spill response subcontractor. This method requires prior approval from MD-LOT.

Chemical Spills

A4.5.6 The use of chemicals during the project is expected to be minimal, and the likelihood of a spill is considered low and likely categorised as Tier 1. However, appropriate response strategies must be in place for various types of chemicals, depending on how they behave when released into water.

Gases and Volatile Substances

A4.5.7 Releases involving gases or highly evaporative liquids can produce vapour clouds that may be hazardous or potentially explosive. In open environments, these vapours typically disperse naturally due to wind and air movement. In such cases, active intervention may not be possible, and the recommended approach is to monitor the dispersion of the vapour plume to ensure safety.

Floating Chemicals

A4.5.8 Some chemicals may remain on the water surface, forming a slick. If the substance is persistent and safe to handle, containment using booms may be considered to limit its spread. Recovery may be possible using skimmers or other surface collection equipment. However, if the chemical is highly toxic or flammable, containment and recovery may pose significant risks and should be avoided. In certain scenarios, absorbent materials may be used to concentrate and collect the spilled substance.

Dissolved Chemicals

A4.5.9 Once a chemical dissolves in water, containment and recovery options are extremely limited. The most practical response is to promote natural dispersion and dilution. Although chemical neutralisation or treatment (e.g., oxidation, reduction, flocculation) may be theoretically possible, such methods are rarely feasible in a marine environment and are generally not recommended.

Sinking Chemicals

A4.5.10 Chemicals that sink can contaminate the seabed and persist in sediments. In these cases, response efforts may involve recovering the substance and any affected sediment. In shallow waters, mechanical dredging or vacuum systems may be used to remove contaminated material.

Responses Key Elements and Considerations

A4.5.11 Table A.6 summarises the key consideration to be taken into account when planning a response.

Table A.6: Key Elements and Consideration When Planning a Spill Response

Parameter	Considerations
Dispersant Application	The use of chemical dispersants during a marine pollution response is subject to strict regulatory control under the UK NCP. Approval must be obtained from the relevant authority (MCA and MD-LOT), and only products listed as approved Oil Spill Treatment Products (OSTP) may be used, subject to environmental consultation and operational conditions. Dispersant use is not routinely expected in offshore windfarm incidents due to the limited hydrocarbon inventory, but provisions are included should escalation require consideration.

Parameter	Considerations
Approved OSTPs	In the event of Force Majure and or major spills (Tier 3), there is the option to apply dispersant by sea and/or air to aid and accelerate natural processes dispersing the oil, thus removing it from the sea surface. This may be considered in the unlikely event of a persistent oil spill. Appropriate consultation with MCA and MD-LOT is required and formal approval must be requested in water depths <20 m or within 1 nm of such depths. In exceptional circumstances where there is an immediate threat to human life or the safety of a vessel or installation, such as a high risk of fire or explosion, OSTPs may be deployed without prior consultation with the licensing authority. This applies specifically to Force Majeure scenarios where urgent action is necessary to mitigate serious hazards. The MMO acts on behalf of MD-LOT for the testing and approval of dispersants and other oil treatment products which are intended for use in all UK waters. Approved OSTPs are listed here: https://www.gov.uk/government/publications/approved-oil-spill-treatment-products. Each product is listed with its type, approval status, and expiry date, and is approved for specific uses (e.g. surface application, subsea use). Examples of currently approved OSTPs: • Eflochem OSD; • Corexit EC9500A – Type D – 2/3, expiry updated to 08/11/2028; • Cleancare OSD Enviro; • OSD ECO HD – Passed Cefas testing; • Super-dispersant 25; and • Oil Spill Eater II. A dispersant response capability must be available through the Contractor's appointed spill response subcontractor. MD-LOT does not have a specific dispersant application form. The Contractor must submit a general Marine Licence application to MD-LOT to use dispersants in Scottish waters. The Contractor's appointed spill response subcontractor will support the process.
Chemical Spill	The relevant SDS and COSHH assessments must be consulted prior to any intervention, as chemical toxicity, corrosiveness, and other hazardous properties may significantly influence the response strategy and required protective measures. Why This Matters: • SDS provides detailed information on handling, storage, spill response, and personal protective equipment (PPE) requirements; • COSHH ensures legal compliance and risk mitigation when working with hazardous substances offshore; and • This step is especially important when dealing with transformer oils, hydraulic fluids, dispersants, or cleaning agents.
Natural Dispersion	In the event of a spill involving light oils, such as diesel or hydraulic fluid, natural dispersion may be enhanced through a technique known as prop-washing. This involves a vessel steaming at speed through the oil slick, using its propellers and wake to agitate and disperse the oil. Applicability: Prop-washing is suitable only for small quantities of light oil. It should not be used for heavier oils or large spills. Hull Contamination Risk: Vessels involved in prop-washing may become heavily oiled, which can restrict their ability to enter port for cleaning or resupply.

Parameter	Considerations
	Safety Considerations: • The process may cause oil to be drawn into the vessel's seawater intakes; • There is a potential risk of explosion from volatile gas clouds, especially in confined or poorly ventilated areas; • Crew safety must be prioritised, vessels should approach slicks from upwind and conduct gas monitoring before and during operations. Vessel Master Discretion: Prop-washing must only be carried out if deemed safe by the Vessel Master, who holds ultimate responsibility for crew and vessel safety. Alternative Methods: Where prop-washing is not feasible or safe, agitation using vessel fire hoses may be employed to break up and disperse the slick.
Sampling	MCA recommend three sealed samples: 1: analysis only; 2: to be retained in the laboratory as spare; 3: in the event of court proceedings as evidence. A minimum of one sample per day should be taken if possible and safe to do so. Sample should be taken by skimming the surface of the water, maximising material intake, do not tamper with the sample, if foreign material is present, it must be retained alongside the sample. Avoid metal tools. The general guidelines suggest the following amounts: Size of Sample • Unweathered oils (liquid and free of water): 10 ml • Oil exposed to sea surface: 10 ml; and • Over side water discharge: 1 l. If such quantities cannot be collected, sampling should still be attempted. The samples must be stored in appropriate containers made of glass with a screw cover with a secure seal, tamper proof. The sample containers must be properly labelled and stored in a fridge al <5°C. The sample bottles must be appropriately protected during transport and care should be taken to package them securely with suitable packaging and absorbent material. The sample collection must be logged and recorded with all relevant environmental information, and the label must include information such as: • An identifying number; • Nature of sample (description); • Location; • Vessel; • Method of sampling; • Time; and • Name of Contractor. To ensure the integrity and admissibility of samples, a clear chain of custody must be maintained. This includes documenting every transfer, handling, and storage event from the point of collection to final analysis or presentation in court. Each sample must be accompanied by a signed and dated log detailing: • The identity of the person collecting the sample; • Time and location of collection; • Any subsequent handlers and their roles; • Conditions of transport and storage; and • Final destination of the sample. This process ensures traceability and prevents tampering, supporting the sample's validity in both scientific and legal contexts.

A4.6 Oil Slick Volume and Size Estimations Procedures

A4.6.1 Oil slick size and volume estimation should only be conducted by trained and experienced personnel. To ensure consistency and reliability, the same observer should carry out subsequent assessments to track changes in the slick's size and coverage over time. It is important to note that volume estimates can vary significantly, often by an order of magnitude, so response strategies should be designed with this uncertainty in mind.

A4.6.2 The recommended method for visual estimation procedure involves estimating the slick's length and width based on vessel speed and time travelled, forming an imaginary rectangle that encloses the slick. Observers then estimate the proportion of this area actually covered by oil, expressed as a percentage. This approach provides a basis for calculating the total slick area.

A4.6.3 However, inaccuracies in estimating dimensions and oil coverage can lead to substantial errors. Slicks often contain areas of clear water, particularly near the trailing edge, which must be accounted for. Compact slicks may have oil coverage exceeding 90%, while more diffuse slicks may cover significantly less. Remote sensing should be used if possible. Side-Looking Airborne Radar (SLAR) and Ultraviolet (UV) imagery improve precision, especially for large or complex slicks.

Bonn Agreement Oil Slick Estimation Method

A4.6.4 The Bonn Agreement Oil Appearance Code (BAOAC) is a standardised method used to estimate the volume of oil spilled at sea based on its visual appearance as shown in Figure A.5. Each zone is assessed for its percentage coverage and multiplied by the corresponding thickness to estimate the total oil volume.

Code	Appearance	Thickness (µm)	Volume Range (litres/km²)
1	Sheen	0.04–0,3	40–300
2	Rainbow	0,3–5,0	300–5.000
3	Metallic	5.0–50	5.000–50.000
4	Discontinu-ous true oil	50–200	50.000–200.000
5	Continuous true oil colour	>200	> 200.000

Figure A.5: BAOAC

A4.6.5 Figure A.6 shows the applicable calculations in relation to the estimation of the size of the oil slick and the BAOAC method. These calculations will be undertaken by the Contractor with support from their appointed spill response subcontractor.

Release Estimation Guide

If the quantity of the source is already known, the visual estimation of the spill can be calculated based on the relationship between the colour of the oil slick and thickness trough the BAOAC.

Observation type (tick)	Vessel (incident area)	Second vessel	Aerial survey	**Other**	**Detail:**

Step 1	Total Area	as a rectangle in km²		= width x length (km²)				
Total area	Width (km)		**x**	Length (km)		**=**		km²
Step 2	Assess the area affected by the slick in km² calculated as a % of the total area (e.g. 90% of 20 km² = 18 km²).					**Estimate km² =**		
Step 3	Calculate **AREA** by colour: Estimate the area covered by each colour of oil as a % of area affected in km² (e.g. 60% Silvery, 40% Metallic = 10.8 km² & 7.2 km² respectively)							
	Calculation for Area Covered: This should be calculated for each code to give Area Covered by Colour km² = Area / 100 x % of Area Covered.							

Colour	**Code**	**Min Thickness (µm)**	**Max Thickness (µm)**	**% Area Affected**	**Area Covered in km²**
Oil Sheen Silvery	1	0.04	0.3		
Oil Sheen Rainbow	2	0.3	5		
Oil Sheen Metallic	3	5	50		
Discontinuous True Colour	4	50	200		
Continuous True Colour	5	200	>200		

Step 4	Calculate **QUANTITY** by colour: Multiply the area covered by each colour (Min and Max) by the appropriate quantity of oil in the table (e.g. 10.8 km² x 0.04 and 0.3 for Silvery & 7.2 km² x 5 & 50 for Metallic).

Colour	**Area Covered (km²)** (See Step 3)	**Min Volume (m³)**	**Max Volume (m³)**
Oil Sheen Silvery			
Oil Sheen Rainbow			
Oil Sheen Metallic			
Discontinuous True Colour			
Continuous True Colour			

Step 5	Total **QUANTITY**: Add all the quantity by colour figures to get total quantity of oil / m³

Total Volume (m³)	**Min Volume (m³)**	**Max Volume (m³)**

Step 6	Conversion: If necessary you can covert m³ to tonnes by multiplying total quantity in m³ by the specific gravity (SG) of the released oil.

Total Amount in Tonnes (m³ x SG)	**Min (tonnes)**	**Max (tonnes)**

Figure A.6: Oil Slick Size Estimation Calculator

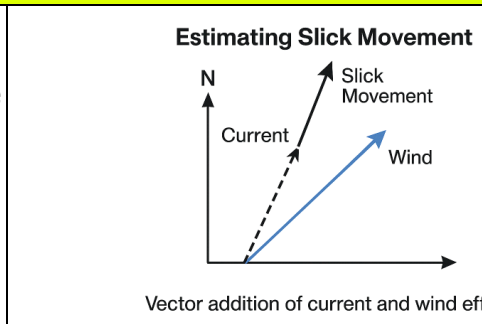
Tracking the Slick

A4.6.6 Oil slick movement at sea is influenced primarily by wind and current. To estimate the trajectory and speed of a slick, a vector addition method is used. This involves calculating the combined effect of wind and current as two separate vectors and then summing them to determine the overall movement vector of the slick.

A4.6.7 Estimating slick movement calculation are carried out trough vector addition using an estimate of current and wind effect as shown in Figure A.7.

Slick Tracking Manual Calculator

An oil slick on the sea surface will move under the influences of:
- Wind speed / direction @ 3% of the speed and the direction the wind is blowing from.
- Current speed & direction @ 100% of the current speed and in the direction the current is flowing to.



At Time 0	**Easting**		**Lat**		
	Northing		**Long**		
Coordinates Ref:					
Notes:					
	Bearing (°)	**Speed (kts)**		**Bearing (°)**	**Speed (kts)**
Wind			**Tide**		
Positioning of Slick over time	After calculating wind and tidal bearings for each hour to a maximum of 8 hours, calculate new Easting and Northing or latitude and longitude position of slick to a maximum of 8 hours				

Hours Elapsed	**Wind**		**3% of Wind Speed (kts)**	**Tide**	
	Bearing (°)	**Speed (kts)**		**Bearing (°)**	**Speed (kts)**
1					
Slick Position		**Lat**		**Long**	
2					
Slick Position		**Lat**		**Long**	
3					
Slick Position		**Lat**		**Long**	
4					
Slick Position		**Lat**		**Long**	
5					
Slick Position		**Lat**		**Long**	
6					
Slick Position		**Lat**		**Long**	
7					
Slick Position		**Lat**		**Long**	
8					
Slick Position		**Lat**		**Long**	

Figure A.7: Slick Tracking Manual Calculator

A5 Seabed Deposits and Notification of Dropped Objects

A5.1.1 Dropped objects and unplanned seabed deposits during offshore construction and O&M activities pose potential risks to the marine environment, navigational safety, and other sea users. The Proposed Development will implement a robust procedure to prevent, manage, and report such incidents in accordance with Section 36 and Marine Licence conditions and relevant legislation.

A5.1.2 This procedure aims to:

- Minimise the risk of accidental seabed deposits;
- Ensure prompt reporting and appropriate response to dropped objects;
- Maintain compliance with the Marine (Scotland) Act 2010 and Section 36 and Marine Licence conditions;
- Facilitate coordination with regulators and stakeholders, including MD-LOT and MCA.

A5.2 Prevention Measures

A5.2.1 All Contractors and Subcontractors will be required to implement preventative measures to reduce the likelihood of dropped objects, including:

- Secure storage and handling of equipment and materials during lifting, transfer, and installation;
- Staff training and briefings on dropped object risks and prevention protocols;
- Completion of Transport Audit Records (TARs) detailing all items loaded, transported, and deposited under licensable activities; and
- Monthly submission of TARs to the Marine Coordinator for review and tracking.

A5.3 Identification and Initial Response

A5.3.1 If a dropped object or unplanned deposit is identified - either through TAR discrepancies, direct observation, or incident reporting - the responsible Contractor must:

- Log the incident immediately;
- Notify the IC and provide details of the object, location, and circumstances; and
- Attempt recovery where reasonably practicable, in accordance with the Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012.

A5.4 Notification Procedure

A5.4.1 MD-LOT guidelines state that: *"In the event of an immediate risk of debris or an accidental deposit of an object at sea being a danger or hazard to navigation, immediate notification (as soon as reasonably possible, but no later than six hours after the event) must be made to the relevant MCA rescue coordination*

centre by telephone, and the UK Hydrographic Office (navwarnings@ukho.gov.uk)".

A5.4.2 *"For all accidental deposits of an object at sea or debris, an 'accidental deposit of an object at sea reporting form' must be submitted electronically to the organisations listed in the form. This must be done as soon as possible and no later than 24 hours after the event takes place. Where required, updates should be provided"* (MD-LOT, 2024).

A5.4.3 The following steps will be taken to ensure proper notification and coordination:

- Completion of the Offshore Renewables Energy - accidental deposit of an object at sea by the Contractor (found: https://www.gov.scot/publications/offshore-renewables-accidental-deposit-of-an-object-at-sea-form-and-guidance/ (MD-LOT, 2024)) ;
- Submission of the form to the ECoW, who will notify MD-LOT, MCA, and other relevant stakeholders;
- Notification of any recovery attempts, whether successful or not, and any planned recovery operations that may be delayed due to operational constraints; and
- Communication of dropped object locations to other sea users where necessary to mitigate navigational hazards.

A5.5 Recovery and Remediation

A5.5.1 MD-LOT may advise on appropriate remedial actions, which may include:

- Side-scan sonar surveys to locate the object; and
- Formal recovery operations if the object poses a hazard to navigation, the environment, or other marine users.

A5.5.2 All incidents involving dropped objects or seabed deposits will be documented as detailed in Section 3.5 of the Outline EMP. These records will be retained for audit and compliance purposes and used to inform continuous improvement of seabed management practices.

A6 Information Directory

A6.1 Roles, Contact Details and Responsibilities

A6.1.1 This section will describe the roles and responsibilities relating to the implementation of the MPCP. The roles likely to be included are listed in Table A.7 below.

A6.1.2 Other roles and responsibilities have been detailed in Section 3.3 of the Outline EMP.

Table A.7: Marine Pollution Contingency Plan Roles, Contact Details and Responsibilities

Role	Contact Details	Responsibilities
Developer	TBC	Ensuring Contractors and Subcontractors take appropriate responsibility for pollution events.
HSE Manager	TBC	Responsible for the overall preparation of the MPCP and audits.
Construction Manager	TBC	Responsible for the overall implementation of the MPCP. And to assume role of IC upon incident notification. Main point of contact should a pollution event occur. Will also oversee any pollution responses.
ECoW	TBC	Providing quality assurance for the MPCP, ensuring it is implemented in line with Section 36 and Marine Licence conditions and is responsible for reporting on compliance and incidents. Assist Incident Commander during emergency response operations.
Contractor	TBC	They will be expected to comply with the Developer's MPCP as well as produce their own. They will also be expected to ensure their staff have adequate pollution prevention and response training. Contractors are required to manage an ongoing spill response and liaising/cooperating with the authorities relevant to the event.
Spill Response Contractor	TBC	Required to be in place prior to construction and provide oil spill response as required, liaising with the Contractor.

A6.2 Personnel Training Requirements

A6.2.1 The Developer requires that that all personnel involved in construction and O&M activities are suitably qualified and adequately trained to carry out their roles safely and responsibly. As part of this commitment, all staff, whether directly employed or contracted, must complete induction training prior to commencing work on site.

A6.2.2 This induction will cover a comprehensive range of topics essential to maintaining safety, environmental protection, and effective incident response. These topics include, but are not limited to:

- Site rules and conduct: Expectations regarding behaviour, access control, good working practices and site-specific operational protocols;
- HSE requirements: Overview of occupational health and safety standards, hazard awareness, and safe working practices;
- First aid and emergency response arrangements: Location of first aid stations, emergency contact procedures, evacuation routes, and roles during emergency situations;

- Legislation and regulations: all personnel must comply with all relevant national and international legislation pertaining to the activities and maritime rules;
- Environmental management: Introduction to environmental protection measures, pollution prevention strategies, good working practices and site-specific environmental sensitivities; and
- Incident management procedures: Training on how to identify, report, and respond to environmental and marine pollution incidents, including escalation protocols and communication pathways.

A6.2.3 Additional role-specific training will be provided where necessary, particularly for personnel with responsibilities related to marine operations, pollution control, or emergency response. This may include the use of spill response equipment, containment techniques, and coordination with statutory authorities.

A6.2.4 All training activities will be documented, and records maintained to demonstrate compliance with regulatory requirements and internal standards. Refresher training will be scheduled at appropriate intervals, and updates provided in response to changes in legislation, procedures, or site conditions.

Tool Box Meetings

A6.2.5 As stated and detailed in Section 3.4 of the Outline EMP, as part of the Proposed Development's commitment to environmental protection during the construction and operation and maintenance phases, regular TBM will be integrated into daily and weekly briefings.

A6.3 Stakeholders Responsibilities and Requirements

A6.3.1 The construction and O&M phases of the Proposed Development present potential environmental risks, including marine pollution incidents (e.g. hydrocarbon or chemical spills) and accidental dropped objects. These events may pose hazards to navigation, marine ecosystems, and the integrity of Offshore Infrastructure. A coordinated and timely response is essential to mitigate environmental harm, ensure compliance with Section 36 and Marine Licence conditions, and uphold safety standards.

A6.3.2 In Scotland, a network of statutory bodies is responsible for managing and responding to such incidents under various legislative frameworks and contingency planning protocols. These organisations provide regulatory oversight, emergency coordination, environmental monitoring, and conservation advice. Their roles are critical in ensuring that pollution events and dropped object incidents are addressed effectively and in accordance with national and international obligations, as shown in Table A.8.

Table A.8: Marine Pollution Contingency Plan of Statutory Bodies' Roles in Responding to Marine Pollution Incidents

Role	Contact Details	Responsibilities and Reporting Requirements
Coastguard Operations Centre- CGOC - Aberdeen	01224 592 334	Is a command and control hub used by HM Coastguard (part of the MCA) to coordinate EMERGENCY RESPONSE such as maritime search and rescue missions. CGOCs operate 24 hours a day as part of a national network, allowing them to manage incidents across the entire UK coastline.
MD-LOT	[Redacted]	Must be notified of any dropped objects within 24 hours (or six hours if hazardous to navigation). Within 24 hours for serious spills incidents. Responsible for marine planning, licensing, enforcement, and scientific monitoring. Oversees the Marine Licence regime and ensures compliance with the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 (as amended). Coordinates with other agencies during pollution incidents and contributes to environmental assessments (up to 200 nm).
MCA	Ring CGOC	Must be notified of any spill accidents. Leads the NCP for marine pollution. Coordinates emergency response and supervises dispersant spraying during major spills.
SEPA	0800 807 060	Must be notified of any spill accidents. Manages environmental protection and pollution control, including chemical and oil spills (territorial waters ≤12 nm).
JNCC	N/A	Areas beyond 12 nm nature conservation advice. Consulted during pollution incidents to assess impacts on protected habitats and species.
NatureScot	N/A	Territorial waters (≤12 nm) nature conservation advice. Consulted during pollution incidents to assess impacts on protected habitats and species.
SOSREP	Ring CGOC	• Has authority to make rapid decisions during serious marine incidents; • Oversees safety and pollution control in UK waters; and • Works with MCA and other bodies to ensure effective response.

ANNEX B. MARINE INVASIVE AND NON-NATIVE SPECIES BIOSECURITY PLAN

B1 Objectives

B1.1.1 The MINNSBP describes the mitigation measures including any monitoring, that will be put in place to avoid or minimise the risk of introducing or spreading marine INNS.

B1.1.2 This MINNSBP has been written in line with NatureScot Guidance: Marine Biosecurity Planning. Guidance for Producing Site and Operation-based Plans for Preventing the Introduction of Non-Native Species (Payne *et al.,* 2014).

B1.1.3 This MINNSBP contains sufficient information at the application stage and should not require an update and approval process prior to construction starting (after Marine Licences and Section 36 consents have been granted).

B1.2 Legislation and Policy Compliance

B1.2.1 The legislation and guidance relating to INNS relevant to an offshore wind farm development in Scotland include:

- EU Regulation 11/43/2014 on the prevention and management of the introduction and spread of invasive alien species;
- The Wildlife and Countryside Act 1981;
- International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (as amended) [MS No.6/2021]
- The Merchant Shipping (Anti-Fouling Systems) Regulations 2009;
- Resolution MEPC.207(62) 2011 Guidelines for the Control and Management of Ships Biofouling to Minimize the Transfer of Invasive Aquatic Species;
- The Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2019;
- The Animal Welfare and Invasive Non-Native Species (Amendment etc.) (EU Exit) Regulations 2020; and
- Marine Biosecurity Planning. Guidance for Producing Site and Operation-based Plans for Preventing the Introduction of Non-Native Species (Payne *et al*., 2014).

B1.2.2 In Scotland, INNS are covered by Section 14 of the Wildlife and Countryside Act 1981. This regulation was amended in 2012 when the INNS section of the Wildlife and Natural Environment (Scotland) Act 2011 came into force.

B1.2.3 In 2012, the Scottish Government published the Code of Practice on Non-Native Species (Scottish Government, 2012), which sets out a framework of responsibilities for bodies with powers relating to INNS. The Code provides practical guidance on how Developers should act responsibly and within the law to ensure that INNS do not cause harm to the marine environment. This

Code focuses on a three-tiered approach, including prevention, rapid response and control, and containment.

B2 Risk Assessment

B2.1 Understanding the Proposed Development

B2.1.1 The Bowdun Offshore Wind Farm Array Area is located 38 km from the Aberdeenshire coast at its closest point and covers an area of 187 km². The Export Cable Corridor extends from the Array Area and will make Landfall at Benholm, Aberdeenshire.

B2.1.2 The bathymetry within the Export Cable Corridor ranges from 0 m (at the Landfall) to a maximum depth of -113 m LAT; within the Array Area, water depths are typically in the range -54 m to -91 m (LAT). Within the Array Area, mean spring tidal range is typically between 2.7 m and 3.0 m, with a mean neap range of approximately 1.5 m. Tidal currents are generally of moderate strength, with mean spring peak current speeds typically less than approximately 0.7 m/s. Some of the strongest currents are found just to the north of the Landfall, with peak current speeds on spring tide reaching ~0.8 m/s.

B2.1.3 Salinity within the Proposed Development is typical of marine environments with minimal freshwater input.

B2.1.4 During the winter months (October to April), reduced solar heating and increased turbulent mixing from wind and waves result in well-mixed waters in the Array Area. With the onset of spring and summer, calmer weather and longer, warmer days enhance stratification, overcoming the mixing effects of tides. From May to September, this leads to a vertical temperature gradient.

B2.1.5 The majority of stations were classified as sand, with a small proportion of mud, and a single station, located in the centre of the Array Area, was composed of sandy gravel, with a Folk classification of very fine gravel. In general, the coarser sediments with the greatest percentages of gravel were found along the Export Cable Corridor. The station with the finest sediment classifications (muddy sand) was located in the nearshore section of the Export Cable Corridor.

B2.1.6 In terms of man-made structures, there are no operational cables or pipelines within Site Boundary; the proposed Eastern Greenlink cable, currently due for construction in 2028 and operational in 2033, is expected to cross the Site Boundary at a single location, which may increase the risk of INNS.

B2.1.7 Detailed information regarding the environmental conditions at the Proposed Development can be found in Volume 2, Chapter 7: Physical Processes.

B2.1.8 In a laboratory experiment, local flow speed was negatively correlated with contact rate of larvae with substrate, which in turn was highly correlated with settlement rate (Jonnson *et al.*, 2004). As described in paragraph B2.1.2, the Proposed Development experiences relatively weak tidal currents, which may increase the biosecurity risk, as there is an increased likelihood for fouling organisms to colonise introduced substrates.

B2.1.9 There are a number of benthic INNS widespread and established within Scottish waters and the wider North Sea, including (NatureScot, 2023):

- Japanese wireweed *Sargassum muticum*;
- Green sea-fingers *Codium fragile* subspecies *fragile*;
- Siphoned Japan Weed *Dasysiphonia japonica*;
- Darwin's barnacle Austrominius modestus;
- Japanese skeleton shrimp *Caprella mutica*;
- Leathery sea squirt *Styela clava*;
- Orange-tipped sea squirt *Corella eumyota*; and
- Orange ripple bryozoan *Schizoporella japonica*.

B2.1.10 No INNS were recorded during the site-specific surveys for the Proposed Development (see Volume 3, Technical Appendix 8.1: Benthic Ecology Technical Report).

B2.1.11 A 2020 survey of the Hywind Scotland Pilot Park, located off Peterhead using a ROV with a mounted high definition video camera (Karlsson *et al*., 2022) found no evidence for the presence of INNS on Wind Turbine foundations. Furthermore, the Beatrice Offshore Wind Farm, located off the Caithness coast, found no evidence for the presence of INNS on Wind Turbine foundations (APEM, 2021). These two surveys, provide evidence that the introduction of these two Scottish wind farms has so far not resulted in the spread of INNS in Scottish waters.

B2.2 Understanding how Invasive Non-Native Species can be Introduced to the Proposed Development

B2.2.1 Table B.1 provides an example of the vessels and equipment to be used at the Proposed Development. The table also included a risk indicator of the potential for INNS to be introduced to Scottish waters in and around the Proposed Development.

B2.2.2 The Offshore EIA Report has used a Maximum Design Scenario (MDS) based on the current available information, which includes the use of several vessels and foundation types for Wind Turbine and OSP.

Table B.1: Vessel and Foundation Type to be used at the Proposed Development

Name	Type	Details and Risk Factors Assumptions	Risk: Low/Significant
Vessels (Construction)	Various	• A number of installation vessels will be used during the construction phase including main installation vessels (e.g. Dynamically Positioned vessels with heavy lifting equipment), support vessels (including Service Operation Vessels (SOVs)), tugs and anchor handlers, cable installation vessels, guard vessels, survey vessels, Crew Transfer Vessels	Low

Name	Type	Details and Risk Factors Assumptions	Risk: Low/Significant
		(CTVs) and scour/cable protection installation vessels; • Vessel movement: 2,120 vessel return trips in total over the construction phase; • The source location of the vessels will be confirmed once this information becomes available; • Vessels will be required to have anti-fouling coating and inspection history; and • Vessels will move slowly when installing or removing structures.	
Vessels (O&M)	Various	• Routine O&M works will be conducted using SOVs, CTVs, and/or Remote Operated Vehicles (ROVs). Divers and DSVs may be utilised if required. Jack-up and/or heavy lift vessels will be used for infrequent major maintenance campaigns associated with the OSPs. ROVs will be used to inspect foundations and cabling; • 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 source location of the vessels will be confirmed once this information becomes available; • Vessels will be required to have anti-fouling coating and inspection history; and • Vessels will move slowly when undertaking maintenance activities.	Low
Offshore Infrastructure	Various	Project infrastructure that will introduce a new hard surface: • Up to 67 Wind Turbines; • Up to three OSP with piled jacket foundations. • Scour protection; • IACs and Interconnector Cables; • Offshore Export Cables; • Cable protection; • Footprint area of 170,000m² due to fixed 3-legged suction bucket jacket Wind Turbine foundations and their Scour Protection; • Footprint area of 15,000 m² due to OSP foundations and their scour protection; • Footprint area of 755,000 m² due to cable protection for IACs;	Low

Name	Type	Details and Risk Factors Assumptions	Risk: Low/Significant
		• Footprint area of 40,500 m² due to cable crossing protection for IACs; • Footprint area of 180,000 m² due to cable protection for Interconnector Cables; • Footprint area of 13,500 m² due to cable crossing protection for Interconnector Cables; • Footprint area of 1,050,000 m² due to cable protection for Offshore Export Cables; and • Footprint area of 27,000 m² due to cable. crossing protection for Offshore Export Cables. Given the complexity of calculating the surface area of this Offshore Infrastructure, the MDS for surface area of project infrastructure is represented by a surface area of up to **2,705,020 m²** of hard structures installed on the seabed and an unquantified surface area present within the water column.	

B2.3 Identifying Activities Which Risk Introducing Non-Native Species

B2.3.1 An indicative list of activities related to the Proposed Development that may have a significant risk of introducing and/or spreading INNS is presented in Table B.2. This table has been informed by MDS and Section B2.2.

Table B.2: Site Activities with a Significant Risk of Introducing and/or Spreading INNS

Phase	Activity Description
Construction	• Offshore Export Cables Landfall installation; • Wind Turbine foundation transport and installation; • Offshore Export Cable installation, including cable burial and/or protection, where required; • OSP topside and foundation installation and commissioning; • Interconnector Cable and IAC Installation, including cable burial and/or protection, where required; and Wind Turbine transport, installation and commissioning.
Operation and Maintenance	• Routine inspections; • Geophysical surveys; • Repairs or replacements of navigational equipment and other ancillary equipment including condition monitoring equipment; • Removal of marine growth; • Repairs or replacements of corrosion protection anodes; • Blade coating and repairs; • Removal of fishing debris; Major component replacement of Wind Turbines; • Painting or application of other protective coatings; • Replacement of access ladders and boat landings;

Phase	Activity Description
	• Modifications to/replacement of J-tubes and other ancillary structures; and • Replacement of scour protection.

B3 Biosecurity Control Measures

B3.1.1 The following sections provide information on site-specific risks and control measures in relation to the Proposed Development.

B3.2 Installation/Presence of Man-Made Structures

B3.2.1 The installation and presence of man-made structures (MMS) has been identified as one of the greatest risks for the introduction and spread of INNS, particularly during the initial weeks and months following installation.

B3.2.2 Any MMS intended for use in the Proposed Development should originate from a terrestrial environment and must not have previously been submerged in or exposed to a marine environment. If it is necessary to use a structure from a marine environment, it must be thoroughly dried to eliminate any attached organisms and undergo inspection prior to its placement in the marine environment.

B3.2.3 MMS are expected to be painted with anti-fouling paint where possible and marine growth will be removed as detailed in Section B3.4.

B3.3 Using Vessels from Outside the Proposed Development

B3.3.1 Vessels arriving from outside the east coast of Scotland and north-east coast of England pose a risk of introducing INNS to the area, especially if they originate from marine environments with similar ecological conditions.

B3.3.2 All vessels involved in the Proposed Development - during construction and O&M - must adhere to the IMO (2024) Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species.

B3.3.3 Vessels must comply with Aberdeenshire Council Harbour's General Directions 2022 (Aberdeenshire Council, 2022)[2].

B3.3.4 Where applicable, vessels must also comply with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004), which outlines the following standards:

- Ballast-water exchange to be carried out at least 200 nm from the nearest land and in water at least 200 m in depth or as far from the nearest land as possible, and in all cases at least 50 nm, from the nearest land and in water at least 200 m in depth;

[2] Aberdeenshire Council Harbour General Directions, 2022. [online]. Available at: https://www.aberdeenshireharbours.co.uk/wp-content/uploads/2023/03/General-DIrections-30-11-2022-.pdf?utm_source=chatgpt.com

- Use of anti-fouling systems, which includes the use of coating systems, biofouling resistant material and marine growth prevention systems and
- In-water inspection of ships and in-water cleaning and maintenance.

B3.3.5 Implementation of these measures will be ensured, by a requirement for all Contractors to comply with this MINNSBP by the Developer.

B3.4 Cleaning and Disposal of Biofouling from Structures During Operation and Maintenance Activities and Decommissioning

B3.4.1 There is potential risk for INNS to detach from subsea infrastructure during routine maintenance activities, such as jet washing.

B3.4.2 INNS may remain attached to the surface of marine structures during decommissioning. If these organisms are removed without appropriate care and subsequently released into the surrounding marine environment, there is a risk of INNS spreading to areas where they were not previously present.

B3.4.3 Control measures must be implemented to minimise the release of biofouling material into the marine environment at the Proposed Development. These measures may include (IMO, 2024):

- Collection and disposal of biofouling in accordance with the relevant Port Authority Waste Management Plan;
- Use of appropriate anti-fouling coating systems; and
- Proper maintenance of all equipment, including regular assessment of cleaning requirements and the condition of anti-fouling coatings.

B3.4.4 Material removed from decommissioned subsea infrastructure must be transported onshore for appropriate disposal, in order to prevent the introduction of INNS into the marine environment. The disposal of biofouling material shall be carried out in accordance with the relevant Port Authority Waste Management Plan.

B3.4.5 All equipment, materials, machinery, PPE, and vessels must be thoroughly cleaned prior to arrival on site to prevent the introduction of INNS.

B3.4.6 All contractors will be required to comply with these measures by the Developer thought adherence to this MINNSBP prior to mobilisation to site.

B4 Monitoring and Inspection

B4.1.1 Table B.3 outlines who is responsible for surveillance and monitoring of the Proposed Development for INNS and reporting, as well as where and when these are to be completed by.

Table B.3: Surveillance and Monitoring Responsibilities (Payne *et al.*, 2014)

Who	What	Where	When
Project Operations and Environment	• Oversee installation and removal of Project Offshore Infrastructure, checking for INNS or unknown organisms;	At port and at site	Beginning of works

Who	What	Where	When
Manager or appropriate Contractors	• During O&M, periodic checks should be carried out after two months to ensure no growth/settlement of INNS; • Be aware of any slow moving or inactive craft and take steps to assess risk; • Ensure a Check, Clean and Dry message is sent to any new developers or contractors; and • Where possible, collaborate with the relevant Port Authority and other uses of the offshore wind farm area to raise INNS awareness.		
Project Operations and Environment Manager - Developer and Contractors	• Oversee removal of flora and fauna from Offshore Infrastructure, ensure material is properly disposed of and that no material is released into the water as per the relevant Port Waste Management Plan; and • Awareness of INNS, including identification guidance on the key risk species. If uncertainty arises, follow the Contingency Plan (Section B5); • Verify team competencies, training records, and ensure that all relevant inductions are scheduled and completed prior to team members joining the project; and • Encourage the delivery of TBM focused on the risks and management of INNS.	At port and at site	Throughout works
Developer and Contractors	• Confirm origin of project infrastructure (i.e. terrestrial in origin, not previously submerged in the marine environment); and • If infrastructure has previously been submerged has it been thoroughly dried to eliminate any attached organisms and undergone inspection.	At port	Beginning of works

B5 Response Strategy

B5.1.1 This section presents the information about how to respond if the biosecurity measure for INNS fails.

B5.1.2 Table B.4 lists the actions of the Contingency Plan and who is responsible for actions.

Table B.4: Contingency Plan for the Discovery of INNS (Payne *et al.*, 2014)

Action	Responsibility
Stage One – Suspected Arrival of INNS	
Collect samples, place in plastic bag and contact Scottish Environment and Rural Services (SEARs) for advice on where to send sample. If presence of high	• Harbour Master; • Marine Berthing Manager • EcoW.

Action	Responsibility
alert species is confirmed, report to Scotland Environment[3].	
Inform harbour users and place marker buoys around area	• Harbour Master/staff
Stage Two – Presence of INNS Confirmed	
Initiate immediate containment measures, including restricted vessel movements	• Marina Berthing Manager
Carry out wider survey of vessels and structures using underwater camera and/or physical sampling for more cryptic species.	• Harbour staff; and • Marine Scotland inspectors.
Stage Three – Eradication/Employ Long Term Control Measures	
Seek advice from INNS Scotland on appropriate measures and actions for long term control	• Biosecurity Office Manager; • Environmental Manager; and • Contractor Environmental Manager

B6 Monitoring and Review

B6.1.1 Once the MINNSBP has been agreed, a logbook will be developed to keep a clear record of any checks or actions taken and list the formal steps to ensure the biosecurity manager is quickly informed of any potential introductions of INNS.

B6.1.2 Examples of information to be recorded in the logbook as per Payne *et al.* (2024):

- Routine inspections of equipment and vessels for INNS and biosecurity measures taken if INNS found at site or on equipment;
- Application of antifouling or cleaning of equipment or vessels at site;
- Inspections of any 'high risk' vessels; including any details of when biosecurity manages has been informed of a potential 'high risk' vessels and the additional biosecurity measures that have been undertaken; and
- Awareness raising events.

B6.1.3 All records entered in the logbook should be given a date and signed by the biosecurity manager.

B6.1.4 If new activities that carry a significant risk of introducing or spreading INNS are commenced, then control measures should be identified before the activity starts and need not wait for the annual review.

[3] Scotland environment at https://www.environment.gov.scot/get-involved/submit-your-data/invasive-non-native-species/#:~:text=Report%20a%20non-native%20species%20If%20you%20would%20like,20%2050%20You%20will%20need%20to%20tell%20us%3A

ANNEX C. FORMS

Form 1: Incident Information Form (C1).

Form 2: SEPA, 2025. **Report an Environmental Event** (online only) (non-emergency)

Link: Environmental Event Reporting Online Form

Form 3: MCA, 2022. **Pollution Report** - CG77 POLREP (C2)

Link: CG77 POLREP Form

Form 4: MD-LOT, 2024. **Offshore Renewable Energy - Accidental Deposit of an Object at Sea Reporting** Form (C3):

Link: Accidental Deposit of an Object at Sea Reporting Form v2.0 2024

Note: please verify latest versions before filling and submitting any form.

C1 Incident Information Form

Incident Information Form					
Date/Time			**Vessel Name**		
Name of Observer			**Position**		
Location of Vessel	**Easting**		**Master Name**		
	Northing		**Block number**		
Distance to Land			**Distance to median line**		
Distance to nearest installation			**Wave height**		
Location of Spill					
Water depth			**Sea state**		
Wind speed			**Wind direction**		
Released where			**Release ongoing?**	Yes	No
What has been released			**If oil, what group (1-5)**		
Quantity released			**Expected inventory amount**		
Release ongoing?	Yes	No	**Flow Speed**	Fast	Slow
Discovered immediately	Yes	No	**Hazard level (low, medium, high)**		
Injuries/casualties	Yes	No	**SAR?**	Yes	No
Observation ongoing	Yes	No	**Other hazards? Describe**		
SOPEP activated?	Yes	No	**Tier level 1-3**		
Coastguard notified?	Yes	No	**TWP notified?**	Yes	No
POLREP submitted?	Yes	No	**Sample/photographs taken?**	Yes	No
Spill contractor called?	Yes	No	**Resources mobilised**		
Additional Information					

C2 MCA Pollution Report Form

C3 MD-LOT Offshore Renewable Energy - Accidental Deposit of an Object at Sea Reporting

ANNEX D. ACTIONS CHECKLIST DURING A VESSEL INCIDENT

Forms provided below:

1. **Vessel Spill OBSERVER Action List;**
2. **Vessel Spill VESSEL MASTER Action List;**
3. **Vessel Spill INCIDENT COMMANDER Action List; and**
4. **Vessel Spill ECoW Action List.**

1	Vessel Spill OBSERVER Action List
Tick	**INITIAL ACTIONS**
☐	Notify the Vessel Master and provide details of spill: ▪ Time; ▪ Location; ▪ Possible source; ▪ Type ▪ Quantity; ▪ Any additional useful information.
☐	Contact and warn all personnel in the vicinity of the incident/hazard.
Tick	**ONGOING**
☐	**IF SAFE**: Continue close observation and periodically update Master.
☐	**IF SAFE**: Take action to contain the spill.
Tick	**STAND DOWN**
☐	Support Vessel Master in the preparation of the incident report as required.

2	Vessel Spill VESSEL MASTER Action List
Tick	**INITIAL ACTIONS**
☐	Receive report from initial observer and take charge.
☐	**IF SAFE**: Initiate SOPEP
☐ ☐ ☐	Maintain safety of: ▪ Personnel; ▪ Installations and vessel; ▪ Any vessel within 500 m.
☐	Notify Aberdeen CGOC /Harbour Authority via phone/VHF.
☐	Notify nearby vessels and installation of incident.
☐	Inform Incident Commander and initiate communications with onshore team.
☐	Maintain contact with Observer and ensure continous monitoring of spill/leak/slick occurs.
☐	Assist Observer in collection of information on the slick by arranging photographs and samples to be taken as necessary.
☐	Initiate chronological log of events and actions, including internal and external notification issued/received (maintain until stand down).
☐	Submit POLREP CG77.
Tick	**ONGOING**
☐	Classify spill size (estimate of quantity of oil/chemical) and behaviour/movement of slick.
☐	Identify need for additional resource and/or external additional help (e.g. spill response contractor on call). Seek advice as required on: ▪ Slick movement, behaviour and proximity to the installations, infrastructures and vessels; ▪ Extent and progress of slick; ▪ Priority areas in need of urgent intervention; ▪ Progress of clean-up operations and slick status; ▪ Back-up services requirements; ▪ Proximity to protected areas.
☐	Assist Observer in collection of information on the status of the spill/slick by arranging photographs and samples to be taken as necessary.
☐	Ensure continuation of log keeping (delegate if necessary).
Tick	**STAND DOWN**
☐	When appropriate to do so, commence "STAND DOWN" procedures as follows: ▪ Notify authorities, contractors and other vessels; ▪ Prepare incident report and incident log, provide copies to IC providing support for information requests.
☐	Submit incident report to TWP.

3	Vessel Spill INCIDENT COMMANDER Action List
Tick	**INITIAL ACTIONS**
☐	Receive call from Vessel Master.
☐	Record incident details and information provided by the Master maintaining chronological log of events and actions, including internal and external notification issued/received.
☐	Notify ECoW of incident.
☐	Maintain open communications with Vessel Master and provide assistance to maintain communications open internally and externally as needed.
☐	Assist Master in ongoing set up of operations, response set up and evidence collection support (e.g. photographs and samples).
Tick	**ONGOING**
☐	Assist Master in ongoing set up of operations, response set up, monitoring and communications.
☐	Liaise with and co-operate with statutory bodies as necessary and communicate with Master and contractors involved as necessary.
☐	Ensure continuation of log keeping.
☐	Ensure all installations and vessels in the vicinity have been alerted and kept informed of incident.
Tick	**STAND DOWN**
☐	Assist with stand down procedures and liaise with Master.
☐	Collect copied of logs and reports from Vessel and onshore.
☐	Prepare incident report for TWP and stakeholders as necessary.

4	Vessel Spill ECoW Action List
Tick	**INITIAL ACTIONS**
☐	Receive call from Incident Commander (IC).
☐	Notify Offshore Consent Manager within 24 hours.
☐	Notify MD-LOT within 24 hours (72 hours for less serious incidents) and SEPA.
☐	Provide environmental advice and support to IC as necessary.
☐	Ensure proper channels of communications are open and that spill notifications have been issued as required.
Tick	**ONGOING**
☐	Provide support and advice to IC and Vessel Master as required. Include stakeholders as necessary.
Tick	**STAND DOWN**
☐	Support communication during stand down procedure.
☐	Remain accessible to support IC, Master and personnel as required.
☐	Work with HSE Manager to produce a lessons learned report and potential procedures amendments as required.

ANNEX E. ACTIONS CHECKLIST DURING AN INSTALLATION INCIDENT

Forms provided below:

5. Installation Spill OBSERVER Action List;

6. Installation Spill INCIDENT COMMANDER Action List; and

7. Installation Spill ECoW Action List.

5	Installation Spill OBSERVER Action List
Tick	**INITIAL ACTIONS**
☐	Notify the Incident Commander (IC) and provide details of spill: ▪ Time; ▪ Location; ▪ Possible source; ▪ Type ▪ Quantity; ▪ Any additional useful information.
☐	Contact and warn all personnel in the vicinity of the incident/hazard.
Tick	**ONGOING**
☐	**IF SAFE**: Continue close observation and periodically update IC.
☐	**IF SAFE**: Take action to contain/clean-up the spill.
Tick	**STAND DOWN**
☐	Support IC in the preparation of the incident report as required.

6	Installation Spill INCIDENT COMMANDER Action List
Tick	**INITIAL ACTIONS**
☐	Receive report from initial observer and take charge.
☐	Initiate MPCP and decide response strategy.
☐	**IF SAFE:** Initiate containment/clean-up operations.
☐ ☐ ☐	Maintain safety of: ▪ Personnel; ▪ Installations and vessel; ▪ Any vessel within 500 m.
☐	Notify Aberdeen CGOC via phone/VHF.
☐	Notify nearby vessels and installation of incident.
☐	Inform ECoW and initiate communications with onshore team.
☐	Maintain contact with Observer and ensure continous monitoring of spill/leak/slick occurs.
☐	Assist Observer in collection of information on the slick by arranging photographs and samples to be taken as necessary.
☐	Initiate chronological log of events and actions, including internal and external notification issued/received (maintain until stand down).
☐	Submit POLREP CG77.
Tick	**ONGOING**
☐	Classify spill size (estimate of quantity of oil/chemical) and behaviour/movement of slick.
☐	Identify need for additional resource and/or external additional help (e.g. spill response contractor on call). Seek advice as required on: ▪ Slick movement, behaviour and proximity to the installations, infrastructures and vessels; ▪ Extent and progress of slick; ▪ Priority areas in need of urgent intervention; ▪ Back-up services requirements; ▪ Progress of clean-up operations and slick status; ▪ Proximity to protected areas.
☐	Liaise as necessary with the authorities and stakeholders to promptly manage the spill.
☐	Assist Observer in collection of information on the status of the spill/slick by arranging photographs and samples to be taken as necessary.
☐	Ensure continuation of log keeping offshore and inshore (delegate as necessary).
Tick	**STAND DOWN**
☐	When appropriate to do so, commence "STAND DOWN" procedures as follows: ▪ Notify authorities, contractors and other vessels; ▪ Prepare incident report and incident log, provide copies to ECoW and HSE Manager providing support for information requests.
☐	Submit incident report to TWP.

7	Installation Spill ECoW Action List
Tick	**INITIAL ACTIONS**
☐	Receive call from Incident Commander (IC).
☐	Notify Offshore Consent Manager within 24 hours.
☐	Notify MD-LOT within 24 hours (72 hours for less serious incidents) and SEPA.
☐	Provide environmental advice and support to IC as necessary.
☐	Ensure proper channels of communications are open and that spill notifications have been issued as required by the MPCP.
Tick	**ONGOING**
☐	Provide support and advice to IC as required. Include stakeholders as necessary.
Tick	**STAND DOWN**
☐	Support communication during stand down procedure.
☐	Remain accessible to support IC and personnel as required.
☐	Inform and work with HSE Manager to produce a lessons learned report and potential procedures amendments as required.