European Offshore Wind Deployment Centre

Offshore Environmental Management Plan

ABE-ENV-DB-0012

August 2017

Prepared by:	Esther Villoria	Environment and Consents Manager		30/08/2017
	NAME	ROLE		DATE
Reviewed by:	Jim Green	HSSE Manager		30/08/2017
	NAME	ROLE		DATE
Approved	30.08.2017	03	Adam Ezzamel	[redacted]
STATUS	**DATE**	**REVISION**	**NAME**	**SIGNATURE**

Revision	Date	Revision changes
1	20/04/2017	First issue
2	04/07/2017	Removal of Cable Landfall Option 2 and Post-Consultation
3	30/08/2017	Further Clarifications required by MS-LOT

Offshore Environmental Management Plan Overview

Purpose and objectives of the Plan

This Offshore Environmental Management Plan (OEMP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 Consent (S.36) issued to Aberdeen Offshore Wind Farm Limited (AOWFL).

The overall aim of this OEMP is to set out the procedures for environmental management and monitoring through all stages of the Development.

This OEMP confirms that the environmental management employed aligns with those considered in the original Application, and that environmental mitigation and monitoring measures detailed in the Application will be applied, where relevant, through all phases of the project.

All relevant procedures undertaken throughout the duration of the Development must comply with the procedures set out in this OEMP.

Scope of the Plan

This OEMP covers, in line with the requirements of the S.36 Consent conditions, the following:

- The roles and responsibilities of key Project personnel with respect to environmental management;
- Mitigation measures to present significant adverse impacts to environmental interests (including marine mammal mitigation),
- Pollution prevention measures;
- Waste management measures;
- Mechanisms for reporting to the Scottish Ministers and stakeholders on environmental issues and compliance with the OEMP;
- Environmental Monitoring;
- Confirmation that the construction, operation and maintenance methods described within this OEMP align with those considered in the Environmental Statement (ES), Supplementary Environmental Information Statement (SEIS), Marine Licence, S.36 Consent and Marine Licence Application.

Structure of the Plan

This OEMP is structured as follows:

Sections 1 and 2 set out the scope and objectives of the OEMP and set out statements of compliance.

Section 3 sets out the process for making updates and amendments to this document.

Section 4 provides an overview of the Development.

Section 5 provides detail on the commitments made in the Draft EMP submitted as part of the original application.

Section 6 details the environmental management framework.

Section 7 provides reference to the Waste Management Plan.

Section 8 provides information on the environmental management and mitigation of marine animals and habitats.

Section 9 provides information on the environmental management and mitigation of coastal processes.

Section 10 provides information on the environmental management and mitigation of effects on other users.

Section 11 provides information on the environmental management and mitigation of marine archaeology.

Section 12 presents information on species protection plans.

Section 13 presents the environmental monitoring programme.

Section 14 provides the Marine Mammal Protection Plan.

Section 15 presents information to demonstrate compliance with the original Application, and how the mitigation proposed in the Application will be delivered.

Section 16 provides a reference list for documents cited within the Plan.

Appendix A provides a Legislation register for the OEMP.

Appendix B provides a Waste Management Plan.

Appendix C provides an ECoW Monthly Compliance Reporting Template.

Appendix D provides the incident reporting template.

Appendix E provides the Offshore Wind & Marine Renewables Dropped Objects Form.

Appendix F demonstrates compliance with the original Application and mitigation set out in the ES and SEIS.

Plan Audience

This OEMP is intended to be referred to by relevant personnel involved in all phases of the EOWDC, including AOWFL personnel, Contractors and Subcontractors. Compliance with this OEMP will be monitored by AOWFL and the ECoW and reported to the Marine Scotland Licensing and Operations Team.

Plan Locations

Copies of this OEMP are to be held in the following locations:

- At AOWFL Head Office;

- At the premises of any agent, Contractor or Subcontractor (as appropriate) acting on behalf of AOWFL;

- At the AOWFL Marine Coordination Centre; and

- With the Ecological Clerk of Works (ECoW(s)).

TABLE OF CONTENT

List of Figures

List of Tables

LIST OF ABBREVIATIONS AND DEFINITIONS

Defined Terms

Term	Definition
the 2010 Act	The Marine (Scotland) Act 2010.
Application	The Application and Environmental Statement submitted to the Scottish Ministers, by the Company on 1st August 2011 and Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 6th August 2012 for consent under section 36 of the Electricity Act 1989 and for a Marine Licence under 20(1) of the Marine (Scotland) Act 2010, for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC) electricity generating station approximately 2 km off the coast of Aberdeenshire in Aberdeen Bay with a generation capacity of up to 100 MW.
Blackdog Firing Range Management Plan	The Management Plan required to be submitted for approval under Condition 10 of the section 36 Consent.
Cables	Offshore Export Cables and Inter-array cables.
Cable Laying Strategy (CLS)	The Strategy to be submitted for approval under Condition 25 of the section 36 Consent.
Commencement of the Development	The date on which the first vessel arrives on the Site of European Offshore Wind Deployment Centre to begin construction in accordance with the section 36 Consent.
Commencement of the Works	The date on which the first vessel arrives on the Site to carry on any marine Licensable Marine Activity in connection with the construction of the Works, as defined by the Marine Licence.
Company	Aberdeen Offshore Wind Farm Limited (AOWFL). AOWFL is wholly owned by Vattenfall and has been established to develop, finance, construct, operate, maintain and decommission the European Offshore Wind Deployment Centre.
Completion of the Works	The date on which the Works have been installed or the Works have been deemed to be complete by the Licensing Authority, as defined by the Marine Licence.
Consent Plans	The plans, programmes or strategies required to be approved by the Scottish Ministers (in consultation with the appropriate stakeholders) in order to discharge conditions attached to the Offshore Consents.

Term	Definition
Construction	As defined by the Section 36 Consent, (as per section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004), construction is defined as follows: "construct", in relation to an installation or an electric line or in relation to a generating station so far as it is to comprise renewable energy installations, includes: • placing it in or upon the bed of any waters; • attaching it to the bed of any waters; • assembling it; • commissioning it; and • installing it.
Construction Method Statement (CMS)	The Statement to be submitted for approval under Condition 13 of the section 36 Consent.
Construction Noise Management Plan (CNMP)	The Management Plan to be submitted for approval under Condition 18 of the section 36 Consent.
Contractors	Any Contractor/Supplier (individual or firm) working on the project, hired by AOWFL.
Decommissioning of the Works	The removal of the Works from the seabed, demolishing or dismantling the Works.
Decommissioning Programme (DP)	The Programme to be submitted to the Secretary of State[1] under section 105(2) of the Energy Act 2004 (as amended) and as required for approval under Condition 6 of the section 36 Consent.
Design Envelope (Rochdale Envelope)	Describes a number of components and all permanent and temporary works required to generate or transmit electricity to the National Grid including the wind farm and the offshore export cable.
Design Statement (DS)	The Statement to be submitted for approval under Condition 14 of the section 36 Consent.
Development	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 km east of Blackdog, Aberdeenshire, as described in Annex 1 of the section 36 Consent.
Development Area	The area which includes the wind turbine generators, the Inter-array cables and part of the Offshore Export Cable Corridor, including any other works, as shown in Part 4 of the Marine Licence (named as Lease Boundary in the Marine Licence).

[1] The responsibility for approving decommissioning programmes for Scottish projects has now been transferred to the Scottish Ministers.

Term	Definition
Ecological Clerk of Works (ECoW)	Ecological Clerk of Works as required under condition 3.2.1.4 of the Marine Licence. primarily, but not exclusively, for environmental liaison to establish and maintain effective communications between the Licensee, contractors, stakeholders, conservation groups and other users of the sea during the period in which licensed activities authorised under this licence are undertaken.
Electricity Act	the Electricity Act 1989 (as amended).
Environmental Statement (ES)	The Statement submitted by the Company on 1 August 2011 as part of the Application.
Generation Station	Comprising the Wind Turbine Generators and Inter-array cables.
Inter-array cables	Electricity cables connecting the WTGs.
Licensable Marine Activity	Any activity listed in section 21(1) of the 2010 Act.
the Licensee	Aberdeen Offshore Wind Farm Limited, a company registered in Scotland (registered number SC278869).
Licensing Authority	Scottish Ministers, as defined by the Marine Licence. It is important to note that Marine Scotland is acting on behalf of Scottish Ministers.
Marine Licence	Licence issued by the Scottish Ministers under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor.
Marine Pollution Contingency Plan (MPCP)	The Plan to be submitted for approval under Condition 3.1.11 of the Marine Licence.
Navigational Safety Plan (NSP)	The Plan to be submitted for approval under Condition 26 of the section 36 Consent.
Offshore Consents	• Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC; • Declarations granted under section 36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the territorial sea where structures forming part of the Offshore Wind Farm are to be located; and • Marine Licence under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Offshore Export Cable.

Term	Definition
Offshore Export Cables (OECs)	The offshore export cables (and all associated cable protections) connecting the WTGs to the onshore export cables.
Offshore Export Cable Corridor (OECC)	The consented area within which the offshore export cables will be laid up to MHWS.
Offshore Export Cable Corridor Landfall	The location where the offshore export cables come ashore.
Offshore wind farm	An offshore generating station which includes proposed WTGs, inter-array cables, meteorological masts and other associated and ancillary elements and works (such as metocean buoys). This includes all permanent and temporary works required.
Offshore Environmental Management Plan (OEMP)	The Plan to be submitted for approval under Condition 17 of the section 36 Consent.
Planning Authorities	Aberdeenshire Council and Aberdeen City Council.
Section 36 Consent	Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC.
Scottish Marine Area	The area of sea within the seaward limits of the territorial sea of the United Kingdom adjacent to Scotland and includes the bed and subsoil of the sea within that area.
Subcontractor	Any Contractor/Supplier (individual or firm) providing services to the project, hired by the Contractors (not AOWFL).
Supplementary Environmental Information Statement (SEIS)	The Statement (Addendum) submitted to the Scottish Ministers by the Company on 6th August 2012 as part of the Application.
the Statement	The UK Marine Policy Statement 2011
Vessel Management Plan (VMP)	The Plan to be submitted for approval under Condition 24 of the Section 36 Consent.
the Works	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 kilometres east of Blackdog, Aberdeenshire, as described by the Marine Licence.

Acronym Definitions

Term	Definition
ADP	As Low As Reasonably Practicable (ALARP) Design Procedure
ADR	European agreement concerning the carriage of dangerous goods
ALARP	As Low As Reasonably Practicable
AOWFL	Aberdeen Offshore Wind Farm Limited
ASFB	Association of Salmon Fishery Board
BEIS	UK Department of Business Energy and Industrial Strategy
BFRMP	Blackdog Firing Range Management Plan
BWM	International Convention for the Control and Management of Ships' Ballast Water and Sediments
CAA	Civil Aviation Authority
CIS	Crisis, Incidents and Security
CLS	Cable Laying Strategy
CMS	Construction Method Statement
CNMP	Construction Noise Management Plan
COSHH	Control of Substances Hazardous to Health
CPHSP	Construction Phase Health, Safety and Environment Plan
DECC	UK Department of Energy and Climate Change, now BEIS
DP	Decommissioning Programme
DS	Design Statement
DTS	distributed temperature sensing
EIA	Environmental Impact Assessment
Electricity Act	the Electricity Act 1989 (as amended)
EMF	Electromagnetic Field
EMP	Environmental Management Plan
EOWDC	European Offshore Wind Deployment Centre
EPS	European Protected Species
ES	Environmental Statement
EU	European Union
EWC	European Waste Catalogue

Term	Definition
FEPA	Food & Environmental Protection Act
FGDS	FGDS Ltd. Decision support consultant
GRT	Gross Registered Tonnage
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
HM	Her Majesty
HSE	Health and Safety Executive
HSSE	Health, Safety, Security and Environment
IALA	International Association of Marine Ads to Navigation and Lighthouse Authorities
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
IRF	Incident Report Form
ISM	International Safety Management Code
JNCC	Joint Nature Conservation Committee
km	Kilometre
MAIB	Marine Accident Investigation Branch
MCA	The Maritime and Coastguard Agency
MFSU	Manufacture, formulation, supply and use
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MMPP	Marine Mammal Protection Plan
MPCP	Marine Pollution Contingency Plan
MS	Marine Scotland
MS-LOT	Marine Scotland - Licensing and Operations Team
MSA	Marine Safety Agency
MSN	Merchant Shipping Notice
MSS	Marine Scotland Science
MW	Megawatt
NFFO	National Federation of Fisherman's Organisation
NLB	Northern Lighthouse Board
NM	Nautical miles

Term	Definition
NMP	Navigational Marking Plan
NSP	Navigational Safety Plan
OECCs	Offshore Export Cables
OECC	Offshore Export Cable Corridor
OEMP	Offshore Environmental Management Plan
Ofcom	Office of Communications
OMP	Operation and Maintenance Plan
OPRC	International Convention on Oil Pollution Preparedness, Response and Co-operation
OREI	Offshore Renewable Energy Installation
OSPAR	Oslo/Paris convention (for the Protection of the Marine Environment of the North-East Atlantic)
PAD	Protocol for Archaeological Discoveries
PAM	Passive acoustic Monitoring
PCB	Polychlorinated biphenyl
PPC	Pollution Prevention and Control
PVC	Polyvinyl chloride
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAR	Search and Rescue
SDS	Safety Data Sheet
SEIS	Supplementary Environmental Information Statement
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fisherman's Federation
SNH	Scottish Natural Heritage
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPA	Special Protection Area
SPORRAN	Scottish Offshore Renewables Research Framework
SSF	Scottish Sea Farms
SSI	Scottish Statutory Instrument
STOT	Specific Target Organ Toxicity

Term	Definition
SWC	Site Waste Calculations
TAS	Transportation Audit Sheet
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UN	United Nations
VMP	Vessel Management Plan
WDC	Whale and Dolphin Conservation
WFD	Water Framework Directive
WTG	Wind Turbine Generator

1 INTRODUCTION

1.1 Background

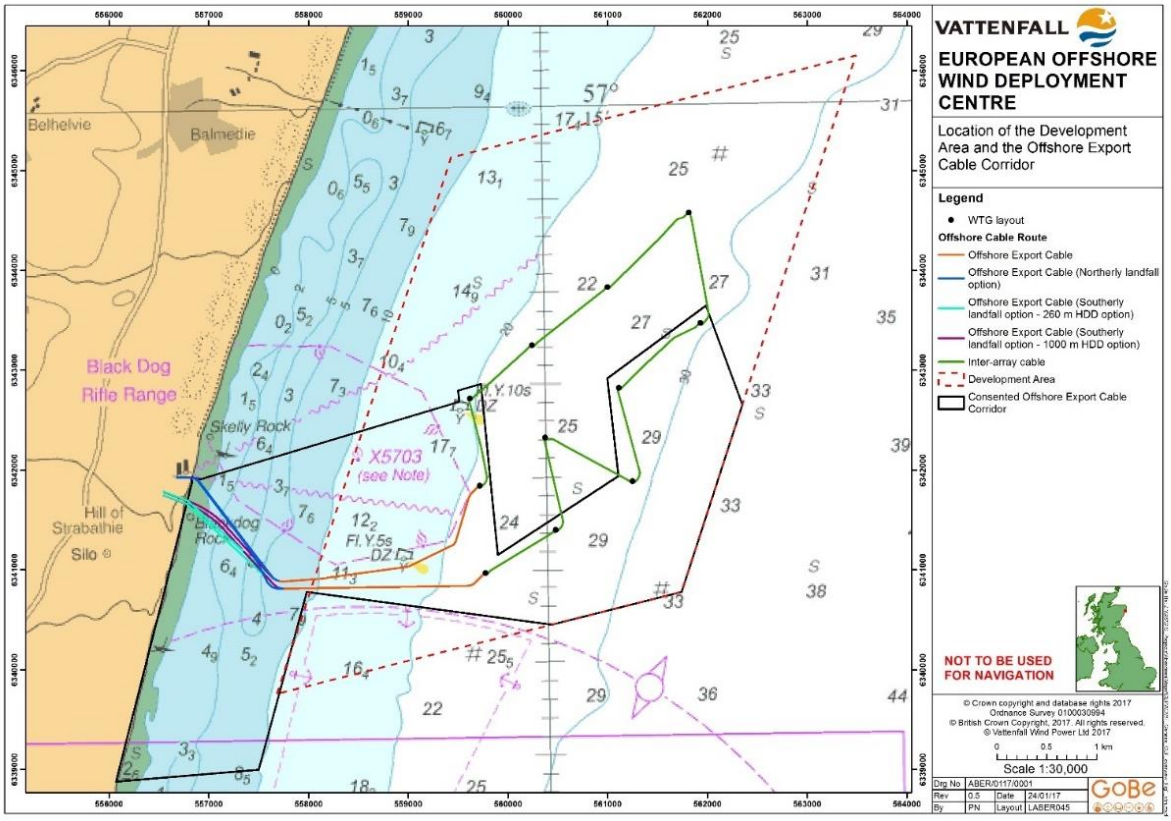
On 26 March 2013, Aberdeen Offshore Wind Farm Limited (AOWFL) received consent from the Scottish Ministers under Section 36 (S.36) of the Electricity Act 1989 for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC - also known as the Aberdeen Offshore Wind Farm) and on 15 August 2014 a Marine Licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference 04309/16/0). This Marine Licence was most recently varied on 30 September 2016 (reference 04309/16/1).

The Development is located approximately 2 to 4.5 km offshore to the north east of Aberdeen, Scotland, within Aberdeen Bay. The Offshore Export Cables (OECs) will be between 3.7 – 4.4 km long (maximum total length ~8 km) and will reach landfall at the adjacent coastline in Aberdeen Bay located at Blackdog (Figure 1).

A further overview of the Development is contained in Section 4 of this document.

AOWFL is a company wholly owned by Vattenfall and was established to develop, finance, construct, operate, maintain and decommission the EOWDC.

Figure 1 Location of the EOWDC Development Area and the Offshore Export Cable Corridor



1.2 Objectives of this Document

The S.36 Consent and Marine Licence contain a variety of conditions that must be discharged through approval by the Scottish Ministers/Licensing Authority prior to the commencement of any offshore construction works. One such requirement is the approval of an Offshore Environmental Management Plan (OEMP). The aim of this plan is to set out the environmental management (and monitoring) measures for the EOWDC.

The relevant conditions setting out the requirement for an Offshore Environmental Management Plan that are to be discharged by this document, are presented in full in Table 1.

Table 1 - Consent conditions to be discharged by the OEMP

Consent Document	Condition Reference	Condition Text	Where Addressed
S.36 Consent	Condition 17	No later than three months prior to the Commencement of the Development, an Offshore Environmental Management Plan[2] (OEMP) must be submitted to, and approved by, the Scottish Ministers in consultation with SNH and any other ecological, or such other advisors as required at the discretion of the Scottish Ministers.	This document sets out the OEMP for approval by the Scottish Ministers. Consultation to be undertaken by Scottish Ministers.
		The OEMP must detail the measures through all the phases of the wind farm (before, during and after the construction work) to prevent adverse impacts to:	
		marine mammals,	Section 8 of this OEMP
		birds,	Section 8 of this OEMP
		fish,	Section 8 of this OEMP
		migratory fish including European eels	Section 8 of this OEMP
		habitats,	Section 8 of this OEMP
		coastal processes,	Section 9 of this OEMP
		and other users and uses of the area	Section 10 of this OEMP
		and must include species protection plans where appropriate and necessary.	Section 12 of this OEMP
		Where appropriate and reasonable, the OEMP must take account of, and implement recommendations from, the Construction Noise Management Plan, the Design Statement, the Cable Laying Strategy, the Blackdog Firing Range Management Plan, the Construction	Section 2.2 of this OEMP

[2] 'Environmental Management Plan' replaces the S.36 Consent requirement for a 'Project Environmental Monitoring Programme' under Condition 17 as agreed by Marine Scotland in a letter dated 3rd March 2017.

Consent Document	Condition Reference	Condition Text	Where Addressed
		Method Statement, the Research and Monitoring Programme, the Vessel Management Plan and the Navigational Safety Plan and from the Company's Environmental Statement and Supplementary Environmental Information Statement.	
	Reason	To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.	
Marine Licence	3.1.7	The Licensee must ensure that the risk of transferring non-native species to and from the Site is kept to a minimum by ensuring that all appropriate bio-fouling management practices are implemented during the Works.	Section 8.3.1

1.3 Linkages with other Consent Plans

This OEMP sets out the proposed environmental management measures for the EOWDC and also incorporates matters relating to environmental monitoring. Ultimately, however, it will form part of a suite of approved documents that will provide the framework for the Development – namely the other Consent Plans required under the S. 36 Consent and Marine Licence.

Indeed, Condition 17 of the S.36 Consent (see Table 1 above) requires this OEMP to be, so far as is reasonably practicable, consistent with a number of other consent plans listed in Table 2 below (namely in the order listed in the consent condition).

Table 2 - Consent Plans

Consent Plan	Section 36 Condition requirement
The Construction Noise Management Plan (CNMP) (EOWDC Document Reference: ABE-ENV-DC-0005)	Condition 18
The Design Statement (DS) (EOWDC Document Reference: ABE-ENV-BD-0017)	Condition 14
The Cable Laying Strategy (CLS) (EOWDC Document Reference: ABE-ENV-DC-0005)	Condition 25
The Blackdog Firing Range Management Plan (BFRMP) (EOWDC Document Reference: ABE-ENV-DB-0013)	Condition 10
The Construction Method Statement (CMS) (EOWDC Document Reference: ABE-ENV-DB-0014)	Condition 13
The Research and Monitoring Programme	Condition
The Vessel Management Plan (VMP) (EOWDC Document Reference: ABE-ENV-BD-0006)	Condition 24
The Navigational Safety Plan (NSP) (EOWDC Document Reference: ABE-ENV-QB-0008)	Condition 26

Those plans named under Condition 17 clearly have a link to the OEMP in so far as they provide additional details on matters relating to environmental management (e.g. noise management (i.e. the CNMP), construction methods (i.e. the CMS and the CLS)), management of potential impacts on other marine users (i.e. the VMP, NSP and BFRMP) or relate to environmental monitoring (i.e. the Environmental Monitoring Programme).

The documents listed above will be submitted for approval by the Scottish Ministers and consistency between these documents will be achieved by ensuring that all relevant documents are consistent with the terms of any previously submitted or approved documents.

1.4 Associated Conditions

Information pertaining to Condition 15 is also provided in this OEMP as requested by Marine Scotland in an email clarification note dated 3rd March 2017. The location of the information related to requirements of the Condition within this OEMP is presented in Table 3.

Table 3 - Information pertaining to Condition 15

Consent Document	Condition Reference	Condition Text	Where Addressed
S.36 Consent	Condition 15	Within six months of the date of the granting of the Section 36 consent, an expert panel must be established by Scottish Ministers to provide scientific advice to them on a research and monitoring programme to inform, where appropriate and as timescales allow, the Project Environmental Management Programme. Membership, funding, the terms of reference and the functions of the panel are to be agreed by Scottish Ministers in consultation with any such advisors at the discretion of the Scottish Ministers.	Expert panel established within six months of S.36 Consent.
		The programme must survey and monitor the impact of the Development on important species, habitats, and users of the sea within Aberdeen Bay all as agreed by the Scientific Panel. The programme must also monitor the habitats around, and the communities that develop on, the submerged structures. The monitoring programme must be subject to input from the expert panel, to consultation with agreed consultees and subject to agreed review periods. The programme must ensure that the monitoring is robust and covers pre, during and post construction aspects and must be agreed, so far as is possible, prior to the Commencement of Development. The subjects to be included for monitoring, but not exclusively, are:	Section 13 of this OEMP
		(a) Agreed methods to consider any changes to species, densities and behavioural patterns	Section 13 of this OEMP

Consent Document	Condition Reference	Condition Text	Where Addressed
		during all phases of the wind farm;	
		(b) Agreed measures to detect bird collisions e.g. blade sensors, targeted radar studies, thermal detection systems etc.	Section 13 of this OEMP
		(c) Gathering field measurements of under water and air borne noise during piling and operation of the turbines at the Development;	Section 13 of this OEMP
		(d) Operational under water and air borne noise emissions for an initial period of twelve months from the date of the Commencement of the Development and then for such further periods when considered necessary by the expert panel based upon the results received and as agreed by Scottish Ministers in consultation with advisors as identified at their discretion.	Section 13 of this OEMP and CNMP
		(e) Deployment of Passive Acoustic Monitoring systems to record vocalisation of marine mammals before, during and after construction of the Development;	Section 13 of this OEMP
		(f) The agreement of a Marine Mammal Protection Plan (MMPP);	Section 14 of this OEMP
		(g) Impacts on the adjacent coastline and on other users and uses of the sea; and	Section 13 of this OEMP
		(h) Migration and behaviour of European eel, salmon and sea trout due to electro-magnetic fields.	Section 13 of this OEMP
		The research and monitoring programme information and outputs must be reported annually to the Scottish Ministers who may consult with any advisors at their discretion before providing their written approval of said programme information and outputs. Subject to any legal restrictions regarding the treatment of the information, the results shall be made publicly available by the Scottish Ministers, or by such other party appointed at their discretion.	Section 13 of this OEMP
		Reason: To ensure that the best available evidence and most appropriate scientific and technical information is used to inform and develop a monitoring programme to allow evaluation of any impacts before, during and after the construction of the Development.	

1.5 Structure of this OEMP

In response to the specific requirements of the S.36 Consent conditions, this OEMP has been structured so as to be clear that each part of the specific requirements have been met and that the relevant information to allow the Scottish ministers to approve the OEMP has been provided. The document structure is set out in Table 4.

Table 4 - OEMP document structure

Section		Summary of Content
1	Introduction	Background to consent requirements and overview of the OEMP scope and structure, and identifies those other Consent Plans relevant to the OEMP and provides a statement of consistency between this OEMP and those plans.
2	Statements of Compliance	Sets out the AOWFL statements of compliance in relation to the OEMP Consent Condition and the broader construction process.
3	Updates and amendments to this OEMP	Sets out the procedures for any required updating to or amending of the approved OEMP and subsequent further approval by the Scottish Ministers.
4	Development Overview	Provides an overview of the Development.
5	Draft EMP	A summary of the commitments made in the Draft EMP submitted as part of the Application and where the information is provided.
6	Environmental Management Framework	Describes the environmental management framework for the Development. It provides information on the implementation and communication of the OEMP.
7	Waste Management Plan	Sets out the waste management framework to be adopted and implemented throughout the construction phase and operational life of the Development.
8	Environmental Management and Mitigation of Effects on Marine Animals	Sets out the management and mitigation measures relating to marine animals.
9	Environmental Management and Mitigation of Effects on Coastal Processes	Sets out the management and mitigation measures relating to coastal processes.
10	Environmental Management and Mitigation of Effects on Other Users	Sets out the management and mitigation measures relating to other users.
11	Environmental Management and Mitigation of Effects on Marine Archaeology	Sets out the management and mitigation measures relating to marine archaeology.
12	Species Protection Plans	Provides information on species protection plans.
13	Environmental Monitoring Programme	Sets out the proposed environmental monitoring and by reference to the Monitoring Programme.
14	Marine Mammal Protection Plan	Provides the framework for the protection of marine mammals during the construction and operation of the Development.
15	Compliance with the Application and Associated Addendum	Sets out confirmation that the details set out in this OEMP are in accordance with those assessed in the ES; and

Section		Summary of Content
		Sets out how the mitigation measures related to construction and operation identified in the ES are to be delivered (by reference to this OEMP or other relevant Consent Plans).
16	References	Lists the documents cited within the Plan.
Appendix A – OEMP Legislation Register		Details the legislation relevant to the OEMP.
Appendix B – Waste Management Plan		Sets out the waste management framework to be adopted and implemented throughout the construction phase and operational life of the Development.
Appendix C - ECoW Monthly Compliance Report Proposed Template		Provides the proposed Monthly ECoW Reporting Template.
Appendix D – Incident Reporting Template		Provides a template for reporting during an incident.
Appendix F – Offshore Wind & Marine Renewables Dropped Objects Form		Provides the MS Offshore Wind & Marine Renewables Dropped Objects Form.
Appendix E – Compliance with ES Rochdale Envelope Parameters		Demonstrates compliance with the original Application and mitigation set out in the ES and SEIS.

2 AOWFL STATEMENTS OF COMPLIANCE

2.1 Introduction

The following statements are intended to reaffirm the AOWFL commitment to ensuring that the Development is constructed and operated in such a manner as to meet the relevant requirements set out by the Offshore Consents, as well as other broader legislative requirements.

2.2 Statements of Compliance

AOWFL, in undertaking the construction and operation of the EOWDC, will ensure compliance with this OEMP as approved by the Scottish Ministers (and as updated or amended from time to time following the procedure set out in Section 3 of this OEMP).

AOWFL, in undertaking the construction and operation of the EOWDC, will ensure compliance with other relevant Consent Plans, as approved by the Scottish Ministers, and as identified in Section 1.3 above.

AOWFL, in undertaking the construction and operation of the EOWDC, will ensure compliance with the limits defined by the original application, the project description defined in the Environmental Statement (ES) and Supplementary Environmental Information Statement (SEIS) and referred to in Annex 1 of the S.36 Consent in so far as they apply to this OEMP (unless otherwise approved in advance by the Scottish Ministers / the Licensing Authority).

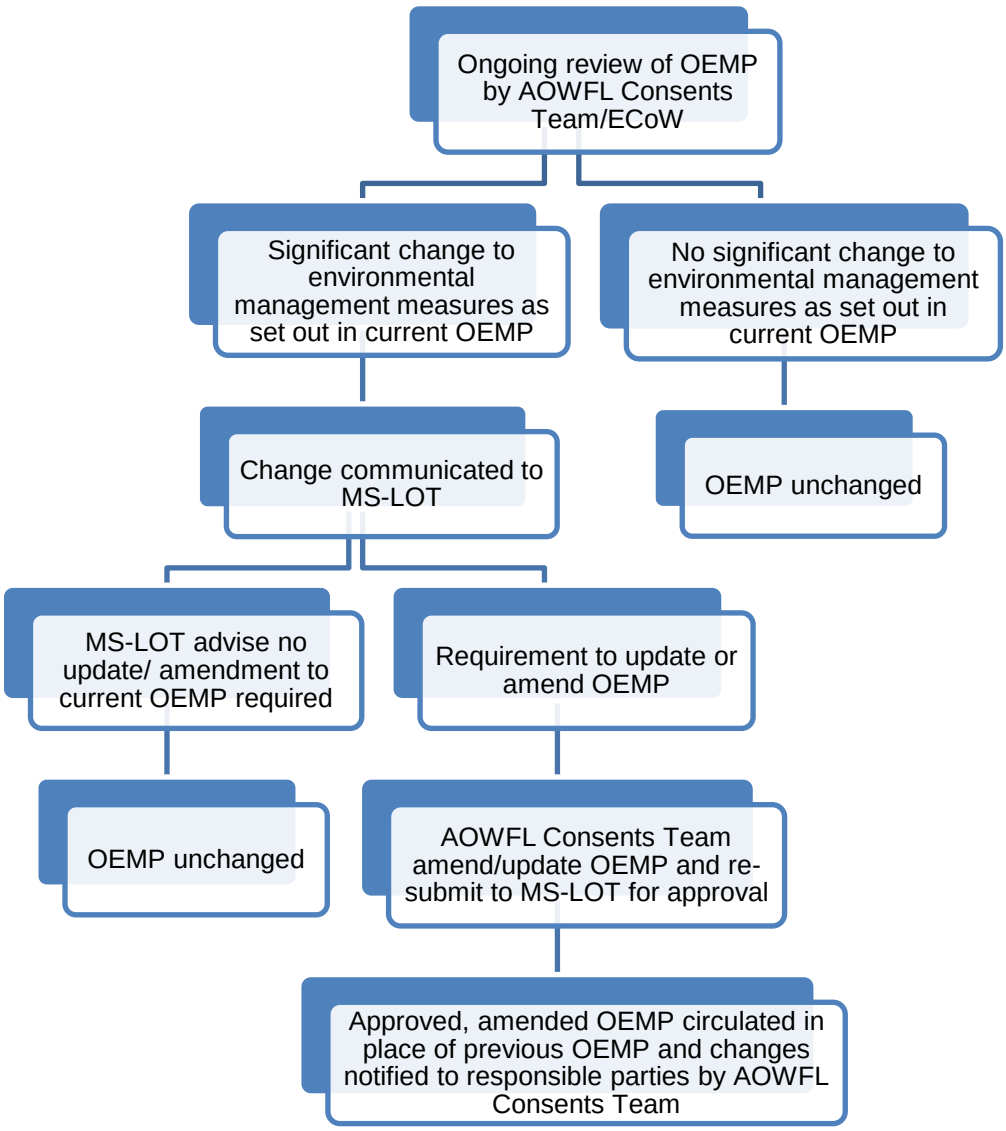
AOWFL, in undertaking the construction and operation of the EOWDC, will comply with AOWFL Health, Safety and Security and Environment (HSSE) systems and standards, the relevant HSSE legislation and such other relevant legislation and guidance so as to protect the safety of construction and operational personnel and other third parties.

AOWFL will, in undertaking the construction and operation of the EOWDC, ensure compliance with all other relevant legislation and require that all necessary licences and permissions are obtained by the Contractors and Subcontractors through condition of contract and by an appropriate auditing process. A register of legislation relevant to on site environmental management and this OEMP is presented in Appendix A.

3 UPDATES AND AMENDMENTS TO THIS OEMP

Where it is necessary to update this OEMP, in the light of any significant new information related to the environmental management measures, AOWFL proposes to use the change management process set out in Figure 2; identifying such information, communicating such change to the Scottish Ministers, redrafting the OEMP if required, seeking further approval for the necessary amendments or updates and disseminating the approved changes/amendments to responsible parties.

Figure 2 OEMP Change Management Procedure



4 DEVELOPMENT OVERVIEW

4.1 Introduction

This section provides a brief overview of the EOWDC relevant to this OEMP and Figure 1 shows the location of the EOWDC in Aberdeen Bay.

4.2 Development Overview

The Development will consist of the following main components:

- 11 Wind Turbine Generators (WTGs);
- Three-legged jacket substructures each installed on suction bucket foundations;
- A network of circa 9.7 km of Inter-array cables; and
- Two buried or mechanically protected, subsea OECs, totalling up to ~8 km in length, to transmit the electricity from the Wind Turbine Generators (WTGs) to thecable landfall location[3] at Blackdog, within Aberdeen Bay, and connecting to the onshore cables for transmission to the onshore substation and connection to the National Grid network.

Further details of the Development layout and design will be set out, for approval, in the Design Statement (EOWDC Document Reference: ABE-ENV-BD-0017).

5 THE DRAFT EMP COMMITTMENTS

A Draft Environmental Management Plan was submitted as part of the Application for consents which made a number of commitments relating to environmental management measures which are therefore also included within this OEMP. Table 5 sets out the commitments made in the draft Environmental Management Plan (EMP) and how these have been carried through to the final environmental management framework (either in this OEMP or other relevant consent plans).

Table 5 - Draft EMP commitments and implementation

Draft EMP Commitment	Implementation
Monitoring Protocol (as per statutory consents)	Section 13 of this OEMP.
Incident Reporting and Non Conformance Procedure	Section 6.8 and Section 6.4 and Appendix C (non-compliance) of this OEMP respectively.
Emergency Response Plan	An Emergency Response Plan (ABE-HSS-QB-0004) has been produced by AOWFL. An Emergency Response Cooperation Plan (ERCoP) (ABE-HSS-QB-0045) has been prepared by AOWFL as a standalone document in consultation with the Maritime and Coastguard Agency (MCA).
Collision Risk Management Plan	Collision risk management is outlined in Section 5 of the Navigational Safety Plan (NSP) (ABE-ENV-QB-0008).
Marine Pollution Contingency Plan	The Marine Pollution Contingency Plan (ABE-ENV-DB-0004) has been submitted to Marine Scotland as a standalone document.
Dropped Objects and Materials Recovery Plan	Section 6.9 of this OEMP.
Archaeology Plan	An Archaeology Plan has been drafted as a standalone document. A summary is provided in Section 11.
Noise, Dust and Vibration Management Plan	A Construction Noise Management Plan (CNMP) (ABE-ENV-DC-0005) has been submitted to MS for approval for offshore works. Sections 3.4 and 3.6 of the Construction Environmental Management Plan (ABE-JMS-0017) submitted to Aberdeenshire Council provide information relating to the management of dust, noise and vibration onshore.
Waste Management Plan	Section 7 and Appendix B of this OEMP.

6 ENVIRONMENTAL MANAGEMENT FRAMEWORK

6.1 Introduction

This sections sets out the environmental management framework for the EOWDC, under the following areas:

- Vattenfall environmental policy;
- AOWFL HSSE objectives and management;
- OEMP roles & responsibilities;
- OEMP staff competency and training;
- OEMP communications and reporting;
- Emergency Response Plan;
- Environmental incident reporting;
- Notification of Dropped Objects;
- Auditing of OEMP performance; and
- OEMP document circulation and management.

Note that the environmental management framework links with the construction methods and commitments made in the CMS and CLS.

6.2 Vattenfall Environmental Policy

AOWFL is a company wholly owned by Vattenfall. Vattenfall is committed to the prevention of injury, ill health and pollution associated with its activities, while reducing its long-term environmental burden. Vattenfall is committed to the continual improvement of HSSE management and performance, and will comply with legal obligations as a minimum. The Vattenfall Environment Policy is outlined below.

An important part of Vattenfall's vision is to be among the leaders in developing environmentally sustainable production, supply, and distribution of energy. Therefore:

- *We strive to be amongst the best in class for each energy source we use and for each type of technology we implement, as well as along the value chain. Our ambition is to be a role model where we are active.*
- *Our investment projects are based on sound assessments, with a balance between environmental and economic impact. From this we do our outmost to choose modern, efficient and environmentally effective technologies and solutions for the investments.*
- *We have set ourselves a target to increase our use of low-emitting energy sources and technologies, such as low carbon dioxide technologies.*
- *We invest in research and development to improve the environmental performance in our operations, to increase the competitiveness of our renewable and low-emitting energy sources and to reduce emissions from all our power plants.*

- *We have a systematic approach towards environmental aspects and risks. This includes making continuous improvements, setting requirements and targets as well as performing reviews. We handle this as an integral part of our management system and have regular strategic discussions within our top management.*
- *We specify and assess environmental performance when selecting suppliers, contractors and business partners.*
- *We engage customers and promote efficient use of energy as a means to reduce environmental impact.*
- *We strive to constantly improve our internal energy efficiency and resource efficiency.*
- *Safety, performance and co-operation are fundamental in our operation.*

Our environmental performance is a foundation for a sound business development and for improving our competitive position. We comply with existing laws, regulations and permits. By continuous improvements our ambition is to be in the lead in our sector and set a good example in the markets where we are active. Within our sphere of activity, we focus on environmental protection, pollution prevention and human health.

Our actions are characterised by respect for the cultures of the regions in which we operate.

We are committed to maintain an open dialogue concerning the environmental aspects of our management, operations, and products.

We endeavour to provide energy solutions that enable a sustainable development of the society.

6.3 AOWFL HSSE Objectives and Management

The following HSSE objectives have been established for all phases of the EOWDC:

- Zero harm to people;
- Zero harm to the environment
- Zero breaches of permit compliance;
- Zero regulatory formal warnings;
- Zero enforcement notices; and
- Zero prosecutions.

6.3.1 HSSE Management Plan

AOWFL has in place a Project-specific HSSE Plan to ensure a systematic and thorough approach to HSSE management is adopted by everyone involved in the Project. The plan describes how HSSE standards, policies, procedures and practices shall be applied to ensure that work is carried out safely, sustainably and in line with Vattenfall requirements. The Plan has been developed to outline the HSSE management arrangements required for an Engineering Procurement Construction Installation contract.

The AOWFL HSSE Plan sets out the minimum HSSE standards that must be adhered to by all AOWFL personnel, Contractors and Subcontractors engaged on the project.

As a requirement of this Plan, the following 15 Vattenfall management standards will be adopted and represent the minimum standards to be achieved:

- Safety Health & Environmental Organisational Standard;
- Plant and Process Information Standard;
- Safety, Health & Environment Risk Management Standard;
- Operation & Maintenance Standard;
- Safe Systems of Work Management Standard;
- Management of Plant and Process Change Standard;
- Management of Organisational Change Standard;
- Personnel Training and Performance Standard;
- Contractor Safety & Performance Standard;
- Incident Management Reporting and Investigation Standard;
- Emergency Planning & Response Standard;
- Asset Integrity Standard;
- Human Factors Standard;
- Audit Standard; and
- Management Review Standard.

AOWFL approaches the management of technical risk by adoption of the As Low As Reasonably Practicable (ALARP) Design Procedure (ADP) which has been developed to apply the principles and process defined within the Vattenfall safety, health and environment risk management standard. This is applied to the lifecycle of the EOWDC.

The application of the ADP to the design of the EOWDC will provide the necessary input to the production of a Safety Case for the development. The Safety Case will provide an effective argument with referenced substantiation that the EOWDC is safe to construct, commission, operate, maintain, and decommission in terms of the management of associated Significant Accident Hazard risks to levels that are ALARP.

The application of this ADP to the design of the EOWDC addresses duties relating to design under The Health and Safety at Work etc. Act 1974 and the Construction (Design and Management) Regulations 2015.

The overall objective of this procedure is to provide sufficient information and guidance on the process, activities, and documentation required to effectively and demonstrably manage the Significant Accident Hazard risks associated with the design of the EOWDC to a level that is ALARP.

6.3.2 Employers HSSE Requirements

AOWFL has developed HSSE Employer's Requirements to ensure a systematic and thorough approach to safety and health management is adopted by each Contractor and Subcontractor involved in the Project. These Requirements outline what AOWFL's expectations towards its contractors with regards to ensuring and demonstrating compliance with statutory requirements and good practice.

The HSSE Employer's Requirements cover all contracts placed by AOWFL or placed on its behalf; therefore, Contractors are expected to communicate these to any appointed Subcontractor. Contractors are expected to describe how high standards, policies and effective procedures are applied to ensure that the work is carried out safely and with minimum detriment to safety, security, health and the environment in documentary form, including but not limited to the following:

- Construction Phase Health, Safety and Environment Plan (CPHSP) (ABE-HSS-QB-0043);
- Operation and Maintenance Programme (OMP) (ABE-ENV-BD-0016); and
- Emergency Response Cooperation Plan (ERCoP) (ABE-HSS-QB-0045).

AOWFL will monitor the effectiveness of the Contractors arrangements through worksite safety inspections and management system audits detailed in the HSSE Plan.

6.4 OEMP Roles & Responsibilities

This section sets out the roles and responsibilities of all relevant Project personnel during the construction and operational phases of the Development, in relation to the delivery of this OEMP.

The AOWFL consents requires the appointment of a specialist environmental role to oversee the construction of the Development, the Ecological Clerk of Works (ECoW). The ECoW role is central to the implementation of the OEMP and is further described below. It should be noted that the ECoW role may be undertaken by the Consents Manager if approved in discussion with Marine Scotland.

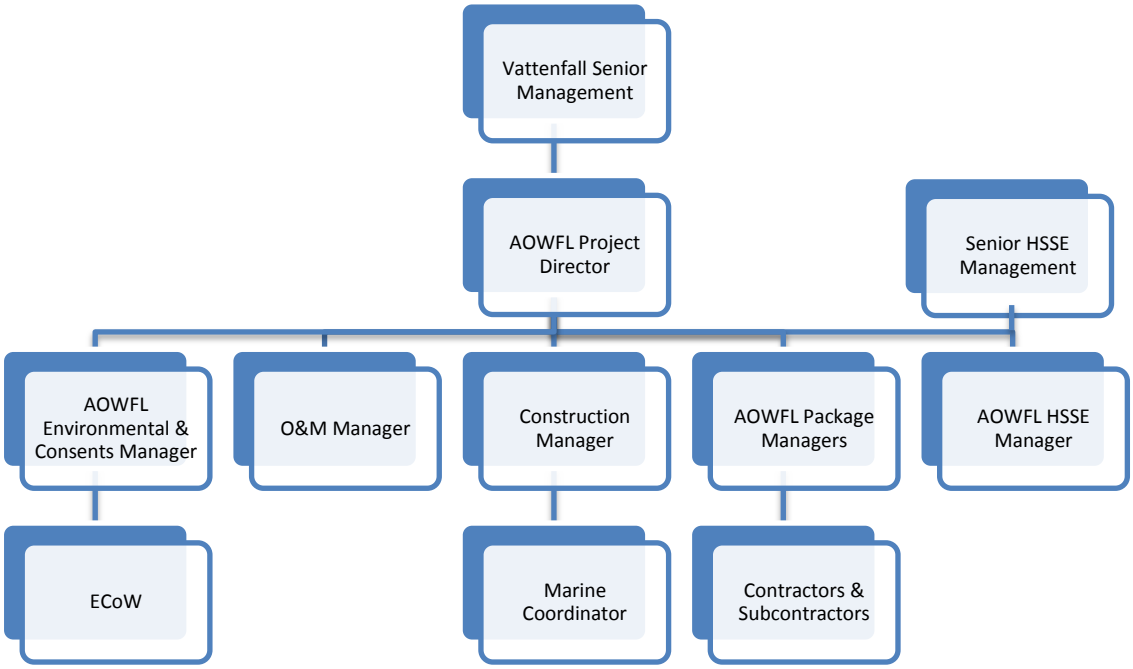
All Project personnel have a responsibility to comply with the requirements of the OEMP, however the key roles relevant to the delivery and implementation of the OEMP are:

- AOWFL Project Director;
- AOWFL HSSE Manager;
- AOWFL Package Managers;
- AOWFL Consents Manager;
- The ECoW;
- Marine Coordinator;
- O&M Manager;
- Construction Manager;

- Contractors; and
- Subcontractors.

These roles are further described in the sections below. Figure 3 shows the linkages between the different roles and teams with respect to delivery of the OEMP.

Figure 3 OEMP Lines of communication



6.4.1 AOWFL Project Director

Reports to Vattenfall Senior Management.

The AOWFL Project Director has the following responsibilities in relation to the OEMP:

- Responsible for ensuring that sufficient resources and processes are in place to deliver/comply with the OEMP and to manage potential environmental impacts;
- Ensuring that provision is made for environmental management issues to form part of construction and operation progress meetings and Project inductions;
- Ensuring that all personnel and Contractors assist and support the ECoW/ Consents Manager where required, for example during on-site audits;
- Ensuring that any corrective actions arising from environmental audits are addressed;
- Establishing contractual obligations for Contractors in relation to OEMP;
- Reporting to Vattenfall Senior Management via the Vattenfall Business Area Wind Project Steering Group; and
- Addressing Contractor and Subcontractor non-compliance.

6.4.2 AOWFL HSSE Manager

Reports to the AOWFL Project Director and Vattenfall Senior HSSE Management.

The AOWFL HSSE Manager is responsible for providing support, advice and guidance on all aspects of Health, Safety, Security & Environmental management on the Project. Key responsibilities relevant to the OEMP include the following:

- Coordinating the development, monitoring and implementation of AOWFL HSSE management plans, which will be implemented alongside the OEMP;
- Providing HSSE support, advice and guidance to the AOWFL Project team;
- Coaching of the Project team to facilitate improvements in HSSE performance;
- Reporting to Vattenfall Senior HSSE Management; and
- HSSE auditing and reporting.

6.4.3 AOWFL Package Managers

Report to AOWFL Project Director.

The Package Managers lead and manage the delivery of engineering work packages covering testing and commissioning.

The Package Managers have the following responsibilities in relation to the OEMP:

- Ensuring that sufficient resources and processes are in place across their work package to deliver/comply with the OEMP;
- Ensuring that provision is made for environmental management issues to form part of construction progress meetings and Project inductions;
- Ensuring that all construction personnel and Contractors assist and support the ECoW/ Consents Manager where required, for example during on-site audits;
- Ensuring that any corrective actions arising from environmental audits are addressed;
- Establishing contractual obligations for Contractors and Subcontractors in relation to the OEMP;
- Reporting to the AOWFL Project Director; and
- Addressing Contractor and Subcontractor non-compliance.

6.4.4 AOWFL Consents Manager

Reports to: AOWFL Project Director

Ensuring ongoing compliance with the OEMP is ultimately the responsibility of the AOWFL Consents Manager, supported by the ECoW (if proceed as separate roles). The ECoW will

have primary responsibility for reporting to MS-LOT (Marine Scotland Licencing and Operations Team) within the remit set out by the relevant consent condition.

The AOWFL Consents Manager will be responsible for all other reporting, returns and notifications to MS-LOT and relevant stakeholders as required by the Development consents.

Responsibilities for the AOWFL Consents Manager in relation to the OEMP are as follows:

- Primary contact for MS-LOT, statutory bodies and stakeholders (excluding the responsibilities taken by the ECoW);
- Managing ECoW reporting on compliance with consent conditions to the Licensing Authority;
- Managing the process of obtaining new consents where necessary or monitoring consent applications made by Contractors;
- Attendance at Project meetings, providing consents input;
- Reviewing contractor documentation (e.g., Method Statements and Risk Assessments, EMPs) to ensure compliance with the AOWFL OEMP and associated Appendices;
- Reporting to the AOWFL Project Director;

If the ECoW role is undertaken by the AOWFL Consents Manager, all responsibilities listed below under the ECoW will also be undertaken by the Consents Manager.

6.4.5 ECoW

Reports to: AOWFL Consents Manager

AOWFL is required by Marine Licence Condition 3.2.1.4 to ensure that a suitably qualified and experienced ECoW is appointed prior to the Commencement of Works primarily, but not exclusively, for environmental liaison to establish and maintain effective communications between AOWFL, Contractors, stakeholders, conservation groups and other users of the sea. Prior to the Commencement of the Works AOWFL will notify the Licensing Authority in writing of the identity, contact details and qualifications of the appointed Ecological Clerk(s) of Works.

The ECoW is responsible for ensuring that the OEMP complies with the S.36 Consent and Marine Licence conditions, approved plans and programmes and any commitments made in the ES and SEIS.

In addition to the OEMP, the ECoW will advise AOWFL on compliance with the wider Consent Plans and programmes as required by the S.36 and Marine Licence consents and will monitor compliance with these plans throughout the construction phase.

The ECoW will work closely with the Contractors and their Subcontractors and will alert the AOWFL Consents Manager and MS-LOT of any environmental issues arising. The ECoW will also establish and maintain effective communications between the AOWFL, Contractors, stakeholders, conservation groups and other users of the sea.

General responsibilities for the ECoW may include, but are not limited to, the following:

- Assisting AOWFL in reporting on compliance and environmental issues to MS-LOT;
- Review and Quality Assurance of the OEMP (and all Consents Plans and Programmes);
- Provision of advice to AOWFL on compliance with consent conditions;
- Monitoring of compliance with the OEMP (and other relevant Consent Plans);
- Attendance at Project meetings, providing environmental input;
- Direct liaison with MS-LOT, statutory bodies and stakeholders as required;
- Reviewing contractor documentation (e.g., Method Statements and Risk Assessments, EMPs) to ensure compliance with the AOWFL OEMP and associated Appendices; and
- Reporting to the AOWFL Consents Manager.

Construction-specific responsibilities may include, but are not limited to:

- Attendance at daily/weekly/monthly Project meetings as required;
- Inducting site personnel on the site/works environmental policy and procedures;
- Carrying out on-site environmental audits to monitor compliance with the requirements of the relevant offshore consent(s) and the AOWFL OEMP;
- Authority to halt or suggest modifications to activities that would lead to non-compliance – provided that there are no overriding health and safety reasons for continuing with the activity and to be discussed with the AOWFL Consents Manager and authorised by the AOWFL Project Director;
- Being part of any emergency response team dealing with any environmental incidents; and
- In the event of an archaeological discovery, liaison with the Archaeological Consultant to provide them with the details of the reported discovery.

The responsibilities listed above align with the guidance on the ECoW role provided by MS-LOT.

It should be noted that the ECoW role may be undertaken by the AOWFL Consents Manager if approved in discussion with Marine Scotland. As a result, whilst this section has described the responsibilities assuming that different individuals will undertake the roles, the responsibilities of the ECoW with regards to environmental management are referred to throughout this OEMP as the ECoW/Consents Manager.

6.4.6 Construction Manager

Reports to AOWFL Project Director

The Construction Manager has the following responsibilities in relation to the OEMP:

- Ensuring Vattenfall best practice is implemented throughout the construction phase;
- Co-ordinate and manage the construction phase to ensure the health and safety of everybody carrying out construction work, or anyone who may be affected by the work;
- Ensure all workers have site inductions and any further information, instruction, training, and supervision needed for the work;
- Explain applicable HSSE work practices to all employees under his/her direct supervision and verify that each employee understands the rules and regulations; and
- Consistently enforce Project HSSE rules and regulations.

6.4.7 Marine Coordinator

Reports to: Construction Manager

The AOWFL Marine Coordinator has the following responsibilities in relation to the OEMP:

- Responsible for external communications relating to navigational safety;
- Engaging in emergency response activities; and
- Ensuring that HSSE issues are reported, as required.

6.4.8 O&M Manager

Reports to AOWFL Project Director

The O&M Manager has the following responsibilities in relation to the OEMP:

- Ensure safe working conditions in respect of the access and egress of the WTGs during operational phase;
- Ensure HSSE compliance for all O&M activities; and
- Establish systems to ensure compliance with this OEMP and relevant Consent Plans during the Operational phase.

6.4.9 Contractors

Report to: AOWFL Package Managers

All Contractors shall ensure that their own procedures encompass and fully discharge the mitigation and management measures and commitments presented in this OEMP. This

OEMP forms the framework and the minimum standards for all construction and operational personnel and Contractors to comply with.

Adherence to this OEMP will be a contractual requirement and contractors will be required to develop their own task-specific method statements and EMPs in accordance with the AOWFL EMP. These will be audited by AOWFL.

The Contractors have the following responsibilities in relation to the OEMP:

- Ensuring that sufficient resources and processes are in place to deliver/comply with the AOWFL OEMP and manage potential environmental impacts;
- Reporting to the AOWFL management team;
- Implementing and discharging the required mitigation (control) measures on behalf of AOWFL;
- Developing a contractor-specific OEMP, using this overarching OEMP and associated Appendices as guidance, for AOWFL review and comment;
- Complying with the requirements of the AOWFL overarching OEMP as a minimum standard and look to include additional mitigation measures where appropriate;
- Ensuring that the AOWFL OEMP is implemented by reviewing task specific Method Statements and Risk Assessments to ensure consistency and compliance with the overarching AOWFL OEMP;
- Ensuring that Subcontractors adhere to the requirements of the overarching AOWFL OEMP, and the Contractor OEMP and Method Statements;
- Producing and maintaining records of activity on site and communicating those to the ECoW/ Consents Manager to enable reporting of compliance to MS-LOT; and
- Liaising with the EOWDC ECoW/ Consents Manager.

6.4.10 Subcontractors

Report to: AOWFL Package Managers and Contractors

Subcontractors (i.e., Subcontractors to the Contractors) have the following responsibilities in relation to the OEMP:

- Implementing and discharging the required mitigation (control) and management measures on behalf of AOWFL and Contractors;
- Developing a Subcontractor-specific OEMP, using this overarching OEMP as guidance, for Contractor review and comment;
- Comply with the requirements of the AOWFL overarching OEMP and associated Appendices as a minimum standard and look to include

additional mitigation measures where appropriate;

- Ensure that the AOWFL OEMP is implemented by reviewing task specific Method Statements and Risk Assessments to ensure consistency and compliance with the overarching AOWFL OEMP;
- Producing and maintaining records of activity on site and communicating those to the ECoW/ Consents Manager to enable reporting of compliance to MS-LOT;
- Liaising with the AOWFL ECoW/ Consents Manager; and
- Reporting to the Contractors and AOWFL Package Managers.

6.5 OEMP – Staff Competence, Training and Awareness

AOWFL is responsible for ensuring that AOWFL personnel and all contractors appointed by AOWFL are competent. All Vattenfall employees must have undertaken a structured HSSE training programme. AOWFL has a documented process in place to manage the selection and ongoing performance of its contractors to ensure that the HSSE risks associated with the contractors' activities are managed effectively.

AOWFL will require that the Contractors have appropriate environmental management procedures in place and the Contractors will be responsible for ensuring that these procedures are adopted by their Subcontractors. AOWFL will evaluate contractor documents in relation to demonstration of HSSE competence and compliance with consents and environmental requirements.

The ECoW/ Consents Manager will review relevant construction contractor documentation (e.g., Method Statements and Risk Assessments; contractor specific EMPs) to ensure compliance with the overarching AOWFL OEMP. The ECoW/ Consents Manager will advise AOWFL of the outcome of this review.

AOWFL will undertake ongoing audit and inspection of contractor's work to check compliance with HSSE requirements. The ECoW/ Consents Manager will monitor audits and inspections to ensure compliance with consent conditions.

Training and awareness specific to this OEMP will be delivered using the following tools:

- Inductions;
- Toolbox Talks; and
- Awareness materials.

The ECoW/ Consents Manager will work with AOWFL to ensure that a dedicated section is included within wider contractor Project inductions to cover environment and consents issues, highlighting the key environmental sensitivities and considerations and including the purposes, requirements and procedures of the relevant Consents Plans. All AOWFL construction personnel and contractors will receive a Project induction.

Toolbox talks will be designed to convey key points to contractors in a clear and concise manner. For example, a toolbox talk on pollution prevention measures would cover key roles and responsibilities, environmental sensitivities in the vicinity of the Development and procedures to follow in the event of any spill. Toolbox talks will also be scheduled for specific issues, during key construction phases, such as marine mammals and mitigation requirements. During toolbox talks, the relevant section of the Scottish Marine Wildlife Watching Code, depending on whether the works are to be undertaken on the coast or at sea, will be outlined.

Training would take place regularly throughout the construction phase, in order that Project personnel (including any new personnel) are kept up to date with any changes to requirements or procedures.

Records of training will be maintained. The records will include the content of the training delivered, record of attendance and schedule of review.

A summary of the training provided prior to and during the construction phase will be included in the ECoW Compliance Reports submitted to MS-LOT/Licensing Authority.

6.6 OEMP Communications and Reporting

6.6.1 Internal Communications

Figure 3 in Section 6.4 above illustrates the lines of communication between the key roles in relation to the implementation of the OEMP. It indicates the following:

- The ECoW/ Consents Manager plays a central role in the delivery of the OEMP and ongoing monitoring of compliance, alongside the AOWFL HSSE function. In fulfilling this role, the ECoW/ Consents Manager can establish direct contact with the AOWFL management team, has direct contact with Contractors, Subcontractors and the Archaeological Consultant when required, and will work closely with the AOWFL Project Team on a day to day basis;
- The ECoW/ Consents Manager will support AOWFL in reporting to MS-LOT on compliance with the OEMP;
- The AOWFL Consents Manager/ ECoW will liaise with MS-LOT and other stakeholders on environmental management matters; and
- The AOWFL Consents Manager will maintain direct contact with and report on OEMP compliance and environmental management issues to the AOWFL Project Director.

During construction, weekly (or as required) progress meetings (generally via conference call) will take place involving the AOWFL management team, contractors' representatives, the AOWFL Consents Manager and the ECoW (if applicable). The agenda for construction progress meetings will include a section on consents compliance and environmental management, to be presented by the AOWFL Consents Manager/ ECoW.

Contractors will be required to report regularly to AOWFL on construction activity. Contractor reporting will include information on environmental management, such as details of environmental incidents (if any), environmental statistics, and records of any environmental audits and inspections undertaken and such other information as may be required for the AOWFL to complete their reporting responsibilities. This information will inform external reporting to MS-LOT.

All construction personnel and contractors will be required to report any environmental concerns or issues to the AOWFL Consents Manager/ ECoW immediately. See Section 6.8 below for incident reporting.

6.6.2 External Communications

The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, the Joint Nature Conservation Committee (JNCC), Scottish Natural Heritage (SNH), Scottish Environmental Protection Agency (SEPA), Royal Society for the Protection of Birds (RSPB) Scotland, The Maritime and Coastguard Agency (MCA), Whale and Dolphin Conservation (WDC) and Northern Lighthouse Board (NLB)) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed will be completed according to the means set out in Table 6 below.

Table 6 - OEMP reporting mechanisms and frequencies

Communication type	Proposed frequency	Relevant stakeholders
ECoW compliance reporting on construction progress and issues (including the results of any audits conducted).	Monthly	MS-LOT (to be copied to JNCC and SNH and other relevant stakeholders by email circular)
AOWFL Consents Manager/ ECoW telephone conferences and meetings	As required (propose regular)	MS-LOT
AOWFL Consents Manager updates	As required	Key stakeholders
Incident reporting	As required	MS-LOT (see Section 6.8 below for details on incident reporting)
Other returns required by the Offshore Consents	Variable (see Table 7 below)	MS-LOT

A template for the monthly ECoW compliance reporting template is set out in Appendix C (to be completed by the ECoW/ Consents Manager as appropriate).

In addition to the specific reporting outlined in Table 6, a number of other returns or reporting requirements are set out in the Project Consents. The relevant conditions and reporting requirements are set out in Table 7 below, along with the expected or required frequency for reporting to MS-LOT.

The relevant returns and notifications required by the conditions set out in Table 7 will be collated and submitted to MS-LOT by the AOWFL Consents Manager/ ECoW with information supplied by contractor representatives where necessary.

Additional reporting requirements relating to environmental monitoring include, archaeology (as set out in the Archaeology Plan), navigational safety, charting and notifications (as set out in the NSP) and lighting and marking (as set out in the Navigational Marking Plan (NMP)).

Table 7 - Other reporting and notification requirements set out in the Offshore Consents (and proposed reporting frequencies)

Topic	Condition	Summary of requirement	Frequency
Persons responsible for deposits	Marine Licence Condition 2.5	The operators, vessels and vehicles engaging in the Licensable Marine Activity must be notified to the Licensing Authority under condition 3.1.2 prior to their engagement in the Works.	Prior to the vessels' or vehicles' engagement in the works
Persons acting on behalf of the Licensee	Marine Licence Condition 2.6	The name and address of any agents, Contractors or Subcontractors appointed to carry out any part, or all, of the Licensable Marine Activity must be notified to the Licensing Authority under condition 3.1.2 prior to their engagement in the Works.	Prior to that person's engagement in the works
Force Majeure	Marine Licence Condition 3.1.3	If by any reason of force majeure any substance or object is deposited anywhere in the marine environment, other than at the Site, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed). Force majeure may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel, vehicle or marine structure determines that it is necessary to deposit the substance or object other than at the specified Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the North-east Atlantic, the Licensing Authority is obliged to immediately report force majeure incidents to the Convention Commission.	In event of an incident (see Incident Reporting Process). AOWFL will seek clarification from MS on the required reporting period, either 48 hours as listed in ML condition 3.1.3 or 6 hours as defined in the Dropped Objects proforma.
Material alterations to the licence application	Marine Licence Condition 3.1.4	The Licensee must, where any information upon which the granting of this licence was based has after the granting of this licence altered in any material respect, notify the Licensing Authority of this fact, in writing, as soon as is practicable.	As required
Submission of reports, studies, surveys and plans to the Licensing Authority	Marine Licence Condition 3.1.5	Prior to the Commencement of the Works, the Licensee must submit the details and specifications of all reports, studies, surveys and plans that are required to be undertaken in relation to the works under this licence, in writing, to the Licensing Authority for their written approval, within the time periods specified in this licence. Thereafter, the Licensee must submit all reports,	Prior to the commencement of works and as required thereafter.

Topic	Condition	Summary of requirement	Frequency
		studies, surveys and plans to the Licensing Authority as are required under this licence, and the Section 36 consent dated 26th March 2013, within the time periods specified in this licence, and the Section 36 consent, to allow the Licensing Authority to consider whether any consequential action may be required to be undertaken. Where it would appear to the Licensee that there may be a delay in the submission of the reports, studies, surveys and plans to the Licensing Authority then the Licensee must advise the Licensing Authority of this fact as soon as is practicable and no later than the time by which those reports, studies or surveys ought to have been submitted to the Authority under the terms of this licence. The reports, studies, surveys and plans must include executive summaries, assessments and conclusions and any data must, subject to any rules permitting non-disclosure, be made publicly available by the Licensing Authority or by any such party appointed at their discretion.	
Chemical Usage	Marine Licence Condition 3.1.6	The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority.	Prior to chemical use
Commencement of the works	Marine Licence Condition 3.2.1.1	The Licensee must, prior to and no less than one month before the intended Commencement of the Works, notify the Licensing Authority, in writing, of the date of Commencement of the Works authorised under this licence and confirm the date no less than 24 hours before Commencement of the Works.	No less than one month prior to commencement of Works.
Shielding or burial of cables	Marine Licence Condition 3.2.1.2	The Licensee must, no later than six months prior to the Commencement of the Works, provide the Licensing Authority for their written approval a report detailing current 'best practice' relating to the attenuation of field strengths of cables by shielding or burial designed to minimise effects on electro-sensitive and migratory fish species. Such 'best practice' guidance as is identified must be incorporated into the Construction Method Statement and the Cable Laying Strategy, in respect of which conditions 13 and 25 respectively of the Section 36 consent relates.	No later than six months prior to the Commencement of the Works. Cable Laying Strategy submitted to MS-LOT on 27/01/2017.
Navigational Safety	Marine Licence Condition 3.2.1.2	The Licensee must, as soon as reasonably practicable prior to the Commencement of the Works, notify the United Kingdom Hydrographic Office (UKHO) to permit the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.	As soon as reasonably practicable prior to the Commencement of the Works

Topic	Condition	Summary of requirement	Frequency
		The Licensee must, as soon as reasonably practicable prior to Commencement of the Works, ensure that local mariners, fishermen's organisations, Her Majesty's (HM) Coastguard and the Maritime Rescue Coordination Centre Aberdeen are made fully aware of the activity authorised under this licence through local Notice to Mariners or any other appropriate means. The Licensee must ensure that details of the Works are promulgated in the Kingfisher Fortnightly Bulletin, as soon as reasonably practicable prior to Commencement of the Works, to inform the Sea Fish Industry of the vessel routes, the timings and the location of the Works and of the relevant operations. The Licensee must prior to Commencement of the Works, complete an "Application for Statutory Sanction to Alter / Exhibit" form and submit this to the NLB for the necessary sanction to be granted.	
Third Party Certification	Marine Licence Condition 3.2.1.3	The Licensee must, no later than three months prior to the Commencement of the Works, unless otherwise agreed in writing with the Licensing Authority, provide the Licensing Authority with a covering certificate detailing Third Party Certification, or a suitable alternative as agreed in writing with the Licensing Authority, of the turbines and substructures. Commencement of the Works must not occur until the Licensee has provided the Licensing Authority with the covering certificate(s) detailing Third Party Certification.	Three months prior to Commencement
Marine mammals	Marine Licence Condition 3.2.1.6	Prior to the Commencement of the Works the Licensee must agree with the Licensing Authority, in writing, the details of the appointment of a Marine Mammal Observer. When appointed, the Marine Mammal Observer must as a minimum maintain a record of any sightings of marine mammals and maintain a record of the action taken to avoid any disturbance being caused to marine mammals during noisy activities (such as piling), as agreed in writing with the Licencing Authority. The Licensee must provide the Licensing Authority with the Marine Mammal Observer's records no later than 6 months following Commencement of the Works, and at 6 monthly intervals thereafter.	No longer required (see Section 14).
Noise registry	Marine Licence Condition 3.2.1.8	The Licensee must, in the event that pile foundations are to be used, submit a noise reduction form (Marine Scotland Application Noise Details (Form 1)) to the Licensing Authority and the Joint Nature Conservation Committee ("JNCC") stating the proposed date(s), location(s) and nature of the piling activities under authority of this licence.	No longer required as piling will not be undertaken.
Transportation audit sheets	Marine Licence Condition 3.2.2.1	The Licensee must, on the first working day of the month, create, maintain and submit to the Licensing Authority a detailed transportation audit sheet for each month during the period when Construction of	First working day of each month and, in the event that missing

Topic	Condition	Summary of requirement	Frequency
		the Works is undertaken, for all aspects of the Construction of the Works. The audit sheet must include information on the loading facility, vessels, equipment, shipment routes, schedules and all substances or objects listed in the licence to be deposited (as described in Part 2 of this licence). Where, following the submission of an audit sheet to the Licensing Authority, any alteration is made to the component parts of the sheet the Licensee must notify the Licensing Authority of the alteration in the following month's audit sheet. If the Licensee becomes aware of any substances or objects on the audit sheet that are missing, or an accidental deposit occurs, they must contact the Licensing Authority as soon as practicable after becoming aware, for advice on the appropriate remedial action. Should the Licencing Authority deem it necessary, the Licensee must undertake a side scan sonar survey in grid lines (within operational and safety constraints), across the area of the Works to include cable routes, and any vessel access routes from local service port(s) to the Site to locate the substances or objects. If the Licensing Authority is of the view that any accidental deposits associated with the construction of the Works are present, then the deposits must be removed by the Licensee as soon as is practicable and at the Licensee's expense.	objects are identified or a deposit occurs, as soon as reasonably practicable
Deposits reports	Marine Licence Condition 3.2.2.2	In addition to the audit sheets required to be submitted to the Licensing Authority under condition 3.2.2.1, the Licensee must, following the Commencement of the Works, submit audit reports to the Licensing Authority stating the nature and quantity of all substances and objects deposited below MHWS under the authority of this licence. Such audit reports must be submitted by the Licensee at six monthly intervals, with the first such report being required to be submitted on a date no later than six months following the Commencement of the Works. Where appropriate, nil returns must be provided.	Marine Scotland FEP5 Construction return form will be submitted at six monthly intervals
Navigational Safety	Marine Licence Condition 3.2.2.3	The Licensee must notify the UKHO of the progress of the Works to permit promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must notify local mariners, fishermen's organisations and HM Coastguard, in this case Maritime Rescue Coordination Centre Aberdeen, of the progress of the Works through local Notice to Mariners or any other appropriate means. The Licensee must ensure that the progress of the Works is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry of the vessel routes, the timings and the location of the Works and of the relevant operations. The Licensee must ensure the process of removing	AOWFL will send local Notices to Mariners to all marine stakeholders whenever new information relevant to shipping and navigation arises as a result of construction or maintenance of the Development.

Topic	Condition	Summary of requirement	Frequency
		any part of the infrastructure, or such alterations are made, within one month of notice being given by the Licensing Authority at any time it is considered necessary or advisable for the safety of navigation, and not replaced without further consent of the Licensing Authority. The Licensee will be liable for any expense incurred. The Licensee must ensure that no radio beacon or radar beacon operating in the marine frequency bands are installed or used on the Works without the prior written approval of Ofcom (Office of Communications).	
Noise Reduction Form	Marine Licence Condition 3.2.2.7	The Licensee must, in the event that pile foundations are to be used, and piling is to be carried out for a prolonged period of time, at quarterly intervals, submit a noise reduction form (Marine Scotland Closeout Pulseblock days (Wind Farm)) to the Licensing Authority and the JNCC stating the date(s), location(s) and nature of such activities under authority of this licence.	No longer required as piling will not be undertaken.
Completion of the Works	Marine Licence Condition 3.2.3.1	The Licensee must, no later than one month following the Completion of the Works, notify the Licensing Authority, in writing, of the completion date.	No later than one month following the Completion of the Works.
Navigational Safety	Marine Licence Condition 3.2.3.2	The Licensee must, as soon as practicable following the Completion of the Works, notify the UKHO of the Completion of the Works to permit the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system. The Licensee must ensure that local mariners, fishermen's organisations and HM Coastguard, in this case Maritime Rescue Coordination Centre Aberdeen, are informed of the Completion of the Works. The Licensee must ensure that the Completion of the Works is promulgated in the Kingfisher Fortnightly Bulletin to inform the Sea Fish Industry. The Licensee must ensure the process of removing any part of the infrastructure, or such alterations are made, within one month of notice being given by the Licensing Authority at any time it is considered necessary or advisable for the safety of navigation, and not replaced without further consent of the Licensing Authority. The Licensee will be liable for any expense incurred. The Licensee must ensure that no radio beacon or radar beacon operating in the marine frequency bands are installed or used on the Works without the prior written approval of Ofcom Licensing Authority.	As soon as practicable following the Completion of the Works.
Nature and quantity of deposited substances and objects	Marine Licence Condition 3.2.3.3	The Licensee must no later than 28 days following Completion of the Works, submit a final audit report to the Licensing Authority stating the nature and quantity of all substances and objects deposited below MHWS under the authority of this licence.	No later than 28 days following Completion of the Works

6.7 Emergency Response Plan

AOWFL has prepared a full ERCoP (ABE-HSS-QB-0045) in consultation with the MCA for the EOWDC in addition to an Emergency Response Plan (ABE-HSS-QB-0004), fulfilling the commitment made in the Draft EMP.

The ERCoP includes the following information:

- Emergency contact and quick reference information;
- EOWDC information including site location, coordinates and site control measures;
- Roles and responsibilities of AOWFL in an emergency;
- AOWFL contact information;
- Emergency response team;
- Liaison arrangements and information exchange;
- Development design parameters relevant to emergency response;
- Construction activities;
- Search and Rescue (SAR) facilities and SAR response capabilities including cumulative capabilities;
- Medical advice and assistance;
- Firefighting, chemical hazards, trapped persons etc;
- Shore reception arrangements;
- Suspension/ termination of SAR action;
- Criminal action and accidents to persons;
- Media relations;
- Exercises;
- Unexploded ordnance and wreck materials located on or near to an Offshore Renewable Energy Installation (OREI);
- Wreck or wreck materials;
- Counter pollution;
- Search Planning; and,
- Liaison.

The Emergency Response Plan includes the following information:

- Training;
- Roles and responsibilities during an emergency response;
- Contractor role;
- Procedures pertaining to man overboard, injury, fire, marine pollution, collision, unexploded ordnance, bomb threat and hypothermia;
- Information recording; and
- Incident reporting.

6.8 Incident Reporting

In the event that an environmental (e.g. wildlife incident such as injury to marine mammal) or pollution incident occurs, the Contractor or responsible member of staff, as the Incident Observer, will notify the Vessel Master (for spills from a vessel) or AOWFL Marine Coordinator as soon as practically possible within one hour.

The Vessel Master will inform the Marine Coordinator who will then report the incident to the Vattenfall Crisis Incidents and Security (CIS) Team, within 30 minutes, or as soon as it is safe to do so on (+44 203 301 9 301). The Marine Coordinator will also inform the AOWFL Ecological Clerk of Works (ECoW) of the incident and the other responsible AOWFL personnel (Project Director, O&M Site Manager or Construction Manager, HSSE Manager and Marine Operations Manager) who will assist if requested to do so by the Primary Responder.

The ECoW/ Consents Manager will notify the Consents Manager and/ or MS-LOT of the incident within 24 hours for serious incidents (and 72 hours for less serious incidents), providing the environmental incident report when available, and liaising with MS-LOT on any further actions to be taken.

If safe to do so, the Incident Observer will take any reasonable action to contain or reduce the impact of the incident such as using spill kits for minor leaks or spills.

Initial incident reports shall be completed by the Incident Observer and sent by email to the Marine Coordinator (via the Vessel Master if from a vessel) within 48 hours.

In general, incidents will be managed according to a process aligned with the AOWFL incident and emergency response workflow set out in Figure 4 but also according to the Contractors own, compliant response procedures set out in Contractor EMP, incident response and pollution response plans.

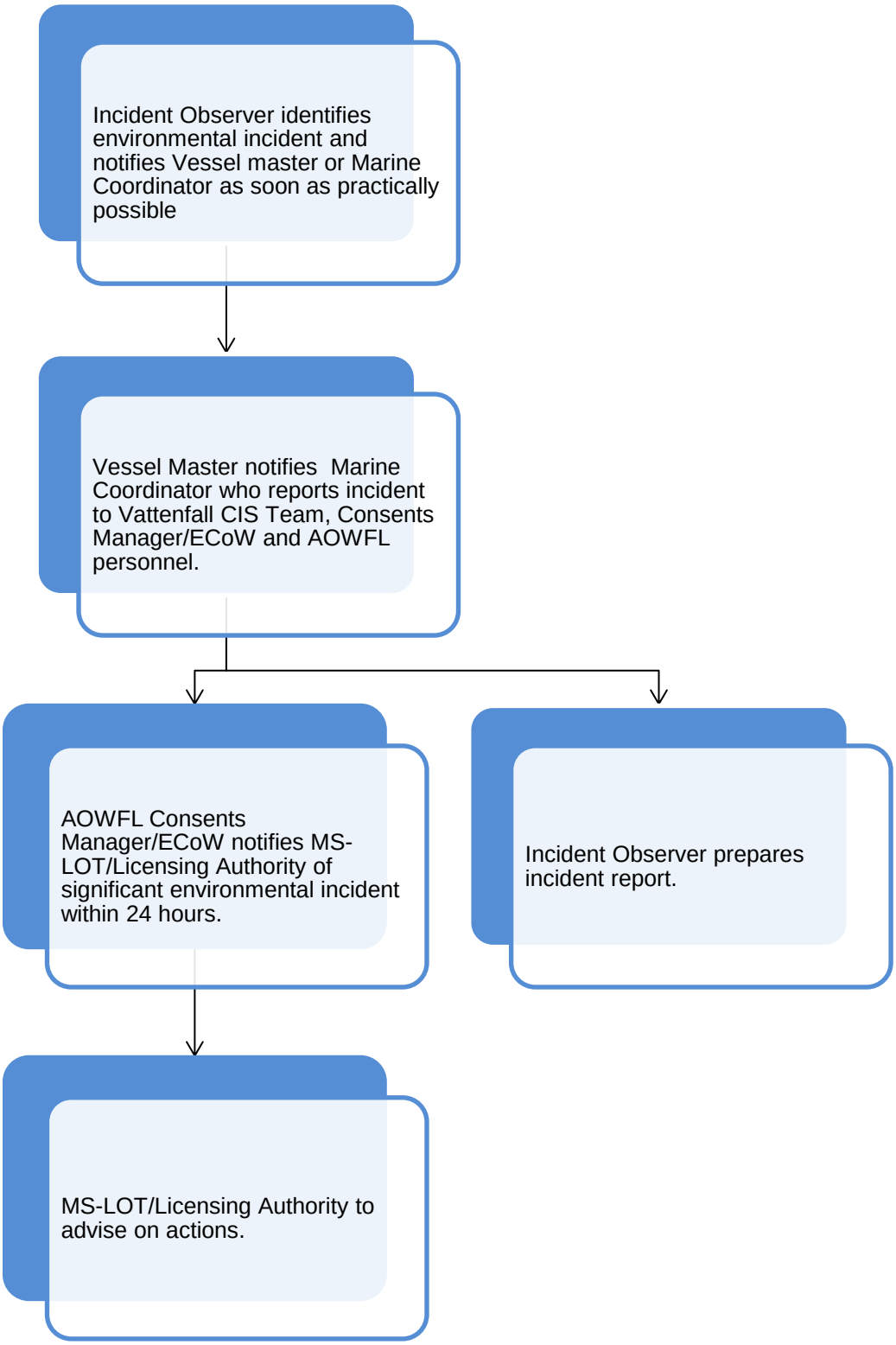
Specifically, where an incident occurs the Contractor or responsible person must immediately initiate their own response procedure to control and minimise any adverse environmental effect.

Subsequently, the ECoW/ AOWFL Consents Manager shall work with all relevant Contractors and the AOWFL Project Director to review and update procedures where necessary to prevent similar incidents from reoccurring.

The Incident Report Format outlined in the AOWFL Offshore Emergency Response Plan (ABE-HSS-QB-0004) is provided in Appendix D.

For further information in relation to marine pollution procedures, refer to the Marine Pollution Contingency Plan (MPCP) (ABE-ENV-DB-0004).

Figure 4 Incident reporting workflow



6.9 Notification of Dropped Objects

The requirement to record, notify and potentially recover objects lost or accidentally deposited on the seabed during construction or operational works arises from specific requirements in the S.36 and Marine Licences; the relevant consent conditions are set out in Table 8 below (the specific elements of the consent conditions addressed by the procedures described in this section are in bold).

The Transportation Audit Sheet template required under Marine Licence Condition 3.2.2. will be provided separately for approval by MS-LOT. Reporting requirements related to the transportation audit sheet are set out under Section 6.6.

This section also fulfils the commitment in the Draft EMP to provide information on dropped object procedures.

Table 8 - Marine Licence conditions relevant to notification of dropped objects

Consent Condition	Requirement
Marine Licence 3.1.3	**If by any reason of *force majeure* any substance or object is deposited anywhere in the marine environment, other than at the Site, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed).** *Force majeure* may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel, vehicle or marine structure determines that it is necessary to deposit the substance or object other than at the specified Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the North-east Atlantic, the Licensing Authority is obliged to immediately report *force majeure* incidents to the Convention Commission.
Marine Licence 3.2.2.1	The Licensee must, on the first working day of the month, create, maintain and submit to the Licensing Authority a detailed transportation audit sheet for each month during the period when Construction of the Works is undertaken, for all aspects of the Construction of the Works. The audit sheet must include information on the loading facility, vessels, equipment, shipment routes, schedules and all substances or objects listed in the licence to be deposited (as described in Part 2 of this licence). Where, following the submission of an audit sheet to the Licensing Authority, any alteration is made to the component parts of the sheet the Licensee must notify the Licensing Authority of the alteration in the following month's audit sheet. **If the Licensee becomes aware of any substances or objects on the audit sheet that are missing, or an accidental deposit occurs, they must contact the Licensing Authority as soon as practicable after becoming aware, for advice on the appropriate remedial action.** Should the Licencing Authority deem it necessary, the Licensee must undertake a side

	scan sonar survey in grid lines (within operational and safety constraints), across the area of the Works to include cable routes, and any vessel access routes from local service port(s) to the Site to locate the substances or objects. If the Licensing Authority is of the view that any accidental deposits associated with the construction of the Works are present, then the deposits must be removed by the Licensee as soon as is practicable and at the Licensee's expense.

Notification of dropped objects during the construction or operational phase will be completed using the MS-LOT 'Offshore Wind & Marine Renewables Dropped Objects Form' presented in Appendix E. This is a recently modified PON2 style process for adoption by the offshore wind farm industry in Scottish waters.

PON2 guidance identifies dropped objects as materials lost or discarded at sea, including any materials deposited under conditions of force majeure, but excluding any materials legally deposited in accordance with the requirements of relevant legislation. Although small objects dropped into the sea are unlikely to affect the environment and other sea users, it is not possible to set a threshold under which reporting is unnecessary. Instead, operators are advised to apply some common sense as to the lower level of object that is reportable and to report any lost/dropped object if they are unsure of the hazard it might cause.

The process to be followed in the event of any construction or operational staff becoming aware that any object has been accidentally (or by need of Force Majeure) dropped or otherwise deposited is set out below in Table 9.

A copy of this dropped object procedure and the Dropped Object Form will be available on all construction and operational vessels; relevant staff will be inducted on the dropped object procedures.

Note that separate provisions apply for the accidental loss of pollutants; these procedures are set out in the MPCP and must be referred to in place of the following.

Table 9 - Dropped objects notification and remediation process

Introduction
This Dropped Objects Procedure identifies the measures to be put in place to manage dropped objects during the construction or operational phase of the EOWDC, including recovery where possible and the recording of losses. This also includes procedures for communicating deposits made under circumstances of Force Majeure. Dropped objects can present a significant hazard to other sea users and the marine environment. Submission of the Dropped Object Form (Appendix E) enables MS-LOT, in consultation with other relevant stakeholders, to decide what action should be taken and to allow notification of other sea users of any navigational hazards.
Prevention
Consideration should be given to minimising wherever possible the potential for objects to be dropped or otherwise accidentally deposited. Each Contractor should have its own process for ensuring equipment and materials are adequately stored and controlled and that staff are adequately trained and briefed on avoiding dropped objects or accidental deposits, and in the event that they do occur on this notification procedure.

Each Contractor should complete the required **Transportation Audit Sheet (TAS)** to record all materials, equipment and components being loaded and transported and deposited under the licensable activities permitted by the Marine Licences.
Identification
If any Contractor (or AOWFL through audit of the TAS) becomes aware of any substance or objects on the TAS that are missing, or an accidental deposit occurs (for example by personnel observing or reporting that an object has been lost) the responsible Contractor will log the loss as soon as becoming aware of the incident on the notification form (providing the required details therein) and as soon as reasonably possible (but as a matter of urgency) notify AOWFL of the incident and provide the completed Dropped Object Form. **Note that every reasonable measure should be taken to immediately retrieve dropped objects where this is considered reasonably practicable** (a Marine Licence is not required for such recovery under The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012).
Notification
AOWFL will notify MS-LOT by submitting the completed Dropped Object Form within 6 hours of the incident occurring or within 6 hours of AOWFL becoming aware of a missing object (or as soon as reasonably possible thereafter). AOWFL will seek clarification from MS on the required reporting period, either 48 hours as listed in ML condition 3.1.3 or 6 hours as defined in the Dropped Objects proforma. The completed Form will, at the same time, be provided to the Scottish Fishermen's Federation, the Maritime & Coastguard Agency, Inshore Fisheries Groups, National Federation of Fisherman's Organisation and Kingfisher at Seafish. Contact details are provided on the Dropped Objects Form in Appendix E. AOWFL will also notify The Crown Estate. MS-LOT must also be notified of any activities to recover dropped objects that have been conducted but not been successful (or are considered unlikely to be successful) or that are planned (but may take some time) at the time of notification
Recovery
MS-LOT will provide advice to AOWFL on appropriate remedial action in relation to each incident reported. MS-LOT may deem it necessary to carry out a side scan survey to locate the substances or objects, and may require the deposits to be removed by AOWFL (as set out under Marine Licence Condition 3.2.2.1). The results of any such surveys must be analysed as soon as reasonably possible and the proposed remedial action and proposals for recovery of the Dropped Object must be provided to MS-LOT
Exemptions from Notification
The submission of the Dropped Objects Form can be delayed in the event that a vessel makes immediate attempts to retrieve the object and if recovery is successful then notification is not required.

6.10 Auditing of the OEMP Performance and Compliance

Compliance with the OEMP and other relevant Consent Plans and the terms of the Project consents will be monitored through a series of audits carried out by responsible and suitably qualified persons and reported to the ECoW. The ECoW may additionally undertake their own audits in relation to compliance with this OEMP or other relevant consent plans during the construction phase.

The AOWFL HSSE Manager will conduct audits of contractor HSSE policies and procedures and ongoing contractor HSSE performance.

Audits conducted may include:

- A scheduled audit following the delivery of OEMP related toolbox talk, to ensure that the requirements and procedures have been understood;
- Site visits and conversations with Project personnel to monitor awareness;
- On-site/offshore ECoW team stationed at the Marine Coordination Centre and ports during key stages in the construction programme, to monitor activities, mitigation measures and procedures, in relation to compliance with the OEMP and other relevant Consent Plans; and
- Auditing of contractor EMPs/Method Statements.

Specific checklists from the Offshore Consents, relevant Consent Plans and Method Statements will be developed to facilitate the audit process for relevant aspects of the works during the construction phase of the Project.

Overall consent compliance before, during and after the construction of the Project will be monitored by the AOWFL Consents Manager/ ECoW using a Commitments Log and Consents Log.

Details and findings of the monitoring and audit activities will be provided, where relevant, in the ECoW Compliance Reports (see Section 6.6).

MS-LOT may also undertake monitoring of compliance with the consents and approved Consent Plans through periodic site inspections. With appropriate notification, AOWFL will facilitate access to all offshore construction activities and documentation for this purpose.

Any observations or corrective actions arising from audits and inspections will be addressed as necessary, with procedures updated in the OEMP as required (see Section 3 above).

7 WASTE MANAGEMENT PLAN

7.1 Introduction

The Draft EMP submitted as part of the Application made a commitment to produce a Waste Management Plan in the final OEMP. A Waste Management Plan is provided in Appendix B of this document and demonstrates fulfilment of the Draft EMP commitment.

8 ENVIRONMENTAL MANAGEMENT AND MITIGATION OF EFFECTS ON MARINE ANIMALS AND HABITATS

8.1 Introduction

A number of specific measures have been identified through the application process. Others are embodied in a number of relevant consent conditions that will act to manage and mitigate potential impacts on marine animals and habitats.

These are set out in detail in separate Consent Plans but are summarised here as key elements of the overall OEMP framework. Specifically, these measures relate to:

- The management of foundation installation operations to take account of potential effects on marine mammals and certain fish species;
- The management of vessel operations to take account of potential disturbance to marine mammal and bird species;
- Environmental management and mitigation of lighting and marking to take account of potential disturbance to bird species; and
- The management of cable installation to take account of potential environmental effects on fish and habitats.

The following sections provide an overview of the measures to be adopted with regard to each of these specific requirements, and by reference to the detail contained in other, relevant Consent Plans that have been and will be submitted for approval by MS-LOT separately. Contractors must refer to these other approved Consent Plans for details of approved environmental management measures in respect of these issues.

The ECoW will be responsible for auditing compliance with the S.36 Consent and Marine Licence conditions, and all Consent Plans developed in response to those.

8.2 Environmental Management and Mitigation of Construction Methods

A Marine Mammal Protection Plan was a requirement of Condition 15 of the S.36 Consent. This condition was included in the consent due to the inclusion of piling as a foundation installation method in the Application. Piling is no longer a method under consideration and as such mammal mitigation measures including for instance soft start procedures are no longer required. A Marine Mammal Protection Plan pertaining to other construction methods is provided in Section 14.

The CMS highlights the use of suction buckets, reducing the risk of construction impacts on mammal and fish species, by substantially reducing the noise emitted when compared to installation using percussive piling techniques.

All Contractors and Vessel Operators will be required to comply in full with the approved CMS and to communicate with and follow the instructions from the appointed Marine Coordinator.

8.3 Environmental Management and Mitigation of Vessel Operations

The S.36 Consent requires AOWFL to draft, for approval, a Vessel Management Plan (VMP). The VMP must ensure that the management of vessel operations (those operated by AOWFL), takes into account potential disturbance to marine mammals and birds.

The VMP is intended to ensure that the vessel operations are managed in such a way that disturbance to marine mammal and bird species are minimised.

The approved VMP must be referred to in planning and conducting all marine vessel operations to ensure that the approved mitigation and management procedures are applied.

The VMP sets out requirements related to:

- Defining the number, types and specification of vessels to be used during the construction and operation of the Project;
- Defining how vessel management will be coordinated, particularly during construction but also during operation; and
- Defining the location of working port(s), and how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors that will be used.

All Contractors and Vessel Operators will be required to comply in full with the approved VMP and to communicate with and follow the instructions from the appointed Marine Coordinator or other responsible person.

The Scottish Marine Wildlife Watching Code will be referred to during toolbox talks for good practice on vessel activity and mitigation of potential disturbance to marine mammals and birds. The code includes measures for vessel operators such as:

- Avoiding sudden unpredictable changes in speed, direction and engine noise; and
- Ensuring engines and propellers well maintained to minimise noise.

'It is currently anticipated (subject to further engineering refinement) that offshore export cable installation will take place between October 2017 and January 2018, and therefore predominantly outwith the sensitive moult period for eider duck (July – mid September) and common scoter (July to mid October) when the birds are vulnerable and cannot fly. "

The cable installation works at the landfall are currently expected to start in July with installation of ducts on the beach and into the shallow near shore area (to KP1.2). This will predominantly involve excavation on the beach and in the nearshore area followed by pulling in of the duct and, for a short period (two to three weeks) planned outside the moult period, a cable installation vessel in the nearshore area. Faster moving vessels (such as crew transfer vessels) will not be required for the majority of these works (but where they are needed their use will be managed so as to minimise disturbance and as set out in the VMP).

More generally, particular care will be taken in respect of vessel movements required during the sensitive period, by adopting pre-determined routes for vessels transiting to and from the wind farm construction site as well as those engaged in export cable installation. The VMP

sets out the anticipated vessel movements and the pre-determined vessel routes which have been aligned, as far as possible (and to reflect the mitigation requirements identified in the ES).

8.3.1 Invasive Non-Native Marine Species

The requirement to set out the framework for the management of invasive non-native species arises from specific requirements in the Marine Licence, with the relevant condition set out in Table 1, requiring that:

> *'The Licensee must ensure that the risk of transferring non-native species to and from the Site is kept to a minimum by ensuring that all appropriate bio-fouling management practices are implemented during the Works.'*

The following sections set out the measures for the management of invasive non-native species during the construction phase, and specifically set out:

- Relevant legislation to be observed; and
- AOWFL environmental management requirements to be adopted.

8.3.1.1 Relevant legislation and guidelines

The legislation and guidelines set out in Table 10 are relevant to the control of invasive non-native species.

Table 10 Legislation or guidelines relating to management measures to prevent the introduction of invasive non-native species

Legislation / guidelines	Summary	Relevant requirement
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this Convention, all ships of 400 gross tonnes (gt) and above will be required to have on board an approved Ballast Water Management Plan and a Ballast Water Record Book, and to be surveyed and issued with an International Ballast Water Management Certificate.	Ballast Water Exchange Management Plan Ballast Water Record Book International Ballast Water Certificate
The Merchant Shipping (Anti-Fouling Systems) Regulations 2009	Prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and will establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships. Provides powers for the MCA to issue an International Anti-fouling System Certificate to ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons.	International Anti-fouling System Certificate

Legislation / guidelines	Summary	Relevant requirement
Resolution Mepc.207(62) 2011 Guidelines For The Control And Management Of Ships Biofouling To Minimize The Transfer Of Invasive Aquatic Species	The Guidelines are intended to provide useful recommendations on general measures to minimize the risks associated with biofouling for all types of ships.	General guidance on minimising biofouling risks

8.3.1.2 AOWFL invasive non-native species environmental management requirements

In adopting management measures to prevent the introduction of invasive non-native species, AOWFL will:

- Require that all Contractors adopt the relevant legislative requirements; and
- Ensure the AOWFL ECOW reviews Contractor EMPs for compliance.

Specific measures that AOWFL will require are adopted by all Contractors will include:

- A requirement for all vessels of 400 gross tonnage (gt) and above to be in possession of a current international Anti-fouling System certificate.
- A requirement for all vessels of 24 m or more in length (but less than 400 gt) to carry a declaration on Anti-fouling System signed by the owner or authorised agent accompanied by appropriate documentation.
- A requirement for the details of all ship hull inspections and biofouling management measures be documented by the Contractors and, where applicable, recorded in the Planned Maintenance System.
- A requirement for all vessels to be compliant (where applicable) with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention, developed and adopted by the International Maritime Organisation (IMO, and which comes into force on the 8th September 2017)) (i.e., ships 400 gt and above designed/constructed to carry ballast water and operating in the waters of more than one Member State), specifically:
    - A requirement, where relevant, for the management of ballast water in accordance with an approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provisions of the Convention.
    - A requirement to ensure, where appropriate, that ballast water management meets the ballast water performance standards as detailed in the BWM Convention.
    - A requirement, where possible, and if required, for Ballast Water Exchange to take place at least 50 nm from the nearest land and in 200 m water depth.
- Other methods of ballast water management may also be accepted as alternatives to the ballast water exchange standard and ballast water performance standard, provided that such methods ensure at least the same level of protection to the

environment, human health, property or resources, and are approved in principle by IMO's Marine Environment Protection Committee.

8.4 Environmental Management and Mitigation of Lighting and Marking

The requirement to manage lighting and marking to take account of potential construction phase disturbance to bird species is set out through the requirement in the Project consents to draft, for approval, a Navigational Safety Plan (NSP).

The approved NSP must be referred to in planning to ensure that the approved mitigation and management procedures are applied.

The NSP sets out requirements related to:

- Temporary construction lighting and marking; and
- Operational lighting and marking.

All Contractors and Vessel Operators will be required to comply in full with the approved NSP and to communicate with and follow the instructions from the appointed Marine Coordinator.

8.5 Environmental Management and Mitigation of Cable Installation and Electromagnetic Field (EMF) attenuation of the Cables

The requirement to manage EMF attenuation to take account of potential disturbance to electro-sensitive fish and migratory fish species is set out through the requirement in the Project consents to draft, for approval, a Cable Attenuation Plan which has been submitted as part of the CLS.

The requirement to manage construction methods to take account of potential disturbance to marine habitats is set out through the requirement in the Project consents to draft, for approval a Cable Laying Strategy.

The approved CLS must be referred to in planning and conducting marine subsea cable installation operations to ensure that the approved procedures are applied.

The CLS sets out requirements related to:

- The location and cable laying techniques for the Inter-array cables and OECs;
- The results of survey work (including geophysical, geotechnical and benthic surveys) which will have helped inform cable routing;
- The technical specification of all cables, including a desk based assessment of attenuation of electro-magnetic field strengths and shielding;
- Route clearance operations;
- Target Burial Depth; and
- Details on suitable cable protection measures.

Contractors will be required to comply in full with the approved CLS.

9 ENVIRONMENTAL MANAGEMENT AND MITIGATION OF EFFECTS ON COASTAL PROCESSES

9.1 Introduction

A number of specific measures have been identified through the application process and are also embodied in a number of relevant consent conditions that will act to manage and mitigate potential impacts on coastal process. These are set out in detail in a number of the other Consent Plans but are summarised here as key elements of the overall OEMP framework.

9.2 Environmental Management and Mitigation of Cable Laying

The requirement to manage cable laying to take account of potential disturbance to coastal processes is set out through the requirement in the Project consents to draft, for approval a Cable Laying Strategy.

The approved CLS must be referred to in planning and conducting marine subsea cable installation operations to ensure that the approved procedures are applied.

The CLS sets out requirements related to:

- The location and cable laying techniques for the Inter-array cables and OECs;
- The results of survey work (including geophysical, geotechnical and benthic surveys) which will have helped inform cable routing;
- The technical specification of all cables, including a desk based assessment of attenuation of electro-magnetic field strengths and shielding;
- Route clearance operations;
- Target Burial Depth; and
- Details on suitable cable protection measures.

Contractors will be required to comply in full with the approved CLS.

9.3 Environmental Management and Mitigation of Construction Methods

The requirement to manage construction methods to take account of potential disturbance to coastal processes is set out through the requirement in the Project consents to draft, for approval a Construction Method Statement.

The approved CMS must be referred to in planning and conducting construction operations to ensure that the approved procedures are applied.

The CMS sets out requirements related to:

- Scour protection requirements; and
- Best practice construction methods.

Contractors will be required to comply in full with the approved CMS.

10 ENVIRONMENTAL MANAGEMENT AND MITIGATION OF EFFECTS ON OTHER USERS

10.1 Introduction

A number of specific measures have been identified through the application process and are also embodied in a number of relevant consent conditions that will act to manage and mitigate potential impacts on other marine users. These are set out in detail in a number of the other Consent Plans but are summarised here as key elements of the overall OEMP framework.

Specifically, these measures relate to:

- The adoption of safety zones;
- Appropriate notification of construction and operational activities to other marine users;
- Appropriate navigational charting of the Project;
- A clear process of marine co-ordination of all vessels and vessel activity;
- Appropriate marking and lighting of all vessels; and
- Appropriate marking and lighting of the Development.

These measures are required under a number of other consent plan and consent condition requirements, specifically the CMS, BFRMP, NSP and the VMP but the requirements are also set out in the following sections.

10.2 Notifications, Charting, Safety Zones and Marine Co-ordination

The requirement to set out procedures relating to the safety of navigation is set out in the Project consents, particularly the requirement to draft, for approval, a Navigational Safety Plan (NSP).

The NSP is intended to ensure that all vessel operations associated with the Development are managed in such a way as to minimise the navigational risk to AOWFL vessels, and all other legitimate users of the sea.

The approved Navigational Safety Plan must be referred to in planning and conducting all marine vessel operations to ensure that the approved mitigation and management procedures are applied.

The NSP sets out requirements related to:

- Navigational safety measures;
- Construction safety zones;
- Notice(s) to Mariners and Radio Navigation Warnings;
- Anchoring areas;

- Blackdog Firing Range Management;
- Temporary construction lighting and marking;
- Operational lighting and marking;
- Operational safety zones;
- Emergency response and coordination arrangements for the construction, operation and decommissioning phases of the Development; and
- Buoyage.

All Contractors and Vessel Operators will be required to comply in full with the approved NSP.

10.3 Lighting and Marking

The lighting and marking to be implemented during the construction and operational phase of the Development is set out in the NMP (and summarised in the NSP), as approved by the NLB, MCA and Civil Aviation Authority (CAA).

The NMP is intended to ensure safe marking and lighting of the Development in such a way as to mitigate the navigational and aviation risk to other legitimate users of the sea and aircraft.

The approved NMP and NSP have been referred to in designing and installing the Development structures and in manoeuvring vessels in the vicinity of the Development. This includes appropriate measures to mark or light partially completed structures during the construction phase.

The Development will be lit and marked in accordance the lighting required by the NLB, MCA and CAA and as per the guidance in International Association of Marine Ads to Navigation and Lighthouse Authorities (IALA) Recommendation O-139, Marine Guidance Note (MGN) 543 and the relevant CAP guidance. All Contractors and Vessel Operators will be required to be aware of the marking and lighting of the structures at each stage of the Development when operating vessels in the vicinity of the Development and to be aware of the effects of that marking and lighting on the likely actions of other sea users.

The NMP also sets out requirements relating to the design and installation of aviation lighting on the WTGs.

11 ENVIRONMENTAL MANAGEMENT AND MITIGATION OF EFFECTS ON MARINE ARCHAEOLOGY

A number of specific measures have been identified through the application process. Others are embodied in relevant consent conditions that will act to manage and mitigate potential impacts on the marine archaeology.

These are set out in detail in an Archaeological Management Plan but are summarised here as key elements of the overall OEMP framework. Specifically, these measures relate to:

- The management of construction and operation activities to take account of potential effects on marine archaeology.

The Archaeological Management Plan (including Protocol for Archaeological Discoveries (PAD)) is intended to:

- Set out the procedures to be followed in order to avoid impacts on marine archaeology (including the development of Archaeological Exclusion Zones (AEZs). All contractors are required to be familiar with the requirements of the Archaeological Management Plan and observe in full any established AEZs by ensuring that no works, anchoring or other seabed impacts occur within such exclusion zones.
- Present the PAD which sets out what the Contractor must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development. All contractors are required to be familiar with the requirements of the PAD and observe in full the established reporting protocol in the event of any archaeological.

The ECoW will work with the Archaeological Consultant to monitor and report on compliance with the Archaeology Plan and PAD.

12 SPECIES PROTECTION PLANS

Condition 17 of the S.36 Consent contains the requirement for Species Protection Plans where appropriate and necessary. Section 8 outlines the environmental management and mitigation of marine animals, including mammals, birds and fish. AOWFL does not foresee the need for further specific species protection in addition to the management and mitigation already outlined within this OEMP.

With regards to the MMPP, SNH comments received by AOWFL on 19th April 2016 (summarised in Section 13 of this OEMP) noted that they '*will review any requirement for European protected species (EPS) licensing in light of the confirmed construction programme'*.

In addition, SNH consider '*Condition 15 f* (The MMPP) *to be a management measure rather than monitoring and more generally related to vessel disturbance and the Vessel Management Plan (Condition 24) as well as the Construction Method Statement (Condition 13). SNH confirmed that they would welcome consultation on such a plan'.*

AOWFL does not consider that an EPS license will be required in light of the construction methods to be utilised (and specifically due to the absence of percussive piling techniques for foundation installation).

13 ENVIRONMENTAL MONITORING PROGRAMME

13.1 Introduction

Condition 15 of the S.36 Consent requires that:

> *Within six months of the date of the granting of the Section 36 consent, an expert panel must be established by Scottish Ministers to provide scientific advice to them on a research and monitoring programme to inform, where appropriate and as timescales allow, the Project Environmental Management Programme.*

The expert panel was established and Condition 15 was subsequently discharged on 26th September 2013 by notice from MS-LOT.

In an emailed dated 3rd March 2017 MS-LOT provided clarification to AOWFL that the Environmental Monitoring Programme as mentioned by the text in Condition 15 should be incorporated into this OEMP submitted for approval by the Scottish Ministers, and produced in relation to Condition 17.

The following sections set out the background to the Monitoring Programme required under Condition 15, including:

- The requirements of Condition 15 in relation to the subjects to be included;
- The establishment, makeup and meetings of the expert panel;
- Current status of monitoring project list (final list to be submitted separately to Marine Scotland prior to Commencement, so far as is possible); and
- Consideration of the need for any further project specific monitoring.

13.2 Condition Requirements

Condition 15 of the S.36 Consent sets out the following requirement in respect of the Monitoring Programme:

> *The programme must survey and monitor the impact of the Development on important species, habitats, and users of the sea within Aberdeen Bay all as agreed by the Scientific Panel. The programme must also monitor the habitats around, and the communities that develop on, the submerged structures. The monitoring programme must be subject to input from the expert panel, to consultation with agreed consultees and subject to agreed review periods. The programme must ensure that the monitoring is robust and covers pre, during and post construction aspects and must be agreed, so far as is possible, prior to the Commencement of Development*

The Condition goes on to list the following subjects to be included in the Monitoring Programme:

- Agreed methods to consider any changes to species, densities and behavioural patterns during all phases of the wind farm;
- Agreed measures to detect bird collisions e.g. blade sensors, targeted radar studies, thermal detection systems etc.
- Gathering field measurements of under water and air borne noise during piling and operation of the turbines at the Development;
- Operational under water and air borne noise emissions for an initial period of twelve months from the date of the Commencement of the Development and then for such further periods when considered necessary by the expert panel based upon the results received and as agreed by Scottish Ministers in consultation with advisors as identified at their discretion.
- Deployment of Passive Acoustic Monitoring systems to record vocalisation of marine mammals before, during and after construction of the Development;
- The agreement of a Marine Mammal Protection Plan (MMPP);
- Impacts on the adjacent coastline and on other users and uses of the sea; and
- Migration and behaviour of European eel, salmon and sea trout due to electro-magnetic fields.

Condition 15 concludes by requiring the outputs of the Monitoring Programme to be reported annually to the Scottish Ministers and for their approval.

13.3 EOWDC Scientific Research and Monitoring Panel

The EOWDC is partly funded by the European Union (EU) under the European Economic Plan for Recovery in the Field of Energy and as part of the €40 million grant to fund research and development activities, €3 million was allocated to environmental research and monitoring.

The EOWDC Scientific Research and Monitoring Panel (the expert panel) was established to provide scientific advice on the Monitoring Programme.

The initial meeting of the panel took place on 19th September 2013 and was attended by representatives from the following organisations:

- University of the Highlands and Islands;
- Marine Scotland-Licensing and Operations Team;
- Marine Scotland Science (MSS);
- Joint Nature Conservation Committee;
- RSPB;
- Whale and Dolphin Conservation (WDC);
- Scottish Natural Heritage; and
- Aberdeen Offshore Wind Farm Limited.

Subsequent meetings of the scientific panel took place on the 17th March 2016, 3rd June 2016 and 7th July 2016 with additional attendees from:

- FGDS Ltd.(a decision support consultant);
- Scottish Environment Protection Agency;
- Aberdeen Renewable Energy Group;
- The Crown Estate

In the third meeting, the Panel completed the second phase of a research theme prioritisation exercise with the following research themes identified in order or priority:

1. Birds;
2. Marine Mammals;
3. Fish;
4. Socio-economic;
5. Coastal Processes;
6. Colonisation;
7. Benthos; and
8. Water quality.

In the fourth meeting AOWFL presented a list of topics put forward by members of the scientific panel for discussion within the themes above. This list was as follows in Table 11.

Table 11 - Topics for discussion

Research Theme	Sub-topics
Birds	Methods and techniques to measure or model seabird collision rates.
	Methods and techniques to measure or model seabirds disturbance or displacement.
	Behaviour of birds in and around offshore wind farms.
Marine Mammals	Studies of broad scale abundance and distribution of marine mammals.
	Methods of measuring absolute abundance.
	Behaviour of marine mammals in and around offshore wind farms.
Fish	Audiology of eel and lamprey.
	Distribution and movements of salmon and sea trout.
	Mapping of herring spawning activity.
Socio-economics	Changing public perceptions of offshore wind throughout the lifetime of a project - from pre-construction to operation.
	Methods of assessing socio-economic impacts.
	Maximising local benefits from offshore wind and increasing local content.
Coastal Processes	Sediment monitoring practices and procedures – coastal morphology and beach structures.
	Studies of coastal hydrography.
Colonisation	Non-native species – pathways of introduction and/or treatment options.
	Methods of survey for non-native species.

Research Theme	Sub-topics
Benthos	Changes to seabed communities in proximity to offshore wind farm substructures.
Water Quality	Novel methods for cleaning of transition pieces/foundations.
	Methods for preventing environmental contamination during delivery and operation of offshore wind farms.

The call for expressions of interest in the research programme was published on 25th August 2016 and closed on the 2nd September 2016. The panel rated the proposals based on their ability to provide the best value for money in terms of building knowledge that will reduce uncertainties for future offshore wind farm developments, within the limits of the site and budget available.

The Agenda and Minutes of all Panel meetings are available online from http://www.gov.scot/Topics/marine/Licensing/marine/scoping/EOWDC/SRMP and are summarised below.

13.4 EOWDC Scientific Research and Monitoring Projects

The final list of successful Research and Monitoring Projects being granted a share of the €3 million research and monitoring funding will be confirmed in the coming months as the final list of projects is pending internal approval and is commercially sensitive at the time of writing. The list of projects will be agreed, so far as is possible, prior to the Commencement of the Development as required by S.36 Condition 15.

A summary of the type of research and monitoring projects intended to discharge each condition requirement are listed in Table 12.

Table 12 - EOWDC Scientific Research and Monitoring Projects and condition requirements

Condition requirement	Research and monitoring project discharge element
Agreed methods to consider any changes to species, densities and behavioural patterns during all phases of the wind farm	The research projects under consideration will monitor species ensuring all stages of the Development are considered in the research outputs.
Agreed measures to detect bird collisions e.g. blade sensors, targeted radar studies, thermal detection systems etc.	As one of the main research priorities, the bird monitoring will allow AOWFL to complement and build on existing bird collision work.

Gathering field measurements of under water and air borne noise during piling and operation of the turbines at the Development	It is AOWFL's understanding that SNH does not require any monitoring of underwater noise as required by Condition 15c, as piling is no longer required to install turbine foundations. The noise associated with the deployment of suction buckets is considered by SNH to be much less and not of significant concern in respect of marine mammals or fish interests (see detailed SNH response in Section 13.5).
Operational under water and air borne noise emissions for an initial period of twelve months from the date of the Commencement of the Development and then for such further periods when considered necessary by the expert panel based upon the results received and as agreed by Scottish Ministers in consultation with advisors as identified at their discretion.	It is AOWFL's understanding that SNH does not have any concerns about the limited amount of underwater noise associated with the deployment of suction buckets and as a result this monitoring is not foreseen to be required (see detailed SNH response in Section 13.5). The requirements of Conditions 19 and 21 of the S.36 Consent pertaining to the measurement of noise levels arising from the operational Development will be adhered to.
Deployment of Passive Acoustic Monitoring systems to record vocalisation of marine mammals before, during and after construction of the Development	With the use of suction buckets, SNH have stated that there is no requirement to undertake passive acoustic monitoring – SNH considered that this condition was related to potential marine mammal disturbance as a result of pile-driving activity and hence is no longer needed (see detailed SNH response in Section 13.5).
The agreement of a Marine Mammal Protection Plan (MMPP)	See Section 14 of this OEMP.
Impacts on the adjacent coastline and on other users and uses of the sea	A socio-economic study under consideration would enable a clearer understanding of the impacts of offshore wind farm development will have on communities situated on the coastline adjacent to the development. As previously mentioned the selected monitoring projects will be confirmed in the coming months and agreed, so far as is possible, prior to the Commencement of the Development as required by S.36 Condition 15.
Migration and behaviour of European eel, salmon and sea trout due to electro-magnetic fields.	A project regarding salmon is also under consideration. As previously mentioned the selected monitoring projects will be confirmed in the coming months and agreed, so far as is possible, prior to the Commencement of the Development as required by S.36 Condition 15.

13.5 Site Specific Monitoring

MS-LOT consulted with stakeholders with regards to any requirement for Site Specific Monitoring. Responses were received from SNH, The RSPB and MSS which are summarised below. No Response was received from the WDC or Association of Salmon Fishery Board (ASFB).

13.5.1 SNH

In summary, SNH considered that there is no specific project monitoring required for natural heritage interests, based on their current understanding of project parameters. In an advice note dated 19th April 2016 (summarised below), they discuss the environmental management and mitigation measures that they considered to be required, as indicated in the consent conditions. SNH also highlighted the key areas where they consider that wider research or monitoring could have benefit to the marine renewables industry as a whole. SNH recommended that discussion of wider research was progressed by the scientific panel in conjunction with Marine Scotland and the relevant Scottish Offshore Renewables Research Framework (SPORRAN) groups.

a) Agreed methods to consider any changes to species, densities and behavioural patterns during all phases of the wind farm.

SNH did not identify any specific project monitoring requirements with regards to Condition 15a, relating to species, densities or behavioural patterns during wind farm construction or over the operational period.

SNH concluded that there would be no adverse impact on site integrity for any Special Protection Areas and therefore no specific project monitoring requirements for bird species (seabirds or other bird species). This advice was adopted by Marine Scotland and incorporated as part of the appropriate assessment supporting consent.

In respect of marine mammal species, SNH did not identify any requirement for project monitoring given that the likely choice of foundation (jackets on suction anchors) will not require piling. SNH's previous concerns were primarily related to piling noise and do not consider that the deployment of suction anchors will significantly impact on marine mammal species.

(b) Agreed measures to detect bird collisions e.g. blade sensors, targeted radar etc.

In relation to Condition 15b, SNH did not identify any project specific monitoring requirements in relation to bird species. However, monitoring for bird collisions is a key area where SNH have identified that work could be undertaken in relation to species of concern for the offshore wind industry in Scotland. In this regard, SNH recommended discussion via the scientific panel in conjunction with the SPORRAN ornithology group.

(c) Gathering field measurements of under water and air borne noise during piling and operation of the turbines at the Development.

As discussed under (a), SNH do not require any monitoring of underwater noise as required by Condition 15c, as piling is no longer required to install turbine foundations. The noise

associated with the deployment of suction anchors is considered by SNH to be much less and not of significant concern in respect of marine mammals or fish interests. Air borne noise is not an issue that SNH would comment on, however, they suggested that Aberdeenshire Council may have an interest in respect of environmental health. The requirements of S.36 Consent Conditions 19 and 21 pertaining to the measurement of noise levels arising from the operational Development will be adhered to.

(d) Operational under water and air borne noise emissions for an initial period of twelve months from the date of the Commencement of the Development and then for such further periods when considered necessary by the expert panel based upon the results received and as agreed by Scottish Ministers in consultation with advisors as identified.

As discussed above in (a) and (c), SNH had no concerns about the limited amount of underwater noise associated with the deployment of suction anchors.

(e) Deployment of Passive Acoustic Monitoring systems to record vocalisation of marine mammals before, during and after construction of the Development.

Again, with the use of suction anchors, SNH decided that there is no requirement to undertake passive acoustic monitoring – SNH considered that this condition was related to potential marine mammal disturbance as a result of pile-driving activity and hence is no longer needed.

(f) The agreement of a Marine Mammal Protection Plan (MMPP).

SNH consider Condition 15f to be a management measure rather than monitoring and more generally related to vessel disturbance and the Vessel Management Plan (Condition 24) as well as the CMS (Condition 13). SNH confirmed that they would welcome consultation on such a plan and will review any requirement for EPS licensing in light of the confirmed construction programme. The CMS and CNMP have been submitted. It is AOWFL's understanding that these Consent Plans provide SNH with the required information to determine whether there will be a requirement for an EPS licence.

(g) Impacts on the adjacent coastline and on other users and uses of the sea.

SNH did not identify any specific monitoring requirements with regards to Condition 15g. Their main concern is related to the installation of the export cable, particularly at the cable landfall. SNH consider that this matter is satisfactorily addressed under Condition 25 of the S.36 consent and do not have any other requirements in this regard.

(h) Migration and behaviour of European eel, salmon and sea trout due to EMF.

In relation to Condition 15h, SNH consider that any potential impacts to fish interests will be addressed through mitigation (such as burying the export cable) and do not identify any project monitoring requirements for these species. Marine Scotland has completed research on fish responses to EMF and SNH did not identify any other specific requirements for AOWFL to address.

13.5.2 RSPB

RSPB stated that they consider there to be a requirement for a project specific programme for monitoring the impacts on birds (including collisions). Whilst the monitoring project list is unconfirmed it is thought that the projects under consideration should satisfy the RSPB's

requirements. These are being investigated further and will be discussed with the RSPB once confirmed.

13.5.3 MSS

MSS stated their view that there are no headline issues in relation to bird effects at EOWDC. However, they considered that there are a range of knowledge gaps that monitoring at EOWDC may be well placed to help to resolve, utilising the EU funding to do just this.

MSS stated that the area around the EOWDC supports good numbers of seaduck and divers, species that are known to be sensitive to disturbance. They suggested that the sites proximity to the shore makes land based observations an option to better understand disturbance from construction (and other) vessel traffic, as well as operating WTGs. MSS suggested that this work may also provide an opportunity to explore whether substrates introduced by the construction of the windfarm benefit seaduck due to colonisation by prey species e.g. bivalves.

MSS suggested that EOWDC would seem to be a good candidate site for monitoring collisions as the location would make access to the equipment far more straight forward than other offshore wind farms. MSS also suggested that the relative proximity to the shore of EOWDC may enable shore-based monitoring of seabird density/ flux at the wind farm, which may be more difficult to undertake at sites further offshore.

MSS suggested that both of these monitoring activities were considered by EOWDC. Whilst the research project list is unconfirmed bird monitoring projects under consideration are being investigated further and will be discussed with the RSPB, MSS and SNH.

13.5.4 Site Specific Monitoring

The bird monitoring projects under consideration fit well with suggestions made by MSS and the RSPB for site specific monitoring.

It is proposed that all OECs and Inter-array cables will be buried and as a result will be subject to periodic inspection and remote condition monitoring once installed using a distributed temperature sensing (DTS) system. In the Operation Phase, further cable surveys will be undertaken to confirm that cables remain adequately buried.

Following installation, an assessment will be completed identifying areas of cable at potential risk of exposure in the future. Monitoring will focus on any ‘at-risk’ areas identified. Subject to the findings of the surveys, the frequency of these will be adapted to the appropriate level of risk exposure.

AOWFL will use the installed DTS System to enable continuous remote monitoring of the cable. Any deviation from normal, which would suggest a section of subsea cable has become unburied, will be investigated by ROV and rectified. In addition, there will be routine walk downs by AOWFL technicians of the onshore cable to ensure no sections of the cable have become unburied.

Operational noise will be measured in accordance with the requirements of Condition 21 of the S.36 consent, within the first year of operation of the turbines and every two years thereafter. The results will be provided the Scottish Ministers as soon as is practicable.

This section will be updated once the final list of research monitoring projects has been confirmed prior to Commencement.

14 MARINE MAMMAL PROTECTION PLAN

A Marine Mammal Protection Plan (MMPP) was required under Condition 15f of the S.36 Consent.

This MMPP has been prepared to ensure construction threats associated with the EOWDC are appropriately managed, coordinated and controlled to avoid unnecessary disturbance and potential harm to marine mammals.

In an advice note dated 19th April 2016 (summarised in Section 13.5.1), SNH discuss the environmental management and mitigation measures that they considered to be required, as indicated in the consent conditions. SNH consider Condition 15f to be a management measure rather than monitoring. Further detail from the SNH advice note is provided in Section 13.5.1.

The potential construction and operation threats identified in the ES included piling and vessel operations.

14.1 Introduction

The ES and SEIS (Marine Mammals Baseline Addendum, Genesis 2012) utilised information from research surveys carried out along the north east Grampian coastline and the wider North Sea area, as well as several years of land based and boat surveys covering the wider Aberdeen Bay area, in order to describe the marine mammal environmental baseline. Aberdeen Bay is an important area for marine mammals, with up to 18 species having been recorded from sighting or stranding records in Aberdeen Bay and the surrounding area; including 12 odontocete species, three mysticete species and three pinniped species. Of these, bottlenose dolphins, harbour porpoises, white-beaked dolphins, minke whales, Risso's dolphins, harbour seals and grey seals occur regularly in the Aberdeen Bay area, with other species only being recorded occasionally or rarely.

The review of the distribution of each marine mammal species indicates that although several marine mammals have the potential to be in the area, for the majority of these species the Aberdeen Bay area is only a marginal part of their habitat. Most species, with the exception of bottlenose dolphins, have a wide range and regularly occur throughout the northern and central North Sea, both along the coast and in offshore areas.

The more commonly sighted species in the Aberdeen Bay area are the harbour porpoise, bottlenose dolphin and grey and common seal.

Harbour porpoise are the most common species of cetacean in the North Sea and have a wide range and distribution in both coastal and offshore areas. They have been found to regularly occur in the Aberdeen area throughout the year, with peak occurrence during August and September.

Bottlenose dolphins in the Aberdeen area are part of the resident population from the Moray Firth Special Area of Conservation (SAC), which have a range extending from the Moray Firth to the Firth of Forth. They have been observed off Aberdeen throughout the year,

although there appears to be an increase in observations between November and May. During the EOWDC surveys, it was noted that the area near the entrance to Aberdeen Harbour was commonly occupied by bottlenose dolphins, which may be linked to salmon migration up the nearby River Don. From the available information it is apparent that the Aberdeen area is important for bottlenose dolphins, however, it is unclear how reliant they are on the area, near the entrance to Aberdeen Harbour, in relation to other areas along the North-east coast of Scotland.

With respect to **grey and harbour seals**, both species are frequently sighted throughout the year in Aberdeen Bay, especially at the entrances to the rivers Dee and the Don. Harbour seals increase in numbers at the estuaries of the Rivers Dee and Don in the winter and early spring. They use haul-out sites at the Donmouth, at the mouth of the Ythan estuary and at Catterline. Grey seals use haul-out sites at the Donmouth, at the mouth of the Ythan River, outside Peterhead harbour, Cruden Bay, Boddom and at Catterline. The most well established grey seal colony in the area is at Catterline, where up to five pups may be born each year. Designated coastal SACs for harbour seals are present along the east coast of mainland Scotland, these are situated in the Dornoch Firth and Morrich Moore in the Moray Firth and Firth of Tay and Eden estuary. 18 Designated SAC's for grey seals along the east coast of Scotland include the Isle of May at the entrance of the Firth of Forth, and it can be expected that individual seals from these colonies may be passing through the Aberdeen Bay area.

14.2 Piling operations

Piling methods are no longer under consideration for the construction of the EOWDC. Instead, suction bucket foundations will be utilised, the installation of which does not involve piling operations.

The appointment of a Marine Mammal Observer was a requirement of Condition 3.2.1.6 of the Marine Licence. In addition, a Marine Mammal Protection Plan was a requirement of Condition 15 of the S.36 Consent.

These conditions were included in the consent due to the inclusion of piling as a construction method in the Application. Piling is no longer a method under consideration and as such mammal mitigation measures including for instance soft start procedures and the appointment of a Marine Mammal Observer are no longer required. Construction methods are outlined in the CMS.

SNH considers that the installation of suction buckets is not likely to significantly impact on marine mammal species compared to piling (see summary in Section 13.5.1). SNH considered the MMPP to be related to disturbance caused by vessels which is discussed in the Vessel Management Plan (required under S.36 Condition 24), with further information relating to the construction methods provided in the Construction Method Statement (required under S.36 Condition 13). The VMP and CMS have been submitted to MS-LOT separately.

14.3 Vessel Operations

The requirement to manage vessel operations to take account of potential disturbance to marine mammals is set out through the requirement in the S.36 consent to draft, for approval, a Vessel Management Plan (VMP).

The VMP is intended to ensure that the vessel operations are managed in such a way that disturbance effects on marine mammal species are managed and where required, mitigated.

The approved Vessel Management Plan must be referred to in planning and conducting all marine vessel operations to ensure that the approved mitigation and management procedures are applied.

The VMP sets out requirements related to:

- Defining the number, types and specification of vessels to be used during the construction and operation of the Project;
- Defining how vessel management will be coordinated, particularly during construction but also during operation; and
- Defining the location of working port(s), and how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors that will be used.

All Contractors and Vessel Operators will be required to comply in full with the approved VMP and to communicate with and follow the instructions from the appointed Marine Coordinator or other responsible person.

15 COMPLIANCE WITH APPLICATION AND ASSOCIATED ADDENDUM

15.1 Introduction

In addition to the conditions presented in Table 1, Condition 7 of the S.36 Consent states:

> *"The Development must be constructed and operated in accordance with the terms of the Application and the accompanying Environmental Statement and the Supplementary Environmental Information Statement, except in so far as amended by the terms of the Section 36 consent and any direction made by the Scottish Ministers."*

The Application, ES and associated SEIS detailed a number of mitigation commitments relevant to environmental management. Appendix F sets out where each commitment has been addressed within this OEMP.

16 REFERENCES

AOWFL (2011) European Offshore Wind Deployment Centre Environmental Statement

AOWFL (2012) European Offshore Wind Deployment Centre Environmental Statement Addendum (SEIS).

AOWFL (2017) Cable Laying Strategy (EOWDC Document Reference Number ABE-ENV-DB-0003).

AOWFL (2017) Construction Noise Management Plan (EOWDC Document Reference: ABE-ENV-DC-0005).

AOWFL (2017) Navigational Marking Plan (EOWDC Document Reference: ABE-ENV-BD-0009.

AOWFL (2017) Navigational Safety Plan (EOWDC Document Reference: ABE-ENV-QB-0008).

AOWFL (2017) Vessel Management Plan (EOWDC Document Reference: ABE-ENV-BD-006).

Marine Scotland (2013) Section 36 Consent Granted by the Scottish Ministers to Construct and Operate the European Offshore Wind Deployment Centre (EOWDC) Electricity Generating Station, Aberdeen Bay, Approximately 2 km East of Blackdog, Aberdeenshire.

Marine Scotland (2016) Marine Licence for Marine Renewables Construction Works and Deposits of Substances or Objects in the Scottish Marine Area. Reference 04309/16/1.

APPENDIX A - OEMP LEGISLATION REGISTER

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Consenting			
Section 36 Consent Electricity Act 1989	Consent to generate electricity	To operate generating station within UK territorial waters adjacent to Scotland as defined in The Scottish Adjacent Waters Boundaries Order 1999.	Scottish Ministers, acting through MS-LOT.
Marine (Scotland) Act 2010	Consent to place structures on the seabed Conservation and biodiversity	A framework for the development of a new planning system for the marine area and to ensure greater protection for the marine environment and biodiversity. Applies to a number of activities e.g.: removal of materials from the seabed (including structures), deposit of materials during decommissioning, disturbance of the seabed, use of explosives and installation of certain types of cables. For depositing substances or objects and for the construction, alteration or improvement of any works in or over the sea or on or under the seabed (below Mean High Water Springs (MHWS)) including the temporary placement of construction materials and/or disposal of dredged material etc in Scottish Territorial Waters.	
Marine and Coastal Access Act 2009	Consent to place structures on the seabed Conservation and biodiversity	A framework for the development of a new planning system for the marine area and to ensure greater protection for the marine environment and biodiversity. Applies to a number of activities e.g.: removal of materials from the seabed (including structures), deposit of materials during decommissioning, disturbance of the seabed, use of explosives and installation of certain types of cables. For depositing substances or objects and for the construction, alteration or improvement of any works in or over the sea or on or under the seabed (below Mean High Water Springs (MHWS)) including the temporary placement of construction materials and/or disposal of dredged material etc in Scottish Waters beyond the Territorial Sea (Scottish Offshore Waters).	

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Environmental Assessment			
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, as amended	Requirements for Environmental Impact Assessment (EIA)	Transposes portions of the EIA Directive into Scottish law. For any development that comes under sections 36 or 37, application for consent has to be made to the Scottish Ministers. In addition, pursuant to the Regulations, development that is also considered likely to have significant effect on the environment must also be subject to EIA and an Environmental Statement submitted with the application.	
The Marine Works (Environmental Impact Assessment) Regulations 2007, as amended	Requirements for EIA	Transposes portions of the EIA Directive into Scottish law.	
Conservation of Habitats and Species Regulations 2010	EC Habitats and Birds Directive	Transpose the requirements of the EC Habitats Directive and EC Birds Directive into national law within Scottish Territorial Waters (up to the 12 nautical mile (NM) territorial waters limit). Provide for the designation and protection of European sites (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)), the protection of European protected species, and the adaptation of planning and other controls for the protection of European Sites. Consolidation of various amendments to the 1994 Regulations and apply in Scotland to Section 36 applications. Specifies the requirements for a European Protected Species (EPS) Licence.	
Conservation (Natural Habitats, &c.) Regulations 1994	EC Habitats and Birds Directive	Transpose the requirements of the EC Habitats Directive and EC Birds Directive into national law within Scottish Territorial Waters (up to the 12 nautical mile (NM) territorial waters limit). Specifies the requirements for a EPS Licence.	
Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007	EC Habitats and Birds Directive	Transpose the requirements of the EC Habitats Directive and EC Birds Directive into national law within Scottish Offshore Waters (beyond the 12 nautical mile (NM) territorial waters limit).	

Legislation	Relevance to AOWFL	Summary	Regulatory Body
The Marine Strategy Framework Directive	Management of human activities in the marine environment	Outlines a transparent, legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment.	
Convention for the Protection of the Marine Environment of the North-East Atlantic (The OSPAR Convention)	Environmental protection	Regulates international cooperation on environmental protection in the North-East Atlantic, including pollution and assessment of marine environmental quality.	Department for Environment, Food and Rural Affairs
Wildlife and Countryside Act 1981 (as amended)	Nature conservation legislation	Protection of wild bird and other animals, prevention of the introduction of non-native species.	SNH, SEPA
Wildlife and Natural Environment (Scotland) Act 2011	Nature conservation legislation	Prevention of the introduction of non-native species, amendments to the Wildlife and Countryside Act 1981. Sets a strong context for preparing and implementing Marine Biosecurity Plans.	
Waste and Discharges			
Environmental Protection Act 1990	Pollution control	This Act, and associated regulations, introduces a "Duty of Care" for all controlled wastes. Waste producers are required to ensure that wastes are identified, described and labelled accurately, kept securely and safely during storage, transferred only to authorised persons and that records of transfers (waste transfer notes) are maintained for a minimum of two years. Carriers and waste handling sites require licensing. This Act and associated Regulations brought into effect a system of regulation for "controlled waste". Although the Act does not apply to offshore activities, it requires operators to ensure that offshore waste is handled and disposed of onshore in accordance with the "Duty of Care" introduced by the Act.	SEPA
Environmental Protection Act 1990 (Amendment) (Scotland) Regulations 2001	Pollution control	Transfer of functions of the Environmental Protection Act 1990 from Ministers of the Crown to Scottish Ministers for Scottish matters.	

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Environment Act 1995	Pollution control, environmental management.	Establishment of environmental protection agencies in England and Scotland. Provisions for the control of pollution and dealing with contamination. Setting of standards for environmental management.	
Controlled Waste (Scotland) Regulations 1992 (as amended)	Controlled waste	Define "Controlled Waste" for the purposes of Environmental Protection Act 1990. Three categories of controlled waste are defined i.e. household, industrial and commercial.	
Special Waste (Scotland) Regulations 1996 (as amended)	Hazardous waste	Control of the movements of the most hazardous types of waste. Introduces a new consignment note, a new system of fees is in operation and the mixing of special wastes is expressly prohibited.	
Landfill Directive (1999/31/EC)	Waste management	Supplements the requirements of the Waste Framework Directive (2008/98/EC). Prevention and reduction the negative effects of landfilling on the environment as well as any resultant risk to human health. Sets out requirements for the location, management, engineering, closure and monitoring for landfills and requirements relating to the characteristics of the waste to be landfilled.	
Waste (Scotland) Regulations 2012	Waste management and recycling	The regulations introduce a number of important new requirements including the segregation of materials such as glass, metal, plastics, paper and card for recycling. It also introduces the requirement for food businesses to present food waste for collection and a ban on sending segregated materials for incineration or to landfill. Waste contractors must provide services that enable high quality recycling. The drawing up of waste management plans is an obligation of EU Member States and is required by Article 28 of the Waste Framework Directive (WFD) which the Waste (Scotland) Regulations 2012 implement.	
The Waste (Meaning of Hazardous Waste and European Waste Catalogue) (Miscellaneous Amendments) (Scotland) Regulations 2015	Hazardous waste	These regulations include an amendment to the definition of “Waste Directive” / “Waste Framework Directive” to mean Directive 2008/98/EC as amended by Commission Regulation (EU) No 1357/2014 replacing Annex III to Directive 2008/98/EC for the following legislation (amongst others): • Environmental Protection Act 1990; • Special Waste Regulations 1996; • Landfill (Scotland) Regulations 2003.	
Waste	Waste	The regulations dictate the licensing of persons	

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Management Licensing (Scotland) Regulations 2011	Management	or businesses involved in the management of waste and relate directly to the licensing of a site or activity to carry out the management, processing and disposal of wastes.	
The Environmental Protection (Duty of Care) (Scotland) Regulations 2014	Waste Management	Under these Regulations any person who imports, produces, carries, keeps, treats or disposes of Controlled Waste has a duty to take all reasonable steps to ensure that their waste is handled lawfully and safely. Special/Hazardous Waste is a sub-category of Controlled Waste (see also Special Waste Regulations).	
The Waste (Recyclate Quality) (Scotland) Regulations 2015	Recycling	Requires the holder of a Waste Management Licence to comply with the Materials Recovery Code. Also a Pollution Prevention and Control (PPC) permit for the running of a waste recovery facility must contain a requirement to comply with the Materials Recovery Code.	
Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008	Sewage and Garbage treatment, storage and disposal	Implement both the revised Annex IV of MARPOL 73/78 – Regulations for the Prevention of Pollution by Sewage from Ships, and the Annex V of MARPOL 73/78 (including amendments) – Regulations for the Prevention of Pollution by Garbage from Ships. Implements into UK law international regulations on treatment and disposal of garbage and food waste from vessels operating in UK water. All ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons must carry a Garbage Management Plan and a Garbage Record Book. The regulations also provide powers for the MCA to issue an International Sewage Pollution Prevention Certificate to ships in the same categories.	MCA
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Ballast water management	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this regulation, all tankers > 150 Gross Registered Tonnage (GRT) and all ships (including submersibles, floating craft & floating platforms) > 400 GRT (unless not engaged in international voyages or as exempted under the regulations) in the UK are required to have a Ballast Water Exchange Management Plan and a Ballast Water Record Book and to be surveyed and issued with an International Ballast Water Management Certificate. The BWM Convention will enter into force on 8 September 2017.	MCA

Legislation	Relevance to AOWFL	Summary	Regulatory Body
The Merchant Shipping (Anti-Fouling Systems) Regulations 2009	Anti-fouling Pollution prevention	Prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and will establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships. Provides powers for the MCA to issue an International Anti-fouling System Certificate to ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons.	MCA
Food & Environmental Protection Act (FEPA) 1985 (with amendments) Deposits in the Sea (Exemptions) Order 1985	Discharges	Used to cover the discharge or placement of substances or articles in the sea or on the seabed where the deposits could not be covered by other legislation (e.g. Marine (Scotland) Act, 2010). A licence is required under FEPA for any waste disposal in the sea or under the seabed. The Deposits in the Sea (Exemptions) Order 1985 exempts from FEPA licensing the deposit on site or under the seabed of any chemicals and drill cuttings.	The Department of Business Energy and Industrial Strategy (BEIS)
Control of Substances Hazardous to Health Regulations 1994 COSHH	Control of substances hazardous to health	Assessment, prevention or control of exposure and monitoring of substances hazardous to health.	Health and Safety Executive (HSE)
The REACH Enforcement Regulations 2008	Chemical usage	These enforce Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) which require chemical users to demonstrate the safe manufacture of chemicals and their safe use throughout the supply chain. Under REACH, the users of chemicals as well as their manufacturers and importers have a responsibility to ensure that the risks to both human health and the environment are adequately assessed.	BEIS, Marine Scotland
Decommissioning			
Energy Act 2004	Decommissioning requirements	Introduced a decommissioning scheme for offshore wind and marine energy installations. Under the terms of the Act, the Secretary of State may require a person who is responsible for one of these installations or lines to submit (and eventually carry out) a decommissioning programme for them.	BEIS

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Physical Presence			
Energy Act 2004	Safety zones	Section 95 of and Schedule 16 to the Energy Act 2004 set out the basic requirements for applying to the Secretary of State for a safety zone to be placed around or adjacent to an offshore renewable energy installation. Following public consultation, the Electricity (Offshore Generating Stations) (Safety Zones) (Applications Procedures and Control of Access) Regulations 2007, which set out the process to be followed in more detail, were introduced in August 2007.	BEIS
Marine (Scotland) Act 2010	Obstruction to navigation	This Act provides that where an obstruction or danger to navigation is caused, or is likely to result, the prior written consent of Scottish Ministers is required for the siting of the offshore installation - whether mobile or permanent – in Scottish Territorial Waters.	Scottish Ministers, acting through MS-LOT.
Marine and Coastal Access Act 2009	Obstruction to navigation	This Act provides that where an obstruction or danger to navigation is caused, or is likely to result, the prior written consent of Scottish Ministers is required for the siting of the offshore installation – whether mobile or permanent – in Scottish Offshore Waters.	
Pollution Control			
The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996	Prevention of oil pollution	These Regulations give effect to Annex I of MARPOL 73/78 (prevention of oil pollution) in UK waters. They address oily drainage from machinery spaces on vessels and installations and sets limits for the levels of oil in discharged water from these sources. Vessels and installations are required to hold a valid Oil Pollution Prevention Certificate. Vessels are also required to hold a current, approved Shipboard Oil Pollution Emergency Plan (SOPEP) in accordance with guidelines issued by the International Maritime Organisation (IMO). Oil tankers of 150 gross tonnage and above and all ships of 400 gross tonnage and above are required carry an Oil Record Book to record when specific operations take place on board which have the potential to lead to oil pollution from vessels and an approved SOPEP.	BEIS, Marine Scotland

Legislation	Relevance to AOWFL	Summary	Regulatory Body
Bonn Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (2004)	Prevention of oil pollution Pollution protection	An agreement to combat oil pollution and to stimulate active cooperation and mutual assistance among states bordering the North Sea in case of casualties or other incidents at sea that are of great concern for the protection of the coasts and related interests.	BEIS, Marine Scotland
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007	Carriage of dangerous goods	Implements the requirements of the European agreement concerning the carriage of dangerous goods (ADR), including safe storage and transport by road rail and sea.	Department for Transport
Marine Management Organisation (MMO) (2014) Approved oil spill treatment products	Oil spill response	Quick reference list of products approved for use on the UK Continental Shelf	MMO, Marine Scotland
Marine Safety Agency (MSA) (1996) Merchant Shipping Notice No. M.1663, Vessels Engaged in Oil Recovery	Oil spill response	Provides guidelines for the design, construction, ship's equipment and operation of offshore support vessels, which may be required to have the capability of handling, storing and transporting oil recovered from a spill in emergency situations.	MSA
The Merchant Shipping (Ship-To-Ship Transfers) Regulations 2010 (as amended)	Refuelling operations Cargo transfers	Bring in controls on ship-to-ship transfers in UK waters, including prohibiting ship-to-ship transfers and bunkering operations outside harbour authority waters and put in place a legislative regime for assessing and licensing harbour authorities which propose to allow ship-to-ship transfers in their waters. Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012" sets out detailed requirements regarding Ship to Ship Transfers of a cargo consisting wholly or mainly of oil. The Notice is given statutory force by the Merchant Shipping (Ship to Ship Transfers) Regulations 2010 (as amended). An exemption is provided in MSN 1829 for vessels to refuel, or be refuelled by daughter-craft, so as not to impair operationally necessary refuelling.	MCA

Legislation	Relevance to AOWFL	Summary	Regulatory Body
The Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998 (OPRC Regulations)	Oil spill	The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 introduce into UK law the oil spill planning requirements and legal oil spill reporting requirements of the OPRC Convention.	BEIS, Marine Scotland
The Merchant Shipping (ISM Code) Regulations 2014	Pollution prevention	Provides for the application of the ISM Code on all vessels to which the Safety of Life at Sea (SOLAS) Convention applies and to other vessels to which EC regulations apply. The ISM Code provides an international standard for the safe management and operation of ships and for pollution prevention.	MCA

APPENDIX B - WASTE MANAGEMENT PLAN

B1. Introduction

This plan has been prepared to set out waste management measures for the construction and operational phases of the EOWDC.

This document covers waste associated with the offshore elements of the Development only. It considers the type and volume of waste that is likely to be generated, presents the options for the management of this waste and identifies waste management facilities in the vicinity of the Development.

The purpose of this document is to set out the measures to minimise, reuse, recycle, and dispose of waste streams generated offshore during the construction and operational phases of the Development, in compliance with relevant waste legislation.

This document sets out the general principles for waste management that all AOWFL personnel, Contractors and Subcontractors shall comply with.

All AOWFL Contractors and vessels will be required to prepare for AOWFL information and implement their own Waste Management Plans (WMPs) and Vessel Garbage Management Plans (where applicable) in line with standard practice.

In addition, in accordance with Condition 3.1.7 of the Marine Licence, AOWFL will ensure that any debris or waste materials placed below MHWS during the construction and operation of the Works are removed from the Site, as soon as is reasonably practicable, for disposal at a location above MHWS approved by SEPA.

For further information in relation to marine pollution procedures, refer to the Marine Pollution Contingency Plan (MPCP) (ABE-ENV-DB-0004).

B2. Regulatory Framework

Definition of Waste

For the purpose of this document the definition of “waste” is taken from Article 3(1) of the revised European Waste Framework Directive (WFD) (2008/98/EC), which states that waste is “*any substance or object which the holder discards or intends or is required to discard*”.

“Discard” includes the recovery and recycling of a subject or object as well as its disposal. The decision on whether something is discarded must take account of all the circumstances (for example, the nature of the material, how it was produced and how it will be used) and have regard to the aims of the WFD, which include “*the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste*”.

Legislation and Guidance

The legislative framework for the management of construction and operational wastes associated with the Development is set out in Appendix A.

Relevant policy and guidance documents also include:

- Duty of Care Code of Practice 2012;
- SEPA guidance on the production of Site Waste Management Plans 2010;
- UK Marine Policy Statement 2011; and
- Zero Waste Scotland 2010.

The key driver for waste management legislation in the UK, when onshore disposal is required, is the WFD. The Directive is transposed into UK legislation by the Waste (Scotland) Regulations 2012 SSI 148; Waste Management Licensing (Scotland) Regulations 2011 SSI 228 and the Environmental Protection (Duty of Care) (Scotland) Regulations 2014 SSI 4. These regulations require all businesses and organisations that produce waste to take all reasonable measures to prevent waste and to apply the waste hierarchy when managing waste.

In terms of waste generated offshore, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex IV (sewage) and Annex V (garbage) is the main legislative driver. Under the Convention, the North Sea is designated as a Special Area where the disposal of any waste (except food waste) offshore is prohibited. The Convention is transposed into UK legislation by the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, which places a number of obligations on vessels in terms of managing waste.

The Special Waste (Scotland) Regulations 1996 SI 972 set out the requirements for the preparation of Consignment Notes for the handling and carriage of special waste (including hazardous waste) as defined within the regulations. The regulations provide the requirements for the removal of ships' waste to reception facilities and also the avoidance of mixing waste streams.

Key Obligations

Duty of Care

A key requirement of Section 34 of the Environmental Protection Act 1990 is that the waste producer is responsible for ensuring that their waste is collected by an appropriately licensed waste carrier and managed at a suitably licensed facility.

Section 34 of the Environmental Protection Act 1990 (as amended) lays out number of duties with respect to the management of waste. The Waste (Scotland) Regulations 2012 amended Section 34 to implement a number of actions in the Scottish Government's Zero Waste Plan (2010). The Duty of Care: A Code of Practice (Scottish Government, 2012) explains these duties which apply to anyone who produces, keeps, imports or manages controlled waste in Scotland.

In accordance with MARPOL (73/78) Annex V (as amended) every ship (certified to carry 15 persons or more) and vessel (of 400 gross tonnage and above) involved in the construction or operation of the Development will have a Garbage Management Plan. The plan will include procedures for the collection, storage, processing and disposal of all waste, and will designate an individual responsible for implementing the plan. Waste types and volumes generated by the vessel/installation will be recorded in a garbage record book. Once the waste is brought onshore it will be managed in accordance with the duty of care legislation (see above). Information from the garbage record book will be used to complete the relevant Waste Transfer Notes. Under the International Convention for the Control and Management of Ships' Ballast Water and Sediments, all ships over 400 GRT in the UK are required to have a Ballast Water Exchange Management Plan. The BWM Convention will enter into force on 8 September 2017. These requirements are summarised in Table B1Table B1 below.

AOWFL will commission vessel audits (see also the VMP) as required to ensure compliance before a vessel is allowed to enter the Development Area, and further monitoring will be executed to ensure continued compliance.

Table B1 - Summary of Vessel Waste Management Requirements

Legislation	Summary	Relevant requirement
Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008	Implements revised Annex IV of MARPOL 73/78 – Regulations for the Prevention of Pollution by Sewage from Ships, and Annex V of MARPOL 73/78 (including amendments) – Regulations for the Prevention of Pollution by Garbage from Ships. Implements into UK law international regulations on treatment and disposal of garbage and food waste from vessels operating in UK water. All ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons must carry a **Garbage Management Plan** and a **Garbage Record Book**. The regulations also provide powers for the MCA to issue an **International Sewage Pollution Prevention Certificate** to ships in the same categories.	Garbage Management Plan Garbage Record Book International Sewage Pollution Prevention Certificate
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under	Compliance with the Ballast Water Performance Standard.

Legislation	Summary	Relevant requirement
	this regulation, all vessels are required to have meet the ballast water performance standard. Vessels entering the North East Atlantic must exchange ballast water at least 200 nm from the nearest land and at least 200 metres deep. The BWM Convention will enter into force on 8 September 2017.	

Food waste from vessels will be ground or comminuted to the required size in accordance with the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 prior to disposal at sea. Some vessels will have sewage treatment facilities, which will treat the sewage prior to discharging to the sea in accordance with MARPOL (73/78) Annex IV. Where treatment facilities are not available, sewage will be brought ashore for treatment.

Once brought ashore, waste materials arising from the construction and operation of the Development will only be transported by registered waste carriers and special waste carriers currently published on SEPA's online public registers. Waste materials removed from the construction site will be accompanied by a Waste Transfer Note (and special waste Consignment Note as appropriate), which correctly describes the waste using the European Waste Catalogue code, identifies the waste carrier and details where the waste will be transported. Requirements for transferring waste and registered waste carriers are set out in regulation 3, 4, 5 and 6 of The Environmental Protection (Duty of Care) (Scotland) Regulations 2014.

B3. Roles and Responsibilities

Introduction

The key roles and associated responsibilities with regard to implementing waste management measures are outlined below.

AOWFL

AOWFL will be responsible for requiring that waste management measures are implemented effectively, alongside wider AOWFL environmental commitments (as detailed in the main OEMP document).

AOWFL will review contractor EMPs to ensure compliance with the overarching AOWFL OEMP and this associated Appendix.

AOWFL will be responsible for reviewing and updating this document (where necessary) (see Section 3 of the main OEMP document).

Contractors

The Contractors have overall responsibility for:

- Ensuring that all procedures in this document are followed;
- Ensuring that all their Subcontractors are suitably qualified and experienced in implementing the measures within this document, and that all procedures in this document are followed; and
- Ensuring that all legal and contractual requirements relating to waste management are met by ensuring adequate plans/procedures, licences and certificates are in place, and that they can be achieved.

Contractors and vessels will be required to implement their own Waste Management Procedures (WMPs) and vessel Garbage Management Plans (where applicable) as per standard practice.

Subcontractors

All Subcontractors must comply with the general principles for waste management set out in this document. All Subcontractors and vessels will be required to implement their own WMPs and vessel Garbage Management Plans (where applicable) as per standard practice.

B4. Waste Arisings

Waste Types

The potential waste streams generated by the construction and operation of the Development can be subdivided into three categories:

- Inert;
- General (non-hazardous); and
- Hazardous.

The European Waste Catalogue Codes for anticipated waste are provided in Table B2 and the criteria for determining whether a material is considered hazardous waste are provided in Table B3.

Non-hazardous wastes are accepted at SEPA regulated non-hazardous or inert licenced landfill sites whilst hazardous wastes are accepted at hazardous licenced landfill sites within Scotland.

Any unidentified wastes must be treated as hazardous and stored separately from other wastes pending identification and classification.

Each category of waste is further described in the following sections.

Inert Waste

Inert waste is defined by the Waste Management Licensing Amendment (Scotland) Regulations 2003 as not capable of undergoing significant physical, chemical or biological transformations. Also, inert waste should not dissolve, burn or physically, chemically or biodegrade, subsequently leading to environmental pollution or harm to human health.

Finally, any total leachability and pollutant content and ecotoxicity of leachate should be insignificant and not endanger groundwater or surface water.

General (Non Hazardous) Waste

Putrescible solids include sewage, grey water and kitchen waste. The only wastes that can be discharged offshore are sewage, grey water and kitchen waste, which have been suitably treated to International Convention for the Prevention of Pollution from Ships (MARPOL) standards (MARPOL 73/78 Annex IV Regulation 11 and Annex V Regulation 4).

General non-hazardous solid wastes include scrap materials, packaging, wood, paper and empty containers.

Hazardous Waste

Technical guidance on the interpretation of the WFD definition and classification of hazardous waste versus non-hazardous waste is provided by the Joint Agency technical guidance (WM2): Hazardous Waste (2013) and draft guidance, in preparation, (WM3) Draft Waste Classification (2015). The draft guidance describes a six step approach that SEPA will adopt in determining whether to regulate materials as special waste (see below):

- **Step 1:** Is the waste "Directive waste" as defined by the WFD or required to be included as a potential hazardous waste based on domestic legislative provisions?
- **Step 2:** How is the waste classified on the List of Waste (LoW)?
- **Step 3:** Are the substances in the waste known or can they be determined?
- **Step 4:** Are there “hazardous substances” or “Persistent Organic Pollutants” in the waste?
- **Step 5:** Does the waste display any of the hazard properties H1 to H15 described within the guidance (and Annex III of the WFD)?
- **Step 6:** Does the waste contain Persistent Organic Pollutants above the specified concentration limits?

The guidance enables the classification of waste streams as either hazardous or non-hazardous.

An assessment of appropriate disposal routes can then be made, including landfill as final disposal option, according to appropriate landfill waste acceptance criteria.

If a risk or hazard is identified in a product data sheet, through COSHH or Safety Data Sheet (SDS), the waste should be assumed to be Hazardous Waste.

Packaging and containers associated with hazardous materials shall themselves be treated as hazardous waste until such time as they have been satisfactorily cleaned.

It is important to note that some hazardous items are also currently recycled (e.g., lead acid batteries) but are listed as hazardous as a result of the potential impact on the environment (e.g., from inappropriate handling or disposal). For these products the hazardous waste transportation measures also apply.

Estimated Waste Arisings

The potential waste streams associated with the construction and operation of the offshore elements of the Development will be estimated by all Contractors and Subcontractors as part of their waste management procedures.

An example of the format in which contractors will be required to estimate waste streams during construction is in Table B5, which describes predicted volumes and proposed target for re-use/recycling for waste produced from Wind Turbine Generator (WTG) installation activities.

In the case of construction and operational vessels, the following list provides an example of hazardous waste typically generated by a construction vessel:

- Waste Paint and Paint thinners;
- Waste oil;
- Oiled waste, including oil filters, oily rags, etc.
- Contaminated oil;
- Spent Batteries;
- Waste Anti-freeze;
- Used light bulbs/tubes; and
- All hazardous waste packaging.

Again all vessel operators of vessels over 400 t and certified to carry 15 persons or more will be required to produce estimates of waste streams during their operations and to identify appropriate handling and disposal options in their waste management plans, for approval by AOWFL.

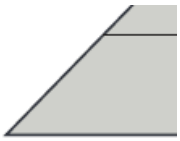
B5. Waste Management

Waste Hierarchy

Construction and O&M waste generated from the Development will be managed according to the principles of the waste hierarchy (Figure B1). The waste hierarchy ranks waste management options according to what is best for the environment, giving priority to waste prevention. When waste has been generated, priority is given to preparing it for re-use, then recycling, then recovery, and last of all disposal (for example, landfill).

The waste hierarchy is a key element of sustainable waste management and is a legal requirement of the revised EU WFD and is central to the Waste (Scotland) Regulations 2012.

Figure B1 Waste Hierarchy (Source: Scottish Government, 2000)



Prevention

All reasonably practicable measures shall be taken to **minimise** the amount of waste produced in general and of hazardous waste in particular.

Opportunities to reduce packaging or implement take-back schemes for packaging and unused materials will be discussed with the suppliers. Where possible, hazardous materials will be substituted for less hazardous alternatives.

Waste minimisation measures will be set out in waste management plans and implemented by the Contractors and Subcontractors during construction and operation in order to achieve the waste allowance targets. These measures may include:

- Ordering and using only enough materials required to complete the task;
- Handling and storing materials so as to maximise product life; and
- Ensuring that materials that can be reused are handled to prevent damage.

Re-Use

Opportunities to re-use materials will be investigated as the detailed design progresses.

Recycling

Wastes generated during the construction process will be segregated into waste types to facilitate off-site recycling (for example, metals, wood, and plastic). Sufficient space will be allocated for storage of separate containers of key waste materials. These containers will be clearly labelled and construction staff will be given training on waste segregation.

The Contractors will consider the use of recycled materials where possible, subject to AOWFL approval, cost and availability.

Disposal

All waste that cannot be reused, recycled or recovered will be collected by the licensed waste management contractor and disposed of at a permitted site suitable for the type of waste. Waste generated from offshore activities will be brought onshore for recycling or disposal. Ground food waste will be disposed of at sea in accordance with the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008.

Offshore Storage, Segregation and Handling of Wastes

Table B2 below sets out specific measures for the storage, segregation and handling of wastes offshore.

Table B2 - Measures for storage, segregation and handling of wastes

Waste Type	Management Measures
Storage	
All	All skips and other similar containers used for storing and transportation of waste shall be adequately protected so as to ensure that the waste does not escape into the environment; and that vermin and pests are not attracted to the waste.
	All waste skips shall be suitable for offshore use with some form of containment (e.g. lids, nets) to prevent waste material blowing overboard and subsequent pollution to sea. Lay down areas with suitable storage space will be allocated on the installation and supply vessels for waste bins and containers that provide sufficient working space to allow unobstructed movement for personnel and equipment.
	Designated wheelie bins will be filled with absorbent pads and will be provided as spill kits on the installation vessels. In addition, oily waste bins and temporary bunding (for isolating problematic areas or prior to commencing repairs for example on hydraulic equipment) will be provided. Once used, contaminated spill kit materials will be stored in hazardous waste bags, or disposed of into the designated hazardous waste skip, and transported to shore for disposal. All staff should be trained in the use and appropriate disposal of these spill kits.
General (non-hazardous)	Where ships do not have a sewage treatment plant or sewage comminuting and disinfecting systems, sewage must be retained in an appropriate holding tank, which has a visual indicator of the amount of its contents. The size of the tank should be based on the ship's intended usage and number of crew.
Hazardous	All construction vessels should have adequate facilities in place to store and handle all types of hazardous waste reasonably expected.
	All hazardous waste materials will be stored in hazardous waste skips and drums or tote tanks (for liquid wastes) for transport to shore. Ignitable or reactive wastes shall be stored at a distance and separate from heat sources and living quarters with appropriate warning signage. Waste drums and containers should be regularly checked for leakage or corrosion and shall be of such design that water will not collect on tops and resting surfaces.
	Permanent liquid chemical and liquid hydrocarbon waste storage areas shall have secondary containment.
Segregation and Treatment	
All	Waste will be segregated into designated skips and waste containers on board the construction vessels.
	All non-hazardous and hazardous waste shall be **clearly marked** and shall be accompanied by appropriate **Waste Transfer and Consignment Notes**.

Waste Type	Management Measures
General (non-hazardous)	Ship sewage treatment plants or sewage comminuting and disinfecting systems must be approved by survey prior to issue of a ship Sewage Certificate.
Recyclable	Recyclable wastes should be placed in designated containers provided on installation and supply vessels. The waste container should be clearly marked “For Recycling” and the contents named. Recyclable hazardous wastes, such as oils and batteries, will be stored separately from non-recyclable materials and appropriately labelled.
Handling, Labelling and packaging	
All	All wastes to be sent onshore must be properly labelled with appropriate Safety Data Sheets (SDS) attached for hazardous wastes. Prior to loading any wastes for shipment to shore, a final check must be made of the requirements for packaging, labelling and documentation.
	Labelling should identify clearly the contents, the hazards, and the producer of the waste, and should be linked to the transfer documentation (e.g. Waste Transfer and Consignment Note). The labelling for hazardous waste will be based on the current IMDG (International Maritime Dangerous Goods) classification. Secondary hazard/marine pollutant labels must also be used where applicable.
	To ensure containment and to prevent any risk of exposure or contamination, all packaging used must be suitable for the materials involved, be leak proof, and be capable of withstanding the rigors of transportation. All packaging must be of a United Nations (UN) approved type, unless the material has been packaged prior to handling and it is impractical to repackage it. For wastes that are also classified as Dangerous Goods under IMDG, the inner packaging is defined by the hazard and the IMDG Code.
	In the case of liquid wastes, care must be taken to adhere to the appropriate fill level to prevent over-pressurisation of waste containers. Drums of waste must not be loaded in open skips/half heights as this causes problems to the waste disposal contractors on removal.
	Sacks must only be used for dry wastes, and these must be of the appropriate approved type. Bags pre-marked for hazardous waste must not be used for non-hazardous wastes to avoid mishandling at the disposal locations.
General (non-hazardous)	For general non-hazardous solid waste, wood, packaging wastes and general mixed scrap metal, baskets/skips up to the size of "half heights" can be used. Unless used for large single items, full height open-topped containers should not be used for waste/mixed scrap as these may exceed the lift capacity of the waste management contractors' forklifts and cannot be emptied other than by hand.
Disposal	
General (non-hazardous)	Offshore, no solid wastes will be discharged overboard and on board storage will include suitable containers (segregated from hazardous waste materials), labelled as ‘General Waste Skips’, ahead of being transported back to shore for disposal/recycling.
	Non-hazardous, inert solid wastes from construction or O&M activities will be transported to shore and disposed of at a suitable landfall site.
	In relation to sewage and garbage, the requirements of MARPOL73/78 Annex IV and MARPOL 73/78 Annex V (as amended) will be complied with: • Annex IV (Prevention of Pollution by Sewage from Ships) prohibits the discharge of sewage into the sea, except when the ship has an approved sewage treatment plant or when the ship is discharging comminuted and disinfected sewage using an approved system at a distance of more than three nautical miles from the nearest land;

Waste Type	Management Measures
	sewage which is not comminuted or disinfected has to be discharged at a distance of more than 12 nautical miles from the nearest land (IMO, 2015). • Annex V (Prevention of Pollution by Garbage from Ships) specifies the distances from land and the manner in which garbage may be disposed of; imposes a complete ban on the disposal into the sea of all forms of plastics (IMO, 2015).

Registered carriers

Waste generated during the construction and operation of the Development will only be transported onshore by companies registered with SEPA and possessing valid waste carrier licences as required in regulation 3, 4, 5 and 6 of The Environmental Protection (Duty of Care) (Scotland) Regulations 2014.

Offshore waste will be stored in appropriate containers and transported once ashore by SEPA licensed waste carriers, as published on the SEPA website:

http://www.sepa.org.uk/waste/waste_regulation/waste_carriers_and_brokers/who_is_registered.aspx

Once ashore, the containers will be transported by a SEPA licensed waste carrier to a licensed waste management facility.

B6. References

IMO (2015) International Convention for the Prevention of Pollution from Ships (MARPOL), Available at: http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx

Scottish Government (2009) Scotland's Zero Waste Plan, Available at: http://www.gov.scot/Publications/2009/08/19141153/8.

Scottish Government (2010) Scotland's Zero Waste Plan.

Scottish Government (2012) Duty of Care – A Code of Practice.

SEPA (2010) Site Waste – A Simple Guide to Site Waste Management Plans.

Table B3 - European Waste catalogue (EWC) codes and waste categories potentially generated offshore from the construction and operation of the Development (extracted from European Waste Framework Directive (WFD) (2008/98/EC)). * Denotes hazardous waste entry.

08 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS
08 01 wastes from MFSU and removal of paint and varnish
08 01 11* waste paint and varnish containing organic solvents or other hazardous substances
08 01 12 waste paint and varnish other than those mentioned in 08 01 11
08 01 13* sludges from paint or varnish containing organic solvents or other hazardous substances
08 01 14 sludges from paint or varnish other than those mentioned in 08 01 13
08 01 15* aqueous sludges containing paint or varnish containing organic solvents or other hazardous substances
08 01 16 aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 17* wastes from paint or varnish removal containing organic solvents or other hazardous substances
08 01 18 wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01 19* aqueous suspensions containing paint or varnish containing organic solvents or other hazardous substances
08 01 20 aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19
08 01 21* waste paint or varnish remover
08 01 99 wastes not otherwise specified
08 02 wastes from MFSU of other coatings (including ceramic materials)
08 02 01 waste coating powders
08 02 02 aqueous sludges containing ceramic materials
08 02 03 aqueous suspensions containing ceramic materials
08 02 99 wastes not otherwise specified
08 03 wastes from MFSU of printing inks
08 03 19* disperse oil
08 03 99 wastes not otherwise specified
08 04 wastes from MFSU of adhesives and sealants (including waterproofing products)
08 04 09* waste adhesives and sealants containing organic solvents or other hazardous
08 04 10 waste adhesives and sealants other than those mentioned in 08 04 09
08 04 11* adhesive and sealant sludges containing organic solvents or other hazardous
08 04 12 adhesive and sealant sludges other than those mentioned in 08 04 11
08 04 13* aqueous sludges containing adhesives or sealants containing organic solvents or other hazardous substances
08 04 14 aqueous sludges containing adhesives or sealants other than those mentioned in 08 04
08 04 15* aqueous liquid waste containing adhesives or sealants containing organic solvents or other hazardous substances
08 04 16 aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15
08 04 17* rosin oil
08 04 99 wastes not otherwise specified
08 05 wastes not otherwise specified in 08

08 05 01* waste isocyanates
13 OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils, and those in chapters 05,12 and 19)
13 01 waste hydraulic oils
13 01 01* hydraulic oils, containing Polychlorinated biphenyl (PCBs) (1)
13 01 04* chlorinated emulsions
13 01 05* non-chlorinated emulsions
13 01 09* mineral-based chlorinated hydraulic oils
13 01 10* mineral based non-chlorinated hydraulic oils
13 01 11* synthetic hydraulic oils
13 01 12* readily biodegradable hydraulic oils
13 01 13* other hydraulic oils
13 02 waste engine, gear and lubricating oils
13 02 04* mineral-based chlorinated engine, gear and lubricating oils
13 02 05* mineral-based non-chlorinated engine, gear and lubricating oils
13 02 06* synthetic engine, gear and lubricating oils
13 02 07* readily biodegradable engine, gear and lubricating oils
13 02 08* other engine, gear and lubricating oils
13 03 waste insulating and heat transmission oils
13 03 01* insulating or heat transmission oils containing PCBs
13 03 06* mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01
13 03 07* mineral-based non-chlorinated insulating and heat transmission oils
13 03 08* synthetic insulating and heat transmission oils
13 03 09* readily biodegradable insulating and heat transmission oils
13 03 10* other insulating and heat transmission oils
13 04 bilge oils
13 04 01* bilge oils from inland navigation
13 04 02* bilge oils from jetty sewers
13 04 03* bilge oils from other navigation
13 05 oil/water separator contents
13 05 01* solids from grit chambers and oil/water separators
13 05 02* sludges from oil/water separators
13 05 03* interceptor sludges
13 05 06* oil from oil/water separators
13 05 07* oily water from oil/water separators
13 05 08* mixtures of wastes from grit chambers and oil/water separators
13 07 wastes of liquid fuels
13 07 01* fuel oil and diesel
13 07 02* petrol
13 07 03* other fuels (including mixtures)
13 08 oil wastes not otherwise specified
13 08 01* desalter sludges or emulsions

13 08 02* other emulsions
13 08 99* wastes not otherwise specified
14 WASTE ORGANIC SOLVENTS, REFRIGERANTS AND PROPELLANTS (except 07 and 08)
14 06 waste organic solvents, refrigerants and foam/aerosol propellants
14 06 01* chlorofluorocarbons, hydrochlorofluorocarbons (HCFC), hydrofluorocarbon (HFC)
14 06 02* other halogenated solvents and solvent mixtures
14 06 03* other solvents and solvent mixtures
14 06 04* sludges or solid wastes containing halogenated solvents
14 06 05* sludges or solid wastes containing other solvents
15 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01 packaging (including separately collected municipal packaging waste)
15 01 01 paper and cardboard packaging
15 01 02 plastic packaging
15 01 03 wooden packaging
15 01 04 metallic packaging
15 01 05 composite packaging
15 01 06 mixed packaging
15 01 07 glass packaging
15 01 09 textile packaging
15 01 10* packaging containing residues of or contaminated by dangerous substances
15 01 11* metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers
15 02 absorbents, filter materials, wiping cloths and protective clothing
15 02 02* absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances
15 02 03 absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
17 CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01 concrete, bricks, tiles and ceramics
17 01 01 concrete
17 01 02 bricks
17 01 03 tiles and ceramics
17 01 06* mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances
17 01 07 mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 wood, glass and plastic
17 02 01 wood
17 02 02 glass
17 02 03 plastic
17 02 04* glass, plastic and wood containing or contaminated with hazardous substances
17 03 bituminous mixtures, coal tar and tarred products
17 03 01* bituminous mixtures containing coal tar

17 03 02 bituminous mixtures other than those mentioned in 17 03 01
17 03 03* coal tar and tarred products
17 04 metals (including their alloys)
17 04 01 copper, bronze, brass
17 04 02 aluminium
17 04 03 lead
17 04 04 zinc
17 04 05 iron and steel
17 04 06 tin
17 04 07 mixed metals
17 04 09* metal waste contaminated with hazardous substances
17 04 10* cables containing oil, coal tar and other hazardous substances
17 04 11 cables other than those mentioned in 17 04 10
17 05 soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03* soil and stones containing hazardous substances
17 05 04 soil and stones other than those mentioned in 17 05 03
17 05 05* dredging spoil containing hazardous substances
17 05 06 dredging spoil other than those mentioned in 17 05 05
17 05 07* track ballast containing hazardous substances
17 05 08 track ballast other than those mentioned in 17 05 07
17 06 insulation materials and asbestos-containing construction materials
17 06 01* insulation materials containing asbestos
17 06 03* other insulation materials consisting of or containing hazardous substances
17 06 04 insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05* construction materials containing asbestos (7)
17 08 gypsum-based construction material
17 08 01* gypsum-based construction materials contaminated with hazardous substances
17 08 02 gypsum-based construction materials other than those mentioned in 17 08 01
17 09 other construction and demolition wastes
17 09 01* construction and demolition wastes containing mercury
17 09 02* construction and demolition wastes containing PCB (for example PCB containing sealants, PCB-containing resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors)
17 09 03* other construction and demolition wastes (including mixed wastes) containing hazardous substances
17 09 04 mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

Table B4 - Properties of Wastes Which Render It Hazardous[4]

H1 “Explosive”	Waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included.
H2 “Oxidising”	Waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials.
H3 “Flammable”	• Flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and ≤ 75 °C; • Flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air; • Flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction; • Flammable gaseous waste: gaseous waste which is flammable in air at 20 °C and a standard pressure of 101.3 kPa; • Water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities; • Other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.
H4 “Irritant – skin irritation and eye damage”	Waste which on application can cause skin irritation or damage to the eye.
H5 “Specific Target Organ Toxicity (STOT)/Aspiration Toxicity”	Waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration
H6 “Acute Toxicity”	Waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.
H7 “Carcinogenic	Waste which induces cancer or increases its incidence.
H8 “Corrosive”	Waste which on application can cause skin corrosion.
H9 “Infectious”	Waste containing viable micro-organisms or their toxins that are known or reliably believed to cause disease in man or other living organisms.
H10 “Toxic for reproduction”	Waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.
H11 “Mutagenic”	Waste which may cause a mutation that is a permanent change in the amount or structure of the genetic material in a cell.
H12 “Release of an acute toxic gas”	Waste which releases acute toxic gases (Acute Tox. 1, 2 or 3) in contact with water or an acid.
H13 “Sensitizing”	Waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.
H14 “Ecotoxic”	Waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
H15	“Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste

[4] COMMISSION REGULATION (EU) No 1357/2014 of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives.

Table B5 - Example Key Waste Forecast (for WTG installation) Source of data- SWC Site Waste Calculation Spreadsheet– Ref: INS 14541

Construction / Operation	Description	Material	Type of Waste	Estimated Quantity Construction	Target for Reuse/Recycle
Construction	General waste	Mixed	Household	17640 Kg	Onshore disposal
Construction	Mixed Cable	Aluminum Cable	Cable Cuts	4032 Kg	Recycling
Construction	Aluminum	Aluminum	Plates, bolts and Other	6384 Kg	Recycling
Construction	Stainless Steel	Stainless Steel	Wires and Others	3192 Kg	Recycling
Construction	Soft Polyvinyl chloride (PVC) - Tarpaulin	Tarpaulins	Tarpaulins – made from soft PVC	15288 kg	Recycling
Construction	Metal	Metal	Bolts, washers and other metals	50,064 kg	Recycling
Construction	Cardboard/ Paper	Cardboard Paper	Packaging	17640 Kg	Recycling
Construction	Mixed plastic folio	Wrapping Folio (Transparent)	Wrapping Folio	3696 Kg	Recycling
Construction	Wood	Wood	Pallets and frame	54,684 Kg	Recycling
Construction	Small Batteries	Small Batteries	Hand tool, AA, AAA and other	29 Kg	Recycling
Construction	Used Spray Cans (UN 1950)	Empty Spray Cans <1 L (UN 1950)	Neverseez, Cleaning and Other	29 Kg	Recycling
Construction	Used Liquid Coolant	Liquid Coolant	Top Up left Overs	114 Kg	Recycling
Construction	Used liquid Oil	Waste Oil	Oil from Pump station, Refill	1058 Kg	Recycling
Construction	Paint Materials (UN 1263)	Paint Residues (UN 1263)	Sikaflex, Paint Repairs, Loctite	36 Kg	Recycling
Construction	Dry Paint Materials	Paint Contaminated Plastic	Paint contaminated plastic, cardboard and other solids	151 Kg	Recycling
Construction	Solid Oil Materials	Oil/Fat Containing Cloths / Rags	Tubes, Cloths	260 Kg	Recycling

Construction / Operation	Description	Material	Type of Waste	Estimated Quantity Construction	Target for Reuse/Recycle
Construction	Used Oil Filters	Oil Filters	Service of Oil Filters	106 Kg	Recycling
Commissioning	General Waste	Household	Household	10,920 Kg	Recycling
Commissioning	Cardboard/ Paper	Cardboard/ Paper	Cardboard / Paper from Packaging & Office	2940 Kg	Recycling
Commissioning	Mixed Plastic Folio	Wrapping Folio (Transparent)	Wrapping Folio from pallets	193 Kg	Recycling
Commissioning	Metal	Metal	Bolts, washers and other metals	353 Kg	Recycling
Commissioning	Stainless Steel	Stainless Steel	Bolts, washers and other stainless steel materials	735 Kg	Recycling
Commissioning	Copper Cable	Copper Cable	Cable Cuts without plugs	336 Kg	Recycling
Commissioning	Aluminum Cable	Aluminum Cable	Cable Cuts with Plugs	1092 Kg	Recycling

APPENDIX C - ECOW MONTHLY COMPLIANCE REPORT PROPOSED TEMPLATE

European Offshore Wind Deployment Centre (EOWDC)	
Monthly Ecological Clerk of Works (ECoW) Compliance Report	
Reporting Period:	
Report prepared by:	*Insert ECoW name and contact details.*
Date of Report:	*Insert date report submitted*
Other Contributors:	
Contractors:	
Archaeological Consultant:	
Fisheries Liaison Officer:	
Others:	

Section 1 – Summary of Construction Activities in [INSERT REPORTING PERIOD]	
Component	**Description of activities**
Preparatory works	*Provide list of activities, e.g., vessel mobilisation, major component deliveries, route clearance and pre-lay grapnel runs.*
Foundations	***Jacket installation***
	Number installed and location.
Cables	***Inter-array***
	Include details of any cable laying or protection activities.
	Offshore Export Cables (OECs)
	Include details of any cable laying or protection activities.
Wind Turbine Generators	*Number installed and location.*

Section 2 – Summary of Environmental Management Issues Arising in [INSERT REPORTING PERIOD]			
Date	**Construction Activity**	**Description of Environmental Management Incident or issue**	**Corrective Action Taken**
Any other relevant comments in relation to environmental management measures in the reporting period	*e.g. areas of non-compliance, suggested amendments, improvements made or lessons learned etc*		

Section 3 – Summary of Pollution Incidents Arising in [INSERT REPORTING PERIOD]			
Date	**Construction Activity**	**Description of Pollution Event**	**Corrective Action Taken and Status**
Any other relevant comments in relation to pollution prevention or planning in the reporting period	*e.g. near misses, areas of non-compliance, suggested amendments, improvements made or lessons learned etc*		

Section 4 – Summary of Notifications Issued in [INSERT REPORTING PERIOD]			
Date	**Main Activity**	**Notices issued**	**Issued to**

Copies of Notice to Mariners or other notifications should be provided separately

Section 5 – Summary of Construction Activities Planned for [INSERT NEXT REPORTING PERIOD]	
Component	**Description of activities**
Preparatory works	*Provide list of planned activities, e.g., vessel mobilisation, major component deliveries, route clearance and pre-lay grapnel runs.*
Foundations	***Jacket installation***
	Number planned and location
Cables	***Inter-array***
	Include details of any planned cable laying or protection activities.
	OECs
	Include details of any planned cable laying or protection activities.
Wind turbines	*Number planned and location.*

Section 6 – Construction Programme Updates
Highlight any changes to anticipated scheduling of works in the previous month or coming month.

Section 7 - Additional Information related to environmental management measures from [INSERT REPORTING PERIOD]
Append any additional information relevant to ECoW compliance and OEMP reporting including e.g. details of ECoW inspections, inductions and audits completed in the preceding month in respect of the Construction Method Statement (CMS), Offshore Environmental Management Plan (OEMP), Marine Pollution Contingency Plan (MPCP), Cable Laying Strategy (CLS) and Vessel Management Plan (VMP).

APPENDIX D - INCIDENT REPORTING TEMPLATE

The following information is drafted from the AOWFL Offshore Emergency Plan (ABE-HSS-QB-0004).

To activate an emergency response as precisely and quickly as possible remember these 5 W's in your initial request for assistance:

W = Who is calling
W = Where are you calling from
W = What has happened
W = When has this happened
W = Weather at the place of incident

A) Structure / Ship name, IMO, Call sign, Flag:	B) Name and address of owners and name of master, skipper or person in charge:
C) Date and time of incident:	
D) Position of incident:	E) Part of structure / ship where accident occurred:
F) Name and port of registry of any other ship involved:	G) Number and names of people killed or injured:
H) Ship's course:	I) Speed
J) Intended track	K) Weather conditions
L) Communication channels monitored:	
M) Date and time of next report:	
N) Brief details of incident, including description of incident and injuries:	
O) Wind speed and direction:	P) Swell direction and height:
Q) Ships length, breadth, draft and Type:	
R) Reported to:	S) Position, Company
T) Reported by:	U) Position, Company
V) Signature:	

Note: This form is to be filled in by any personnel/vessel master/representative that deals with the incident. Once the situation has been resolved, a HSSE Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR) or Marine Accident Investigation Branch (MAIB) (IRF) report shall be produced, if the nature of the incident requires such a report.

APPENDIX E - OFFSHORE WIND & MARINE RENEWABLES DROPPED OBJECTS FORM

marinescotland

The Scottish Government
Riaghaltas na h-Alba

OFFSHORE WIND & MARINE RENEWABLES DROPPED OBJECTS FORM

Marine Scotland notification pro-forma for reporting the dropped materials from the offshore wind/marine renewables industry at sea

Forward to the following contacts within 6 hours of dropping object: [Marine Scotland Contact – 0300 244 4000 and ask for Marine Scotland Duty Officer]

Marine Scotland Marine Scotland Licensing Operations Team DECC Aberdeen: 01224 254100	**Compliance / Fisheries Policy /** MS.MarineRenewables@gov.scot offshore.inspectorate@decc.gsi.gov.uk or fax:
Scottish Fisherman's Federation Inshore Fisheries Groups	PON2@sff.co.uk or fax – 01224 647078 alastair.mcruaraidh.mcneill@gmail.com , doninicholson@hotmail.com , maddox.iain@gmail.com , Stewart@ofsorkney.co.uk
National Federation of Fisherman's Org Maritime & Coastguard Agency	nffo@nffo.org.uk or fax 01904 635431 aberdeen.coastguard@mcga.gov.uk or fax 01224 575920
Kingfisher at Seafish 268792	kingfisher@seafish.co.uk or fax 01472

Reporter Details		Date of Report:
Full Name:	**Position/Title:**	
Contact Telephone No:	**Contact E-Mail:**	
Operator/Organisation/Company responsible for dropped object:		
Name offshore Wind/Marine Renewable development or ship responsible for dropped object		
Location/position at the time of dropping object:		
Latitude:	**Longitude:**	
Date dropped:	**Time (24hours):**	
Weather conditions at time:	**Depth of Sea (metres)**	
Wind Direction (0-360 degree):	**Wind Speed (knots):**	
Beaufort Scale:	**Wave Height (metres):**	

Dropped Object(s) – provide full description. Materials involved, function of object, dimensions etc. Provide Photos if available.	
If the materials are resting on the seabed are they near wind turbines / renewable devices? Yes or No:	
Are the materials likely to float on sea surface or in water column? Yes or No:	
If the answer to question above is YES - are materials likely to reach shore or cross a median line? - please specify	
Reasons from dropping object(s) (if Force Majeure is invoked please clearly state this):-	
Are there plans to recover the materials? – if yes, specify details including anticipated timescales for the recovery operation. If there are no plans to recover the materials the reason for this must be clearly specified.	
What are considered to be the risks and dangers to other users of the sea as a result of the lost or dumped materials not being recovered?	
Any further information that may be useful:	

For Internal Marine Scotland use only

Close off's received from

MS – Compliance/Fisheries/Renewables	
SFF	
NFFO	
IFGs	
MCA	
Kingfisher	
BEIS	

APPENDIX F - COMPLIANCE WITH ES MITIGATION MEASURES

Table F1 presents the commitments made by AOWFL in the ES and associated SEIS to mitigation measures relevant to this OEMP.

Table F1 - ES and SEIS Environmental Management Mitigation relevant to this OEMP

Source and Reference	Details of Commitment	Implementation
ES- Marine Mammals	Marine Mammal Protection Plan (MMPP) Including piling mitigation measures; soft – start Marine Mammal Observers, Passive Acoustic Monitoring (PAM).	Piling is no longer a method under consideration and as such mammal mitigation measures including soft start procedures are no longer required. Construction methods are outlined in Section 7 of the CMS. SNH provided the following advice in a note on 19th April 2017 relating to the use of PAM: '*with the use of suction anchors, there is no requirement to undertake passive acoustic monitoring – this was related to potential marine mammal disturbance as a result of pile-driving activity and hence is no longer needed'*.
ES- Shipping and Navigation	Appropriate liaison to ensure information on the wind farm and special activities is circulated in Notices to Mariners, Navigation Information Broadcasts and other appropriate media.	Information pertaining to Notice to Mariners is included in the NSP.
ES- Shipping and Navigation	The Applicant would use the draft template created by the MCA to formulate an emergency response plan and site Safety Management Systems, in consultation with the MCA.	Outlined in NSP (Doc ref ABE-ENV-QB-0008) and ERCoP (ABE-HSS-QB-004).
ES- Commercial Fisheries	Contractors' obligations and standard offshore practices would prevent, or in case of accidental incidents, remove dropped objects.	Outlined in Section 6, Appendix B and Appendix E of this OEMP.
ES- Commercial Fisheries	Safety issues for fishing vessels (collision with construction vessels) - Implementation and adherence to standard offshore safety procedures.	Outlined in NSP.

Source and Reference	Details of Commitment	Implementation
ES- Marine and Maritime Archaeology	Avoidance, where practicable, is the preferred mitigation strategy for known cultural heritage assets. Minor amendments to the position of cable trenching and the configuration or placement of the foundation of WTG 8 (now called AWF07) were made prior to the submission of the ES. Best practice and effective monitoring may be partly achieved by implementing the Crown Estate reporting protocol. An Archaeological Plan will be included in the Offshore Environmental Management Plan (OEMP).	The final WTG layout has taken account of archaeological assets. Amendments to cable trenching position also made prior to ES being submitted. An outline of the Archaeology Plan is provided in Section 11 of this OEMP.
ES- Salmon and Sea Trout	Soft-start piling Installation schedule to be discussed with relevant Stakeholders and regulators	Piling is no longer a method under consideration and as such mitigation measures including soft start and consideration of the installation schedule is not required.
ES- Salmon and Sea Trout	Cables will be buried.	Details on cable burial are provided in the Cable Laying Strategy (Doc ref: ABE-ENV-DB-0003).
ES- Salmon and Sea Trout	Environmental management will be carried out in accordance with relevant legislation and best practice guidelines.	Best practice construction guidelines are outlined in the CMS (Doc ref: ABE-ENV-DB-0014). The relevant legislation this OEMP has been drafted in accordance with is provided in Appendix A.
ES- Ornithology	Construction: Minimise as far as practicable significant piling operations during periods of high seabird sensitivity.	Piling is no longer a method under consideration and as such mitigation measures are not required.
ES- Ornithology	Construction and Operation: Minimise vessel movements and use existing shipping routes as far as practicable.	Vessel movements will be minimised and existing shipping routes will be used for regular vessel transit routes as far as is practicable as outlined in the Vessel Management Plan (Doc ref: ABE-ENV-BD-0006).
ES- Ornithology	Operation: Minimise use of lights as far as practicable.	Use of lights will be minimised as far as is practicable and in line with the NSP.