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Rock Protection Construction Environmental Management Plan

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Caithness to Moray HVDC Transmission Project

Rock Protection Construction Environmental
Management Plan



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1. Introduction

The scope of the Construction Environmental Management Plan (CEMP) for rock protection work is to describe how activities during this work will be compliant with the relevant environmental legislation, the Marine Licences for the work, ABB Management Systems, and the Contractual requirements as set out within the Commitments Register (Appendix 7 of the Construction Environmental Management Document (CEMD)).

This document applies to activities conducted by ABB HVC (ABB), and will be adhered to by all personnel involved with any package of this scope of supply.

Where specific requirements quoted in the Contract differ from the requirements in applicable regulations or the ABB Management System, the EMP will cover for the more stringent requirement.

1.1. Document Purpose

The aim of the Rock Protection CEMP is to identify marine environmental processes and standards that are required to be met throughout the installation of the rock protection. This is required to ensure high levels of environmental performance are achieved and to ensure that work is carried out in compliance with current legislation, with ABB procedures, and according to Scottish Hydro Electric (SHE) Transmission requirements as detailed in the Contract Quality, Environment, Safety and Health (QESH) conditions.

This Rock Protection CEMP is a site specific document relating to the placement of rock protection for the Caithness to Moray HVDC Transmission project, with sections and appendices delivering specific plans that are required as part of the commitments made during project development. It has been developed using a combination of information from the Scottish and Southern Energy (SSE) CEMD (May 2012), the Caithness and Moray Environmental Appraisals, and approved Q and HSE plans.

Implementation of this CEMP will be achieved by compliance with legal requirements, provision of sound advice, pro-active management and supervision and adequate consultation.

ABB will ensure:

- That all marine installation arrangements are planned, coordinated, controlled and monitored through project management involvement as per assigned ABB roles, responsibilities and levels of authority.
- That the project is undertaken in such a way that risks to the environment for the duration of the project are eliminated or reduced to a level as low as is reasonably practicable (ALARP).

All Personnel will comply with this CEMP, legislation, ABB standards and Employer requirements.

This Rock Protection CEMP comprises one element of the wider project documentation as shown in Figure 1.1. While the Project Environmental Plan (PEnvP) (1JNL305858) presents overarching aspects of environmental management at the higher Project level (and therefore is referenced throughout this document), this Rock Protection CEMP presents information specifically relevant to rock protection work only.

This site specific CEMP does not include for the employer's ECoW responsibilities (e.g. audit and inspection) outlined within Appendix 7 of the CEMD.

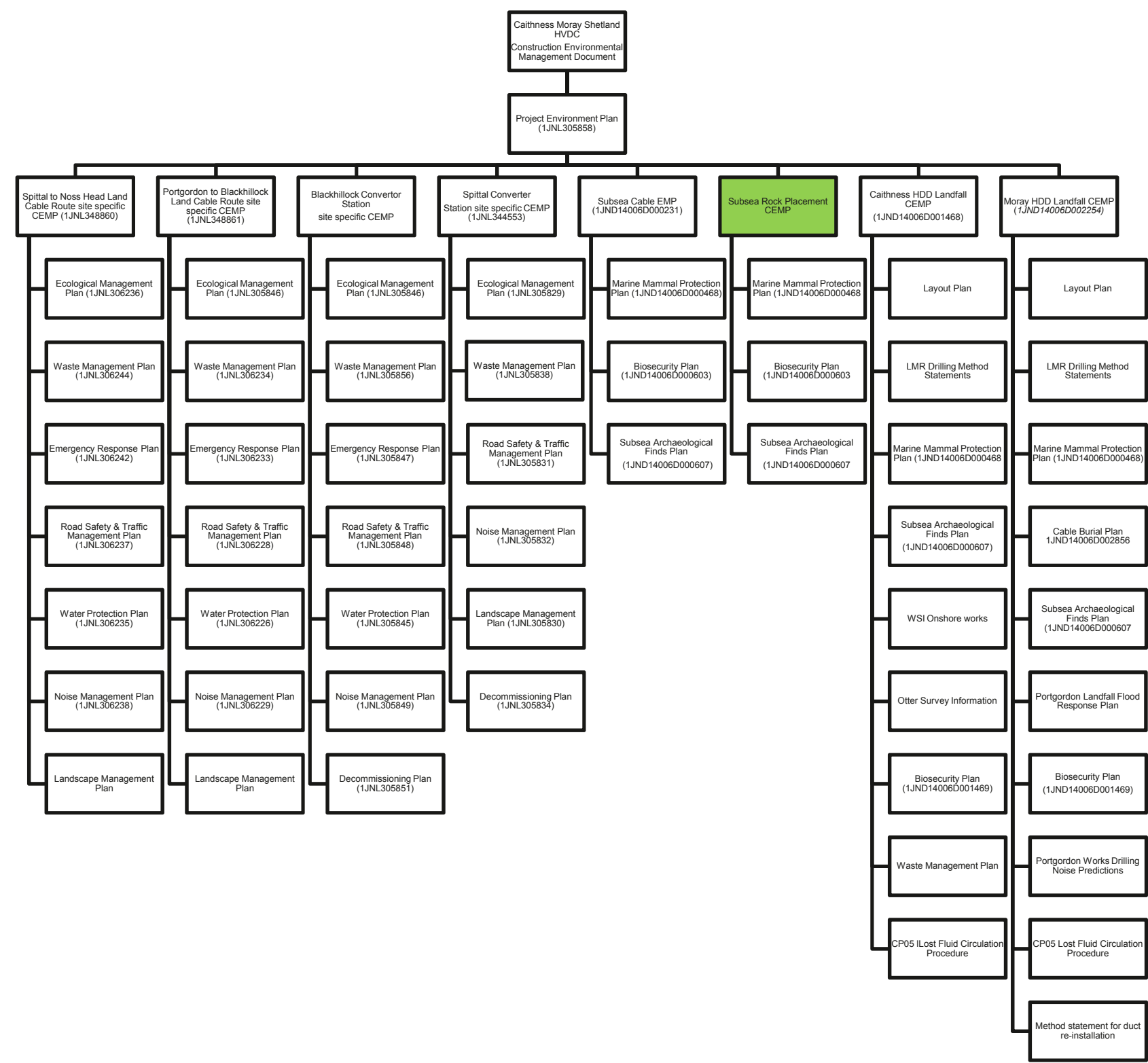


Figure 1.1: Project Document Dendrogram

1.2. Scope of Rock Protection Work

The rock installation works comprise stabilisation and protection works at various locations along the route of the Caithness-Moray-Shetland (CMS) High Voltage Direct Current (HVDC) project. The Rock Placement activities will be executed by a Dynamic Positioned Fall Pipe Vessel (DPFPV). This CEMP covers the activities planned to be undertaken during cable protection work within 12 nm. The two work locations covered by this CEMP are; Noss Head landfall to 12 nm, and Portgordon landfall to 12 nm.

A Marine Licence(s) is being sought to consent rock protection in these work locations. It should be noted that consents already exist for the project for a limited volume of rock protection in each location (and which is covered by existing project documentation). This CEMP details the approach to environmental management to be applied to the rock protection work covered by the new Marine Licence(s) only, and draws from the overall Project Environmental Management Plan (PEMP) and Construction Environmental Management Document (CEMD). This CEMP is therefore closely aligned to existing Project documentation, including the existing approved CEMP for offshore work.

The tonnages of rock anticipated to be required at each location are detailed in Table 1.1.

Table 1.1: Anticipated tonnages of rock required at each location under the new Marine Licence Application

Location	Tonnage
Noss Head landfall to 12 nm	109,187
Portgordon landfall to 12 nm	44,190



1.4. Definitions

Table 1.2: Definitions

Term	Definition
Contractor	ABB AB High Voltage Cables
Employer	Scottish and Southern Energy
Accident	Event that causes injury, illness and/or damage/loss to assets, environment or third parties
Alert	The first immediate verbal or written information about an undesirable event in the established emergency response organisation
Information	Verbal (notification) or written information relating to an undesirable event in the line organisation

1.5. Abbreviations

Table 1.3: Abbreviations

Abbreviation	Description
ABB	ABB AB High Voltage Cables
AEZ	Archaeological Exclusion Zones
ALARP	As Low As Reasonable Practicable
COSHH	Control of Substances Hazardous to Health
CMID	Common Marine Inspection Document
DPR	Daily Progress Report
EMC	Emergency Response Centre
EPRP	Emergency Preparedness and Response Plan
ERT	Emergency Response Team
EZ	Exclusion Zone
HAZID	Hazard Identification
HAZOP	Hazard and Operability Study
HIRA	Hazard Identification- Risk Assessment
HSE	Health, Safety and Environment
IMCA	International Marine Contractors Association
IMO	International Maritime Organization
ISM	International Safety Management Code
ISPS	International Ship and Security System
JRCC	Joint Rescue Coordination Centre
MDR	Master Document Register
MEDEVAC	Medical Evacuation
MRCC	Marine Rescue Coordination Centre
OSC	On Scene Commander
OVID	Offshore Vessel Inspection Database
PAD	Protocol for Archaeological Discoveries
PEnvP	Project Environmental Plan

Abbreviation	Description
PLGR	Pre Lay Grapnel Run
PPE	Personnel Protection Equipment
PTW	Permit to Work
QHSE	Quality Health Safety and Environmental
ROV	Remotely Operated Vehicles
SDS	Safety Data sheet
SIMOPS	Simultaneous Operations
SJA	Safe Job Analysis
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Marine Pollution Emergency Plans
SSE	Scottish and Southern Energy
TBT	Tool Box Talk
TEZ	Temporary Exclusion Zones
UXO	Unexploded Ordnance

1.6. ABB Internal References

The referenced documents are part of the HVC Internal Management System and constitute policies, manuals and instructions applicable for the Submarine rock placement Project and are available for review upon request.

Table 1.4: ABB Internal References

Document Number	Description
1JND091418D168	Change and Claim Management
9ADG117541	Chemical Substances and Material
1JND091418D0140	Drug Policy
1JND0914D0106	Delegation of OHS
1JND091418D0207	Environmental Manual
9ADG113893	Environmental Policy
1JND091418D0096	Health and Safety Manual
9AGD113897	Health and Safety Policy
1JND091418D0090	Identification and Evaluation of Environmental Aspects
1JND091418D0141	Incident Investigation
1JND091418D0109	Incident Reporting
1JND010343	Initial Incident Notification Form
1JND091418D0098	Internal Audits
1JND091418D0179	Instruction for Electrical Work
1JND091418D0700	Instruction for Hot Work
1JND091418D0205	Instructions for Subcontractors
1JND091418D0684	Instruction for Work with Lead
1JND091418D130	Legal Requirements, identification and register
1JND091418D0689	Marking and Storage of Chemical Substances
1JND091418D0191	Occupational Health Policy

Document Number	Description
1JND091418D0202	OHS Training
1JND091418D0108	Risk Identification in Daily Work
GI/Q0001.02	Subcontractors Qualification Process
9AGD113894	Travel Policy

1.7. Employer References

Table 1.5: Employer References

Document number	Description
12-0381	Caithness-Moray-Shetland HVDC Link, Contract between SSE & ABB AB
Schedule Part A.3	Employers Works information
LT-CMS-Env-0001 App 7	Construction Environmental Management Document
SP-PS-LT-901	SHE Specifications Requirements for Contracts

1.8. Project Specific Documentation

This Subsea Cable EMP forms part of the overall Project documentation (See Figure 1.1) and must be read in conjunction with the referenced documents in the table below.

Table 1.6: Project Specific Documentation

Document Reference	Document Title
1JND14006D000008	Quality Plan Subsea Cable Installation
1JND14006D000009	HSE Plan Subsea Cable Installation
1JNL305858	Project Environmental Plan
1JND14006D000468	Marine Mammals Protection Plan
1JND14006D000036	QHSE Audit Schedule Subsea Cable
1JND14006D001416	CMS Rock Placement Emergency Preparedness plan
1JND14006D000603	Subsea Cable Biosecurity plan
1JND14006D000604	Reps Pack - Offshore operations
1JND14006D000607	Subsea Archaeological Finds Plan

2. Legislation and Regulation

A Marine Licence, as required by the Marine (Scotland) Act 2010, will be in place to cover the rock protection work within 12 nm.

All vessels contracted to work on the subsea rock protection works will also adhere to the following regulations and guidance (Table 2.1) relating to various international seafaring standards and will have relevant certificates of compliance on board the vessel during project work. Ensuring the presence of a certificate of compliance will form part of the wider vessel HSE Audit. In addition, all vessels will display appropriate lights, shapes and signals in accordance with International Regulations for Preventing Collisions at Sea (COLREGS).

A number of international legislative measures and guidance documents are specifically applicable to ecological / environmental aspects of the installation work and require vessels to be in possession of documentation and/or certification (Table 2.2). An environmental checklist has been developed as part of the Section 10: Monitoring Plan for the subsea works in order to ensure documentation is evidenced.

Table 2.1: Legislation Register

Ref.	Convention / Legislation	Relevant Article / Annex
1	Tonnage Convention	Article 7
2	Load Line (LL) Convention	Article 16
3	1988 LL Protocol	Article 16
4	Safety Of Life At Sea (SOLAS) 1974	II-1/3-2; Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers (resolution MSC.215(82)), II-1/3-7; MSC/Circ.1135 on As-built construction drawings to be maintained on board the ship and ashore; II-1/5 and II-1/5-1; LL Convention; 1988 LL Protocol, regulation 10; II-1/19; MSC.1/Circ.1245; V/14.2 FAL.2/Circ.123 MEPC.1/Circ.769 MSC.1/Circ.1409 Annex, page 3; II-2/15.2.4 and II-2/15.3.2; II-2/15.2.2.5; II-2/16.2 regulations II-2/14.2.2 and II-2/14.4; III/35; V/19.2.1.4 and V/27; V/21; V/26 and V/28.1; II-1/28; V/18.8, VI/5.6 and VII/5; MSC.1/Circ.1353, IX/4; ISM Code, paragraph 13, XI-2/9.1.1; ISPS Code part A, section 19 and appendices, XI-2/9; ISPS Code part A, sections 9 and 10, XI-1/5, I/12; 1988 SOLAS Protocol, regulation I/12, V/19-1; MSC.1/Circ.1307, I/12; 1988 SOLAS Protocol, regulation I/12, I/12, as amended by the GMDSS amendments; 1988 SOLAS Protocol, regulation I/12,
5	Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978	Article VI, regulation I/2; STCW Code, section A-I/2
6	STCW Code, section A-VIII/1	Seafarers' Hours of Work and the Manning of Ships Convention, 1996 (No.180); IMO/ILO Guidelines for the development of tables of seafarers' shipboard working arrangements and formats of records of seafarers' hours of work or hours of rest
7	International Convention for the Prevention of Pollution from Ships (MARPOL)	Annex I, Regulations 7, 17, 36, and regulation 37; resolution MEPC.54(32) as amended by resolution MEPC.86(44) Annex IV, regulation 5; MEPC/Circ.408 Annex V, regulation 9 Annex VI, Regulations 6, 12.6, 14.6, 16.7

Ref.	Convention / Legislation	Relevant Article / Annex
8	International Convention on the Control of Harmful Anti-fouling Systems in Ships (AFS Convention)	Regulation 2(1) of annex 4 regulation 5(1) of annex 4
9	NOx Technical Code	Paragraphs 2.3.4 and 2.3.7
10	Marine (Scotland) Act 2010	Part 4, and Part 5

Table 2.2: Key Environmental (Ecological) Legislation and Guidance

Ref.	Convention / legislation	Relevant Article / Annex
10	International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM)	<p>Article 7 - Survey and Certification: ships are required to be surveyed and certified</p> <p>Annex Section B - Management and Control Requirements for Ships: ships are required to have on board and implement a Ballast Water Management Plan (BWMP) approved by the Administration. This BWMP is specific to each ship and each ship must have a readily available and accurate Ballast Water Record Book.</p> <p>Annex Section D - Standards for Ballast Water Management: BWE standard ('D-1') and a ballast water performance standard ('D-2'); and</p> <p>Annex Section E - Survey and Certification Requirements for Ballast Water Management: this requires ships to have an initial, renewal, annual and intermediate survey and certification of their ballast water management plans.</p>
11	Council Directive 92/43/EEC (Referred to as 'The Habitats Directive')	<p>Annex IV</p> <p>The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) (transposes the Habitat Directive in UK waters beyond 12 nautical miles offshore); and</p> <p>The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) which transposes the Habitats Directive into Scottish law for Scottish Territorial Waters (STW).</p>
Ref.	Guidance	Relevant Article / Annex
12	IMO Biofouling Guidelines (resolution MEPC.207(62))	IMO Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species
13	Marine Biosecurity Planning (Payne <i>et al.</i> , 2014).	Guidance for producing site and operation-based plans for preventing the introduction of non-native species. Report by SRSL Ltd. in conjunction with Robin Payne to the Firth of Clyde Forum and SNH (http://www.snh.gov.uk/docs/A1294630.pdf).

3. Environmental Responsibilities and Objectives

3.1. Operational Responsibilities

ABB is committed to ensuring that the project is undertaken in such a way that risks to the environment for the duration of the project are eliminated or reduced to a level as low as is reasonably practicable.

ABB is certified in accordance with the requirements of SS-EN ISO 18001:2007, SS-EN ISO 14001:2004 and has an integrated Health, Safety and Environmental Management Systems ensuring that ABB manage and control their occupational health, safety and environmental risks and improve their performance.

The HSE Responsibility is delegated from the top management throughout the line management as detailed in 1JND0914D0106 Delegation of OHS.

3.2. Contractor Responsibilities – CEMD

In addition to the requirements specified within this EMP, contractors are directed towards their obligations in relation to Risk Assessments and Method Statements (RAMS). RAMS will be prepared prior to work commencing and be submitted to the ABB Project Installation Manager for approval. RAMS will be submitted to the Employer for information or acceptance as required. ABB will complete risk assessments using a standard format.

The commitments (detailed in Appendix 7 of the CEMD) that require inclusion or consideration within RAMS for offshore rock protection activities are detailed below. Where project licences and consents issued after the production of the CEMD stipulate different requirements from those listed below, the project licences will take precedence.

3.2.1. General Obligations

- The Contractor and all subcontractors will comply with all licence conditions;
- The Contractor will be required to plan works to keep to the agreed cable corridor;
- The Contractor will be required to ensure disturbance to the local community from construction activities is minimised to that required for safe implementation of the works;
- No deviation from the schedule specified in the consent shall be made without the further written consent of the Scottish Executive;
- No radio beacon or radar beacon operating in the Marine frequency bands shall be installed or used on the Works without the prior written approval of the Scottish Ministers;
- In the event of the consented operations being dis-continued the works shall be removed and the site cleared to the satisfaction of the Scottish Ministers;
- Officers of HM Coastguard, or any other person authorised by the Scottish Ministers, should be permitted to inspect the works at any reasonable time;
- The works shall be maintained at all times in good repair; and
- Notification must be given to the Hydrographic Office, Ministry of Defence of both the progress and completion of the Works so that all necessary amendments to nautical charts are made to ensure navigational safety.

3.2.2. Pollution Prevention and Protection

- The Contractor will ensure that any bulk chemicals on any vessel are stored safely and securely. Secondary containment measures such as bunding or isolation of drains will be in place where spill risks are acute;
- The Contractor will follow and implement best management practices on site including the relevant pollution prevention guidelines;
- The Contractor will be required to select low sulphur fuel options where possible; and

- The Contractor will ensure that deck lighting that illuminates away from vessels will be minimised (within 5km of the shore).

3.2.3. Specific conditions relating to Rock Protection

- The Contractor will be required to minimise the area of direct disturbance to the seabed from cable burial;
- The cable will be buried to a target depth of 1 m wherever possible. Where sufficient burial cannot be achieved additional crushed rock protection will be required;
- Where armouring is required to prevent scour or protect the cable where it is not buried rock armour will be used;
- Between the emergence point of the cables and the start of the buried cable sections, cables will be protected using rock placement;
- The Contractor will be required to use crushed rock to protect the cable if burial cannot be achieved. The width of any such rock placement is expected to be up to 5 m in width¹;
- The Contractor will ensure that the volume of rock used in rock placement activities will be kept to a minimum. The width of rock covering should be minimised (up to 5 m) to avoid seabed disturbance and minimise waste and cost¹;
- Rock placement will be completed using a fall pipe to reduce the extent of seabed affected and minimise disturbance through the water column during installation¹;
- The Contractor will be required to use clean rock only for cable protection where rock placement is required;
- Following cable burial, the Contractor will conduct a survey of the cables to ensure that each cable has been adequately buried, to ensure no hazards have been left on the seabed and to establish where any rock placement is required.

3.2.4. Marking and Lighting

- The works should be marked and/or lighted as required by the Northern Lighthouse Board and remain so until the Scottish Ministers direct that the marking and/or lighting be altered or discontinued. It is therefore considered:
 - The landfall sites shall be marked by a diamond shaped marker board, yellow in colour with the horizontal wording “Power Cables” in black writing across the middle of the board. The lowest point of the board should be a minimum of 3 metres from ground level
 - During the preparation and operational phases adequate notice must be given to the Mariner prior to the commencement of any surveying, trenching and cable laying operations being undertaken, and that any barges and vessels engaged in these operations should be lit and marked as per the International Regulations for the Prevention of Collisions at Sea 1972
 - The Hydrographic Office should be informed of the route and landfall locations of the HVDC connection in order that all the affected Admiralty Charts are updated to give information on the proposed works SC2 Application to renew this consent
- If desired to display any marks or lights not required by this consent, details must be submitted to the Northern Lighthouse Board and their ruling complied with. The display of unauthorised marks or lights is prohibited; and
- Inform Marine Scotland and the lighting authority when the works have been completed and the marking established.

¹ Condition superseded by latest engineering design and associated project consents and consultation

3.3. Environmental Objective

ABB's environmental objective for the contracted works is 'Zero harm to the Environment'. ABB reach this goal through a systematic and planned approach, and have the following project specific Environmental Objectives:

- Ensure compliance with all legislation and licences applicable to project works
- Ensure sustainability is key to project delivery
- Deliver technical solutions giving full considerations to the physical environment, it's flora and fauna
- Employ practices that seek to avoid, minimise or mitigate environmental harm
- Deliver projects that fully comply with environmental regulatory and consenting requirements
- Challenge unsafe environmental practices and acknowledge and promote positive behaviours

4. Project Organisation, Roles and Responsibilities

ABB retain the responsibility for ABB site/vessel personnel. All Vessel Masters retain the statutory obligation to manage the marine activities in a proper manner. Nothing in this document or project procedures will replace or override this obligation.

4.1. Organisation and Responsibilities

The Organisation for the project is shown below (Figure 4.1). This will be further developed as the project progresses.

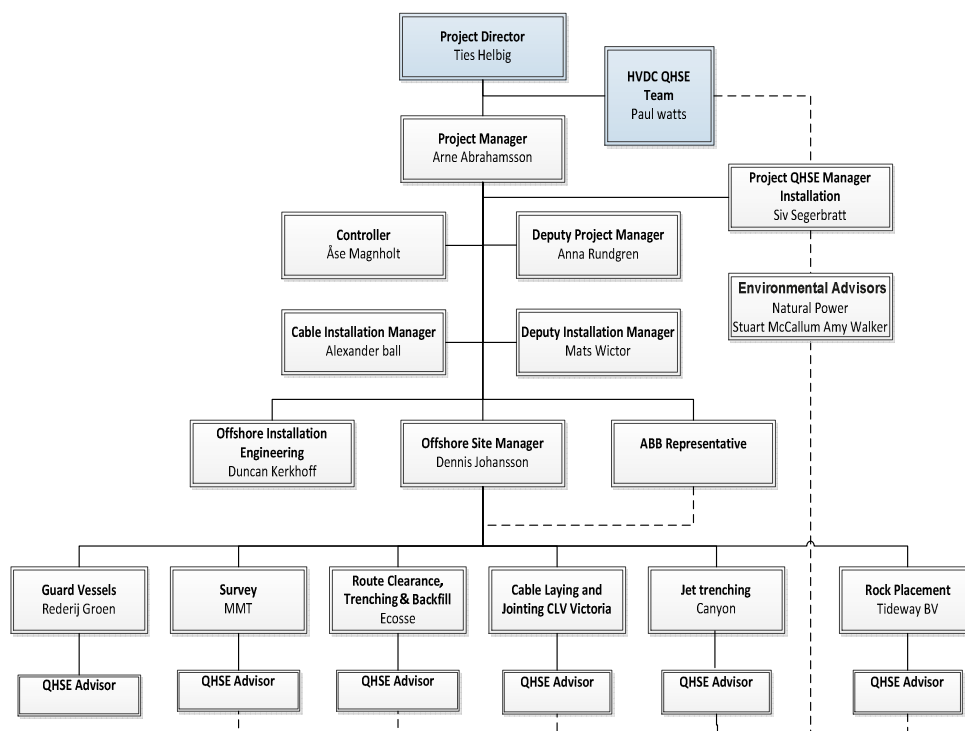


Figure 4.1: Project Organisation Organogram

4.2. Environmental Responsibilities

The environmental responsibilities of the key personnel / roles specific to the subsea installation scope of work are outlined below. All Vessel Masters retain the statutory obligation to manage the marine activities in a proper manner, including with respect to Environmental management. Nothing in this document or project procedures will replace or override this obligation.

4.2.1. Cable Installation Manager

The Installation Manager is responsible for monitoring environmental and licence compliance for the project.

The Cable Installation Manager reports directly to the Project Manager and has the following specific environmental responsibilities:

- Facilitate dissemination of environmental requirements to the Project Team;
- Oversee the implementation and review of Environmental procedures throughout the project;
- Monitor the environmental performance of the project through maintaining an overview of incidents, inspections and audits;
- Ensure that environmental considerations form an integral part of Design and Implementation of the Works and to include environmental reviews as part of regular project meetings
- Liaise with Project QHSE Manager on all environmental issues on a regular basis and as per project requirements;
- Promote and ensure compliance with site environmental rules;
- Plan and schedule installation operations with the environment in mind as a top priority in order to eliminate or minimise operational risks to an acceptable level;
- Ensure that identified unsafe activities with potential environmental impacts are stopped immediately, and that a safe working procedure/environment is restored before allowing the activity to re-start;
- Ensure that all environmental incidents are reported to QHSE Manager according to agreed procedures (in line with Section 9 – Emergency Response); and
- Nominate individual project team members to support SSE in public relations and community liaison activities, including local community meetings.

The Cable Installation Manager may be supported by the Site Manager as appropriate.

4.2.2. Project QHSE Manager Installation

The Project QHSE Manager Installation reports to the Project Manager, and to the HVDC QHSE Team, and is responsible for providing health, safety and environmental advice and guidance to managers, employees and others. Specific environmental responsibilities are outlined below.

- Manage delivery and implementation of environmental plans in accordance with SSE requirements, ABB procedures and current legislation;
- Maintains current environmental legislation register, reviewing as per relevant new developments;
- Implement and maintain a project communications strategy to manage project public relations and complaints;
- Provide the necessary updates and reports to project team and Client;
- Interface with ABB site staff and subcontracted companies on environmental issues;
- Will ensure the site specific EMP's are implemented, ensuring compliance with procedures and legislation;
- In conjunction with SSE, liaise with government departments, local authorities and other statutory authorities on environmental matters obtaining consents and permits, as per project needs;
- Review Method Statements against environmental issues; and
- Ensure accidents and incidents are correctly reported, investigated and all actions closed out.

4.2.3. Site Manager / ABB Representative

The Site Manager / ABB Representative will report to the Cable Installation Manager. Specific environmental responsibilities are outlined below.

- Representing ABB on board project vessels;
- To understand and implement all ABB environmental procedures ensuring that operations function in compliance;
- Monitoring that all parties involved in the operations to adhere to all project procedures, plans and EMPs;
- Ensure Tool Box Talks (TBT) are carried out on relevant environmental topics and to hold records;
- Participation in daily progress meetings and Safety and Environmental meetings;
- Verifying and signing of the DPR;
- Carry out daily environmental checks keeping records as appropriate;
- To oversee site works with a view to reducing the environmental impact of the works and raising any environmental concerns with QHSE Team;
- Assist as required in health, safety and environmental audits;
- If Management of Change is required; represent ABB on board the vessel to assist in agreeing a solution;
- Supervision of jointing on board (if applicable);
- Liaise with the Employer's Representative on board;
- Report environmental incidents at the earliest possible time using the ABB RIVO Safeguard incident reporting system and advising the QHSE Manager; and
- Fulfil the role of Site Champion within the Subsea Archaeological Finds Plan (1JND14006D000607).

4.2.4. Ecological and Environmental Advisors – Natural Power Consultants

ABB have appointed Natural Power Consultants (Natural Power) to provide a marine ecological and environmental advisory role relating to all aspects of the Subsea rock protection. Responsibilities include the following:

- Prepare environmental plans in accordance with SSE requirements, ABB procedures and current legislation;
- Provide general marine ecological advice and support during pre-construction phase;
- Support ABB in preparation of marine ecological and environmental documentation as presented within this Subsea Cable EMP;
- Review environmental compliance of, and provide comment on, the vessel specific plans and RAMS that are provided by contractors;
- Prepare a site specific Marine Mammal Protection Plan (MMPP) in consultation with statutory consultees to ensure works can proceed in accordance with all environmental commitments and legislation;
- Provide Marine Mammal Observer (MMO) role(s) during the construction phase in accordance with the mitigations set out in the MMPP;
- Support ABB in the review and audit of the success of environmental protection measures (as per commitment E1 of the commitments register);
- Supporting the ABB representative (and the wider Project team) in the environmental audits of vessels and activities on site and to advise on the implementation of environmental mitigation and protection measures;
- Providing input into environmental awareness training relevant to environmental compliance detailed within this document (and as per commitments G16, E2, E3 and E4 of the commitments register (Appendix 7 of the CEMD)) which will be given at appropriate times to the vessel crew and contractors;
- Provide ongoing support throughout the project and support & liaise with the Employers ECoW, providing advice on mitigation measures in line with project developments; and

- Produce an Archaeological Finds Plan for dissemination to contractors, which ensures any archaeological discoveries made during offshore works are dealt with and reported under a formalised procedure approved by Marine Scotland/Historic Scotland.

4.2.5. Retained Archaeologist – Wessex Archaeology

ABB will contract a Retained Archaeologist to provide archaeological consultancy and to report as appropriate to SHE Transmission, ABB and Historic Scotland (the Archaeological Curator). The Retained Archaeologist will be responsible for the following:

- Advising ABB on the necessary interaction with third parties with archaeological interests, including the Archaeological Curators (i.e. Historic Scotland);
- Ensuring that any Method Statements are compliant with the Archaeological requirements of this EMP;
- Finalising the Archaeological Communication Plan aspect of the Protocol for Archaeological Discoveries (PAD) (as outlined within 1JND14006D000607)
- Advising ABB on the implementation of generic archaeological requirements applicable to all development activities;
- Implementing and monitoring the PAD;
- Monitoring the work of and liaising with the Archaeological Contractor/s (where the work is not being conducted by the Retained Archaeologist);
- Monitoring the preparation and submission of Archaeological Reports as appropriate and making them available to Historic Scotland;
- Preparing provisions for the management of the project archives in consultation with an appropriate museum; and
- Advising ABB on final arrangements for analysis, archive deposition, publication and popular dissemination.

ABB will advise the Retained Archaeologist of their requirements or responsibilities under any Environmental Management Plan and the Method Statement produced for the cable laying.

4.2.6. All Other Project Staff

All other Project staff, including sub-contractors are responsible for ensuring that they adhere to the following:

- Understand and implement procedures relevant to their role as laid out in this Subsea Cable EMP and the associated documentation (including MMPP, Archaeological Finds Plan and the Biosecurity Plan);
- Conduct their work with a view to reducing the environmental impact of the Project and to raise any environmental concerns with Site Manager or QHSE Team; and
- Report all environmental incidents to Site Manager ABB Offshore Representative or QHSE Team as soon as possible.

5. Environmental Management

ABB is certified against ISO 14001 (Environmental Management). The certificate includes all ABB sites in Sweden and sets the minimum standard for all work carried out on any site by ABB. The following section outlines the overarching legislative requirements, best practice guidance and procedures established in order to ensure the works occur in a way which minimises the potential for environmental damage. Adherence to these requirements and processes will ensure activities are compliant with the relevant environmental legislation, ABB Management Systems, and the Contractual requirements (as set out within the Commitments Register (Appendix 7 of the Construction Environmental Management Document (CEMD))).

5.1. Significant Environmental Aspects

In accordance with the ISO 14001 requirements, ABB identifies the environmental aspects and impacts which are considered significant in relation to its operation on various levels.

The following areas are identified as project specific significant environmental aspects:

- Safety and Water Protection (including use of hazardous substances);
- Waste Management;
- Marine Mammal Protection;
- Biosecurity Management;
- Archaeological Heritage;
- Energy consumption; and
- Designated sites and species.

These are addressed within this section and in Section 6: Aspects and Impacts.

5.2. Safety and Water Protection

5.2.1. Overview

To ensure that commitments G3, G5, G9, P6 and P7 of the Commitment Register are addressed and in order that all personnel are aware of their responsibilities in relation to Safety and Water Protection, each vessel will implement the measures set out in this Safety and Water Protection Plan.

All vessels will provide the following:

- Method statements and best practice procedures for vessel safety and prevention of pollution in order to control the risk of pollution from fuelling / fuel handling operations, storage and from accidental spillage of oils, fuels and chemicals;
- Evidence to demonstrate that materials are secured on deck to prevent loss overboard;
- Evidence to demonstrate that wastes will be contained on board vessels for appropriate disposal on return to port;
- Evidence to demonstrate that all chemicals used offshore will be compatible with the principles of the offshore chemical notification scheme (OCNS) used in the oil and gas industry under the Offshore Chemicals (Amendment) Regulations 2010²; and

² The Offshore Chemical Notification Scheme (OCNS) applies to Operational chemicals. Operational chemicals are defined as those “*which through their mode of use, are expected in some proportion to be discharged*”.
<https://www.cefas.co.uk/cefas-data-hub/offshore-chemical-notification-scheme/about-ocns/>

- Details of pollution prevention measures utilised.

Method Statements for activities which could affect the marine environment will be reviewed by the Ecological and Environmental Advisors (see Section 4: Roles and Responsibilities) for compliance with this CEMP and associated plans.

5.2.2. Use of Hazardous Substances

All chemical substances introduced to any ABB Site need approval from HVC Environmental management. A list of approved chemicals is kept in a database “Chemsoft” reached by all ABB Employees.

To reach approval status all substances go through a COSHH assessment. The approval is done by competent personnel.

The project will be continually monitored / assessed to ensure that substances hazardous to health and environment are identified, along with implementation of the appropriate control measures.

Safety data sheets will be obtained for all substances hazardous to health and environment in use as part of the project or for future maintenance / construction work which are to be carried out, installed, or are discovered in the structure as part of this project.

All personnel will ensure the method of work, storage and disposal of this material is compatible with the requirements of the Waste Management Plan requirements stated in the data sheet, and industrial best practice (see Section 5.3 for more information on waste management). A method statement will be prepared, used and kept for the materials / substances in use.

5.2.2.1. Releases to the Environment

Each vessel utilized on the project will have an effective spill response process in place - Ship Oil Pollution Emergency Plan (SOPEP) and will ensure that there are no un-recovered spillages exceeding legislative or industry standards.

Spillages that occur will be recorded as Environmental Incidents using the project reporting system, investigated and corrective actions taken (see Section 9: Emergency Response).

SOPEP

SOPEP is a MARPOL 73/78 requirement under Annex I. All ships with 400 GT and above must carry an oil prevention plan as per the norms and guidelines laid down by IMO³ under Marine Environmental Protection Committee (MEPC) act.

The Master of the ship has overall charge of the SOPEP of the ship, along with the chief officer as subordinate in charge for implementation of SOPEP on board. SOPEP also describes the plan for the master, officer and the crew of the ship to tackle various oil spill scenario that can occur on a ship.

Contents of SOPEP

SOPEP will contain the following things:

The action plan contains duty of each crew member at the time of spill, including emergency muster and actions;

- SOPEP contains the general information about the ship and the owner of the ship etc.;
- Steps and procedure to contain the discharge of oil into the sea using SOPEP equipment;
- On board Reporting procedure and requirement in case of oil spill is described;

³ <http://marineinsight.com/more/maritime-law/what-is-international-maritime-organization-imo/>

- Authorities to contact and reporting requirements in case of oil spill are listed in SOPEP. Authorities like port state control, oil clean up team etc. are to be notified;
- SOPEP includes drawing of various fuel lines, along with other oil lines on board vessel with positioning of vents, save all trays etc.;
- General arrangement of ship is also listed in SOPEP, which includes location of all the oil tanks with capacity, content etc.; and
- The location of the SOPEP locker and contents of the locker with a list of inventory.

5.2.2.2. Compliance

In order to ensure all vessels comply with the requirements of this Safety and Water Protection Plan, vessel audits will be carried out prior to activities taking place and activities will be monitored throughout the works. Vessel audits will review and confirm the presence of the documentation and its certification as required under IMO regulations, and will ensure suitable procedures are in place for managing waste on board vessels.

Vessel inspection reports will be produced and provided to SHET in order to document the review and acceptance of the vessel documentation and certification. Where possible inspection reports will be provided prior to mobilisation, and SHET representatives will be invited to attend vessel audits.

See Section 10: Monitoring Plan for further details.

5.3. Waste Management

5.3.1. Overview

Commitments G3, G6 and P10 of the Commitment Register stipulate that a Waste Management Plan will be developed and implemented. Ships carrying out work related to the project shall therefore be required to carry and implement a Waste Management Plan as required under IMO regulations.

The purpose of the vessel Waste Management Plan is to provide guidance to the Master and crew on board the ship on the procedures for collecting, storing, processing and disposing of garbage, including the use of the equipment on board. Vessel Waste Management Plans will detail the specific ship's equipment and arrangements, and the location of equipment operating manuals.

The requirements of the Waste Management Plans will be incorporated into the Method Statements for the works. Waste produced during cable jointing works will be treated in accordance with the Waste Management Plan, and inspection tests will be carried out to ensure that the Waste Management Plan procedures are complied with.

The vessel specific Waste Management Plans will cover the following:

- General garbage;
- Equipment waste;
- Sanitary waste; and
- Systems controlling bilges and sewerage water.

5.3.2. Regulatory Requirements

The Waste Management Plan shall provide written procedures for minimising, collecting, storing, processing and disposing of garbage, including the use of the equipment on board. It shall also designate the person or persons in charge of carrying out the plan. All plans shall be based on the guidelines developed by the IMO and written in the working language of the crew.

The reusing, recycling, and safe disposal of waste will only be carried out using approved licensed waste contractors. Waste generated from construction activities will be correctly managed in accordance with the vessel waste management plan and MARPOL regulations, and no waste shall be disposed of overboard the vessel.

The vessels will be required to provide copies of the following documents (where they required under IMO regulations) and make available for review if requested:

- Waste Carriers Registration Certificate
- Controlled Waste Transfer Note or in the case of Hazardous Waste a Hazardous Waste Consignment Note and
- Copy of the Licence and schedule of permitted wastes for the Waste Disposal Facility to be used e.g. landfill, scrap-yard, waste transfer station.

5.3.3. Placards

There are mandatory requirements for the provision of placards on vessels. The placards will be placed in prominent places where crew will be working and living, and in areas where bins are placed for collection of garbage. These places include galley spaces, mess room(s), wardroom, bridge, main deck and other areas of the ship, as appropriate. Placards will be displayed at eye line height and be printed in the working language of the crew and in English.

5.3.4. Garbage Record Book

All relevant ships (as defined by IMO) carrying out work related to the project shall operate a Garbage Record Book. The Garbage Record Book, whether as a part of the ship's official log-book or otherwise, shall be in the form specified by ABB, and shall provide information on each discharge into the sea or to a reception facility, or a completed incineration.

The entry for each discharge or incineration shall include the date and time, the position of the ship, the category of the garbage and the estimated amount discharged or incinerated. It shall be signed for on the date of the discharge or incineration by the officer in charge

The entries in the Garbage Record Book shall be in English, and each completed page shall be signed by the master of the ship. The Garbage Record Book shall be kept on board the vessel, and in a place where it is readily available for inspection at all reasonable times. In the event of discharge or accidental loss, an entry shall be made in the Garbage Record Book and the reasonable precautions taken to prevent or minimise such discharge or accidental loss.

5.3.5. Compliance

In order to ensure all vessels comply with the requirements of the Waste Management Plan, vessel audits will be carried out prior to activities taking place and activities will be monitored throughout the works. Vessel audits will review and confirm the presence of the documentation and its certification as required under IMO regulations, and will ensure suitable procedures are in place for managing waste on board vessels.

Vessel inspection reports will be produced and provided to SHET in order to document the review and acceptance of the vessel documentation and certification. Where possible inspection reports will be provided prior to mobilisation, and SHET representatives will be invited to attend vessel audits.

See Section 10: Monitoring Plan for further details.

5.4. Marine Mammal Protection

5.4.1. Overview

ABB will ensure compliance with all relevant licence conditions and legislation regarding marine mammal protection. A number of commitments within the CEMD required production of an MMPP, namely G3, E6 – E9 inclusive and EC2.

MMPPs are required to ensure that potential impacts from the installation of the subsea cable are appropriately managed, co-ordinated and controlled to avoid unnecessary disturbance of, and potential harm to, marine mammals. The purpose of the MMPP is to:

- Summarise marine mammal occurrence in the area, along with associated legislation;
- Provide Marine Mammal Mitigation Plans (MMMPs) for the offshore cable lay works;
- Provide Species Protection Plans (SPPs) for protected species; and
- Summarise the required outputs of any proposed mitigation required.

The Marine Mammal Protection Plan for the entire project (including rock protection work) can be found in Document 1JND14006D000468. The mitigation measures in the plan are informed through European Protected Species (EPS) risk assessments undertaken for each activity.

A Noise Management Plan is required under Commitment E5 of the commitments register, in order to mitigate the impacts of noise producing activities on sensitive species. As such it is considered that the MMPP(s) 1JND14006D000468 fulfils this requirement.

5.4.2. Compliance

In order to ensure all vessels comply with the requirements of the MMPP, vessel audits will be carried out prior to activities taking place and activities will be monitored throughout the works.

See Section 10: Monitoring Plan for further details.

5.5. Biosecurity Management

5.5.1. Overview

A Biosecurity Plan (1JND14006D000603) is in place in order to manage the risk of introduction of non-native marine species via project specific works. Whilst not a specific requirement of the Marine Licences or the CEMD, a Biosecurity Plan has become common practice for offshore construction projects planned to take place around the UK. All vessels will be obliged to comply with the Biosecurity Plan.

5.5.2. Regulatory Requirements

The International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWM), adopted in 2004, requires all ships to conduct ballast water exchange (BWE) to a set standard ('D-1') or to meet a ballast water performance standard ('D2') (dependant on build date and ballast water capacity⁴).

- Standard D-1 requires that all ships undertaking BWE should, whenever possible, conduct BWE at least 200 nautical miles (nm) from the nearest land and in water at least 200 metres in depth. If neither of these scenarios is possible then a vessel may exchange in an area designated by the port state.
- Standard D-2 requires that new or retrofitted ballast water treatment systems be employed in order to minimise numbers of viable organisms remaining within the ballast tank before discharge. These treatment systems significantly reduce the likelihood of non-native species being introduced by inefficient exchange practices or in the event of an untreated near shore discharge.

⁴ Ships constructed before 2009 with a ballast capacity of between 1500 and 5000m³ must at least meet the ballast water performance standard, and ships with a capacity <1500 or > 5000 m³ must meet the BWE standards or the performance standards until 2016, after which time it shall at least meet the performance standard. Ships constructed in or after 2009 (capacity of < 5000 m³) must meet the performance standard. Ships constructed between 2009 and 2012, capacity of 5000 m³ or more shall meet D-1 or D-2 until 2016 and at least the performance standard after 2016. Ships constructed in or after 2012 (capacity of 5000 m³ or more) shall meet the ballast water performance standard.

The IMO also aims to control and manage ships' biofouling through the implementation of the Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines) (resolution MEPC. 207 (62)). The Biofouling Guidelines will not be ratified by member states, and there is currently no requirement for hull cleaning for vessel movement between ports in the EU, however the guidelines are intended to provide a globally consistent approach to the management of biofouling. The Biofouling Guidelines state that a ship should implement biofouling management practices, including the use of anti-fouling systems and other operational management practices to reduce the development of biofouling. The intent of such practices is to keep the ship's submerged surfaces, and internal seawater cooling systems as free of biofouling as practical.

5.5.3. Compliance

All vessels contracted to undertake rock placement and ancillary activities will adhere to relevant BWM measures as outlined above where relevant. Ballast Water Management Plans (BWMP) will be carried by all relevant vessels in accordance with Regulation B-1 of the Convention, alongside Ballast Water Record Books as described by BWM Regulation B-2. In addition, all ancillary equipment (ploughs, ROVs etc.) will be thoroughly washed prior to use during project works.

In order to ensure all vessels comply with the requirements of the Biosecurity plan, vessel audits will be carried out prior to activities taking place and activities will be monitored throughout the works.

5.6. Archaeological Finds

5.6.1. Overview

An Archaeological Finds Plan (1JND14006D000607) has been produced in order to describe how the PAD will be implemented during subsea works. The aim of the PAD is to reduce any adverse effects of the development upon the historic environment by enabling finds of archaeological interest to be reported in a manner that is both convenient to and effective with regard to curatorial requirements.

Due to the nature of the work, finds are likely to be restricted to pre installation survey work (e.g. ROV surveys) rather than any recovery of items to the vessels (although this is possible). Where finds are ordnance, project staff will abide by their safe operational procedures (see HSE plan: 1JND14006D000009) which are to take precedence; before reporting via the PAD once safe to do so.

5.6.2. Implementation

The PAD relies on three principal 'supports' to be effective:

- **Awareness Training** for Site Champion (to be provided by the Retained Archaeologist) and provision of information to all project staff/teams (via Rep Packs and/or inductions);
- the promotion, support and effective actions of the Contractor's **Site Champion**; and
- the promotion, support and effective actions of the Developer's **Nominated Contact**.

The roles necessary to ensure the effective implementation of the PAD (i.e. Site Champion and Nominated Contact) will be incorporated into responsibilities of key personnel.

ABB will ensure that all relevant personnel are aware of the PAD and any changes to it, together with ensuring they are aware of archaeological communication requirements and the appointment of on-board Site Champion.

5.6.3. Archaeological Finds Communication Plan

The actions by each person involved in the reporting of archaeological finds are set out in the PAD. The following table details the contact details and roles of each individual or institution required under the PAD.

Table 5.1: Communication Plan

Role	Personnel	Contact details	Communication
Site Champion	On board Site Manager / ABB Representative	<i>Refer to the actual CMS Bridging Document for emergency response</i>	Site Champion reports details of findings to Nominated Contact
Nominated Contact	SHE Transmission Representative	<i>Refer to the actual CMS Bridging Document for emergency response</i>	Nominated Contact liaises with both Site Champion and Retained Archaeologist and Archaeological Curator (if necessary)
Retained Archaeologist	Toby Gane - Wessex Archaeology Senior Project Manager, Coastal & Marine	Mobile: 07872 416600 Tel: 01722 326867 Email: t.gane@wessexarch.co.uk	Retained Archaeologist liaises with Nominated Contact and Archaeological Curator
Archaeological Curator	TBA – Historic Scotland/Marine Scotland	TBA	Archaeological Curator liaises with Retained Archaeologist and Nominated Contact (if necessary)

5.6.4. Compliance

As part of the audit procedure, the vessel will be required to demonstrate the presence of the PAD onboard the vessel and activities will be monitored throughout the works by the ABB representative on site, with the assistance of the Retained Archaeologist as required.

5.7. Energy Consumption

ABB is dedicated to reduction of Energy consumption. Electricity, Heating and Fuel is monitored and recorded on a yearly base. The reader is referred to ABB's Identification and Evaluation of Environmental Aspects. 1JND091418D0090.

5.8. Designated Sites

This section describes those designated sites that are of relevance to the rock portection works, i.e. those sites where connectivity is considered to be possible, and therefore where mitigation measures have been put in place to protect those sites, or species for which they are designated.

In line with the above, the following designated sites are considered of relevance to the rock protection work:

- Spey Bay Site of Special Scientific Interest (SSSI);
- Noss Head Marine Protected Area (MPA); and
- Moray Firth Special Area of Conservation (SAC) (and any other SAC deemed to have connectivity through impacts to marine mammal species).

5.8.1. Spey Bay SSSI

The Spey Bay SSSI is designated for its geomorphological features, and is one of the most important coastal gravel geomorphological sites in Britain, containing extensive gravel ridge complexes.

To ensure no impact on this important geomorphological site, the landfall for the subsea cables has been undertaken through use of Horizontal Directional Drilling (HDD) under the intertidal zone and SSSI. This mitigation was built in to the project at an early stage, and ensured that subsea operations do not affect the features for which this SSSI is designated.

5.8.2. Noss Head MPA

The Noss Head MPA lies just off the coast of Wick in water depths of approximately 35-45 m, covering an area of 7.54 km². The MPA is designated for its horse mussel (*Modiolus modiolus*) beds, which are considered to be the largest in Scotland. Horse mussel beds perform a number of functions, including increasing local biodiversity through provision of increased habitat complexity.

Mitigation built in to the project design will ensure that the conservation objectives for the MPA (to conserve the feature) are not affected. Mitigation built in to the project design is as follows:

- No rock placement will be undertaken where it may affect the conservation objectives of the MPA (as agreed with Marine Scotland and Scottish Natural Heritage (SNH));

5.8.3. Moray Firth SAC

The Moray Firth SAC is designated primarily for its populations of the bottlenose dolphin (*Tursiops truncatus*), an Annex II species listed under The Habitats Directive (See Section 2: Legislation and Regulation). The site also contains examples of the Annex I habitat; sandbanks which are slightly covered by seawater at all times, however these are a qualifying feature only and not a primary reason for the designation of the site. The SAC covers an area of over 1500 km², and is located to the west of the subsea cable route (approximately 25 km distant at its closest point at the western edge of Spey bay).

Due to the mobile nature of species such as bottlenose dolphins (and other marine mammals), protection of these species from potentially harmful activities is required both within and outwith the sites for which they are designated in order to ensure there are no effects on the conservation objectives of such sites, and to ensure compliance with all aspects of The Habitats Directive.

Mitigation measures for marine mammals have been incorporated within the working practices of the work. The detail of these measures and how they are applied to the rock protection work is described within the MMPP. More information on this plan is provided in Section 5.5 (Marine Mammal Protection) above.

Therefore, even though the subsea rock protection work does not come into contact with any part of an SAC, mitigation for marine mammal species incorporated into the working practices of the project will ensure there are no adverse effects to the conservation objectives of any SAC designated for marine mammal species, and to ensure no impact on cetacean EPS.

6. Aspects and Impacts

The following Aspects and Impacts register (Table 6.1) has been developed specifically for the subsea cable element of the project. For Aspects and Impacts relevant to wider project works the reader is referred to Appendix 2 of the PEnvP (1JNL305858).

The register provided below shows aspects of the works which are under direct control and those which ABB can be expected to have an influence over. Aspects of the work having a potentially significant impact on the environment are identified. The table is cross-referenced to the Legislation Register, demonstrating where legislative controls apply to activities. Where a legislative control applies to the potential impact, significance of the activity is increased.

The Aspects have been identified on the following basis:

- Do we have control or influence over the activity?
- Is there a legal requirement/consent attached to the activity in question?
- Are raw materials and natural resources used?
- Are there any contractual obligations?
- Is the waste generated hazardous or general?
- Under what operational circumstances are impacts considered?

To demonstrate control of the significant aspects and impacts generated by the works, and that work is compliant with requirements of this EMP. ABB will put the following procedures into place:

- Method Statements will be written in accordance with ecological & environmental management requirements.
- Method Statements will be reviewed against environmental risks;
- All relevant environmental documentation will be made available to ABB Ltd personnel and contractors and SSE where necessary;
- The CEMP and associated documentation (i.e. vessel specific plans and procedures) to be held on site where details of all ecological and environmental constraints will be updated regularly; and
- The audit process will monitor environmental performance and compliance.

In order to provide specific assessments of potential environmental risks and in order to ensure appropriate controls are incorporated into the Method Statements, activity specific Environmental Aspects and Impacts will be considered during the HAZID.

6.1. Environmental Aspects and Impacts Register

Table 6.1: Environmental Aspects and Impacts Register

Ref*	Aspect	Impact	Direct Control (DC) or Influence Only (IO)	Controls in place	Cross Reference to Legislation	Significance Rating	Conditions of operation**
Safety and Water Protection							
23	Spillage (e.g. diesel, oil, or hydraulic fluid) from vessels	Pollution of marine environment	DC	Vessel water protection plans to be submitted in line with EMP requirements, adherence to MARPOL.	MARPOL Convention (Table 2.1 – Ref. 7)	3	Abnormal
Waste Management							
<i>No Additional – See Appendix 2 of the PEnvP (1JNL305858)</i>							
Marine Mammal Protection							
24	Interaction with protected species	Disturbance of European Protected Species, or of species of conservation importance for Scotland (e.g. horse mussel beds)	DC	All operatives to adhere to agreed method statements and to take account of relevant procedures within EMP (e.g. Marine Mammal Protection Plan)	Habitats Directive (Table 2.2 – Ref. 11)	3	Normal
Biosecurity Management							
25	Unexpected introduction of invasive species	Risk to local biosecurity	DC	All personnel to adhere to method statements and relevant procedures in EMP (i.e. those contained within Biosecurity Plan)	BWM Convention, Biofouling Guidelines & Biosecurity Guidance (Table 2.2 – Refs. 10, 12 and 13)	3	Normal
Use of Energy							
26	Energy Usage during installation	Consumption of fuel and emissions of SOx, NOx,	DC	Equipment chosen for efficiency and well	See Appendix 4 Legislation Register –	3	Normal

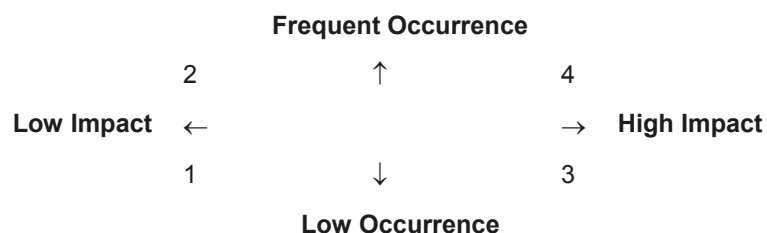
Ref*	Aspect	Impact	Direct Control (DC) or Influence Only (IO)	Controls in place	Cross Reference to Legislation	Significance Rating	Conditions of operation**
	works	CO ₂ , CO and particulates		maintained, switched off when not in use. Low sulphur fuel options to be selected where possible.	A9		
Archaeology							
27	Discovery of archaeological remains	Disturbance of archaeological features	DC	Project specific Archaeological Finds Plan to be implemented in order to safeguard discoveries made during project works	n/a	3	Normal

* Reference continues from Appendix 2 of the PEnvP (1JNL305858)

** "Normal" operating condition is as per Method Statements.

Explanation of Table:

Significance rating of an Aspect is assigned according to its potential frequency and impact. So an impact which occurs frequently but has a low impact will have a score of 2 but if the aspect occurs frequently and has a high impact to the environment it's score will be 4. If Legislation applies to the aspect then the impact may become more significant and the table is cross referenced to items in the Legislation Register. Aspects are assessed for their impact and significance using the following model:-



6.2. Objectives & Targets

The following Objectives and Targets have been developed specifically for the subsea elements of the project. For Objectives and Targets relevant to wider project works the reader is referred to Section 10 of the PEnvP (1JNL305858).

ABB have set Objectives and Targets for the rock protection work (as a key part of the Subsea cable installation work) with a view to securing continual improvement in environmental performance and reducing the potential impact of the installation works on the marine environment. The Objectives & Targets will be reviewed periodically to take account of different project phases and achievements to date.

- Providing the necessary resources to reduce environmental risk to the ALARP level;
- Ensuring the provision of premises, plant, equipment and systems of work that contribute to a safe and healthy environment;
- Providing the information, instruction, supervision and training necessary for employees to undertake work tasks competently and safely and in accordance with all environmental requirements; and
- Regularly review, monitor and audit the effectiveness of work and undertake improvement actions where necessary.

7. Communication

7.1. Exchange of Information

Information on any matters that may affect the environment must be communicated to ABB. ABB will assess the information and when required liaise with the Employer to find a suitable solution. Incident reporting (including any incident resulting in negative impacts to the environment) is addressed in Section 9: Emergency Response of this document.

Information will be communicated in a variety of ways including daily meetings, DPRs, toolbox talks and site briefings. Information given that may impact on the project will be reviewed and where necessary the management of change procedure utilised to find a satisfactory resolution.

ABB will ensure invites to planned meetings are extended to the Employer and appropriate Subcontractors.

7.2. Display of Information

The following information will be prominently displayed on all project vessels:

- Emergency procedures and contact numbers;
- Relevant authority consents;
- Hazard warning signs; and
- PPE requirements.

7.3. Safety and Environmental Meetings

Vessel safety and environmental committee meetings (between ABB and their subcontractors) will be held at intervals not exceeding 6 weeks. During operational phases meetings will be conducted weekly. In the absence of a defined safety meeting due to short project duration safety and environmental concerns will be raised at each daily meeting and recorded as such.

Topics regarding safety and the environment will be included and discussed in the 6 weekly progress meeting held between ABB and the Employer.

7.4. Liaison between Parties On-Site

Daily progress meetings will be held between all relevant parties on-site (including on vessels). Attendees will include as a minimum:

- Employer representative;
- ABB representative;
- Vessel representative (anticipated to be the vessel master);
- Marine Mammal Observer (where practical); and
- Any other relevant individuals.

Daily progress meetings will cover, as a minimum:

- Work undertaken during the previous period;
- Work planned for next period;
- Daily reports by relevant parties (e.g. Marine Mammal Observer)
- Discussion of any incidents, near misses, or non-conformities, and how resolved; and
- Discussion of positive actions.

7.4.1. Tool Box Talks

Documented toolbox talks shall be conducted by a suitably qualified member of the project team at shift change, prior to commencement of a new activity or following cessation of work due to an unforeseen event.

All participants at a toolbox talk shall sign an attendance list and all toolbox talk forms will be retained at the worksite until completion of the contract.

Toolbox talks will reference environmental/ecological aspects of project works, including details of MMO protocols, and roles and responsibilities of project staff. Ecological input will be provided by the Ecological Advisors, as per responsibilities outlined in section 4.2.4.

Sufficient time will be allowed for the exchange of information during hand –over periods, to ensure the continuity of environmental standards throughout the duration of the contract.

7.5. Communication Plan

Table 6.1 specifies what needs to be communicated to whom, who is preparing the document, what form the document will take (how) and when it will be communicated.

Table 7.1: Project Communication Routes, Method and Timeframes

What	Who From	To	How	When
Sea Cable Installation HSE Plan	Project manager	Employer	Emails / Letters	Initial / revision
	QHSE manager/Advisor	Project Team	Emails / Letters	Initial / revision
	QHSE manager/Advisor	Contractors	Emails / Letters	Initial / revision
CEMP	Project Manager	Employer	Emails / Letters	Initial / revision
	Environmental team/ Advisors	Project Team	Emails / Letters	Initial / revision
	Environmental team/Advisors	Contractors	Emails / Letters	Initial / revision
Client Requirements	Employer	ABB Project Manager	Meetings / Emails / Letters Contract / Drawings	Revisions
	Installation Manager	Project Team Meeting	Emails / drawings	Ad-Hoc / when required
		Contractors Meeting	Emails / drawings	
Scope of work Change	Employer	Project Manager	Variation Forms / E mail Meetings / Tool Box Talks	As and When
	Project Manager	Project Team		
	Installation Manager	Contractor		
Task plans/ HAZID/HAZOP	Contractors	Project Team	Meetings / Tool Box Talks Health and Safety Plan / Email / Inductions / Kick off	As and When Revisions
	Project Team	Employer		
	Employer	Project Team		
	Project Team	Contractors		
Emergency preparedness	Project Team	Contractors	Health and Safety Plan / Vessel ISM System Project/Vessel	As and When Revisions
	Employer	Project Team		

What	Who From	To	How	When
			Inductions Tool Box / Safety Boards Drill	
HSE News	Employer	Project Team	Meetings / E mail	As and When
	Project Team	Employer	Meetings / E mail	
	Project Team	Contractors	Meetings / Safety Board Tool Box Talks and Emails	
Audit Results	Employer	Project Team	Audit Reports / Meetings	Monthly
	ABB Rep/QHSE Advisor	Project Manager	Review of Audit reports	Monthly
	Project Team	Employer	Audit Reports / Meetings	Monthly
	Contractor	Project Team	Audit Reports / Meetings	Weekly / Monthly
	Project Team	Contractor	Audit Reports / Meetings	Weekly / Monthly
Incident Reporting	As per HVCI121 Incident QHSE Accident/Incident/Near Miss Reporting at Site			
Statistics	Contractor	Project Team	Reports / Meetings	Weekly / Monthly
	ABB Rep/QHSE Advisor	Employer	Reports / Meetings	Monthly
	ABB Rep/QHSE Advisor	ABB Country Safety Advisor / BU LSA	Reports	Monthly
	ABB Rep/QHSE Advisor	Contractor	Email / Reports / Safety Boards / Tool Box Talks Meetings	Monthly

Source: HSE Plan – Subsea Cable Installation (1JND14006D000009)

8. Hazard Identification and Risk Management

An overview of hazard identification and management of risks is presented within the following section for information. Further detail regarding the approach to hazard identification and management of risks is provided within HSE Plan Subsea Cable Installation (1JND14006D000009) and the Quality Plan Cable Installation (1JND14006D000008). Hazards and risks of specific relevance to the environmental aspects of the rock protection work are discussed in Section 6: Aspects and Impacts.

8.1. Risk Management

ABB utilize the Det Norske VERITAS (DNV) approach to risk management detailed within DNV-RP-H101 Risk Management in Marine and Subsea Operations. ABB hazard identification processes aim to reduce risk using the principles of As Low as Reasonably Practicable (ALARP). Design risks will be assessed as applicable to ensure that hazards inherent in project activities are identified and suitably mitigated within the design stages and proposed changes to the design must be supplemented with a design risk assessment.

8.2. Hazard Identification (HAZID) & Hazard and Operability (HAZOP)

ABB will carry out HAZID reviews on the engineering associated with the operations to identify areas that could negatively impact the marine installation as applicable. A HAZOP is a systematic examination used to identify deviations in a process that may present risk to personnel, assets or the environment. HAZOPs are undertaken with the application of guidewords pertinent to the process to understand and mitigate consequences from unexpected process deviations. Prior to the commencement of the operational activities when all documents needed for a particular operation are completed, a scheduled HAZOP is to be conducted.

In the event that new risks are identified, mitigating measures are to be agreed and implemented into the procedures. The procedures are then required to be re-issued. The HAZOP report will include an action plan highlighting the identified risks, proposed mitigations and the person responsible for the close out actions. All actions must be closed out prior the operation commencing. ABB will require that subcontractors have an established procedure for undertaking HAZOPs or utilize DNV-RP-H101 Risk Management in Marine Operations.

9. Emergency Response

In accordance with commitments G3 and G4 of the commitments register, each vessel contracted to undertake works related to the installation of the rock protection will have in place (and provide to ABB for review & acceptance) its vessel specific Incident Response documentation (Emergency Response Plan). The following information is presented in order to provide an overview of the principles of Incident response and ABB procedures which will be in place throughout installation. In addition to the below, an Emergency Preparedness Bridging Document will be in place for each activity, detailing the emergency contact details and notification routes for SHET, ABB, and any associated subcontractors, and the specific actions to be taken in the event of an any incident (including environmental).

9.1. Emergency Response Principles

A system for emergency preparedness shall be in force for all marine operations and cover all vessels and personnel involved. All involved parties shall have an on-duty 24-hour watch system.

All relevant duty personnel in the emergency organization shall be adequately briefed before an operation is commenced.

Normally the various companies involved in the marine operations have their own individual emergency preparedness system. These systems shall be linked by the Emergency Preparedness Bridging Document.

Such a bridging document shall as a minimum comprise the following information:

- Organisation and reporting lines in an emergency situation
- All relevant telephone numbers in an emergency situation, including main rescue centre, emergency preparedness centre, guard centre, etc.

The Bridging Document must clearly define who has prime responsibility at each stage of a marine operation and if appropriate, how and when it changes. The emergency preparedness document comprises bridging information, with the emergency preparedness flowchart as a central part.

9.1.1. Organisation

The Emergency Response Organisation is in two parts:

- Level 1 - is the Worksite - typically the vessel, during mobilisation/demobilisation and installation.
- Level 2 - is the ABB Onshore Organisation at ABB HVC that provides support to the incident and liaises with other stakeholders involved (e.g. Employers, Vessel Owners, Contractors, etc.).

9.1.1.1. Responsibility on Vessels

The Vessel Master has Level 1 responsibility to respond to any emergency situation on the involved vessel. The Master of the vessel takes on the role of On Scene Commander (OSC) and is in overall charge of the offshore vessel emergency response and it is his duty to take whatever action is necessary to safeguard the personnel, vessel, assets and the environment.

The Vessel Master shall also notify his own onshore organisation and flag state according to Vessel procedures. If environmental accident, the authorities and flag state will be contacted directly by Vessel which is stated in the Emergency Notification Flowchart for each vessel.

The ABB Offshore Manager or ABB Project Representative (as the case may be) informs the level 2 ABB Onshore Organisation at ABB HVC about the Emergency. The ABB Onshore Emergency Response Organisation will liaise closely with Vessel Operator and Subcontractor Emergency Response Team. The default situation is that the vessel owner assumes primacy for all vessel emergencies.

9.1.1.2. Emergency Response Offshore (Spills)

In accordance with commitments G3 and G4 of the commitments register each vessel contracted to undertake marine works will have in place its vessel specific Incident Response documentation (e.g. Emergency Response Plan or equivalent)

In the event of a leak or spillage, the Vessel Master is responsible for:

- The substance must be immediately contained and prevented from being discharged to the marine environment using the emergency spill kits;
- Spillages must NOT be washed into the marine environment
- Used absorbent materials and contaminated spoil must be swept up, and contained in an appropriate container and arrangements made with an appropriately licensed waste contractor for disposal as hazardous waste.

Appropriate spill materials will be stored on the vessels, sub-contractors working on site shall be trained in its usage and in its correct disposal.

In the event that a pollutant has entered the marine environment, the Vessel Master will contact JNCC 24-hours telephone and /or Marine Scotland 24-hours telephone for advice.

ABB will obtain guidance from their Environmental Manager regarding appropriate requirements.

9.1.2. Emergency Response Reporting

All Environmental incidents are required to be reported. Note that near-misses, which under significantly altered circumstances could have led to the above, shall also be notified immediately.

9.1.2.3. Offshore/Vessel

Call the ABB HVC Vessel Emergency team 24 Hr emergency number (+46 70 268 43 86) at ABB HVC. The Vessel Emergency team will contact necessary resources within the ABB Management. The team will also inform and if needed ask for support from the ABB Emergency Centre.

9.1.2.4. Onshore

This can be relevant during all travel to and from site when ABB personal are working on the project. Always call 112/999 and then call ABB Emergency Centre for help and support. They will take over and coordinate all support and in that way save time for personal involved in accident.

9.1.2.5. Incident Reporting Procedure

All Incidents will be reported in accordance with the Employer 30 minutes rule, stipulated in SHE Specifications Requirements for Contracts Appendix A, to the Employer Project Manager or his delegate. All accidents, incidents, near misses and potential to be worse events will be investigated and reported to the Employer in the following manner:

- A initial verbal report as soon as possible after the occurrence
- An E-mail summary report within 24 hours of the occurrence
- An initial investigation report within 7 days of the occurrence
- A complete investigation report within 14 days of the occurrence with RCA and implemented measures.

If it is not possible to contact a member of the Employer staff, ABB shall report these incidents by calling SHET 30 minute reporting line on +44 800 107 3207 and provide the necessary details of the incident.

The flowchart below (Figure 9.1) describes how initial information about emergency situations and incidents occurring during subsea works, shall be given within the project. A Vessel Specific Emergency Notification Chart will be displayed on the bridge and be part of the vessel induction.

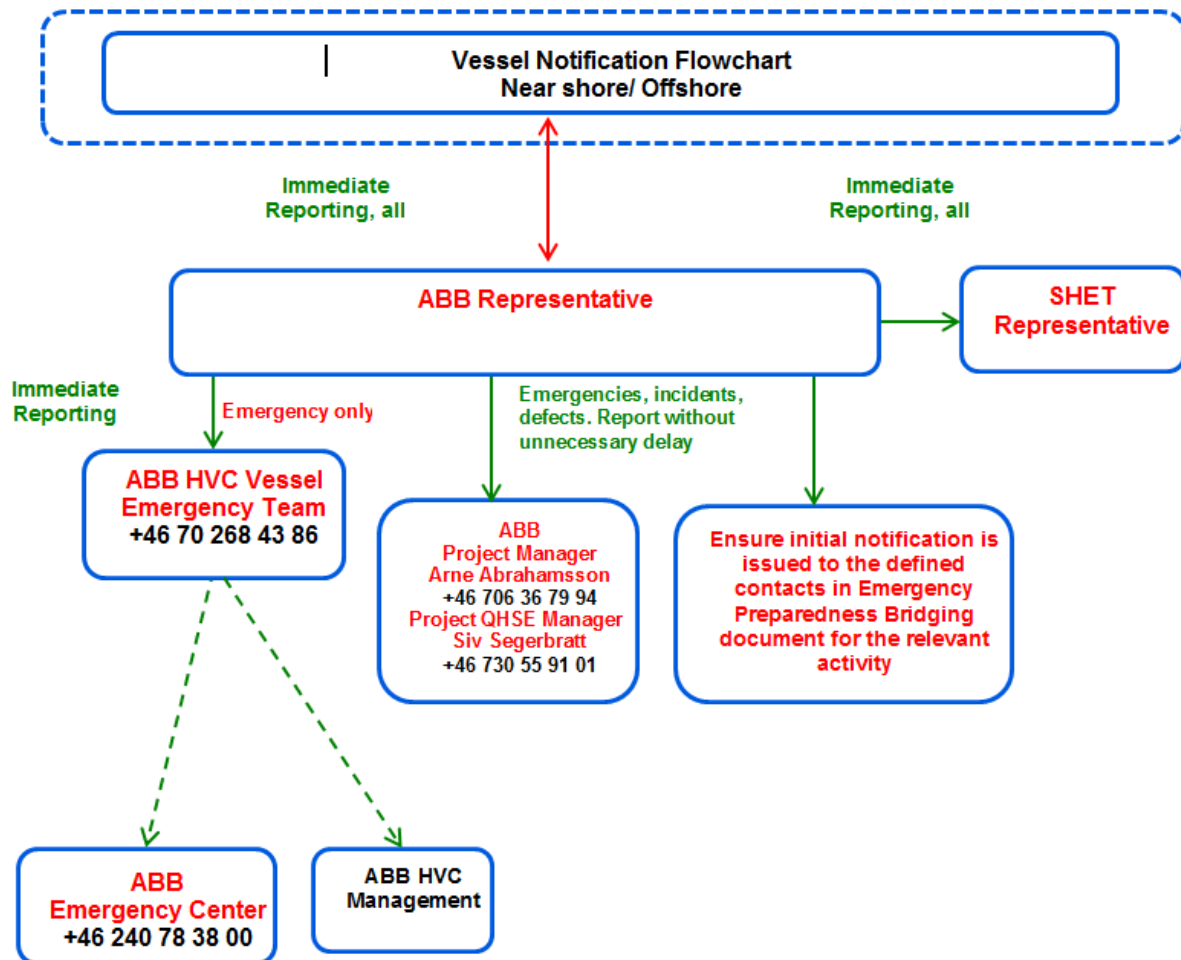


Figure 9.1: Emergency Preparedness Flowchart

9.1.2.6. Contact Information

The following contacts will be updated throughout the duration of the Project, with activity specific contacts contained within the Emergency Preparedness Bridging Documents for each activity.

Table 9.1: Contact information for British Authorities

Emergency	Tel	VHF/Call sign	E-mail
Inverness Coastguard	01463 220 577	16	N/A
Police	999	N/A	N/A
MRCC	999	N/A	N/A
Fire	999	N/A	N/A
Ambulance	999	N/A	N/A
HSE	0845 354 0055	TBA	TBA
SEPA via SSE	0800 80 70 60	TBA	TBA

Table 9.2: SSE Contact information

Name	Role	Tel	E-mail
Brian Mitchell	Lead Project Manager		brian.mitchell@sse.com
Graeme Barclay	Project Manager	+44 7880180645	TBA
Willie Ross	CDM-Coordinator	+44 7880 180663	TBA
Julie tuck	Environmental Project Man. (Onshore)	+44 1224 667207	julie.tuck@sse.com
Peter Watson	Environmental Project Man. (Offshore)	+44 1463 728289	peter.watson@sse.com

Table 9.3: ABB Contact information

Name	Role	Tel	E-mail
ABB Emergency Management Centre		+46 240 78 38 00	N/A
ABB HVC Vessel Emergency team		+46 70 268 43 86	N/A
Arne Abrahamsson	Project Manager	+46 706 36 79 94	arne.abrahamsson@nkt.com
Matthias Funk	Deputy Project Manager	+46 725 46 04 68	matthias.funk@nkt.com
Dave Gibson	Installation Manager	+44 7713 985550	David.Gibson@nkt.com
Siv Segerbratt	QHSE Manager	+46 730 55 91 01	siv.segerbratt@nkt.com

9.1.2.7. Contact with Media

In the event of contact or request for information by the media the following approach shall be taken:

- Be polite but firm
- No comments, opinions, statements or information is to be given regarding any incident
- Contact with Media will only go through the Employer

9.1.2.8. Alerting rescue services

The Vessel Master is responsible for alerting rescue services and the Master shall notify the owners designated person ashore (DPA). The ABB Representative or the Offshore Manager shall ensure that the incident notifications are issued as per the Emergency Preparedness Bridging Document. When alerting rescue services the call shall be as clear and audible as possible to ensure that the rescue services may assist to the best of their ability.

The Offshore Installations for the Project are executed in Scottish Waters and the Marine Authorities are the main points of contact for reporting of maritime incidents in their territorial waters. This includes incidents on the offshore installations. The Vessel specific Emergency Notification Flowchart contains the relevant contact details.

10. Monitoring Plan

Monitoring of activities during the installation of the rock protection is required in order to ensure works are carried out as per current legislation, in line with ABB procedures and according to SSE requirements as detailed in the Contract QESH conditions. Production of a Monitoring Plan is specified within Commitment G3 of the commitments register within Appendix 7 of the CEMD.

10.1. Audit and Inspection

This section describes the environmental monitoring and audit activities of the offshore operations that ABB will perform during the execution of the project. It also forms part of the Project Management QHSE Documentation Package (listed in the PDL).

10.2. Monitoring during daily work

Compliance with the QHSE Requirements during the offshore operations will be continuously monitored by ABB or their nominated representative either on board vessels or at land sites. A site specific Information and Reporting Package will be implemented. The results of this monitoring will be reported weekly to the ABB Project QHSE manager.

10.2.1.1. Active Monitoring

- Work activities being carried out as per instruction
- Environmental Constraints/legal requirements
- Permit/consents as per Marine Licenses
- Marine Mammal Observation
- Completion of tool box talks
- Waste disposal arrangements
- Housekeeping
- Actions outstanding from previous audit/ investigations
- Progress meetings at agreed frequency
- Lessons learnt

Table 10.1 below outlines the environmental documents/events which will be monitored throughout project works, and responsibilities for ensuring the correct data is obtained.

Table 10.1: Project Monitoring Plan

What is to be Monitored	Process to be applied	Data to be obtained	Who will do it	When
Near misses (incl. environmental)	Notify defined group. Carry out Investigation	Record in Zert, Record reason and corrective action	Line Manager HSE Manager subcontractor	Notify immediately. (30 min rule) Investigation within 7 days
Environmental Incidents	Notify defined group. Carry out Investigation	Record in Zert, Record reason and corrective action	Line Manager HSE Manager subcontractor	Notify immediately. (30 min rule) Investigation within 7 days
Environmental inspections/	Walk about, Interviews,	Conformances and non-	Project Managers / HSE Manager/	As scheduled in Audit plan

What is to be Monitored	Process to be applied	Data to be obtained	Who will do it	When
Audits		Conformances,		1JND14006D000036
Mammal Observations	Mammal observation during offshore works, (PAM as potential monitoring method)	Record of Sighting Reports	Qualified and Experienced Mammal Observer	As required during offshore works
Archaeological finds	As per the Archaeological finds plan	Records of finds	Nominated Site Champion (ABB Representative)	As required during offshore works
Tool box meetings	Record to be kept	New Hazards, new tasks, themes	Shift coordinator/ subcontractor	At start up and shift handover

10.3. Vessel Inspections

All vessels utilised on the project will be fully compliant with the ISM Code and flag state requirements. Where the ISM code does not apply to a vessel utilised due to vessel size the vessel operator will ensure that the vessel has a suitably integrated Safety Management System in use on board the vessel.

10.3.1. Environmental Audit Checklist

Table 10.2 below outlines a number of environmental documents/certificates the vessels will be expected to provide in order to comply with the environmental aspects of the initial vessel audit and/or ongoing audits throughout project work. Documentation will be required to be provided to ABB prior to HAZID (where specified) in order that any necessary amendments can be made well in advance of works commencing.

Table 10.2: Vessel Audit – Environmental Compliance Checklist

Document/Aspect		Action	Responsibility for provision
Method Statements		Detailed Method Statements for each element of work to be provided	Contractor / ABB
Safety and Water Protection Plan	Pollution Prevention Plan	Plan to be presented prior to HAZID, and on board vessel throughout works	Vessel
	Ensure that materials are secured on deck	Evidence required	Vessel
	Wastes are required to be contained on board vessels for appropriate disposal on return to port	Evidence required	Vessel
	Shipboard Marine Pollution Emergency Plans (SOPEP)	Plan to be presented prior to HAZID, and on board vessel throughout works	Vessel
Biofouling Management Plan	Anti-fouling certificate	Certificate to be presented prior to HAZID, and on board	Vessel

Document/Aspect		Action	Responsibility for provision
Ballast Water Management Plan (BWMP)	Ballast water record book	vessel throughout works Record book to be presented prior to HAZID and on board vessel throughout works	Vessel
	International ballast water management certificate	Certificate to be presented prior to HAZID and on board vessel throughout works	Vessel
Vessel Specific Biosecurity Mitigation Plan	Plan to outline vessel specific biosecurity risk	Plan to be presented prior to HAZID and on board vessel throughout works	Vessel
Waste Management Plan (WMP)	Garbage Record Book	WMP (incl. Garbage Record Book) to be on board vessel	Vessel
	Waste Carriers Registration Certificate	Certificate to be presented prior to HAZID and on board vessel throughout works	Vessel
	Controlled Waste Transfer Note / Hazardous Waste Consignment Note	Note to be presented prior to HAZID and on board vessel throughout works	Vessel
	Licence and schedule of permitted wastes for the Waste Disposal Facility	Licence to be presented prior to HAZID and on board vessel throughout works	Vessel
Emergency Preparedness and Response Plan (EPRP)		Plan to be presented prior to HAZID and on board vessel throughout works	Vessel
Protocol for Archaeological Discoveries		PAD to be on board vessel	Vessel
Marine Mammal Protection Plan	Marine Mammal Mitigation Plan	Plan to be on board vessel	ABB/ECOW/MMO

11. Daily and Monthly Environmental reporting

11.1. Daily Progress Reporting

In addition to the incident reporting, Environmental matters are reported to Employer as part of the Daily Progress Report (DPR). The minutes from the Daily Progress Meeting on board all vessels will be attached to the DPR. The format of the daily progress report is to be agreed with the Employer prior to commencement of the offshore works.

11.2. Monthly Environmental Reporting

ABB will issue Monthly reports containing:

1. Overall comment on Environmental matters;
2. General Environmental activities;
3. Highlights from past month;
4. Incident reporting and follow up;
5. Planned activities for next month;
6. Man hours; and
7. Areas of concern.

Environmental statistics to be delivered according to the Employer given template.

What We Do



Natural Power is a leading independent renewable energy consultancy and products provider. We offer proactive and integrated consultancy, management & due diligence services, backed by an innovative product range, across the onshore wind, offshore wind, wave, tidal, solar and bioenergy sectors, whilst maintaining a strong outlook on other new and emerging renewable energy sectors. Established in the mid-1990s, Natural Power has been at the heart of many ground-breaking projects, products and portfolios for close to two decades, assisting project developers, investors, manufacturers, finance houses and other consulting companies.

With its iconic Scottish headquarters, The Green House, Natural Power has expanded internationally employing 300 renewable energy experts across Europe and the Americas and operating globally. Providing Planning & Development, Ecology & Hydrology, Technical, Construction & Geotechnical, Asset Management and Due Diligence services, Natural Power is uniquely a full lifecycle consultancy – from feasibility to finance to repowering, and every project phase in between. We are a truly trailblazing consulting organisation; Natural Power has consistently invested in product development and technical research in order to progress certain key areas within the industry such as the operational management of wind farms, the design and assessment of wind farms in complex flow and the use of remote sensing for wind measurement. From award-winning consultancy and management services, through a string of technology world-firsts, Natural Power has a successful track record and the breadth of services and deep-rooted experience that provides a wealth of added value for our diverse client base.

Natural Power – delivering your local renewable energy projects, globally.

Our Global Expertise

Natural Power delivers services and operates assets globally for our clients, with twelve offices across Europe and North America and agencies active in South America and AsiaPac.

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