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Construction Environmental Management Plan: (Marine CEMP)

LTooooo09 - Shetland HVDC Link

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Glossary

Abbreviation	Description
ALARP	As Low As Reasonably Practicable
BWE	Ballast Water Exchange
BWM	Ballast Water Management
BWMP	Ballast Water Management Plan
CBPP	Cable Burial and Protection Plan
CEMP	Construction Environmental Management Plan
CLV	Cable Lay Vessel
CMS	Construction Method Statement
COLREGs	International Regulations for Preventing Collisions at Sea
COSHH	Control of Substances Hazardous to Health
DNV	Det Norske VERITAS
DPR	Daily Progress Report
EC	European Commission
EMP	Environmental Management Plan
EPS	European Protected Species
ERP	Emergency Response Plan
FLMAP	Fisheries Liaison and Mitigation Action Plan

FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison and Offshore Wind and Wet Renewables Group
FOC	Fibre Optic Cable
gt	Gross tonnage
HAZID	Hazard Identification
HAZOP	Hazard and Operability
HDD	Horizontal Direct Drilling
HSE	Health, Safety and Environment
HVDC	High Voltage Direct Current
ILO	International Labour Organization
IMO	International Maritime Organization
IRM	Inspection, Repair Maintenance
ISM	International Safety Management
ISPS	International Ship and Port Facility Security Code
JNCC	Joint Nature Conservation Committee
KIS-ORCA	Kingfisher Information Service - Offshore Renewable & Cable Awareness
LAT	Lowest Astronomical Tide
MARPOL	International Convention for the Prevention of Pollution from Ships
MCS	Marine Conservation Society

MEA	Marine Environmental Appraisal
MEPC	Marine Environmental Protection Committee
MESRP	Marine Emergency Spill Response Plan
MHWS	Mean High Water Springs
ML	Marine Licence
MLWS	Mean Low Water Springs
MMO	Marine Mammal Observer
MMPP	Marine Mammal Protection Plan
MNNS	Marine Non-Native Species
MPA	Marine Protected Area
MS-LOT	Marine Scotland-Licensing and Operations Team
NKT	NKT HV Cables
NM	Nautical miles
OCNS	Offshore Chemical Notification Scheme
OCT	Open Cut Trenching
OD	Outer Diameter
OOS	Out of Service
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
OSPP	Otter Species Protection Plan

PAD	Protocol for Archaeological Discoveries
PAM	Passive Acoustic Monitoring
PE	Polyurethane
PLGR	Pre-Lay Grapnel Run
pSPA	Proposed Special Protection Area
QHSE	Quality Health Safety and Environmental
RCA	Route Cause Analysis
SAC	Special Area of Conservation
SACFOR	Superabundant, Abundant, Common, Frequent, Occasional, Rare, Less than Rare
SEPA	Scottish Environmental Protection Agency
SHE Transmission	Scottish Hydro Electric Transmission PLC
SIC	Shetland Island Council
SMS	Safety Management System
SMWWC	Scottish Marine Wildlife Watching Code
SNH	NatureScot, formerly Scottish Natural Heritage
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPA	Special Protection Area
STCW	Standards of Training, Certification and Watchkeeping

TBT	Toolbox Talk
UKCS	United Kingdom Continental Shelf
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
VMP	Vessel Management Plan
WAC	Waste Acceptance Criteria
WMP	Waste Management Plan
WSI	(Archaeological) Written Scheme of Investigation

Project Specific Documentation

This Construction Environmental Management Plan (CEMP) forms part of the overall Project documentation and draws from the following reference documents the table below.

Reference	Document No	Document Title
[1]	2020/11/WL	Shetland Island Council (SIC) Marine Works Licence
[2]	07203/20/0	Marine Scotland Licence: Cable installation between Weisdale Voe, Shetland and Noss Head, Caithness within 12 nautical miles (NM)
[3]	07357/20/0	Marine Scotland Licence: Cable protection between Weisdale Voe, Shetland and Noss Head, Caithness outwith 12 NM
[4]	1AA0403687	Marine Emergency Spill Response Plan (MESRP) and SOPEP
[5]	1AA0400439	Marine Non-Native Species (MNNS) Plan
[6]	1AA0392078	Construction Method Statement (CMS)
[7]	1AA0388343	Marine Consents Overview Chart

Reference	Document No	Document Title
[8]	A-200409-S00-REPT-003	Shetland HVDC Link Environmental Appraisal (Xodus, 2019)
[9]	1AA0295404	Cable Burial Protection Plan (CBPP)
[10]	1AA0379383	Shetland HVDC Land Cable CEMP
[11]	A-200409-S04-TECH-005	Fisheries Liaison and Mitigation Action Plan (FLMAP) (Xodus, 2021a)
[12]	1AA0400423	Marine Mammal Protection Plan (MMPP)
[13]	N/A	Inspection, Repair Maintenance (IRM) Plan (Exodus, 2021b)
[14]	1AA0400404	Marine Archaeological Finds Plan
[15]	A-200409-S04-TECH-006	Marine Written Scheme of Investigation (WSI) (ORCA, 2020)
[16]	1AA0428959	Vessel Management Plan (VMP)
[17]	A-200409-S04-TECH-003	Communications Plan

1 Introduction

This Construction Environmental Management Plan (CEMP) relating to the marine cable installation works to be carried out as part of the Shetland High Voltage Direct Current (HVDC) Link is submitted to Marine Scotland and the Shetland Islands Council to discharge:

- Condition 8 of the Shetland Islands Council Marine Works Licence 2020/011/WL (Ref. [1]);
- Condition 19 of Marine Licence 07203/20/0 (Ref [2]); and
- Condition 18 of Marine Licence 07357/20/0 (Ref [3]).

The document is designed to cover all works below Mean High Water Springs (MHWS). Works above Mean Low Water Springs (MLWS) are covered by the Shetland HVDC Land Cable Construction Environmental Management Plan (CEMP).

Table 1.1 below sets out the details of these conditions and how they are addressed, with more detail on the structure of the document provided in Table 1.2.

Table 1.1 Relevant licence conditions

Relevant Licence Condition	Condition Met
<p>Shetland Islands Council Marine Works Licence 2020/011/WL (8.) Prior to works commencing</p> <ul style="list-style-type: none"> • a Construction Environment Management Plan (CEMP), • Emergency Spill Response Plan, Control measures and shipboard oil pollution emergency plan (SOPEP), and • Marine Non-Native Species (MNNS) plan <p>will be submitted to the Planning Authority and agreed in writing. The Planning Authority will consult Scottish Natural Heritage for advice before any submission is approved. Reason: To protect bird species from pollution and the integrity of the Seas off Foula Proposed Special Protection Area (pSPA)¹. To also protect other wildlife and the environment that may be impacted.</p>	<ul style="list-style-type: none"> • 1AA0395444 Marine CEMP (this document); <ul style="list-style-type: none"> • Section 4.2 • Section 4.7 • 1AA0403687 Marine Emergency Spill Response Plan (MESRP) & SOPEP (Ref. [4]) • 1AA0400439 Marine Non-Native Species (MNNS) Plan (Ref. [5])
<p>Marine Licence 07203/20/0</p> <p>19. The licensee must submit a Construction Environmental Management Plan ("CEMP") to the licensing authority for its written approval at least two months prior to commencement of the works, or less if agreed by the licensing authority. The CEMP must be consistent with the marine licence application and supporting documents and must contain, but not be limited to, the following:</p> <p>a) Mitigation and management measures outlined in Section 15 and Table 6.2, within the Shetland HVDC Link Marine Environmental Appraisal (Document Number: A-200409-S00-REPT-003), Version A02, submitted to the licensing authority on 12 December 2019.</p>	<ul style="list-style-type: none"> • 1AA0395444 Marine CEMP (this document); <ul style="list-style-type: none"> a) Section 4 b) Section 4.6.3 c) Section 4.6.3 d) Section 4.6.4 • 1AA0403687 Marine Emergency Spill Response Plan

¹ Seas off Foula SPA is now fully designated.

Relevant Licence Condition	Condition Met
<p>b) During the breeding season (April to August) works in nearshore areas must be minimised when in proximity to bird breeding colonies.</p> <p>c) Consideration of the timing, duration, vessel transits and speeds and any lighting during the proposed installation.</p> <p>d) Best practices must be followed to minimise cable drag across adjacent areas where horse mussel beds are present.</p> <p>All works must proceed in accordance with the approved CEMP. Any updates or amendments made to the CEMP must be submitted, in writing, to the licensing authority for its written approval no later than two months or at such a time as agreed with the licensing authority, prior to the planned implementation of the proposed amendments. It is not permissible for any works to commence prior to approval of the CEMP.</p>	<p>(MESRP) & SOPEP (Ref. [4])</p> <ul style="list-style-type: none"> 1AA0400439 Marine Non-Native (MNNS) Species Plan (Ref. [5]) 1AA0392078 Construction Method Statement (CMS) (Ref. [6])
<p>Marine Licence 07357/20/0</p> <p>18. The licensee must submit a Construction Environmental Management Plan ("CEMP") to the licensing authority for its written approval at least two months prior to commencement of the works, or less if agreed by the licensing authority. The CEMP must be consistent with the marine licence application and supporting documents and must contain, but not be limited to, the following:</p> <p>a) Mitigation and management measures outlined in Section 15 and Table 6.2, within the Shetland HVDC Link Marine Environmental Appraisal (Document Number: A-200409-S00-REPT-003), Version A02, submitted to the licensing authority on 12 December 2019.</p> <p>b) Consideration of the timing, duration, vessel transits and speeds and any lighting during the proposed installation.</p> <p>All works must proceed in accordance with the approved CEMP. Any updates or amendments made to the CEMP must be submitted, in writing, to the licensing authority for its written approval no later than two months or at such a time as agreed with the licensing authority, prior to the planned implementation of the proposed amendments. It is not permissible for any works to commence prior to approval of the CEMP.</p>	<ul style="list-style-type: none"> 1AA0395444 Marine CEMP (this document); <ul style="list-style-type: none"> a) Section 4 b) Section 4.6.3 1AA0403687 Marine Emergency Spill Response Plan (MESRP) & SOPEP (Ref. [4]) 1AA0400439 Marine Non-Native Species (MNNS) Plan (Ref. [5]) 1AA0392078 Construction Method Statement (CMS) (Ref. [6]);

Table 1.2: Structure of the document highlighting where specific requirements of the licences are met

Section of this Document		Contains information on:	Addresses Requirement
Section 1	Introduction	Purpose of this CEMP Background information on the Project Indicative programme	07357/20/0 Cl. 18. (b) 07203/20/0 Cl. 19 (c)
Section 2	Legislation and Guidance	details of the relevant legislation and guidance	
Section 3	Environmental Responsibilities and Objectives	NKT's environmental responsibilities and objectives	
Section 4	Environmental Management	General Obligations Pollution Prevention and Protection	07357/20/0 Cl. 18. (a), (b)

Section of this Document		Contains information on:	Addresses Requirement
		Marking and Lighting Vessel Management Fisheries Management Waste Management Marine Mammal Protection and Basking Sharks Marine Ornithology Benthic Environment Designated Sites Marine Non-Native Species (MNNS) Archaeology Other infrastructure Energy Consumption Vessel Management and Navigational Safety Objectives & Targets	07203/20/0 Cl. 19 (a), (b), (c), (d) 2020/011/WL Cl. 8
Section 5	Communication and Training	Exchange and provision of information between parties on the project	
Section 6	Hazard Identification and Risk Management	Risk management measures employed on the project	
Section 7	Emergency Response	Emergency response principles	2020/011/WL Cl. 8
Section 8	Monitoring	Monitoring and audit requirements	
Section 9	References	References used throughout the CEMP	

1.1 The Project

Shetland is not presently connected to the UK mainland electricity transmission grid and as such is solely reliant on island-based generation, this generation is in the majority derived from fossil fuels with the support of onshore wind.

There is currently approximately 600 MW of consented renewable energy generation on the Shetland Isles, which will require connection to the UK mainland transmission network once these projects are constructed. Scottish Hydro Electric Transmission Plc (SHE Transmission) is the licensed Transmission Owner in the north of Scotland, and as such, has a requirement to provide connection to the UK's network when requested by a generator.

In order to meet the dual requirement of the provision of reliable transmission level supply and export surplus renewable generation, SHE Transmission are planning to install a single circuit 253 km long, 600 MW High Voltage Direct Current (HVDC) link between Weisdale Voe in Shetland and Noss Head in Caithness ('Shetland HVDC Link' or 'the Project'). The marine cable infrastructure will consist of a single bundle comprising two conductor cables and one fibre optic communications cable, to allow control of the substation and HVDC converter station. Marine cable solution provider, NKT HV Cables (NKT), will be responsible for the manufacture and installation of the subsea cable.

An overview of the marine installation corridor is provided in Figure 1.1.

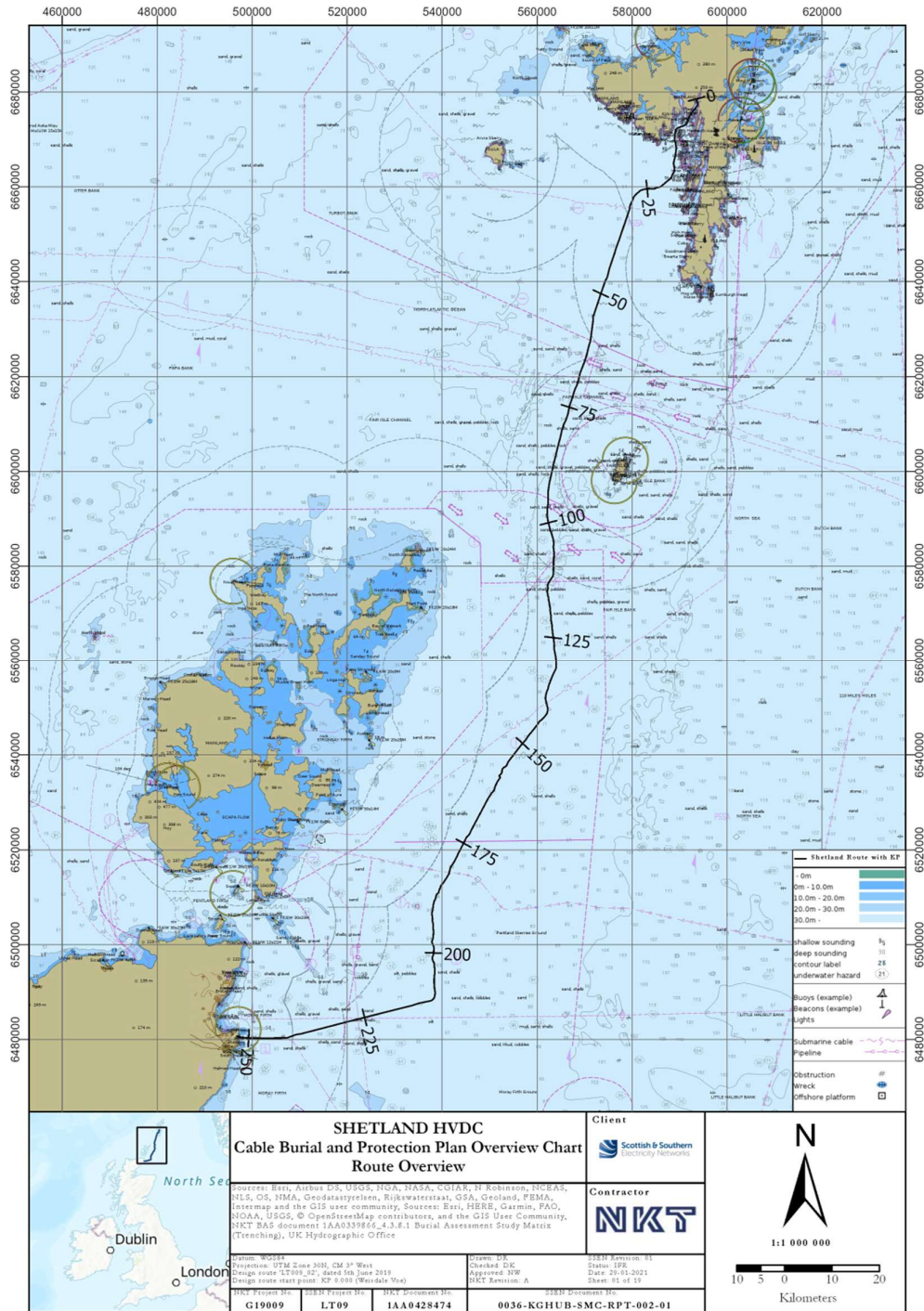


Figure 1.1: Location of the Shetland HVDC Route. High resolution figure provided separately as document, Marine Consents Overview Chart (Ref. [7]).

1.2 Document Purpose

The aim of this Marine Construction Environmental Management Plan (CEMP) is to identify marine environmental processes and standards that are required to be met throughout marine cable installation work. This is required to ensure high levels of environmental performance are achieved and to ensure that work is carried out in compliance with the Marine Environmental Appraisal (MEA) (Ref. [8]), the Marine Licences for the work, relevant environmental legislation, NKT Management Systems, and contractual requirements.

This Marine CEMP relates to the entire subsea works for the Shetland HVDC Transmission project, with sections and appendices delivering specific plans that are required as part of the commitments made during project development. Implementation of this Marine CEMP will be achieved by provision of sound advice, pro-active management and supervision and adequate consultation. This document applies to all activities conducted by NKT and will be adhered to by all personnel involved with any package of this scope of supply.

NKT will ensure:

- All work will be undertaken in compliance with relevant licences and permit conditions;
- That all work is planned, coordinated, controlled and monitored through project management involvement as per assigned NKT 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).

Personnel involved with the project marine works will comply with this Marine CEMP, legislation, NKT standards and SHE Transmission requirements.

1.3 Scope of Subsea Work

This Marine CEMP includes for all work undertaken under the following Marine Licences:

- Marine Scotland Licence Number 07203 (Ref. [2]): Cable installation between Weisdale Voe, Shetland and Noss Head, Caithness within 12 nautical miles (NM) (referred to hereafter as ML 07203);
- Marine Scotland Licence Number 07357 (Ref. [3]): Cable protection between Weisdale Voe, Shetland and Noss Head, Caithness outwith 12 NM (referred to hereafter as ML 07357); and
- Shetland Island Council (SIC) Marine Works Licence Ref. 2020/011/WL Ref. [1]: Cable installation from Weisdale Voe out to 12 NM from the Shetland Islands (referred to hereafter as SIC Marine Works Licence).

Jurisdiction of the above licences is shown in Figure 1.1. Copies of the above licences will be available for inspection by any authorised enforcement officer at SHE Transmission and NKT premises, and at the site of the works, including installation vessels.

In compliance with Condition 20 of ML 07203, Condition 19 of ML 07357 and Site-Specific Conditions 2 and 3 of the SIC Marine Works Licence, details of cable specification, commencement dates, duration and phasing of key elements of construction are detailed in the Construction Method Statement (CMS) (Ref. [6]) and the Cable Burial and Protection Plan (CBPP) (Ref. [9]). A brief summary of the key activities is provided below.

1.3.1 Surveys prior to commencement

Surveys undertaken prior to commencement of works, summarised as follows:

- Pre-lay survey;
- Unexploded Ordnance (UXO) survey;
- Crossing surveys;
- Horse mussel bed survey.

Geotechnical investigations may be included if required. In addition, the installation corridor is in close proximity to several aquaculture sites, therefore surveys may be required to determine the location and extent of associated seabed infrastructure, including anchors.

1.3.2 Potential UXO Identification works

Several potential UXO targets have been identified along the proposed cable corridor, which will be investigated prior to installation (UXO survey). Potential UXOs will be avoided where possible via cable re-routing. If UXO cannot be avoided and needs to be cleared, this will be subject to separate marine licence application and is not within scope of this Marine CEMP.

1.3.3 Nearshore Works – Weisdale Voe

Open Cut Trenching (OCT) will be utilised at the Weisdale Voe, Shetland, landfall to install polyurethane (PE) ducts of circa 450 mm diameter, either two (2) ducts in a single trench for each HVDC cable, with the Fibre Optic cable (FOC) bundled with one of the HVDC cables, or use one (1) duct for cable redundancy and pull the bundled cables through a single duct to the transition joint bay on shore. A trench shall be excavated of 150 m to 180 m length from the transition joint bay close to the shoreline out to the nominated exit point at approximately 10 m Lowest Astronomical Tide (LAT). Two long PE ducts would be installed out from the shoreline, avoiding the rock outcrop close to the current route, within the licensed corridor. The work would be carried out via backhoe excavator from shore and on a barge with a supporting multicat workboat. Where shallow bedrock is encountered, a hydraulic chiselling or rock cutter tool may be required to deepen the trench. The ducts would be installed in the pre-excavated trench and then backfilled. The PE ducts would have a small bellmouth fitted to submerged end of the duct to aid the pull-in of the cable. The duct bellmouth end shall be protected by rock.

The alternative solution consists of using cast-iron shells around the cable, either as a bundled cable or as single protected cables which are pulled into a pre-excavated trench then backfilled. Cast-iron shells may also require pinning in the nearshore sections where the cable rests on the seabed or rock outcrops.

1.3.4 Nearshore Works – Noss Head

The landfall site at Noss Head, near Wick, Caithness, would be prepared with three (3) planned Horizontal Direct Drilled (HDD) ducts, although consents application has been

approved for up to five (5) HDD ducts to be installed. Of the three (3) planned HDD ducts to be installed, NKT plan to use only two (2) for pulling cables through, with the third as a spare contingency option, with the FOC bundled with one of the HVDC cables during pull in. The HDD ducts of 324 mm outer diameter (OD) and of approximately 560 m in length shall be installed from the transition joint bay location (HDD Compound above MHWS) to extend to outside the wave break zone to exit in at rock outcrop

The steel casings shall be pushed in from shore to extend out from the identified rock face at the 20m LAT depth with each duct to exit above the seabed complete with belmouths (3) and sealed until start of the pull-in preparation works.

The HVDC cables and fibre optic cable shall be pulled in through the HDD ducts to the landfall joint bay location. The cables shall then be pulled in by the landfall winch and secured for jointing.

1.3.5 Seabed Preparation

Following verification of the area during the pre-lay survey, route clearance operations will be undertaken to remove boulders, cut and pin Out of Service (OOS) cables and remove seabed debris found in the route. Micro re-route engineering will be implemented to avoid exceedance of trenching equipment limits where possible.

Boulder clearance will be carried out by boulder grab, with boulders to be relocated within the consented corridor to a minimum distance to not interfere with equipment.

Pre-lay grapnel run (PLGR) operation would be carried out prior to the 1st and 2nd cable lay campaigns to check and clear the route of seabed debris by towing a grapnel along the route. Disposal of debris recovered to the vessel is addressed in Section 4.5: Waste Management.

Cut and Peel of any OOS cables will be implemented, as agreed with the asset owner, and clump weights will be placed at both ends of the cut out of service cable. A de-trenching grapnel may be used.

Crossed assets shall be protected by means of pre-lay crossing protection in the form of a pre-installed concrete mattresses or pre-lay rock berm installed over the buried or partially buried crossed asset. The crossing design would be first approved by the crossed asset owner, with the conditions required detailed in each SHE Transmission Crossing Agreement. The installed HVDC Link cables would then cross as close to perpendicular to the crossed asset. Then a post-lay rock berm would be installed over the HDVC Cable Link and the crossed asset, and includes provision for crossing surface-laid, buried and OOS infrastructure. The precise position of the assets at the crossing locations in the route corridor shall be confirmed during the pre-lay & UXO survey, where possible. All cable protection deposits will be in compliance with Part 1.4 of the marine licences (see Section 1.3.9).

The precise number of crossings will change, depending on the installation and decommissioning works undertaken outside this Project, this is outwith SHE Transmission and NKT control.

1.3.6 Cable lay operations

The two HVDC cables will be installed in a bundled configuration with the FOC placed in between the HVDC cables. Bundling will be conducted onboard the lay vessel by winding yarn in a single or crossed direction around the three cables.

The cable shall be installed within the consenting corridor of the Marine Licence in three (3) separate laying and protection campaigns. The cable shall be pulled into each of the landfall and then laid away along the cable route with the third campaign laying the centre section and jointing the cable previous laid cables. An In-line cable jointing is proposed at 57 km from Weisdale Voe and an omega joint is planned 98 km from Noss Head.

1.3.7 Cable Protection

The cable shall be installed using a suitable trenching tool and method to provide the HVDC cable link with the required depth of lowering and depth of cover as detailed in the cable burial protection plan for the cable route. Method statements for achieving the required depth of lowering and depth of cover along the majority of the cable route are provided in the CMS (Ref. [6]) and CBPP (Ref. [9]). Surveys will be ongoing to monitor installation of the cable throughout the Project.

Cable protection shall primarily be by means of jet trenching, however a mechanical cutting tool may be employed if deemed appropriate.

1.3.8 Cable Protection – Remedial

In those sections of the cable route where the required depth of lowering or cover are not reached, then remedial rock placement may be used to provide the required depth of cover to protect the HVDC cable bundle, except for when:

- The HVDC cable bundle crossing the MPA of the horse mussel bed, where cable protection by means of a cable protection system; Uraduct (or similar) or Cast-Iron Shells shall be installed.
- The HVDC cable crossing other cable or pipeline assets, where the protection method shall be in agreement with the crossed asset owner.
- For nearshore approaches crossing MHWS, (Noss Head) where Horizontal Directional Drilled steel ducts or (Weisdale Voe) where PE ducts are installed.
- For the both nearshore approaches, where a Cable Protection System (CPS) would be used.
- Temporary cable protection is required for cable pinning or free-span support, where clump weights, filter rock bags or concrete mattresses could be used.
- Where, through further detailed burial assessment engineering and/or through trenching performance, NKT and SHE Transmissions agree that trenching using mechanical cutting tool would further improve the depth of lowering and reduce the estimated areas for remedial rock protection.

1.4 Permitted Deposits

No rock placement is permitted on areas of protected habitat such as the Noss Head MPA. The nature and indicative quantity of all deposits below Mean High water Springs (MHWS) will be in accordance with the Marine Licences listed in Section 1.3.

1.5 Indicative Programme

Summary details provided below (Table 1.3), though it should be noted timescales are subject to change. The indicative programme is also presented in a Gantt Chart in Appendix A.

Table 1.3: Indicative programme

Activity	Anticipated Quarter	Anticipated duration (approx.)
Pre-lay survey	Q2 2021	45 days
Route clearance – boulder (and associated surveys)	Q3 2021	75 days
Route clearance – PLGR and OOS cables (and associated surveys)	Q2 2022 and Q2 2023	20 days
Landfall operations Caithness (HDD)	Q2 2022 and Q2 2023	30 days
Landfall Operations Shetland	Q1 2023	30 days
HVDC Submarine Cable Laying (3 campaigns)	Q2 2022 and Q1-2 2023	70 days
Pull-in Caithness	Q3 2022	3 days
Pull-in Shetland	Q2 2023	3 days
Post-Lay Cable Burial >10 m water depth, incl. post lay/interim survey(s)	Q3 2022 and Q2 2023	150 days
Post-Lay Utility Crossing Protection, incl. post lay/interim survey(s)	Q4 2022 and Q3 2023	10 days
Remedial Protection (cable protection) (and associated surveys)	Q4 2022 and Q3 2023	110 days

2 Legislation and Guidance

Marine Licences issued by Marine Scotland and Marine Works Licences from SIC are in place to cover the work.

All vessels contracted 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 Health, Safety and Environment (HSE) Audit.

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 vessel audits/Inspections (see Section 8.2: Vessel Inspection Process).

Table 2.1: Legislation Register

Convention / Legislation	Relevant Article / Annex
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 MHWS) including the temporary placement of construction materials and/or disposal of dredged material etc in Scottish Territorial Waters.
Zetland County Council Act 1974	Granting SIC powers with respect to the conservancy of, and control of development in their coastal area (within 12 NM).
Marine and Coastal Access Act 2009	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 MHWS) including the temporary placement of construction materials and/or disposal of dredged

Convention / Legislation	Relevant Article / Annex
	material etc in Scottish Waters beyond the Territorial Sea (Scottish Offshore Waters).
Environmental Protection Act 1990 (Amendment) (Scotland) Regulations 2001	<p>Pollution control Transfer of functions of the Environmental Protection Act 1990 from Ministers of the Crown to Scottish Ministers for Scottish matters.</p> <p>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.</p>
Tonnage Convention	Article 7
Load Line (LL) Convention	Article 16
1988 LL Protocol	Article 16
Safety of Life at Sea (SOLAS) 1974	<p>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.</p>
Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978	Article VI, regulation I/2; STCW Code, section A-I/2
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.

Convention / Legislation	Relevant Article / Annex
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
Convention on the International Regulations for Preventing Collisions at Sea (COLREGs)	Sets out navigation rules to be followed by ships and other vessels at sea to prevent collisions between two or more vessels.
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM)	Article 7 - Survey and Certification: ships are required to be surveyed and certified
	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.
	Annex Section D - Standards for Ballast Water Management: BWE standard ('D-1') and a ballast water performance standard ('D-2').
	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.
Conservation (Natural Habitats, &c.) Regulations 1994	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 an EPS Licence.
Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017	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).
Convention for the Protection of the Marine Environment of the North-East Atlantic (The OSPAR Convention)	Regulates international cooperation on environmental protection in the North-East Atlantic, including pollution and assessment of marine environmental quality.
Wildlife and Countryside Act 1981 (as amended)	Protection of wild bird and other animals, prevention of the introduction of non-native species.

Table 2.2 Key Environmental (Ecological) Guidance

Guidance	Relevant Article / Annex
IMO Biofouling Guidelines (resolution MEPC.207(62))	IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species.
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 NatureScot (formerly Scottish Natural Heritage ² (SNH)) (https://www.nature.scot/sites/default/files/2017-07/Publication%202014%20-%20SNH%20Commissioned%20Report%20748%20-%20Marine%20biosecurity%20planning%20-%20Identification%20of%20best%20practice%20-%20A%20review.pdf).
The Scottish Marine Wildlife Watching Code (SMWWC) - Part 1 (SNH ² , 2017a)	Best practice guidance on watching all species of marine wildlife in and around Scotland Part 1 (https://www.nature.scot/scottish-marine-wildlife-watching-code-smwwc-part-1).
A Guide to Best Practice for Watching Marine Wildlife (SMWWC) Part 2 (SNH ² , 2017b)	Best practice guidance on watching all species of marine wildlife in and around Scotland Part 2, complementing the SMWWC (https://www.nature.scot/guide-best-practice-watching-marine-wildlife-smwwc-part-2).
Guidance on the Offence of Harassment at Seal Haul-Out sites (Marine Scotland, 2014).	Guidance on what constitutes an offence and how to behave responsibly around seal haul-outs (https://consult.gov.scot/marine-environment/possible-designation-of-a-seal-haul-out-site/user_uploads/guidance-on-the-offence-of-harassment-at-seal-haul-out-sites.pdf-1).
The Basking Shark Code of Conduct (Marine Conservation Society (MCS), undated)	Guidelines designed to help boat handlers reduce the risk of killing, injuring or harassing Basking Sharks (https://www.mcsuk.org/downloads/wildlife/basking_sharks/Basking_Shark_Code_of_Conduct_Poster.pdf).
Joint Nature Conservation Committee (JNCC) guidelines for minimising the risk of injury to marine mammals from geophysical surveys (JNCC, 2017)	JNCC guidance to reduce the risk of deliberate injury to marine mammals and relevant measures are incorporated as part of the consenting regimes for geophysical activities within the United Kingdom Continental Shelf (UKCS) (https://data.jncc.gov.uk/data/e2a46de5-43d4-43f0-b296-c62134397ce4/jncc-guidelines-seismicsurvey-aug2017-web.pdf)

² Scottish Natural Heritage has been rebranded as NatureScot, effective from 24 August 2020.

3 Environmental Responsibilities and Objectives

3.1 Operational Responsibilities

NKT 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.

NKT is certified in accordance with the requirements of SS-EN ISO 18001:2007, SS-EN ISO 14001:2015 and has an integrated HSE Management Systems ensuring that NKT manage and control their occupational HSE risks and improve their performance.

NKT is dedicated to reduction of energy consumption. Electricity, heating and fuel is monitored and recorded on a yearly basis.

3.2 Contractor Responsibilities

NKT and sub-contractors are directed to ensure all plans and procedures are compliant with this Marine CEMP. Task specific Method Statements will be prepared, risk assessed and submitted to the NKT Project Installation Manager for approval, prior to work commencing.

Method Statements will show how specific mitigation and management measures and commitments will be met by NKT and each sub-contractor where relevant.

3.3 Environmental Objectives

NKT's environmental objective for the contracted works is 'Zero harm to the Environment'. NKT reach this goal through a systematic and planned approach, and have the following project specific Environmental Objectives, managed by the Project Environmental Manager with support from environmental consultants:

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

3.4 Project Organisation, Roles and Responsibilities

SHE Transmission is responsible for maintaining and investing in this transmission network. NKT retains the responsibility for NKT site/vessel personnel. The environmental responsibilities of the key personnel / roles specific to the subsea installation scope of work are outlined below. Shetland HVDC Link Project Organigram is provided in Figure 3.1.

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.

3.4.1 SHE Transmission Lead Project Manager

Responsible for:

- Overall delivery of the project activities and leadership of the project team.
- Ensuring licence conditions are clearly communicated and that adequate resource is in place to successfully deliver the project.
- Liaison and engagement with regulators and licencing authorities as required in order to support the Marine Consents Manager.
- Liaison and engagement with marine stakeholders so as to ensure they are informed of project activities and support sustainable and collaborative working relationships.

3.4.2 SHE Transmission Project Manager

Responsible for:

- Delivery of the subsea project activities and management of key project suppliers.
- Support the Marine Consents Manager by ensuring licence conditions are clearly communicated and monitored.
- Provide feedback to the Lead Project Manager & Marine Consents Manager regarding any concerns or incidents associated with marine environmental and stakeholders at the soonest opportunity.
- Ensure best practice is employed throughout the subsea project activities.

3.4.3 SHE Transmission Marine Consents Manager

Responsible for:

- Obtaining and managing licences and permits required for the construction and installation of the Shetland HVDC link, excluding species licensing.
- Monitoring project compliance against licence conditions and business standards.
- Managing liaison engagement with regulators and licencing authorities.
- Managing liaison with stakeholders and other legitimate users of the sea to ensure they are informed of project activities and maintain collaborative working relationships.
- Transfer of enduring licence and permit conditions to the projects operational phase.

3.4.4 SHE Transmission Offshore Supervisor

Responsible for:

- Monitoring the offshore works on behalf of the employer and in doing so they shall;
- Monitor compliance against licence conditions.
- Monitor HSE requirements.
- Audit the works as required by the employer.
- Report any concerns, observations or incidents to the employer at the soonest opportunity.

3.4.5 NKT Cable Project Installation Manager

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

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

- 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 and induction/training;
- Monitor the environmental performance of the project through maintaining an overview of incidents, inspections and audits, and implementing corrective actions arising from audits; Liaise with Project Quality Health Safety and Environmental (QHSE) Managers on all environmental issues on a regular basis as per project requirements and ensure that all environmental incidents are reported to QHSE Managers according to agreed procedures (in line with Section 7: Emergency Response);
- 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; and
- Nominate individual project team members to support SHE Transmission in public relations and community liaison activities, including local community meetings.

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

3.4.6 NKT Project Quality, Health and Safety and Environment Managers

The Project HSE Managers (Quality Manager, Health and Safety Manager and Environment Manager) report to the Project Director, and to the HVDC QHSE Team, and are responsible for providing HSE advice and guidance to managers, employees and others. Specific environmental responsibilities are outlined below:

- Manage delivery and implementation of QHSE plans in accordance with SHE Transmission requirements, NKT procedures and current legislation;
- Interface with NKT site staff and subcontracted companies on environmental issues and provide the necessary updates and reports to project team and Client;
- Ensure the site-specific Environmental Management Plans (EMPs) are implemented, ensuring compliance with procedures and legislation;
- In conjunction with SHE Transmission, liaise with government departments, local authorities and other statutory authorities on environmental matters obtaining consents and permits, as required;

- Review Method Statements against environmental issues; and
- Ensure accidents and incidents are correctly reported, investigated and all actions closed out.

3.4.7 NKT Site Manager / NKT HV Cables Offshore Representative

The Site Manager / NKT Offshore Representative will report to the Project Installation Manager. Specific environmental responsibilities are outlined below.

- Represent NKT on board project vessels;
- Understand and implement all NKT environmental procedures ensuring that operations function in compliance;
- Ensure all parties involved in the operations to adhere to all project procedures, plans and EMPs;
- Ensure Toolbox Talks (TBTs) and inductions are carried out on relevant environmental topics and to hold records;
- Participate in daily progress meetings and Safety and Environmental meetings;
- 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 HSE audits;
- Report environmental incidents at the earliest possible time using the NKT RIVO Safeguard incident reporting system and advising the QHSE Manager.

3.4.8 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 Marine CEMP and the associated documentation;
- 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 Project Installation Manager, Offshore Site Manager, NKT Offshore Representative or QHSE Team as soon as possible.

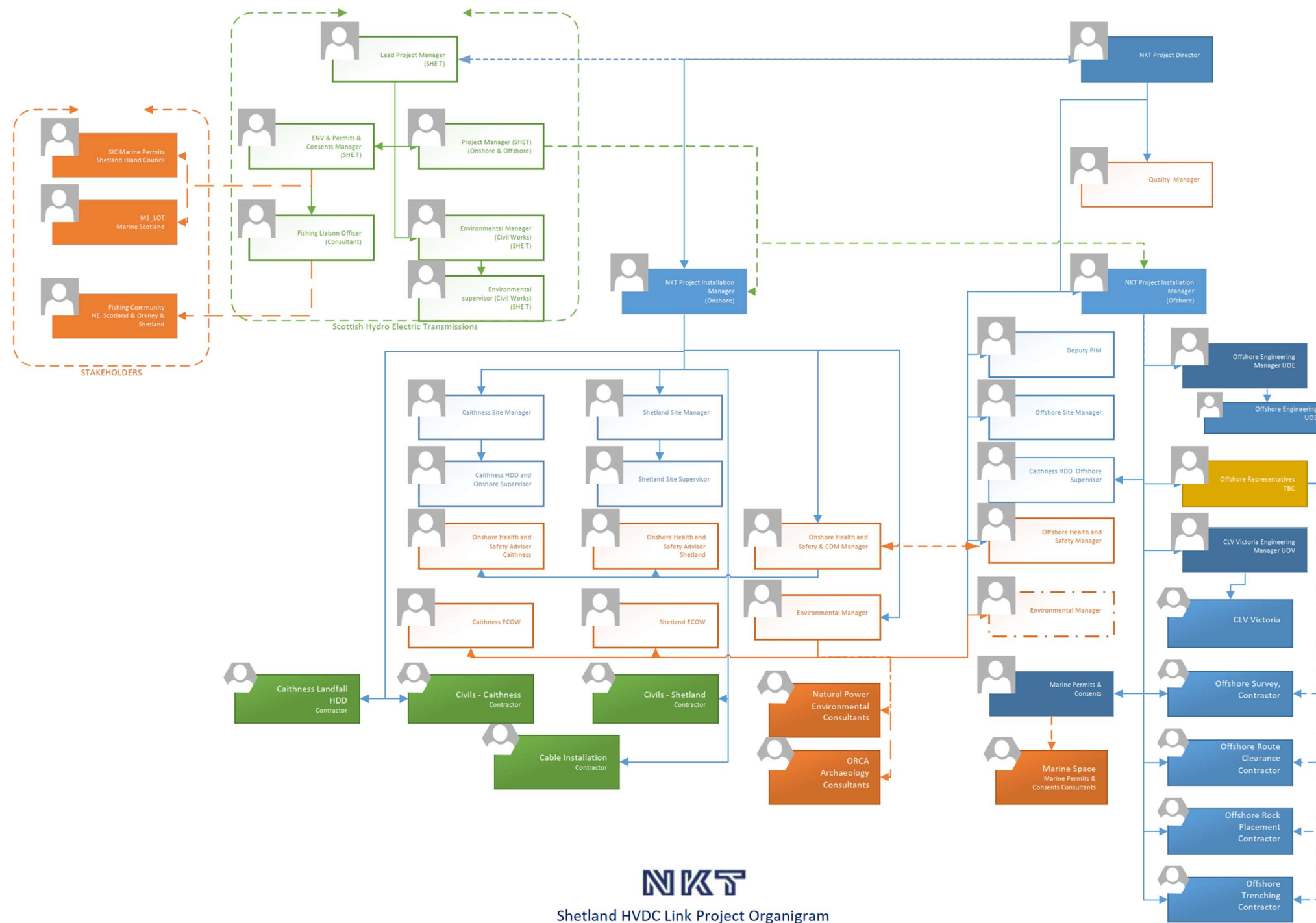


Figure 3.1 - Shetland HVDC Link Project Organigram

4 Environmental Management

NKT is certified against ISO 14001 (Environmental Management). The certificate sets the minimum standard for all work carried out on any site by NKT. 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, NKT Management Systems, and contractual requirements.

This section sets out how activities will be managed to ensure compliance with Section 15 and Table 6.2 of the MEA (Ref. [8]), ML 07203 (Ref. [2]), ML 0357 (Ref. [3]) and the SIC Marine Works Licence (Ref. [1]). Monitoring and reporting mechanisms are set out in Sections 7 and 8 of this CEMP.

4.1 General Obligations

- Project personnel will comply with all licence conditions and copy of the licences will be given to all contractors and subcontractors appointed to carry out part or all of the works to facilitate compliance.
- Project personnel will be required to plan works to keep to the agreed cable corridor.
- In the event that any of the information on which issue of the licence was based has changed, SHE Transmission must be immediately notified of the details, SHE Transmission will notify the licensing authority.
- No deviation from the conditions specified in the consent(s) shall be made without the further written consent of the Scottish Executive.
- 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.
- The seabed is to be returned to the original profile, or as close as reasonably practicable, following the completion of the works or the removal of the cable.

4.1.1 Specific conditions relating to Shetland inshore waters (to 12 NM)

- Within 28 days of the completion of the development hereby permitted, as-laid coordinates of the cable between the levels of MHWS out to 12 NM from the Shetland Islands shall be submitted to the Planning Authority.
- All stone used in the construction of the development hereby permitted shall consist of only clean non-contaminated material.
- The Works Licence (and all rights in connection with the Licence) shall be forfeit if: the works are not commenced within three years from the Effective Date; or the works are not used, or the operations connected cease, for a continuous period of three years; or the Licensee is in breach of any of the terms, provisions and conditions of the Licence or fails to comply with any directions thereunder.

4.2 Pollution Prevention and Protection

- Vessels will be equipped with wastewater disposal facilities (sewage treatment or waste storage) to International Maritime Organization (IMO) MARPOL Annex IV Prevention of Pollution from Ships Standards where relevant.
- Method statements and best practice procedures will be in place 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.
- Project personnel will follow and implement best management practices in accordance with the Marine Emergency Spill Response Plan (MESRP) (Ref. [4]) and Shipboard Oil Pollution Emergency Plan (SOPEP) (included with MESRP as an appendix).
- Project personnel will ensure suitable bunding and storage facilities are employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment.
- All materials to be used for installation will be inert and will not contain toxic elements which may be harmful to the marine environment, the living resources which it supports or human health.

4.2.1 Use of Hazardous Substances

- Operational 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 2010³.
- All chemical substances introduced to any NKT Site need approval from HVDC Environmental management. A list of approved chemicals is kept in a database "Chemsoft" reached by all NKT Employees.
- To reach approval status all substances go through a Control of Substances Hazardous to Health (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 (WMP) requirements stated in the data sheet, and industrial best practice (see Section 4.5 for more information on waste management). A method statement will be prepared, used and kept for the materials / substances in use.

³ The Offshore Chemical Notification Scheme (OCNS) is a means of compiling use and discharge information of offshore chemicals by the Oil and Gas Industry as part of reporting under the OSPAR Convention. While this does not apply to marine cables, the principles of hazard assessment and selection of least hazard materials is adopted in the interest of protecting of the Marine Environment of the North East Atlantic. The 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/>.

4.2.2 Releases to the Environment

In the event of an accidental fuel release occurring, appropriate standard practice management procedures will be implemented accordingly as provided in the MESRP (Ref. [4]), which is designed to cover all works below MHWS, and outlines the response strategy that will be adopted in the event of a spill, and is based on the internationally recognised and accepted three tier oil spill classification system.

In addition, each vessel utilised on the project will have an effective spill response process in place – SOPEP with the intention of ensuring that there are no un-recovered spillages in the marine environment. The SOPEP is implemented in the event of any oil spill. This is in line with Condition 8 of the SIC Marine Works Licence, ML 07203 Condition 19 (a) and ML 07357 Condition 18 (a). Additional information on the SOPEP is provided in the MESRP (Ref. [4]) as an Appendix. SOPEP is a MARPOL 73/78 requirement under Annex I. All ships with 400 gross tonnage (gt) and above must carry an oil prevention plan as per the norms and guidelines laid down by IMO, 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.

In the event of an environmental incident in the intertidal area during landfall works, the response procedure and strategy will be as outlined in Section 7 of the Shetland HVDC Land Cable CEMP (Ref. [10]). Spillages that occur will be recorded as Environmental Incidents using the project reporting system, investigated and corrective actions taken (see Section 7: Emergency Response).

4.2.3 Horizontal Directional Drill (HDD) fluid breakout Plan

Where HDD works will be undertaken, it is recognised that there is a risk of unintentional loss of drill fluids (breakout) to the environment.

The drill fluid used on this project will be formed from a suspension of bentonite (montmorillonite clay) in fresh water. The concentration of bentonite will be in the range of 30 - 50 kg/m³. Small additions of TEQBIO® may be made to the drill fluid at 2 - 5 kg/m³. TEQBIO® provides additional carrying capacity to the drill fluid and ensures that as high a proportion of cuttings as possible are removed from the hole. Bentonite is a naturally occurring clay mineral used also in pottery making (China Clay) and in beauty products (Fullers Earth). TEQBIO® is a Xanthan Gum used predominately as a food additive. TEQBIO® is fully biodegradable and certified for use in water-well drilling due to its biodegradability and lack of any form of toxicity.

Throughout drilling operations, the drill fluid is returned to the drill entry pit and are pumped through a drill fluid recycling system to separate the cuttings from the drill fluid. These cuttings will be separated from the drill fluid and allowed to accumulate in a pit excavated in front of

the recycling plant. Waste Acceptance Criteria (WAC) testing of the cuttings will be performed to determine the appropriate Waste Code as required for the Waste Transfer Note, then cuttings will be transported from site and be disposed appropriately. Excess drill fluid will similarly be disposed of at a licensed facility with the fluid being transported from site in tankers.

Prior to breakout (c. 50 m) a dedicated cleaning run of the bore using standard drilling fluid will be performed so as to flush any residual cuttings or detritus from the borehole. The drilling assembly is then run back into the hole and the drilling continues until the drill bit breaks through onto the seabed.

Where the drill emerges onto the seabed there will be some release of drilling fluid and cuttings into the marine environment. This release will be approximately equal to the volume of the bore that forms a hydrostatic head above sea level (maximum of 200 m³ from each bore) (400 mm x 1,500 m). Residual cuttings and drill fluids are expected to be dispersed rapidly due to the highly dynamic regime in the vicinity of the landfalls.

Unplanned breakouts are also possible but are more likely close to the drill entry point where ground cover is reduced. To mitigate the risk at the entry location, the following additional mitigation measures shall be implemented:

- The drill profiles are designed with as high as feasible entry angle while maintaining an acceptable drill profile.
- The entry pit is dug down to the rockhead level thereby removing all loose material from the drill line.
- Regular visual inspections of the drill centre line.
- Adequate provision of straw bales, sandbags, additional pumps and associated hoses shall be made available in order to stem the flow of drill fluid should it enter a ditch and pump it back to the drill site.
- An assessment of the topography ahead of the drill site will be made prior to drilling operations commencing to identify the likely flow paths of bentonite in the event of a breakout and straw bales/sand bags will be positioned in such a way as to provide containment of drill fluid along these flow paths so as to as far as possible eradicate the risk of a land-based escape of bentonite reaching the marine environment.

The risk of drill fluid breakout beyond the top of the coastal cliffs is extremely small as the depth of cover is in excess of 10 m and the rock strata are horizontally bedded. In the event that breakout does occur beyond the top of the cliffs, direct breakout containment response options are limited because of difficulty with access and the lack of viability of containment in the intertidal zones, however any lost bentonite material (which naturally flocculates in seawater) will be limited in volume and will be quickly dispersed by wave and tidal action. While all reasonable attempts will be made to recover the maximum possible volume of any escaped drill fluid (by way of pumping), the health and safety of personnel will be kept as a primary consideration.

In the event of a breakout, various means of remedial action exist either designed to stem the flow or to by-pass the area of drill fluid breakout, these include Increased drill fluid viscosity,

pumping lost circulation materials, and installation of a rubber plug. The exact measures used will be determined based upon the nature and location of any breakout.

4.2.3.1 Drill Fluid Breakout Procedure

In the event of a breakout, the following procedure will be followed:

Breakout on Land

- Stop work immediately so as to minimise the volume of drill fluid discharged.
- Retain the spill using sandbags to form a bund to contain the drill fluid and prevent migration, booms may be used as a quick response to slow drill fluid surface migration until a bund can be constructed. Submersible pumps are then used to pump the drill fluid back to the drill site. For large volumes of breakout that occur away from the drill entry site, a vacuum truck may be mobilised. Where the location is accessible, a small sump may be excavated so the pump can be submersed quickly before needing to construct a bund. Excavations are to be only undertaken within LMR compounds unless authorised by NKT and only after checking for the presence of services or to be hand-excavated at first.
- Pump or tanker the spill back to the mud pit.
- Report the incident immediately to the NKT Project Manager who will inform SHE Transmission, and Scottish Environmental Protection Agency (SEPA) where required.

Breakout at Sea (incl. cliffs/intertidal)

- Stop work immediately so as to minimise the volume of drill fluid discharged.
- Report the incident to the NKT Project Manager who will inform SHE Transmission and SEPA.
- Direct breakout containment response options beyond the top of the cliffs are limited because of difficulty with access, however any lost bentonite material (which naturally flocculates in seawater) will be quickly dispersed by wave and tidal action.

4.3 Marking and Lighting

The works should be marked and/or lit 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:

- 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.
- Lighting on vessels to be kept to only the minimum level required to ensure safe operations.
- Contractors will ensure that lighting that illuminates away from vessels will be minimised when within 5 km of the shore.

Marine Scotland and the lighting authority will be informed by SHE Transmission when the works have been completed and the marking established. If desired to display any marks or lights not required by the consents, details will be submitted to the Northern Lighthouse Board and their ruling complied with. No unauthorised marks or lights will otherwise be displayed. Consultation with the local navigation authority or Harbour Authority/Commissioners/Council will also be undertaken by SHE Transmission to determine whether local navigational

warnings are required. In the event such warnings are required, all contractors will comply with obligations specified.

4.4 Fisheries Management

The mitigation measures for commercial fisheries, all of which will be implemented by SHE Transmission as part of the ongoing installation phase are set out in the Fisheries Liaison and Mitigation Action Plan (FLMAP) (Ref. [11]).

The FLMAP sets out the fisheries liaison and mitigation action measures to be implemented on the project. These procedures have been established to ensure that the cable is planned, installed and operated as safely as possible in accordance with the licence consent conditions for the project. The FLMAP draws upon best practice procedures in line with relevant industry guidelines (Fishing Liaison and Offshore Wind and Wet Renewables Group ((FLOWW), 2014; 2015), as applicable.

The FLMAP includes provision for the following:

- A Fisheries Liaison Officer (FLO) to be appointed by SHE Transmission;
- The Project's approach to fisheries liaison and of the measures to be implemented to facilitate co-existence and minimise impacts on fishing activities; and
- Provision and use of guard vessels.

4.5 Waste Management

4.5.1 Overview

Ships carrying out work related to the project shall be required to carry and implement a vessel Waste Management Plan as required under IMO regulations. Vessel generated wastes shall be the responsibility of the ship owner. Waste generated during shore-based landfall works in the intertidal area will be managed under the provisions of the Shetland HVDC Land Cable CEMP (Ref. [10]), and associated WMPs.

The purpose of the vessel WMP is to provide guidance to the Master and crew on board the ship and shall provide written procedures for minimising, collecting, storing, processing and disposing of garbage, including the use of the equipment on board. Vessel WMPs will detail the specific ship's equipment and arrangements, and the location of equipment operating manuals. 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 and in English.

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

The vessel/site specific WMPs will cover the following:

- General garbage;
- Equipment waste;
- Construction waste (debris and scrap cable);
- Special/hazardous waste;
- Sanitary waste; and
- Systems controlling bilges and sewerage water.

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

4.5.2 Regulatory Requirements

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

- Waste Carriers Registration Certificate;
- Special 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, scrapyards, waste transfer station.

4.5.3 Placards

As per the requirements of MARPOL, vessels will adhere to the mandatory requirements for the provision of waste information placards. 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.

4.5.4 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 logbook or otherwise, shall be in the format specified by NKT, 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 unplanned discharge or accidental loss, an entry shall be made in the Garbage Record Book and reasonable precautions taken to prevent or minimise such discharge or accidental loss and reported as required under the MESRP (Ref. [4]).

4.5.5 Disposal of Debris and Scrap Cable

In general, all debris (e.g. that recovered during PLGR) or scrap cable will be stored on board the vessel for discharge in port. The disposal of the debris and scrap cables ashore will be undertaken according to the local waste management regulations and contractors' environmental management systems.

Additional hazards which include unexploded ordnance, which can possibly entangle in other debris would be mitigated from the UXO survey to a ALARP certificate for a safe route.

Any debris of archaeological interest will be reported in accordance with any project specific Archaeological Find Plan (Ref [14]).

4.6 Ecology

4.6.1 Marine Mammal Protection and Basking Sharks

A Marine Mammal Protection Plan (MMPP) has been developed for the Project (Ref. [12]). The measures in the MMPP are informed by licence conditions, and through European Protected Species (EPS) risk assessments undertaken for each activity and subsequent consultation.

NKT will ensure compliance with all relevant licence conditions and legislation regarding the protection of marine mammals and basking sharks, including:

- Scottish Marine Wildlife Watching Code (SMWWC) (SNH, 2017a);
- The Basking Shark Code of Conduct (MCS, undated); and
- Guidance on the Offence of Harassment at Seal Haul-out Sites (Marine Scotland, 2014).

4.6.2 Otters

An Otter Species Protection Plan (OSPP) has been prepared and is included in the onshore Shetland Ecology Management Plan. Measures relevant to marine works are as follows:

- If otters are unexpectedly found during works, all works within 200 m will cease immediately and the ECoW will be contacted to provide further advice and determine the most appropriate course of action. Sightings shall be recorded in a site diary and include sightings outside of the site boundary;

- During operations requiring Marine Mammal Observer (MMO)/Passive Acoustic Monitoring (PAM), the MMO will monitor for the presence of otters when working within 500 m of any Special Area of Conservation (SAC) designated for otters;
- Works close to watercourses or waterbodies showing signs of regular use by otters will not take place after dark or within 2 hours of sunset and sunrise, if possible;
- A licence will be required from NatureScot in advance of the works start date should works encroach to within 200 m of an active breeding site, layups, couches and non-natal holts.

4.6.3 Marine Ornithology

Requirements for minimising impacts on birds are set out in the SIC Marine Works Licence and are required by Condition 19(b) of ML 07203. Condition 19(c) of ML 07203 and Condition 18(b) of ML 07357 require that consideration be provided of the timing, duration, vessel transits and speeds and any lighting during the proposed installation.

- Lighting on-board the cable installation vessel will be kept to the minimum level required to ensure safe operations. This will minimise disturbance to seabird species.
- Vessels will be travelling at slow speeds during survey, installation and protection works which will minimise disturbance impacts to seabird and marine mammal receptors.
- The MEA concluded that as activities will be spatially and temporally limited, no significant effects on bird receptors would arise, however recommended that project activities be minimised in sensitive areas as much as possible to ensure that seabirds nesting along the sea cliffs and coastline will not be disturbed by the presence of Project vessels during sensitive periods for breeding birds (April to August). During this time, vessel-based activities will follow NatureScot guidance (SNH, 2017b) where possible, which recommends vessels not getting closer than 50 m from nesting cliffs. Where unavoidable due to project requirements, vessels will minimise any time within 50 m of nesting cliffs.

4.6.4 Benthic Environment

General provisions embedded into project design and as required by ML 07203 to protect the marine benthic environment and minimise damage to the seabed by the works are as follows:

- Cables will be installed in a bundled configuration (except at landfalls). This will minimise the footprint of the project, and impacts resulting from electro-magnetic fields.
- As per the MEA (Ref. [8]), deployment of anchor chains on the seabed will be kept to a minimum, reducing the potential for disturbance to benthic habitats and species including any commercial fish species which utilise the seabed.
- It is expected the anchoring corridor will be confined to the +/- 100 m route corridor, although anchors may be deployed a longer distance away fore and aft to reduce anchor retrieval and redeployment. It is possible that a jack-up barge rather than anchored barge may be used, but both are expected to have a similar seabed footprint.
- Anchoring of shallow water barges for landfall excavation may require a 4-anchor system, and up to 4 deployments may occur in the nearshore areas of Shetland and Caithness, outwith sensitive habitats (i.e. no anchoring to be located within the Noss Head MPA).
- Most appropriate tool(s) for the seabed types present across the route will be selected (See CMS, Ref. [6]) and this will minimise unnecessary re-suspension of sediment during the works.
- Silt curtains will be utilised in nearshore areas during the Weisdale Voe landfall works where feasible (see CMS, Ref. [6]);

- Where feasible, micrositing of the cable to avoid any areas where horse mussels (outwith the Noss Head MPA) are recorded as 'frequent or above' on the SACFOR abundance scale⁴.

Specific measures relating to the Noss Head horse mussel bed are detailed in Section 4.6.5.1: Noss Head MPA.

4.6.5 Designated Sites

Marine designated sites in the vicinity of the Shetland HVDC cable are shown in Figure 4.1.

This section describes those designated sites that are of relevance to the 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. Designated sites either overlapping the cable corridor or in close proximity requiring specific measures are as follows:

- Noss Head Nature Conservation MPA;
- East Caithness Cliffs Special Protection Area (SPA);
- Seas off Foula Special Protection Area (SPA);
- Seal haul-outs (Sanda and Score Islands, Aa Skerry, and Effirth Voe and Bixter Voe).

Mitigation measures relating to marine mammals and seals are detailed in the MMPP (Ref. [12]), while measures relating to otters are provided in the onshore Ecology Management Plan.

In reference to the below SPAs, provisions for minimising impacts to birds is provided in Section 4.6.3: Marine Ornithology.

4.6.5.1 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 into the project design will ensure that the conservation objectives for the MPA (to conserve the feature) are not affected, and are summarised as follows:

- No rock placement will be undertaken where it may affect the conservation objectives of the MPA (as agreed with Marine Scotland and NatureScot);
- No rock will be placed in areas of the mussel bed, with the exact location of this to be confirmed by further survey and agreed with the Licensing Authority.

⁴ The semi-quantitative SACFOR abundance scale as used by the JNCC was developed to support the observation of marine habitats, communities and species and is widely used in the UK. S = Superabundant, A = Abundant, C = Common, F = Frequent, O = Occasional, R = Rare, L = Less than rare indicated by extrapolation.

- No trenching will be conducted within the horse mussel bed, instead the pre-protected cables will be laid gently on to the horse mussel bed and for 100 m to either side of the bed, as agreed with Marine Scotland and NatureScot, to minimise damage to the horse mussels;
- No rock will be placed within 100 m of the horse mussel bed feature.

The installed cable bundle with cable protection system will be installed in a stable condition across the Horse Mussel Bed as described in the CBPP (ref. [9]).

Post-lay monitoring of the horse mussel bed is outside NKT's scope and will be agreed between SHE Transmission and Marine Scotland in the accompanying Inspection, Repair Maintenance (IRM) plan (Ref. [13]). Routine surveys of the Shetland HVDC Link's cables within the horse mussel bed will be conducted as part of the Project's routine inspection regime. The results of these surveys will be made available to MS-LOT and relevant consultees, as detailed in the Shetland HVDC Link IRM Plan (Ref. [13]).

4.6.5.2 East Caithness sea cliffs SPAs

The east Caithness Cliffs SPA is made up of the sea-cliffs between Wick and Helmsdale. These are formed of Old Red Sandstone and are generally between 30-60 m high, rising to 150 m in places.

These are good nesting sites for important populations of seabirds, such as gulls and auks. Cliff ledges and stacks provide great nesting spots for important populations of seabirds. During the breeding season, the area is home to 110,000 seabirds including puffins, razorbills, kittiwakes, fulmars and guillemots. The seabirds nesting on the Caithness Cliffs feed outside the site in the surrounding waters of the Pentland Firth, as well as further afield. The cliffs also provide important nesting habitat for Peregrine falcons.

4.6.5.3 Seas off Foula SPA

The proposed Seas off Foula SPA covers the waters around and to the northwest of Foula, lying about 15 km west of mainland Shetland. This island hosts more than 190,000 breeding seabirds, making it one of the largest seabird colonies in Britain.

4.6.5.4 Seal haul-outs

Seal haul-outs are locations on land where seals come ashore to rest, moult or breed. Several designated haul-out and breeding sites for seals are within the vicinity of the proposed Cable Corridor including Sanda and Score Islands, Aa Skerry, and Effirth Voe and Bixter Voe with approximate distances of 150 m, 2 km and 5 km from the cable route respectively.

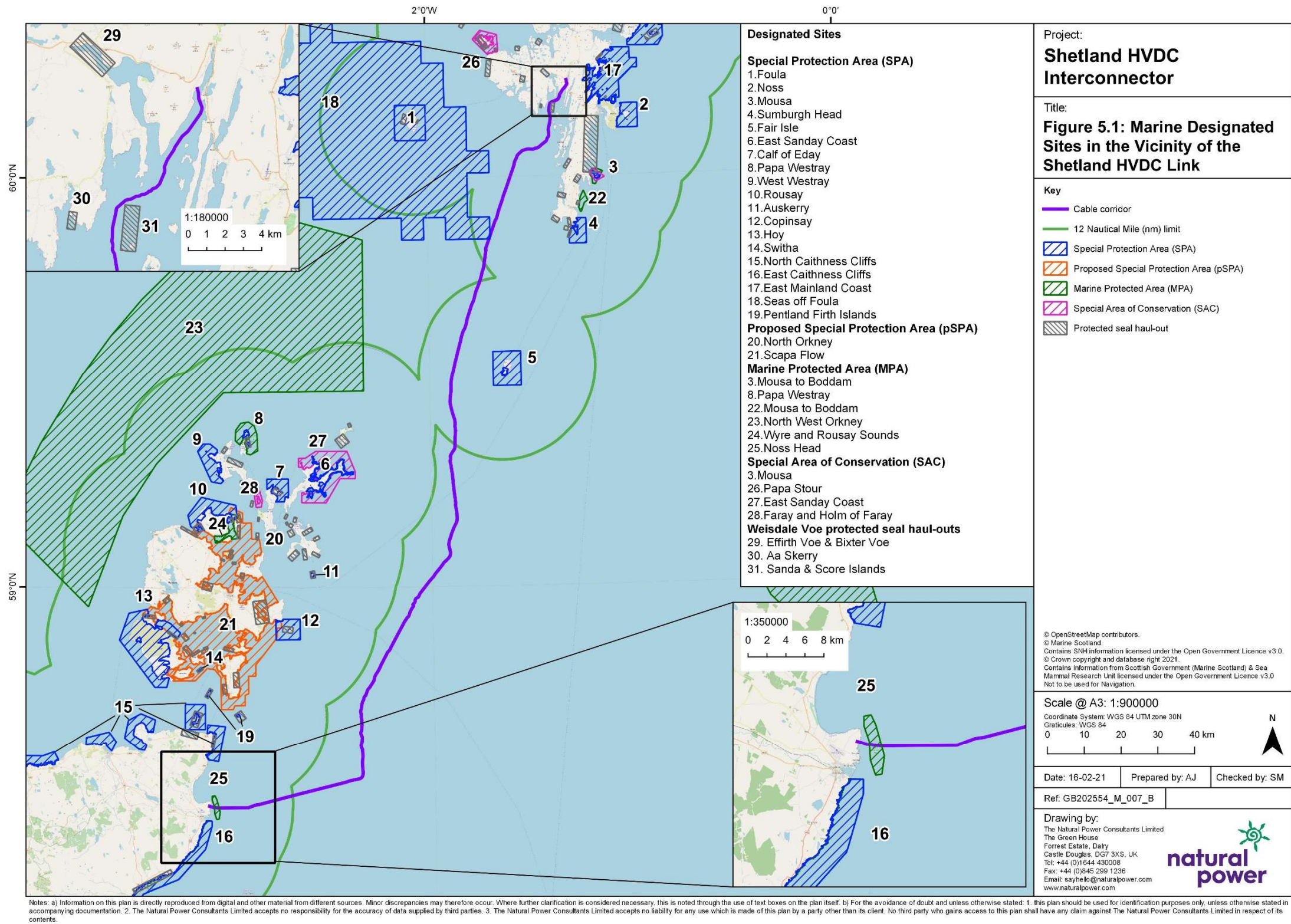


Figure 4.1: Marine Designated Sites in the Vicinity of the Shetland HVDC Link.

4.7 Marine Non-Native Species (MNNS)

In accordance with Project Mitigation proposed in the MEA (Ref. [8]) and Condition 8 of the SIC Marine Works Licence, a Marine Non-Native Species (MNNS) Plan (Ref. [5]) has been prepared in order to manage the risk of introduction of MNNS via project specific works.

The plan details biosecurity measures to prevent the spread of MNNS in line with international guidance, which has become common practice for offshore construction projects planned to take place around the UK. All project works will be conducted in adherence to the MNNS Plan.

4.8 Archaeology

A Protocol for Archaeological Discoveries (PAD) as required under Condition 18 of Marine Licence 0730207203 and Condition 17 of Marine Licence 07357 has been produced and is contained with the project Marine Archaeological Finds Plan (Ref. [14]). A Marine Archaeological Written Scheme of Investigation (WSI) is required under Condition 12 of the SIC Marine Works Licence. The Marine WSI (Ref. [15]) has been produced by SHE Transmission and submitted separately to SIC for review and approval. All measures in both the WSI and PAD will be adhered to by project staff.

4.9 Other infrastructure

Crossing and Proximity agreements will be established with relevant cable, pipeline, and aquaculture operators, as required. These agreements will include the ability of an infrastructure operator to access their asset during construction. If such works are required to occur simultaneously, consultation with the infrastructure operator will be undertaken. Grapnels will not be towed closer than 500 m from any existing pipelines, offshore structures and fibre optic cables unless permits are in place.

4.10 Vessel Management and Navigational Safety

Measures in place for vessel management and associated marine notifications are set out within the CMS (Ref. [6]) and Vessel Management Plan (VMP) (Ref. [16]). In addition, all vessels will comply with the following standards, regulations and licence conditions:

- International Regulations for the Prevention of Collision at Sea (COLREGS (IMO, 1972)) and the International Regulations for the Safety of Life at Sea (SOLAS)
- Cable Lay Vessel (CLV) to be fitted with AIS, for easy detection by other vessels transiting the area.
- Licensed activity will not encroach on any recognised anchorage, either charted or noted in nautical publications, within the licensed area.
- Implementation of a 500 m radius safety zone around the cable installation vessel will remain in place during installation activities to ensure navigational safety.
- A Safety Management System (SMS) will be in place throughout the Project, ensuring that vessels comply with mandatory safety rules and regulations and follow appropriate codes, guidelines and standards.

5 Communication and Training

All Personnel working on the Project must communicate information on any matters that may affect the environment to NKT. NKT will assess the information and when required liaise with the SHE Transmission to find a suitable solution.

Information will be communicated in a variety of ways including daily meetings, Daily Progress Reports (DPRs), TBTs and site briefings. Information given which may impact on the project will be reviewed and procedures or documentation amended where necessary.

NKT will ensure invites to planned meetings are extended to SHE Transmission and appropriate Subcontractors.

5.1 Safety and Environmental Meetings

Vessel safety and environmental committee meetings (between NKT 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 monthly project progress or Bi-Weekly environmental meetings held between NKT and SHE Transmission.

5.2 Liaison between Parties On-Site

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

- SHE Transmission representative;
- NKT representative;
- NKT Environment manager;
- SHE Transmission marine consents manager;
- Vessel representative (anticipated to be the vessel master);
- FLO, where required;
- Marine Mammal Observer where one is required; 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. FLO and MMO);
- Discussion of any incidents, near misses, or non-conformities, and how resolved; and

- Discussion of positive actions.

5.3 Induction and Training

Prior to starting work, relevant Project staff will undergo induction and training relevant to the stage and their role. Personnel training records and certification will be provided.

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 Project.

Inductions and TBTs will reference environmental/ecological aspects of project works, including details of all protected species within the marine environment, MMO protocols, and roles and responsibilities of project staff. Ecological input will be provided by the Ecological Advisors, as appropriate.

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 Project.

6 Hazard Identification and Risk Management

An overview of hazard identification and management of risks is presented within the following section for information. Hazards and risks of specific relevance to the environmental aspects of the works are discussed in Section 4: Environmental Management.

6.1 Risk Management

NKT utilise the Det Norske VERITAS (DNV) approach to risk management detailed within DNV-RP-H101 Risk Management in Marine and Subsea Operations. NKT 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.

6.2 Hazard Identification (HAZID) & Hazard and Operability (HAZOP)

NKT 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. NKT will require that subcontractors have an established procedure for undertaking HAZOPs or utilise DNV-RP-H101 Risk Management in Marine Operations.

7 Emergency Response

Each vessel contracted to undertake works will have in place (and provide to NKT for review & acceptance) its vessel specific Emergency Response Plan (ERP) documentation. The following information is presented in order to provide an overview of the principles of incident response and NKT procedures which will be in place throughout installation. In addition, an Emergency Preparedness Bridging Document will be in place for each activity, detailing the emergency contact details and notification routes for SHE Transmission, NKT, and any associated subcontractors, and the specific actions to be taken in the event of an any incident (including environmental and adverse weather conditions).

7.1 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 organisation shall be adequately briefed before an operation is commenced.

Each contractor involved in the marine operations will have their own individual emergency preparedness system linked by each phase/activity Emergency Preparedness Bridging Document to the Project ERP.

The 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, coast guard centre.

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.

7.1.1 Project specific Incident Reporting Procedure

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

- An 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 Route Cause Analysis (RCA) and implemented measures.

In most situations, the SHE Transmission's offshore supervisor shall inform the SHE Transmission Project Manager of the incident, then the SHE Transmission Project Manager shall call the SHE Transmission 30 min reporting line.

If it is not possible to contact the SHE Transmission Offshore Supervisor (e.g. If he is disabled because of an incident) the NKT Representative shall report these incidents by calling SHE Transmission 30-minute reporting line on +44 800 107 3207 and provide the necessary details of the incident.

Incident reporting shall be completed via the NKT IA App, or by completing the "Initial Incident Report" as per Project ERP and sent to the persons on the defined distribution list, in the bottom of the template.

7.1.2 Emergency Response Offshore (Spills)

In accordance with Condition 8 of the SIC Marine Works Licence, ML 07203 condition 19 (a) and ML 07357 condition 18 (a) (part of table 6.2 in the MEA (Ref. [8])), each vessel contracted to undertake marine works will have in place its vessel specific incident response documentation (e.g. ERP or equivalent).

Procedures for emergency spill response in the marine environment is provided in the Project MESRP (Ref. [4]).

7.1.3 Dropped objects

Dropped objects are defined 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.

In the event of any object being lost overboard, or dropped to the seabed, NKT responsible should immediately take a position of objects seen to be lost overboard.

NKT shall inform the Project HSE Manager immediately who will notify SHE Transmission. Notification to Marine Scotland-Licensing and Operations Team (MS-LOT) by SHE Transmission will be made as soon as practical after becoming aware by agreed means, for advice on the appropriate remedial action if any. Where there is deemed to be a risk to other maritime users (particularly fishing) appropriate Notices to Mariners and KIS-ORCA notifications will require to be issued as soon as reasonably possible.

All objects dropped overboard (including equipment during the installation process) which could present a hazard to shipping will be notified to UKHO immediately for inclusion in Admiralty Charts as applicable. A seabed survey of the transit route to identify the location of these objects may be undertaken if it is deemed appropriate by MS-LOT.

Where recovery of an object is required, this will take place as soon as practicable depending on the nature of the object and the hazard to shipping posed. Risk assessment and a method statement for recovery will be produced including a final method of disposal of the recovered material.

8 Monitoring

Monitoring and audit of activities during the installation of the work is required in order to ensure works are carried out as per current legislation, in line with NKT procedures and according to SHE Transmission requirements.

8.1 Monitoring during daily work

Compliance with the QHSE Requirements during the offshore operations will be continuously monitored by NKT 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 NKT Project QHSE manager.

8.2 Vessel Inspection Process

All vessels utilised on the project will be fully compliant with the International Safety Management (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. Vessel audits/Inspections 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 audit reports will be produced and provided to SHE Transmission 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 SHE Transmission representatives will be invited to attend vessel audits.

8.2.1 Environmental Audit Checklist

Documentation will be required to be provided to NKT as part of vessel audit process in order that any necessary reviews can be made well in advance of works commencing. These include:

- Method Statements for the works;
- ERP;
- SOPEP;
- Waste management documentation, including:
 - Garbage Record Book;
 - Waste Carriers Registration Certificate;
 - Controlled Waste Transfer Note / Hazardous Waste Consignment Note;
 - Licence and schedule of permitted wastes for the Waste Disposal Facility;
- Biosecurity documentation, including:

- Anti-fouling certificate;
- Ballast water record book;
- International ballast water management certificate;

Vessels will also be required to provide the following:

- Evidence to demonstrate that materials are secured on deck to prevent loss overboard;
- Evidence to show appropriate bundling and storage facilities;
- Evidence to demonstrate that wastes will be contained on board vessels for appropriate disposal on return to port;
- List of all operational chemicals used offshore; and
- Pollution prevention and protection preparedness, including
 - Spill kit availability;
 - Appropriate storage and bunding of materials wastes.

Documents to be available on board the vessel throughout works include:

- This Marine CEMP (1AA0395444);
- Licences for the work (ML 07203; ML 07357; SIC Marine Works Licence 2020/011/WL) (Refs. [1, 2, 3];
- Marine Archaeological Finds Plan (Ref. [15]) and Marine WSI (Ref. [15]);
- MESRP (Ref. [4]);
- MMPP (Ref. [12]);
- MNNS Plan (Ref. [5]);
- FLMAP (Ref. [11]);
- Communications Plan (Ref. [17]); and
- Otter Species Protection Plan (as part of onshore Ecology Management Plan).

It should be noted that this list is not exhaustive, and if there is any doubt guidance should be sought from the Cable Installation Manager, Offshore Site Manager, NKT Offshore Representative or QHSE Team as soon as possible.

8.3 Project Reporting

NKT will provide all available information to SHE Transmission in order that they can fulfil their Project reporting requirements as applicable, as detailed in Project documents including (but not limited to) the Communications Plan, FLMAP, VMP, IRM Plan, MMPP, PAD and Marine WSI, including details of construction activities, as laid coordinates, archaeological and ecological reporting and incident reporting.

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Table of Modifications

Rev.	Date	Prepared by	Description
A	2020-12-08	Cole, Andrew	First issue of document
B	2020-01-29	Cole, Andrew	Second issue of document
C	2020-02-25	Cole, Andrew	Third issue of document
D	2021-03-10	Foster, Andrew	Fourth issue of document

