



Scottish Hydro Electric Power Distribution plc

Mainland Shetland - Papa Stour Emergency Cable Replacement Construction Environmental Management Plan

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REVISIONS & APPROVALS

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ABBREVIATIONS

TERM	DEFINITION
BWM	Ballast Water Management
CBA	Cost Benefit Analysis
CEMP	Construction Environmental Management Plan
ECoW	Ecological Clerk of Works
EPS	European Protected Species
FIR	Fishing Industry Representative
FLMAP	Fisheries Liaison Mitigation Action Plan
FLO	Fisheries Liaison Officer
HES	Historic Environment Scotland
IMO	International Maritime Organization
INNS	Invasive Non-Native Species
IRPCS	International Regulations for the Prevention of Collision at Sea
KIS-ORCA	Kingfisher Information Service – Offshore Renewable and Cable Awareness
km	Kilovolt
kV	Kilometre
MARPOL	International Convention for Prevention of Marine Pollution For Ships
MD-LOT	Marine Directorate - Licensing Operations Team
MEA	Marine Environmental Appraisal
MEPC	Marine Environmental Protection Committee
MHWS	Mean High Water Springs



TERM	DEFINITION
MLA	Marine Licence Application
MLWS	Mean Low Water Springs
NtM	Notice to Mariners
OCT	Open Cut Trench
OIMD	Operation, Inspection, Maintenance and Decommissioning
OoS	Out of Service
PAD	Protocol for Archaeological Discovery
PLGR	Pre-Lay Grapnel Run
pUXO	Potential UXO
RCZ	Recommended Clearance Zone
SFA	Shetland Fishermen's Association
SHEPD	Scottish Hydro Electric Power Distribution plc
SIC	Shetland Islands Council
SMWWC	Scottish Marine Wildlife Watching Code
SOLAS	International Regulations for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plans
SSMO	Shetland Shellfish Management Organisation
TCE	The Crown Estate
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance



1 INTRODUCTION

Scottish Hydro Electric Power Distribution plc (SHEPD) holds a licence under the Electricity Act 1989 for the distribution of electricity in the north of Scotland including the Islands. It has a statutory duty to provide an economic and efficient system for the distribution of electricity and to ensure that its assets are maintained to ensure a safe, secure and reliable supply to customers.

In February 2024, SHEPD identified that the subsea cable connecting Mainland Shetland to Papa Stour had faulted and a subsequent options evaluation process recommended complete replacement of the faulted cable. The proposed cable replacement ('the Project') will involve the installation of a new 11 kilovolt (kV) subsea cable and associated cable stabilisation and protection, together with the removal of sections of the existing faulted and Out of Service (OoS) cables where required. Installation of this cable is required to replace the existing faulted cable and restore connection to the power distribution network providing grid supply to the community on Papa Stour. Mobile diesel generation is currently being used to provide power to customers on a temporary basis, but this is logistically challenging due to the limitations of the ferry service and fuel capacity. The cable installation is currently planned to be undertaken between mid-August and September 2024, i.e. ahead of the winter and anticipated deterioration in weather conditions.

The proposed replacement cable will have an approximate length of 3.6 kilometres (km) and it will be installed adjacent to the existing faulted cable in the Sound of Papa between the landfalls at Melby (Mainland Shetland) and Kirk Sand (Papa Stour) to tie into existing distribution networks.

A Marine Environmental Appraisal (MEA) was developed by Xodus Group Ltd (Xodus), to support SHEPD's licence applications for the Project activities within the proposed cable corridor (Document No. A-200682-S03-A-ESIA-001). The MEA presents a review of baseline conditions within the proposed cable corridor and identifies sensitive environmental receptors which are or may be present in the area. An assessment of potential effects on these receptors associated with the proposed Project activities was conducted, in order ascertain the magnitude and severity of environmental impacts. Where impacts were deemed to be significant, or above acceptable criteria, mitigation protocols were identified in order to remove or reduce the magnitude of effect. The following receptors were assessed by the MEA:

- Designated Sites;
- Seabed and Water Quality;
- Marine Megafauna;
- Benthic and Intertidal Ecology;
- Ornithology;
- Marine Archaeology; and
- Commercial Fisheries and Other Sea Users.

This Construction Environmental Management Plan (CEMP) is designed to provide a consolidated point of reference for SHEPD and their marine contractors. It ensures all environmental mitigation measures identified by the MEA and supporting documents are effectively disseminated to and implemented by the project team during Project activities. The CEMP is informed by, and should be read in conjunction with the following documents:



- Mainland Shetland – Papa Stour Emergency Cable Replacement Project Description;
- Marine Licence Application (MLA) Form;
- European Protection Species (EPS) Licence Application Form;
- Works Licence Application Form under the Zetland County Council Act 1974;
- Mainland Shetland – Papa Stour Emergency Cable Replacement: MEA;
- Shetland Regional Fisheries Liaison Mitigation Action Plan (FLMAP);
- How SHEPD co-exists with other marine users document;
- Operation, Inspection, Maintenance and Decommissioning (OIMD) Strategy; and
- Mainland Shetland-Papa Stour Cost Benefit Analysis (CBA) Summary Report.

2 SCOPE

The CEMP is intended for use during all marine works (below Mean High Water Springs (MHWS)), associated with the Project activities, including:

- Pre-installation surveys to identify debris / obstructions;
- Pre-Lay Grapnel Run (PLGR);
- Removal of OoS cable(s) to facilitate installation of the replacement cable, where required;
- Landfall establishment;
- Cable installation;
 - The subsea cable will be surface laid below Mean Low Water Springs (MLWS),
 - In the intertidal zone, cable installation will be via Open Cut Trench (OCT) between MLWS and MHWS at each landfall location;
- Cable protection and stabilisation installation;
 - Cable protection measures will include split pipe, rock bags and concrete mattresses;
 - Sea earths and associated protection will also be required; and
 - Any OoS cable ends to be secured with clump weights.
- Landfall re-instatement; and
- Post-installation surveys.

3 REVIEW AND UPDATE PROCEDURE

By its nature the CEMP is a living document, and it is important that it is updated as the Project develops, in order to capture potential changes to mitigation requirements. However, the CEMP also forms part of SHEPD's consent requirements, and as such, any material changes to the mitigation requirements may need approval from Scottish Government's Marine Directorate - Licensing Operations Team (MD-LOT), acting on behalf of the Scottish Ministers. such, it is important that a dialogue with MD-LOT is maintained throughout the Project. The CEMP will also be provided to the Shetland Islands Council (SIC) as part of a Works Licence application.

Any substantive changes to the CEMP must be reviewed and approved by the following:

- SHEPD's project manager;
- Contractor's project manager;
- SHEPD's environmental consultant;



- MD-LOT; and
- SIC.

As a minimum, this CEMP should be reviewed, and where necessary, updated at the following Project milestones:

- Award of Marine Licence and Works Licence;
- Following completion of pre-installation surveys and detailed route engineering; and
- Following any substantive change to Project design or cable installation methods.

Note – sufficient time should be allowed for potential review by MD-LOT if substantive changes to the CEMP are required.

4 DOCUMENT STRUCTURE

The mitigation requirements in this CEMP are presented in tabular form, grouped by Project phase and relevant receptors. For each item of mitigation, a breakdown of both SHEPD's and their Contractor's requirements is provided, along with links and references to other relevant documents and guidance.



5 MITIGATION REQUIREMENTS

PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY	DATE ACTIONED / IMPLEMENTED
			The CEMP must be available to all personnel.	N/A	Audit	Ensure copies made available.	
			All project personnel will be trained and informed of their responsibility to implement the environmental and ecological mitigation outlined in the CEMP.				
	Environmental Awareness		<p>Toolbox talks, inductions, and awareness notices will be used to disseminate this information among all relevant project personnel.</p> <p>Copies of relevant licences and permits must be available on all vessels and in project offices. This includes:</p> <ul style="list-style-type: none"> • Marine Licence; • Works Licence; and • EPS Licence. <p>An Emergency Spill Response Plan must be developed prior to operations commencing, and should include the following details:</p> <ul style="list-style-type: none"> • Immediate actions using Source-Pathway-Receptor Model; • Communication lines and contact details; • Reporting procedure; and • Implementation of Lessons Learned. 	MEA: Section 4.3	Audit training, induction, and toolbox talk records.	Ensure appropriate training is provided to personnel.	
	Spill Response	Emergency Spill Response Plan	Copies of all licences and permits must be available at relevant project locations.	N/A	Provide copies of licence, and audit.	Ensure copies maintained in relevant locations.	
	Waste Management	Waste Management Plan	A Waste Management Plan will be developed and implemented to ensure the waste hierarchy is followed and all waste is sent onward to recycling or disposal via a licenced waste route. Additionally, all recovered debris will be taken ashore and sent for appropriate recycling or disposal at a licenced waste handling facility.	MEA: Section 4.3 NetRegs WMP Guidance https://www.netregs.org.uk/media/1718/a-simple-guide-to-site-waste-management-plans.pdf	Work with Contractor to develop plan, and audit implementation and training.	Work with SHEPD to develop plan, and ensure it is implemented during all relevant activities.	
	Location of Works	Proposed Cable Corridor	All survey and cable installation activities will be conducted within the boundaries of the installation corridor, with exception to further sea space for vessel navigation (where required) in order to facilitate cable installation.	MEA: Section 3	Audit	Implement	
	General Ecology	Vessel Management	The following measures will be implemented during all survey works:	MEA: Section 4.3 SMWWC: https://www.nature.scot/professional-advice/land-and-sea-management/managing-seas/scottish-marine-wildlife-watching-code	Audit	Implement, and ensure copies of the guidance are available on survey vessels.	

General



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEP RESPONSIBILITY	CONTRACTOR RESPONSIBILITY	DATE ACTIONED / IMPLEMENTED
	Project Design	Cable protection and stabilisation	Deposit materials (mattresses and rock bags) may be utilised for asset stabilisation.	Mainland Shetland – Papa Stour Emergency Cable Replacement Project Description MEA: Section 3	Ensure final design aligns to these parameters.	Implement during project design.	
			Detailed benthic survey data analysis is ongoing to inform detailed route engineering and to identify locations of sensitive seabed features and species. Where the surveys confirm the presence of sensitive benthic receptors in the cable corridor, micro stinging will be used to avoid the features where practicable. Use of cable stabilisation materials will be minimised to reduce the seafloor footprint while maintaining adequate protection and stabilisation of the cable. The results of the benthic surveys can be provided to the regulators and NatureScot once available. The cable will be surface laid for the offshore length. No submarine trenching or protection using rock berms will be conducted. The intertidal cable sections at the landfill locations at Melby and Kirk Sand will be buried via OCT using land-based excavators. Obstructions or debris will be removed only when required. If large boulders are relocated within the cable corridor appropriate notifications will be provided, as described below. Furthermore, any Unexploded Ordnance (UXO) encountered would be avoided. During all operations the contractor(s) involved will be made aware there is a low risk of UXO encounter; however, in the event of an unexpected or un-identifiable anthropogenic item being seen (i.e. potential UXO (pUXO)) specialist UXO input will be obtained. All wrecks or features of potential archaeological significance shall be avoided by a buffer of at least 50 m during detailed route design. The locations of wrecks and features of potential archaeological significance will be clearly identified on electronic charts on board the installation vessel and utilised to guide installation activities.	Mainland Shetland – Papa Stour Emergency Cable Replacement Project Description MEA: Sections 3, 4.3, 5.5, and 7.3.	Ensure included in Contractor's scope of works.	Pre-installation surveys as per scope of works.	
Cable Installation	Water Quality	Tidal Working During Landfall Trench Construction	The timing of trenching works will be tide dependent (working at low water when the intertidal zone is exposed).	Mainland Shetland – Papa Stour Emergency Cable Replacement Project Description MEA: Sections 3 and 6.4	Review final design against archaeological constraints.	Consider survey data and treat confirmed locations of archaeological potential as hard constraints.	
			An otter survey has been carried out at each landfall. Additional pre-construction checks will be conducted prior to the commencement of the cable replacement operation and will include the cable landfall and a 200 m mitigation zone. Any identified otter holts, layouts and couches will be identified and avoided by a 40 m buffer. Furthermore, a qualified ecologist will be appointed during the cable installation activities to ensure that impacts are minimised.	MEA: Section 7.4	Ensure appointment of appropriately qualified ecologist is included in Contractor's scope of works.	Review final design against any identified locations of otter holts, layouts and couches.	Consider survey data and treat confirmed locations of otter holts, layouts and couches as hard constraints.



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY	DATE ACTIONED / IMPLEMENTED
	Vessel Speed	Vessel Speed	Installation vessels will be travelling at a slow speed during Project activities. The slow speed of the vessels will minimise the risk of disturbance and injury impacts to seabird and marine mammal receptors.	MEA: Section 4.3	Audit	Implement	
	Otters	Otters	An appropriately qualified ecologist will be appointed to work with the cable installation personnel and ensure sensitive other sites are not disturbed.	MEA: Section 7.4	Ensure appointment of appropriately qualified ecologist.	Implement	
	Benthic Habitats	Deployment of Anchor Chains on the Seabed Will be Kept to a Minimum	Reduces the potential for disturbance to benthic habitats and species including those which utilise the seabed.	MEA: Section 4.3	Review method statements to ensure efforts to minimise anchoring are included.	Consider and implement alternatives to anchoring where possible.	
	Ornithology	Vessel Lighting	Lighting on-board all Project vessels will be appropriately directed and kept to the minimum level required to ensure safe operations. This will minimise disturbance to seabird species.	MEA: Section 4.3	Audit	Implement	
			Control measures and Shipboard Oil Pollution Emergency Plans (SOPEP) will be in place and adhered to under MARPOL Annex I requirements for all vessels.	As per the MARPOL 73/78 requirement under Annex I, all ships with 400 gross tonnage and above must carry an oil prevention plan as per the norms and guidelines laid down by International Maritime Organization (IMO) under Marine Environmental Protection Committee (MEPC) Act.		Demonstrate vessels are compliant with requirement and SOPEPs up to date.	
		Shipboard Oil Pollution Emergency Plans	Production of this plan will help to ensure that the potential for release of pollutants from construction, operation and decommissioning is minimised.		Audit		
			In the event of an accidental fuel release occurring appropriate standard practice management procedures will be implemented accordingly.				
	Pollution Prevention		Vessels will be equipped with waste disposal facilities (sewage treatment or waste storage) IMO MARPOL Annex IV Prevention of Pollution from Ships standards.				
			A Waste Management Plan will be developed and implemented to ensure the waste hierarchy is followed and all waste is sent onward to recycling or disposal via a licenced waste route.	MEA Section 4.3			
		Sewage Treatment and Storage	Additionally, all recovered debris will be taken ashore and sent for appropriate recycling or disposal at a licenced waste handling facility.		Audit	Demonstrate vessels are compliant with requirement.	
			A Waste Management Strategy documenting and mapping each step in the process (i.e. location and company managing waste) will be developed and will define individual roles and responsibilities.				
			Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (Ballast Water Management (BWM) Convention).				
	Marine non-native species	IMO Ballast Water Convention	The BWM Convention, adopted in 2004, aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. Measures will be	MEA: Section 4.3	Audit	Demonstrate vessels are compliant with requirement.	



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY	DATE ACTIONED / IMPLEMENTED
			adopted to ensure that the risk of Invasive Non-Native Species (INNS) introduction during cable installation activities is minimised.				
		Use of Clean Materials	Only clean stone (free from organic contaminants) shall be used in rock bags to reduce the risk of INNS.	MEA: Section 4.3	Audit	Implement	
		Fisheries Liaison	Employment of a Fisheries Liaison Officer (FLO) will ensure all commercial fisheries operators in the vicinity of the Project will be proactively and appropriately communicated with in terms of the proposed installation activities.	MEA: Section 4.3	Implement	Provide information and updates as required	
		Navigation Warnings	Notice to Mariners (NTMs), local notifications to marine users, Kingfisher bulletins, Radio Navigational Warnings, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices will include the time and location of any work being carried out, and emergency event procedures.	MEA: Section 4.3	Implement	Provide information and updates as required	
			Notices will also be issued if any OoS cables / boulders are removed or moved and chart updates will be provided.				
			All vessels will operate in compliance with International Regulations for the Prevention of Collision at Sea (IRPCS) (IMO, 1972) and the International Regulations for the Safety of Life at Sea (SOLAS).	MEA: Section 4.3	Audit	Implement	
		Navigation Safety	A guard vessel, marshalling a 500m Recommended Clearance Zone (RCZ), may be used during the installation campaign where a potential risk to the asset or danger to navigation has been identified.	MEA: Section 11.3	Audit	Implement	
	Commercial Fisheries and Other Sea Users		Compliance with the FLMAP Delivery Programme and how Scottish Hydro Electric Power Distribution co-exist with other marine users. Specifically: <ul style="list-style-type: none"> Ensure that notice and information distribution is not less than 20 days, if possible, for individual vessels mobilisations; Regular liaison and updates by Fishing Industry Representative (FIR) with local fishermen of proposed timings with confirmations when operations are finalised; and Regular liaison and updates by FLO with other legitimate sea users of proposed timings with confirmations provided when planned works are finalised. 	Shetland Regional FLMAP	SHEPD's priority is to identify and pro-actively engage with legitimate sea-users who could be potentially impacted by SHEPD's work.	Implement and ensure the FLO and FIR are provided the relevant information regarding project progress.	
		Communication and Consultation	Ongoing consultations with SIC ports and harbour authority to ensure continued awareness and communication of installation and harbour specific details relevant to minimising disruption.	MEA: Section 11.3	Ensure consultation is held with SIC ports and harbour authority.	Consider outcomes of discussions and ensure the FLO and FIR are provided the relevant information regarding project progress.	
			Ongoing consultation with Shetland Shellfish Management Organisation (SSMO) and Shetland Fishermen's Association (SFA) to discuss the potential impacts to the crab and lobster creeling as a result of the installation activities.	MEA: Section 11.3	Ensure consultation is held with SSMO and SFA.	Consider outcomes of discussions and ensure the FLO and FIR are provided the relevant information regarding project progress.	
			Engagement with regular runners ensures awareness of the installation details which minimises disruption.	MEA: Section 11.3	Ensure consultation is held with regular runners.	Consider outcomes of discussions and ensure the FLO and FIR are provided the relevant information regarding project progress.	



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY	DATE ACTIONED / IMPLEMENTED
		Decontification of Activity Schedules with Ferry Schedules	Installation, maintenance and decommissioning schedules arranged to minimise impact on ferry schedules. This may extend to working in night-time hours where practicable.	MEA: Section 11.3	Work with Contractor to minimise disruption to ferry services.	Implement	
	Protocol for Archaeological Discovery (PAD)	Protocol for Archaeological Discovery (PAD)	It is acknowledged that there is the potential that archaeological features could be present within the cable corridor, which are not identified by preconstruction surveys. In order to account for this, and subject to further discussion with Historic Environment Scotland (HES), the Crown Estate's (TCE) 'Protocol for Archaeological Discoveries' (PAD) (TCE, 2014) could be used as a basis for further mitigation during Project activities. The role of the Implementation Service described within the above protocol would be replaced by an archaeological service provider appointed by SHEPD or their Contractor.	MEA Section 4.3 and 10.4	Audit	If required, implement, and ensure PAD is available on installation vessels.	
	Marine Survey	As Built Information	As built information will be collated to ascertain the actual position of the cable, associated protection measures and locations of potential snagging risks.	MEA: Section 4.3	Ensure included in Contractor's scope of works.	Collate as-built information as per scope of works.	
	Historic Environment	Reporting Wrecks	The location of any wrecks or features of potential archaeological significance will be provided to HES, and the United Kingdom Hydrographic Office (UKHO).	MEA: Section 10.4	Submit data to relevant stakeholders.	Provide SHEPD with relevant information and data in agreed format.	
Post Installation	Close Out Reporting	Marine Licence	A close out report will be submitted to MD-LOT providing details of actual material deposits on the seabed, and as built locations of the cable.	N/A	Submit report to MD-LOT.	Provide SHEPD with relevant information and data in agreed format.	
		EPS Licence	Marine Mammal reports to be provided to MD-LOT for geophysical survey activities.	N/A	Submit report to MD-LOT as required.	Provide SHEPD with relevant information and data in agreed format.	
	Updating Marine Stakeholders	Provision of As-built Survey Data	As built survey data will be provided to the UKHO and Kingfisher for inclusion on Admiralty Charts and the Kingfisher Information Service – Offshore Renewable and Cable Awareness (KIS-ORCA) charts.	MEA: Section 4.3	Submit data to relevant stakeholders.	Provide SHEPD with relevant information and data in agreed format.	