Appendix 3.1 Outline Construction Environmental Management Plan

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Appendix 3.1 Outline Construction Environmental Management Plan

Executive Summary

This Outline Construction Environmental Management Plan (CEMP) replicates the committed construction mitigation measures that were presented within the Environmental Impact Assessment (EIA) Report and presents proposed best practice environmental management during the construction phase of the Proposed Development.

Construction works are currently estimated to occur over a 24-month programme beginning in 2025. Construction is expected to commence in 2025 but is dependent on an offtake mechanism for the electricity generated, likely to require a new transmission connection to Orkney from mainland Scotland. The actual construction date may therefore be determined by factors out with the control of the Applicant and as such it is not possible to confirm the construction date with certainty.

This outline CEMP is presented as a draft document in support of the planning application for the Proposed Development and will be updated and refined once a lead construction contractor ('Principal Contractor') has been appointed and as further detailed design is undertaken.

A separate Operational Management Plan will be produced prior to operation which will cover the environmental mitigation to be implemented during the operational lifespan of the Proposed Development.

Purpose of the Document

This outline CEMP is a live document which will evolve as the planning process progresses. It defines good practice as well as actions required to deliver site-specific mitigation as detailed within the Schedule of Environmental Commitments presented in Chapter 19 of the EIA Report (this will form an appendix to the final CEMP), relevant future planning consent conditions and pre-construction survey reports.

This document provides an outline of the future Principal Contractor's proposed Environmental Management methods during the construction phase of the Proposed Development. The methods and principles contained within this document will be adhered to by the Principal Contractor in developing the detailed design, construction method statements and other plans relating to environmental management as required by the Contract.

All of the works should be carried out with the objective of causing a minimal amount of disturbance and impact to the environment.

Planning and Marine Licence Conditions

Once planning and marine licence conditions have been set, this section will identify the specific conditions that require to be addressed through the preparation of this CEMP and related plans, method statements, technical drawings etc.

Reference Documentation

The following documentation will be followed (and regularly reviewed) during the construction of the Proposed Development.

- relevant SEPA/EA Pollution Prevention Guidelines (PPGs) and Guidelines for Pollution Prevention (GPPs);
- Good Practice During Wind Farm Construction Version 4 (Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, 2019);
- Engineering in the Water Environment, Good Practice Guide, Construction of River Crossings (SEPA, 2010);

- Prevention of Pollution from Civil Engineering Contracts: Special Requirements publication (SEPA, 2006);
- Constructed tracks in the Scottish Uplands (SNH, 2015);
- Code of Practice for Earth Works, BS6031:2009;
- Code of practice for noise and vibration control on construction and open sites. Noise, BS5228-1: 2009;
- The Joint Nature Conservation Committee (JNCC) Piling Protocol (JNCC, 2010);
- International Maritime Organisation (IMO) guidelines for the Development of Shipboard Oil Pollution Emergency Plans (SOPEPs): Resolution MEPC.54(32) (IMO, 1992) as amended by Resolution MEPC.86(44) (IMO, 2000) and
- CIRIA Publications:
    - Control of Water Pollution from Construction Sites – Guide to Good Practice (SP156)
    - Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (C532)
    - Control of Water Pollution from Linear Construction Projects – Technical Guidance (C648)
    - Control of Water Pollution from Linear Construction Projects – Site Guide (C649)
    - Culvert Design Guide, C689, CIRIA, 2010;
    - Environmental Good Practice – Site Guide (C650)
    - The SUDS Manual (C697)
    - Site Handbook for the Construction of SUDS (C698).

Project Information

The Proposed Development is located on the Island of Faray, an uninhabited island to the north and west of Eday and south-east of Westray in the Orkney Islands. A smaller uninhabited island Holm of Faray is immediately to the north. Faray is approximately 17 km north-east of Orkney Mainland, and approximately 25 km from Kirkwall.

The topography of the island comprises two low hills. The southern of the two forms approximately the central point of the island, rising to 32 m Above Ordnance Datum (AOD). Approximately 700 m to the north a second hill rises to 31 m AOD. The ground level falls away fairly gently from the two hills, the steepest slope being near the coast to the west of the southern hill. The coastline is generally defined by rocky cliffs with geos and caves, except on the west coast near the north of the island and on the far south-east coast, where there are stretches of beach. The island is used for grazing sheep. The site boundary and location are shown in Figure 1.1 of the EIA Report.

There are several small watercourses and drains on the site, appearing to be man-made based on the straight-line patterns. No major, natural watercourses are present.

Two springs and several abandoned wells are shown on OS mapping in the northern half of the island.

The island is uninhabited, with the last former residents understood to have left in the late 1940s. However, there are several relic structures, former farms and cottages, an old road/track, and a burial ground. A small slipway is located on the south-east coast.

The key components making up the Proposed Development include (refer to Figure 1.2 of the EIA Report):

- six wind turbines with a maximum blade tip height of 149.9 m;
- a substation compound and maintenance building;
- crane hardstandings;

- new and upgraded access tracks providing access to the WTGs and the substation;
- a permanent meteorological mast for ongoing recording of wind data during the operational life of the Proposed Development;
- borrow pits;
- underground cabling connecting the WTGs with the substation;
- possible external transformers;
- temporary construction compound;
- new extended slipway; and
- new landing jetty.

Roles and Responsibilities

ECoW / Employer's Representative

The Applicant will appoint an appropriately qualified and experienced person or persons to perform the role of Environmental Clerk of Works (ECoW) for the duration of the construction phase of the Proposed Development. The ECoW will be responsible for ensuring that all of the requirements of the CEMP, associated Construction Method Statements (CMS) and the Schedule of Environmental Commitments are maintained throughout the construction phase. This role will be supervisory and may be full-time or part-time, to be agreed in advance with Orkney Islands Council (OIC).

The ECoW will liaise with the Applicant and the Principal Contractor in finalising the relevant environmental management documentation for all work activities where there is a risk of environmental impact. This will include finalising the detailed CEMP and individual CMS as required.

The ECoW will liaise directly with OIC, Marine Scotland, SEPA and/or NatureScot where agreement is required with those bodies for the above documents.

The ECoW will be familiar with the baseline data gathered during the EIA and pre-construction surveys, as well as all environmental commitments and requirements. The ECoW will ensure that the Principal Contractor has obtained the required permits, licences and permissions, prior to those works which require them beginning.

The ECoW will carry out regular documented inspections/audits of the site to ensure that all work is being carried out in accordance with the CEMPs and method statements.

The ECoW will liaise with the Applicant to identify requirements for specialist environmental contractors before commencement of the project and will ensure that specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues and their activities on site.

The ECoW will ensure that Environmental Induction Training is carried out for all site personnel working under the Principal Contractor.

The ECoW will ensure that the Applicant is notified of all incidents where there has been a breach of agreed environmental management procedures; where there has been a spillage of a potentially environmentally harmful substance; where there has been an unauthorised discharge to ground, water or air and where there has been damage to a protected habitat, etc.

The Principal Contractor will be responsible for notifying the relevant statutory authority of environmental incidents and carrying out an investigation and producing a report regarding environmental incidents and non-conformances, to be provided to the Applicant for appropriate action.

Contractor's Site Environmental Representative

The Principal Contractor will appoint an appropriately competent person (e.g. Contractor's Environmental Site Engineer or Site Environmental Manager) to undertake relevant environmental tasks as detailed in this

document prior to, during and upon completion of the construction works. This role will be referred to as the Principal Contractor's Site Environmental Representative and may be undertaken by the Site Agent.

The Principal Contractor will demonstrate the competence of the Site Environmental Representative to the Applicant via submission of relevant information (e.g. CV, training records, membership records) for acceptance prior to commencement of construction works.

The Principal Contractor's Site Environmental Representative will liaise directly with the ECoW and will have responsibility for the full-time environmental management of staff and activities on site.

The Principal Contractor's Site Environmental Representative will have responsibility to 'stop the job/activity' if a breach or potential breach of mitigation or legislation occurs.

The Principal Contractor is responsible for obtaining all necessary consents, licences and permissions for his activities as required by current legislation governing the protection of the environment.

The Principal Contractor will consider all of the mitigation measures and best practice construction methods detailed within this CEMP in his design and in any detailed environmental plans as required by the Contract.

A copy of this document and related files and documents will be kept in the site offices for the duration of the site works and will be made available for review at any time. Upon completion of the construction works, the Principal Contractor will provide a complete copy of the final set of information to the Applicant for their records.

Marine Mammal Observer (MMO)

The MMO will be onsite throughout sheet piling operations in order to ensure that works are carried out to minimise potential impacts to marine mammals from underwater noise. The MMO will ensure compliance with the Joint Nature Conservation Committee (JNCC) piling protocol (JNCC, 2010). The piling activities will be monitored by the MMO, whose primary role is to detect marine mammals and to potentially recommend a delay in commencement of piling activity if any marine mammals are detected. In addition, the MMO will advise the crew of all required mitigation measures.

The MMO will complete all relevant forms, and use all guidance provided, on JNCC's website: https://hub.jncc.gov.uk/assets/31662b6a-19ed-4918-9fab-8fbcff752046. Further details on the piling protocol are provided in the Marine Ecology section below.

Site Working Hours

Given the remote location of the Proposed Development, construction hours of 07:00 – 20:00, seven days a week are proposed.

The Environmental Health Officer (EHO) stated the following when consulted on working hours *"Given the unique location and probability that weather could have a major impact on scheduling deliveries to site I have no objection in principle to an application for 7 day a week working."*

As per the JNCC (2010) piling protocol, piling will not commence during hours of darkness as it is not conducive to a comprehensive marine mammal search.

General Site Best Practice

Water, electricity, paper consumption, use of non-renewable resources etc. will be controlled to the minimum practicable by adequate management systems. This will be monitored on a monthly basis by the site manager to identify any potential wastage and opportunities for further reduction in consumption.

Other best practices will be implemented, for example:

- vehicle engines to be switched off when not in use; and
- the proper maintenance of all vehicles, and prompt reporting of faults.

Emergency procedures will be established for use in case of fire and will be clearly explained to all site staff.

Under no circumstances will open fires be lit on the site.

Details of the construction compound, including layout, access, security, lighting, pest control and re-instatement will be included within the CEMP.

Environmental Training

Environmental training/induction will be undertaken for all site staff prior to working on site.

Method statements will be communicated to all relevant personnel through activity plans.

The Principal Contractor will provide ongoing training and review of relevant procedures with site staff throughout the contract, including through the use of toolbox talks.

The Site Environmental Representative will undertake ongoing monitoring of the effectiveness of mitigation and procedures and update as required. He will also undertake ongoing monitoring, review and update of environmental control measures in method statements.

Ecology and Ornithology

General Best Practice

Prior to any construction of the Proposed Development, the Applicant will undertake a series of pre-construction ornithological targeted checks to update the baseline information reported in this chapter. The full scope and requirements of the pre-construction checks will be agreed with the Planning Authority and involve engaging a Suitably Qualified Ecologist (SQE). The aim of these checks would be to provide up to date information on possible new breeding attempts for key target species, such as Schedule 1 raptors, in order to finalise the mitigation proposals. This would be in addition to completing a final check prior to construction for protected species (see Chapter 8 Terrestrial Ecology and Chapter 16 Marine Ecology of this EIA Report) and would be discussed and agreed with NS.

Plant and personnel will be constrained to a prescribed working corridor through the use of temporary barriers, thereby minimising damage to habitats and potential direct mortality and disturbance to species.

Works compound, storage sites and access tracks will avoid, as far as practicable, areas identified as being of ecological value by the ECoW.

Any required culverts will be designed to be adequately sized and orientated in the correct direction for wildlife in accordance with good practice.

Any trenches dug during construction and decommissioning operations will be covered at the end of each day. Alternatively, mammal ramps will be positioned in such a way that trapped mammals may be allowed to escape.

All exposed pipes and trenches will be checked each morning prior to starting construction activities. If trapped animals are found, the ECoW will be contacted to provide advice.

The ECoW will provide appropriate ecological toolbox talks to all site personnel, setting out any measures that need to be undertaken.

As part of the toolbox talks the importance of adhering to speed restrictions and watching out for wildlife and grazing farm stock will be highlighted.

Ornithology

Further to or incorporated into the update surveys above, protection of breeding bird nests from damage and/or destruction during the breeding season will need to be ensured. Wherever possible, all vegetation clearance will occur outside the bird (and seal) breeding season (i.e. between December – March, inclusive), to ensure that no active nests are damaged or destroyed by the proposed works. If work is required after March 31st, the SQE will search areas to provide clearance in advance of works and buffer active nests as appropriate.

Avoidance of unnecessary disturbance to habitats by minimising the extent of ground clearance and other construction practices as far as practicable.

Prior to the construction and operation of the wind farm a 'Biosecurity Plan' is required to be drafted and agreed with NatureScot and Orkney Islands Council and will be put in place to prevent rodents being introduced to the site. Further details are provided in Chapter 7 (Ornithology), Section 7.10 of the EIA.

In order to further support the storm petrel colony on the site, it is proposed that collapsed sections of the dyke are carefully re-built with suitable petrel breeding burrows located within. A full monitoring program will follow construction of the nest walls. Further details on mitigation measures and monitoring programme are provided in Chapter 7 (Ornithology), Section 7.10 of the EIA.

In order to provide areas of longer grassy sward and a mosaic of grassland swards on the island for the benefit of ground nesting birds it is proposed to extend the areas that are currently fenced off. Further details are provided in Chapter 7 (Ornithology), Section 7.10 of the EIA.

Terrestrial Ecology

The principles and objectives for mitigation associated with the Proposed Development have been developed through an iterative process with the Applicant's design team and through discussion with NatureScot and other stakeholders.

During the iterative design process, the following decisions have been implemented to reduce the potential for impacts on Important Ecological Features (IEF):

- Existing tracks have been used, where possible, in order to reduce the footprint of the Proposed Development. Some localised upgrading will be required to ensure a minimum 4.5 m running width.
- Electrical infrastructure cabling will be installed alongside tracks, wherever possible, to further minimise habitat loss.
- Turbines have been sited at least 50 m from the shoreline and drainage channels, where practical.
- No site works will be undertaken during the seal breeding season (Mid-September-December, inclusive).

Mitigation includes best practice methods and principles applied to the Proposed Development as a whole (generic measures) as well as site-specific mitigation measures applied to individual locations (specific measures).

The final CEMP is to be agreed with OIC, in consultation with NatureScot and SEPA, post-consent, but prior to construction commencing. It will outline all required mitigation and provide details on timelines for undertaking mitigation for each identified ecological receptor. The CEMP will also outline a timetable of actions and form part of the contract documents to ensure delivery of mitigation specified in this chapter

Standard mitigation also includes the following:

- Adherence to current environmental protection policies and guidance, including but not limited to:
    - Good Practice During Wind Farm Construction (SNH, 2019);
    - WAT-SG-75 (SEPA, 2018);
    - The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended; i.e. the CAR regulations) A Practical Guide (SEPA, 2019); and
    - LUPS-GU31 (SEPA, 2014).
- Development of Method Statements for use during construction (i.e. part of the CEMP), to include current good practice and prescribed use of low noise and vibration plant and construction techniques to reduce potential for acoustic disturbance to the surrounding marine habitats, including "soft-start" procedures (i.e. gradually increasing a disturbance activity up to full operation over a c.10-20 minute period) to limit wildlife avoidance behaviours when working near the shore;
- Development of Method Statements to control dust-generating activities, such as aggregate extraction and vehicle movements. Standard mitigation includes damping-down surfaces;

- A suitably qualified ECoW will be present and oversee construction activities, as well as providing toolbox talks to all site personnel with regards to priority species and habitats, as well as undertaking monitoring works and briefings to relevant staff and contractors, as appropriate;
- A preconstruction otter survey programme of habitats and field drain crossing points, to identify any changes to otter use of the island, to feed into the final micro-siting process;
- Development of a Species Protection Plan for otter, inclusive of:
    - Capping of any exposed pipe systems when not being worked and providing exit ramps for any exposed trenches or excavations (to prevent otters entering and becoming trapped);
    - Driver awareness and 10 mph speed controls within the site to limit the risk of vehicle movement accident mortality; and
    - Implementation of an exclusion zone of at least 30 m (NatureScot, 2020a) to be implemented around any new otter holt or resting place. An exclusion zone of a minimum 100 m to be applied to any holts identified (200 m for a breeding holt), to ensure protection from borrow pit operations;
- Development of a Species Protection Plan for seals;
- In order to prevent pollution of watercourses/field drains and waterbodies within the site (particulate matter or other pollutants, such as fuels), best practice techniques will be employed; for example:
    - Establishment of drainage measures (e.g. cut-off ditches, bunds, silt fencing) around the tracks and hard-standings prior to formation;
    - Application of best practice methodologies for water channel crossings, in order to prevent pollution during construction and operation (design capacity of culverts; use of silt fencing and sediment mats, etc.), in accordance with the CAR regulations;
    - Designated fuel and chemical stores, using appropriately bunded and maintained facilities;
    - Application of best practice methods for concrete batching, to prevent potential for pollution and contamination of ground waters and soils (with particular regard to storage of materials and wash-out facilities);
    - Use of appropriate alternative products where possible, to reduce the number of environmentally hazardous products on site (with particular reference to hydraulic fluid and lubrication oils/grease required for heavy plant such as excavators and dump trucks);
    - Designated fuelling areas and method statement-controlled fuelling procedures;
    - Spill kits to be carried on all site vehicles;
    - Storage of spill kits at each works location; and
    - Controlled storage and disposal of all COSHH and environmentally hazardous waste materials (including method statements).
- Regular monitoring of watercourses/field drains will be required during construction. The monitoring will include a responsive element, with an on-site ECoW checking areas where active works are taking place and areas where sediment run-off may be a concern during periods of high rainfall.

As part of the Proposed Development proposals it will be necessary to develop and implement a Site Restoration Plan (SRP) as part of the CEMP to ensure the regeneration of those areas of habitat that have been temporarily lost through development.

In order to facilitate restoration, including of the borrow pits, disturbed ground will be restored as soon as practicably possible using materials removed during the construction of access tracks, excavation of cable trenches and turbine foundations. To achieve this, any excavated soil will need to be stored in such a manner that is suitable to facilitate retention of the seed bank.

Additional mitigation and enhancement measures include:

- Designated seal haul-outs:
  - Delivery of staff, plant and materials to the island will be controlled though development of method statements to provide the least-disturbing route to site; this could potentially include varying the route from the port of origin.
- Habitats:
  - Identification of appropriate exclusion zones around sensitive features (e.g. waterbodies), to prevent construction vehicles tracking through these areas.
  - Operative awareness education, in the form of toolbox talks, to ensure the value of the island and its coastal environment is understood.
  - Careful wash-down of plant and other equipment will be mandatory prior to access to (i.e. before embarking on the vessel for transport to the island) or egress from the Proposed Development site, to prevent potential biosecurity risks associated with plant movements; potentially contaminated materials will be identified and the handling of such strictly controlled. A biosecurity Plan is detailed in Chapter 7, Section 7.10 of the EIA.
- Otter:
  - Avoidance of creating any obstructions to established otter pathways, or access to open water as instructed by the ECoW.
  - Avoidance working in the vicinity of identified otter habitat (i.e. the drainage channels and pools) during the hours of darkness and within two hours after sunrise and two hours before sunset. This can be reduced to one hour between January and February, due to limited daylight, should construction be required at this point in the year (N.B. no works will occur during the seal breeding season mid-September-December).
- Seals:
  - Landing facilities construction Method Statement.
  - The potential for collision with marine traffic will require consideration when planning navigation routes from port to site and procedures. Navigational Method Statements will be developed to cover port to Faray transport and use of the island landing facilities. In the case of seals using the extended slipway and landing jetty area, the approach of a vessel is likely to cause an unavoidable dispersal. Given the use of the area, visual, olfactory and acoustic deterrents, such as those described in MMO (2018 & 2020) for use with fishing gear are considered unsuitable. Consultation will be undertaken with NatureScot with regards to the possibility of disturbance licence requirements;
  - Control of borrow pit works to limit duration of disturbance events caused by material extraction. This will be covered through development of a borrow pit operations Method Statement;
  - Use of sound barriers along the coastal edge of the secondary borrow pit to reduce noise propagation from extraction operations;

- Construction plant will be selected for the lowest noise output possible, with sound barriers also to be available for deployment around stationary plant, such as generators;
- Restrict extraction of material from the secondary borrow pit to periods when no seals are present within the landing facility and Scammalin Bay area. Where this is not possible, use of a standard "soft-start" procedure (i.e. slowly increasing the level of noise in the works area, prior to commencing full operations), to avoid causing a potentially stressful "scare" reaction to a sudden noise, may reduce the intensity of any such disturbance events;
- With the Proposed Development to be constructed onshore, the impact of any piling activity on the surrounding marine habitat is likely to be reduced (i.e. insulated by the surface geology), but low impact methodologies will be selected for base construction and use of these methodologies will be programmed such that there are no sustained periods of disturbance. Formation of any piled foundations will also be programmed, as far as possible, for the earliest part of the construction "season" as possible, in order to avoid the times of highest seal presence;
- Though of a lower potential for disturbance impact, use of vibromatic compaction will also be limited to short periods of time, with a minimum of two hours between any compaction operations, if displacement behaviour is observed in any nearby seals; and
- Strict control of potential for human presence near hauled-out seals. In general, no personnel should approach within 50 m of a seal resting on the shore. However, Method Statements and site staff protocols/toolbox talks will be in place prior to all construction activities commencing, with the sensitivities of the adjacent habitats and their wildlife (and how to reduce/avoid impacts) explained to site personnel prior to commencement.

Marine Ecology

The standard measures, as detailed in JNCC (2010), built into design are listed below:

- Mitigation zone: implementation of a mitigation zone where the area is monitored either visually and/or acoustically (via PAM) for marine mammals prior to piling commencing. Monitoring will be undertaken by a suitably qualified MMO / PAM operative. The extent of the mitigation zone will be agreed with the consenting authority prior to the works taking place. The minimum is a 500 m radius.
- Pre-piling search and delayed start: the mitigation zone will be monitored visually by the MMO and/or acoustically via PAM for a period of at least 30 minutes. Piling will not commence if marine mammals are detected within the mitigation zone or until 20 minutes after the last visual or acoustic detection.
- Avoid piling at night or in poor visibility: piling activities will not commence during periods of darkness, poor visibility (e.g. fog) or a rough sea state where it is not conductive to visual mitigation as there is a greater risk of failing to detect a marine mammal within the mitigation zone.
- Soft-start: the piling activities will employ a soft-start, where the piling power is gradually ramped up incrementally until full power is achieved. This is to allow for any marine mammals within the area to move away from the noise source and will reduce the likelihood of exposing marine fauna to sounds which can cause injury. The soft-start period for piling will be a minimum of 20 minutes. If a marine mammal enters the area during the soft start then, wherever possible, the piling should cease, or at the least the power should not be increased until the marine mammal exits the mitigation zone and there is no further marine mammal detection for 20 minutes. When piling at full power, there is no requirement to cease piling or reduce the power if a marine mammal is detected in the mitigation zone as it is deemed to have entered "voluntarily". JNCC (2010) does

recognise in the piling protocol that it may not be technically possible to stop piling at full power until the pile is in position.

- Break in piling activity: If there is a pause in the piling operations for a period of greater than 10 minutes, then the pre-piling search and soft-start procedure will be repeated before piling recommences. If a watch has been kept during the piling operation, the MMO or PAM operative will be able to confirm the presence or absence of marine mammals, and it may be possible to commence the soft-start immediately. However, if there has been no watch, the complete pre-piling search and soft-start procedure will be undertaken.

Due to the Proposed Development overlapping with Faray and Holm of Faray SAC and SSSI, there is a project commitment to avoid construction from 15 September to 31 December inclusive to take account of the grey seal breeding season. Piling will not take place any later in the year than 15 August. This will further ensure that piling is out with the breeding season and for a month prior where seals could be returning to the island for breeding purposes.

Additional mitigation will include use of bubble curtains, which reduce low-frequency sound in the source level spectrum.

Archaeology

A precautionary exclusion zone will be set up around onsite assets at the start of construction works, in accordance with a design to be agreed to the satisfaction of the OIC Archaeologist.

Pre-construction

A walkover survey was undertaken on 17th August 2020 in variable weather. It is acknowledged that despite the walkover survey undertaken to inform the assessment, there may be further previously unrecorded subtle archaeological features within the site or hitherto unknown buried remains. Given the presence of known assets and the potential for presently unknown archaeological remains, in particular of post-medieval date, to survive within the site, a programme of archaeological works will be undertaken prior to the commencement of construction of the Proposed Development.

These works will include a geophysical survey of the proposed access routes, cable routes, turbine locations, crane pads and other infrastructure. The geophysical survey will cover a 60 m buffer on either side of the proposed centrelines for the access tracks and cable routes so as to allow for micro-siting in the event of significant remains being identified during the trial trenching. A 50 m buffer around each of the proposed turbine locations will be covered to allow for micro-siting and the future presence of the turbines, as once constructed their magnetic signatures will prevent further magnetometry geophysical surveys from being undertaken within their vicinity.

The geophysical survey will be followed by trial trenching which will be targeted on any possible anomalies that were identified and will also include a representative percentage of the total footprint of the development infrastructure. Depending on the results of these investigations further works during construction including further excavations and/or an archaeological watching brief may be required. The purpose of the geophysical survey and the archaeological trial trenching will be to identify any archaeological remains threatened by the Proposed Development, to assess their significance and to mitigate any impact upon them either through avoidance or, if preservation in situ is not warranted, through preservation by record. Depending upon the results of the geophysical survey and the trial trenching there is the potential that further works, such as excavation and post-excavation analyses, could be required. Details of mitigation will be agreed with OIC in consultation with the Orkney Country Archaeologist through a Written Scheme of Investigation (WSI).

Construction

Given the extent and density of recorded remains it has not been possible to avoid all impacts and there would be direct impacts on seven non-designated heritage assets. All of these assets are of post-medieval date and comprise the sites of former buildings (Sites 5 and 12) and a well (Site 109) recorded from historic mapping, areas of former rig cultivation (Sites 73 and 74) and a road (Site 114) and a slipway (Site 119) of 20th century date. The actual impact will be minimised as far as practicable.

Heritage assets within 50 m of the proposed working areas, including all areas to be used by construction vehicles, will be fenced off where appropriate under archaeological supervision prior to construction. This fencing will be maintained throughout the construction period to ensure the preservation of these assets.

The measured survey records (as detailed in Chapter 10) are to be published.

Surface Water Management and Pollution Prevention

Detailed Design

Pre-construction intrusive site investigation works will be undertaken, to confirm ground and groundwater conditions at the proposed turbine and infrastructure locations, and to aid in detailed design and micro-siting. The investigations would include targeted monitoring and assessment of groundwater levels and flows beneath the site, for example including trial pits to undertake rising- or falling-head permeability testing, and collection of groundwater samples for quality testing. The requirement for any additional specific mitigation resulting from the findings of these investigations would be agreed with SEPA in advance of construction.

Access tracks will be constructed with appropriate drainage provision, including drainage ditches or swales on one or both sides of the track, and cross carriage drainage pipes laid at appropriate intervals within the newly laid material, to allow for the flow of shallow groundwater.

The detailed design of drainage ditch crossings will take account of the guidance contained within Engineering in the Water Environment Good Practice Guide: River Crossings (SEPA, 2010). All crossings will be designed to accommodate 1 in 200-year storm event (including climate change allowance) to reduce the risk of flooding. The detailed designs will be agreed with SEPA prior to construction.

Surface Water Monitoring

Baseline surface water quality monitoring will be undertaken where appropriate in the drainage ditches across the site, prior to construction works. Parameters to be tested will include, as a minimum, pH and suspended solids. Monitoring will be undertaken during the construction works to ensure no adverse effect on water quality. Should an adverse effect be identified, works will stop until additional mitigation measures can be determined and implemented, in agreement with SEPA.

Best Practice

The Principal Contractor will identify and map out field drains on a plan, which will be included within this section of the CEMP.

Staff will be briefed on the location and importance of the field drains and will be given regular tool box talks about the risks of working near water and the potential to cause pollution.

All earth moving works or similar operations will be carried out in accordance with the British Standards Institute Code of Practice for Earth Works BS6031:2009.

Construction of the access tracks will require stripping existing unsuitable material to a suitable bearing or the designed formation, and placing a filter membrane and or geotextile reinforcement membrane (depending on site conditions) on the ground. Aggregate will then be layered, with the access track capped with a layer of Type 1 or similar material.

The requirement for dewatering of excavations will be minimised by timely and efficient excavation of the foundation voids and subsequent concrete pouring and backfilling.

All staff will be trained in the application of emergency procedures, including the use of sand bags, absorbent booms, silt fences and spill packs.

The site manager will ensure adequate supplies of absorbent booms, silt fencing, and spill packs are stored on site. All site staff will have access to these supplies.

All construction vehicles used on site will carry spill kits.

In the event of spillage, staff will follow emergency procedures, take action immediately to minimise any spill and its spread, and notify SEPA as quickly as possible by telephone.

Members of staff will be appointed to undertake daily checks on site to ensure that pollution prevention measures are in place and are successful. Daily checks of drainage ditches, silt traps, settlement ponds and the field drains will also be undertaken.

The site manager will regularly check the local weather forecast to identify future adverse weather conditions. If adverse weather conditions are identified, the site manager will brief staff on the requirement for extra vigilance in checking the condition and performance of site drainage.

No water from excavations and dewatering activities will be allowed to directly enter the water environment.

Stockpiles (of fines and aggregate) will be located away from drainage ditches.

All refuse and debris will be gathered daily and stored in secure skips prior to regular removal to avoid risk of polluting watercourses.

All plant and equipment will be maintained appropriately including checking for leaks and cleaning/removing visible oil.

Any contaminated soil will be disposed of to a licensed waste disposal site in accordance with legal requirements, e.g. from oil / fuel spill on site.

There will be no sewage discharges from the site.

Following completion of the construction phase, the site will be monitored at regular intervals to ensure that all drainage features retained within the site are functioning properly and that the site is in good condition.

Water Abstraction

There will be no abstraction from drainage ditches or the sea.

Fuel Storage

The site manager will determine the minimum practical volume of fuel that needs to be stored on site. The site manager will plan deliveries of oils to the site so that the minimum practical volume of oil is stored on site.

A Pollution Control Plan will be kept on site, including emergency response. It will be kept on prominent display at the fuel storage area and in the site office. This will include the requirements for fuel deliveries.

A self bunded fuel storage tank will be located on an impermeable base and will be physically protected by barriers.

All valves and tank couplings will be located within the tank bund, and a spill kit will be held beside the bulk storage tank.

Mobile plant and vehicles will be refuelled beside the tank. Filler handles will be auto-shutoff trigger-spring type, i.e. as per garage pumps. They will be stored within the bund at all times. Static plant will be refuelled at their operational location using a mobile bunded fuel bowser or jerry cans.

Generators or similar plant and machinery will be positioned on plant nappies within designated areas within the site boundary. These will be inspected and, if required, emptied on a daily basis.

No 45 gallon drums for fuel or oil are permitted on site under any circumstances. Only 20 litre jerry cans can be used. All small fuel and oil containers will be locked in a secure store to prevent theft and vandalism.

All bunds and settlement areas will be checked daily for hydrocarbons. Adequate oil absorbent and containment materials to be held in areas on all parts of the site and staff briefed on how to use these effectively.

Oil contaminated water from bunded areas, drip trays or plant nappies will be removed by using oil-absorbent pads.

Contaminated water/materials will be disposed of off-site to appropriate disposal site with necessary paperwork in place in accordance with the Site Waste Management Plan.

Contacts

The following should be contacted in the case of an emergency by any member of staff:

Table 1 – Emergency Contacts

Contact	Office hours	Out of hours	Address
Fire Department	999	999	TBC
Police Department	999	999	TBC
Ambulance Service	999	999	TBC
Non-Emergency Medical Assistance	TBC	TBC	TBC

The following staff should be contacted following any pollution incidence by the site operations staff:

Table 2 – Internal Contacts for any Pollution Incidence

Contact	Office hours	Out of hours	Address
Principal Contractor Emergency Response	TBC	TBC	TBC
ECoW	TBC	TBC	TBC

The following should only be contacted by the ECoW or the Contractor's Site Environmental Representative as required following a pollution incidence.

Table 3 – Key Contacts

Contact	Office hours	Out of hours	Address
SEPA	TBC	TBC	TBC
NatureScot	TBC	TBC	TBC
Scottish Water	TBC	TBC	TBC
SSEN	TBC	TBC	TBC
Waste Management Contractor	TBC	TBC	TBC
Specialist Clean Up	TBC	TBC	TBC
Other	TBC	TBC	TBC

Material Storage

All stockpiles will be formed to maintain a low profile and to follow the direction of surface water flow to prevent pooling.

Stockpiles of loose materials will be sheeted in times of dry or windy weather.

Contaminated Materials

Site staff will be vigilant in visually assessing excavated materials for signs of contamination. [These could include discoloured soil, unexpected odours, a fibrous texture to the soils (e.g. asbestos), presence of foreign objects (e.g. chemical/oil containers/waste) and evidence of made ground].

In the event that suspected contaminated materials are identified, site staff will respond as follows:

- report the discovery to the site manager who must seek advice from the Client's environmental team;
- contact technical specialists for immediate advice on testing and mitigation;
- seal off the area to contain spread of contaminants;
- clear site to ensure there is nothing that could cause fire or explosion; and
- contact the OIC Contaminated Land Officer if it is confirmed that contamination has been found.

Any unexpected contaminated land that has been disturbed by construction activities may need to be dealt with as waste (following results and characterisation from chemical analysis) and disposed of to a suitably licensed site in line with all relevant waste management regulations.

Ensure that the suspected contamination is tested and characterised and agree changes to the existing site proposals and method statements.

Contaminated soil will not be stockpiled unless it cannot be avoided. If it is necessary, the stockpile will be placed on an impervious base (e.g. hardstanding or plastic sheeting) and covered with plastic sheeting to prevent contamination of the wider area.

Surface drainage from stockpiled area will be controlled through the use of an impermeable bund placed around the stockpile. Any surface water found within the bund will be removed off-site by a licensed contractor.

Dust and Air Pollution Management

The following mitigation measures will be implemented throughout the construction period:

- Throughout construction best practice will be implemented to prevent pollution;
- The construction site layout will be designed to locate machinery and dust causing activities away from receptors where possible.
- The Principal Contractor will review the daily weather reports and communicate with the Section Engineers so that works can be planned to minimise effects on sensitive receptors.
- The Principal Contractor will maintain a water bowser on site to suppress dust along the access tracks as required. If there is a risk of fugitive dust arising from the site works, water spray systems may be set-up to dampen down the material. The Principal Contractor will ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.

Transportation and Storage of Materials

The following mitigation measures will be implemented to limit emissions and dust creation from the transportation and storage of materials and from the movement of vehicles associated with the Development:

- The Principal Contractor will use a water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- All vehicles entering and leaving sites will be monitored to ensure they are covered to prevent escape of materials during transport.
- The Principal Contractor will confirm with OIC whether a wheel washing system is required to be implemented. This would contain rumble grids to dislodge accumulated dust and mud prior to leaving the site. The Contactor will ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- The Principal Contractor will ensure fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine powder, materials bags will be sealed after use and stored appropriately to prevent dust.
- Stockpiles will be covered, seeded or fenced to prevent wind whipping.
- Materials will be removed that have potential to produce dust from site as soon as possible, unless being re-used on site.
- The Principal Contractor will ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case it will ensure that appropriate control measures are in place.
- The number of handling operations for materials will be kept to the minimum practicable.

Construction Plant

The following mitigation measures will be implemented to limit plant emissions and dust creation:

- All staff will operate plant and vehicles in accordance with the manufacturer's instructions. If possible, filters will be provided on plant anticipated to generate excess emissions. In addition, dust extractors, filters or collectors may be used.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- All plant and vehicles will be turned off when not in use and will not be left idling. The movement of vehicles around the site will be minimised where possible.
- Where possible, construction plant will be located away from the site boundary and from sensitive receptors.
- Use enclosed chutes and conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Where reasonable and practical, the Principal Contractor will avoid the use of diesel or petrol-powered plant and will power plant through the use of mains or battery powered generators.

Earthworks

- Stripping of topsoil will occur as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation.
- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the minimum practicable to control dust generation associated with the fall of materials.

- All deposited materials will be compacted, with the exception of topsoil, as soon as possible after deposition.
- Soiling, seeding, planting or sealing of completed earthworks will be undertaken as soon as reasonably practicable following completion of the earthworks.

Waste Management

It is not anticipated there will be significant quantities of waste from the short construction period of the Proposed Development.

A Site Waste Management Plan will be kept on site, detailing how waste is managed.

Fully enclosed skips and other smaller containers will be used for all wastes on site. Separate skips, as detailed below, will be held on site to allow segregation of waste materials for recycling or recovery.

- general mixed non-hazardous;
- wood;
- metal;
- hazardous (special) – depending on the types of special waste generated, separate containers may be used;
- plastics; and
- inert construction waste.

All the legal documents to ensure the Duty of Care for waste will be kept on site during the construction of the extension.

All waste leaving the site will be accompanied with a Waste Transfer Note (WTN) (for non-hazardous) or Special Waste Consignment Note (SWCN). These will be checked by the site manager to ensure that the following information is detailed:

- producer of the waste;
- site name & location;
- date;
- description of the waste (i.e. contents and volume);
- EWC code;
- signature of the waste carrier; and
- name of disposal site.

Once complete, the WTN / SWCN will be signed by the Principal Contractor.

SEPA will be notified a minimum of 72 hours prior to the transfer of Hazardous/Special waste. The contractor will confirm whether the waste carrier will undertake the appropriate notification.

Regular waste audits will be undertaken by the Principal Contractor to check for the following:

- containers are adequately signed;
- containers are being filled fully prior to uplift;
- there is no cross contamination of materials (e.g. hazardous and non-hazardous or wood and metal etc.);
- food and hazardous wastes are contained in covered containers;

- containers are fit for purpose – i.e. adequately sized and structurally sound; and
- waste documentation is being retained, e.g. WTN's.

Noise and Vibration

All noise during construction will be managed under the various EC Directives and UK Statutory Instruments that limit noise emissions of construction plant, including:

- guidance set out in BS 5228-1:2009+A1:2014 which covers noise control on construction sites;
- the powers that exist for local authorities under Section 60 of the Control of Pollution Act 1974 to control environmental noise on construction sites; and
- the adoption of Best Practicable Means (as defined in Section 72 of the Control of Pollution Act 1974).

All sub-contractors of the Principal Contractor will be formally required through contract to comply with the noise mitigation measures outlined below.

The following mitigation measures will be implemented by the Principal Contractor to minimise noise impacts on noise sensitive receptors:

- Where it is reasonable and feasible, the quietest construction methods will be used. The Principal Contractor will aim to reduce all noise emissions, regardless of the threshold limits.
- The Principal Contractor's appointed Principal Designer will monitor construction activities at regular intervals to ensure that appropriate Personal Protective Equipment is being used by staff during activities identified by Risk Assessments.
- Site inspections shall be undertaken to ensure that plant is being operated with any specified acoustic covers in place. Any excessively noisy plant will be removed from the Proposed Development site for repair or maintenance.
- Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy activities.
- Plant and equipment:
    - Any plant and equipment required for operation at night (23:00 - 07:00) shall be suitably silenced and shielded to ensure compliance with WHO night-time noise criteria, assuming open windows. If generators are required to be operated overnight, measures shall be taken to minimise noise levels at the nearest dwellings.
    - All equipment will be switched off when not in use (including during breaks and down times of more than 30 minutes).
    - The Principal Contractor will ensure that where possible, noisy plant will not be used simultaneously and/or close together to avoid cumulative noise impacts.
    - Any compressors brought on to site to be silenced or sound reduced models fitted with acoustics enclosures.
    - All pneumatic tools to be fitted with silencers or mufflers.
    - All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.
    - All plant to be sited so that the noise impact at nearby noise-sensitive receptors is minimised.
    - If required fixed plan will include a noise mitigation scheme to ensure that noise limits are achieved.

- Fixed and mobile plant used within the site during the construction period shall not incorporate bleeping type warning devices that are audible outwith the site boundary unless required for health and safety reasons.
- Where practicable, and required, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens.

- Traffic and deliveries:
  - Due to the Proposed Development being located on an uninhabited island, loading and unloading isn't anticipated to be restricted.
  - Care will be taken when unloading vehicles to minimised noise disturbance to the Island wildlife.
  - Construction traffic would be prohibited from un-necessary idling.

Lighting

All lighting used will be of the cut-off type with the light being focused onto the works area to avoid light overspill which could disturb wildlife.

Access and Traffic Management

Given the island is uninhabited the impacts of construction traffic will be minimal, however in keeping with good practice a Traffic Management Plan will be agreed with OIC and displayed in the site office at all times.

The requirements of the Traffic Management Plan will be communicated to all drivers, including pending deliveries.

Construction traffic will adhere to programmed activities and agreed working hours. No construction traffic will undertake works outwith the agreed activities and hours unless by prior agreement.

Vehicle wheels and chassis will be regularly cleaned to prevent deposition of construction site material on the road.

Dredging

Dredging will be kept to a minimum, and will be as per the volumes and locations provided in the dredging marine licence application and accompanying EIA Report (see Figure 17.1 of the EIA Report). Should additional dredging works be necessary, these would require an additional marine licence application process, including the appropriate impact assessment. This would likely be via a variation to the existing licence, however, would require discussion with Marine Scotland.

In the unlikely event that additional dredging requirements are identified, the ECoW should be notified immediately so that the relevant applications can be made.

As outlined in the dredging marine licence Best Practicable Environmental Option (BPEO) Assessment, disposal at sea is the BPEO for the Proposed Development. Should any dredged material be identified as suitable for re-use on-site, this should be done, however it is recognised that fine sand is not usually suitable for construction use. Any dredged material for disposal will be properly stored and the correct consignment notes in place for disposal at sea. The preferred sea disposal site is Stromness A.

A backhoe and hopper barge operation is the assumed dredging methodology. Due to the distance from the dredging site to the disposal site, the backhoe dredger will operate most efficiently if two hopper barges are provided to the works, or the backhoe operates daytime only operation with disposal occurring by the hopper barge at the end of the shift.

Construction Vessel Pollution Prevention and Management

All construction vessels must be MARPOL compliant. Regulation 37 of MARPOL Annex I requires that all ships of 400 gross tonnage and above carry an approved Shipboard Oil Pollution Emergency Plan (SOPEP).

SOPEPs should be prepared in line with the relevant IMO guidelines, including Resolution MEPC.54(32) (IMO, 1992) as amended by Resolution MEPC.86(44) (IMO, 2000).

The following standard practices should be followed by all vessel contractors to prevent the likelihood of pollution occurring:

- Regular inspection and maintenance of all equipment, including storage tanks and pipework, will be undertaken;
- Appropriate bunding and storage facilities will be employed to prevent the release of fuel oils, lubricating oils and chemicals to sea;
- Personnel will be trained in spill prevention awareness, and in the use of spill kits;
- Spill kits shall be readily available for mopping up any minor spills;
- Refuelling operations will be planned in advance; and
- Fuel transfer operations will be carefully conducted under the supervision by an appointed responsible person on board (e.g. Chief Engineer) and in accordance with each vessel's stipulated procedure and checklist.

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