16 Schedule of Mitigation

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16 Schedule of Mitigation

16.1 Introduction

16.1.1 Best practice in Environmental Impact Assessment (EIA) recommends the use of a schedule of mitigation which can act as a quick reference for anyone interested in the mitigation measures to which the Applicant has committed to implementing and upon which the assessment of residual effects presented within the EIA Report has been based. It will be utilised by the Applicant throughout the development of the detailed design, and the appointed contractors will be required to allow for, and ultimately implement, each of the measures in this schedule as a minimum.

16.1.2 Table 16.1 presents the schedule of mitigations for the Proposed Development, listed according to the relevant environmental topic area. Individual EIA report chapters should be referred to for full details of the mitigation.

Table 16.1 – Schedule of Mitigations

Environmental Subject Area	Mitigation	Timing
Project Design		
Micrositing	A micro-siting allowance of up to 50 m in all directions is being sought in respect of T1, T2, T4 and associated site infrastructure and up to 125 m in respect of T3. During construction the need for any micrositing would be assessed and agreed with the onsite Environmental Clerk of Works (ECoW).	Construction
Turbine foundations	A detailed ground investigation will be completed prior to construction to inform the final foundation and hardstanding design.	Pre-construction
	Detailed construction drawings with final dimensions will be provided prior to commencement once the final turbine model has been selected.	
	Turbines will be painted an off-white or light grey colour with low reflectivity semi-matt finish, or similar, as agreed with the Local Planning Authority.	
Access Tracks	Existing onsite access tracks and wayleaves, where possible, will be retained, re-used and upgraded (where necessary).	Pre-construction
	New access tracks will be made of locally sourced material, potentially from on-site borrow pits (if suitable).	
	Prior to construction, any required improvements to public roads will be undertaken and appropriate highway safety measures will be agreed with Orkney Islands Council (OIC) and Transport Scotland, with necessary signage or traffic control measures implemented throughout the construction phase on the agreed basis.	
Construction Compounds	The detailed location, size and engineering properties of the construction compounds and temporary turbine laydown area will be confirmed prior to the start of construction, after the turbine supplier and model have been confirmed.	Pre-construction
	On completion of construction works, it is proposed that all temporary structures be removed and the compound areas be restored.	Post-construction
Substation	The design of the components of the substation compound is proposed to be secured by an appropriately worded condition.	Construction
Borrow Pits	Detailed site investigations prior to construction will be carried out to further confirm the rock type, rock characteristics and suitability, as well potential volumes to be extracted from the existing borrow pit area. The final borrow pit extent identified during the geotechnical evaluation will be defined within the Construction Environmental Management Plan (CEMP).	Pre-construction

Environmental Subject Area	Mitigation	Timing
Construction Hours	Normal construction hours will be between 07:00 and 19:00 Monday to Friday and 09:00 and 13:00 on Saturdays. These times have been chosen to minimise disturbance to local residents. It must, however, be noted that out of necessity due to weather conditions and health and safety requirements, some generally quiet activities, for example abnormal load deliveries (which are controlled by Police Scotland) and the lifting of the turbine components, may occur outside the specified hours stated	Construction
Construction traffic	The Applicant will ensure that the vehicles will be routed as agreed with OIC, Transport Scotland and Police Scotland.	Construction
Construction Environmental Management Plan (CEMP)	The Contractor shall produce and adhere to a CEMP. This shall be developed in consultation with the Orkney Islands Council, NatureScot, SEPA and Historic Environment Scotland (HES). The Contractor shall amend and improve the CEMP as required throughout the construction and decommissioning period.	Pre-construction
	The CEMP shall describe how the Contractor will ensure suitable management of, but not limited to, the below aspects during construction of the Proposed Development. A draft CEMP is included in Appendix 3.1: ▪ noise and vibration; ▪ dust and air pollution; ▪ surface and groundwater; ▪ ecology and ornithology (including protection of habitats and species); ▪ agriculture (including protection of livestock and land); ▪ cultural heritage; ▪ waste (construction and domestic); ▪ details of the size, location and volumes to be extracted from borrow pits; ▪ pollution incidence response (for both land and water); and ▪ site operations (including maintenance of the construction compound, working hours, monitoring of ▪ construction procedures and safety of the public).	Pre-construction
	Prior to commencement of construction activities, a pollution prevention strategy, contained within a CEMP, will be agreed with SEPA.	Pre-construction
Landscape and Visual		

Environmental Subject Area	Mitigation	Timing
The primary mitigation adopted in relation to the Proposed Development is embedded within the design of the Proposed Development and relates to the consideration that was given to avoiding and minimising landscape and visual effects during site selection and the evolution of the Proposed Development layout		
Ecology		
Habitat Protection Plan	A Habitat Protection Plan will be developed that will include demarcation of no-go areas in sensitive habitats.	Construction
CEMP	Full details of construction mitigation measures will be provided in a Construction Environmental Management Plan (CEMP) to be agreed with OIC, in consultation with NatureScot, HES and SEPA, post-consent but prior to development commencing.	Construction
Habitats	Identification of appropriate exclusion zones around sensitive features (e.g. waterbodies, wet heath, blanket bog etc) to prevent construction vehicles tracking through these areas.	Construction
	Exclusion of livestock from any restored areas to permit habitat recovery free from grazing pressure (which otherwise has the potential to degrade the surface).	Operation
	A detailed Habitat Management Plan/Grazing Management Plan will be prepared and implemented throughout the site to increase the quality of the remaining habitat and as a result improve the biodiversity of the site.	Operation
Otters	Pre-construction otter survey to establish if there has been any significant change in the status of otter on site and within 250 m since the original survey. If the presence of otter is considered a possibility an otter-specific protection plan will be developed inclusive of: ▪ Cap any exposed pipe systems when not being worked and provide exit ramps for any exposed trenches or excavations (to prevent otters entering and becoming trapped). ▪ Driver awareness and 10 mph speed controls within the Proposed Development site to limit the risk of road traffic accident mortality. ▪ Implementation of an exclusion zone of at least 30 m to be implemented around any new holt or resting place.	Pre-construction
Fish	Site run-off will be intercepted and treated according to SEPA PPG guidelines. The CEMP will include measures to prevent sedimentation of water courses and reduce potential for pollution incidents and provision of spill kits	Construction
Ornithology		
CEMP	All ornithological mitigation will be incorporated into a Construction Environmental Management Plan (CEMP). This CEMP, to be confirmed, will outline all required mitigation and provide details on timelines for undertaking mitigation for each identified ornithological receptor. A Site Restoration Plan will be implemented as part of the CEMP to ensure the regeneration of those areas of habitat that have been temporarily lost through development.	Construction

Environmental Subject Area	Mitigation	Timing
Pre-construction ornithology surveys	Not more than 12 months prior to construction of the Proposed Development, the Applicant will engage a Suitably Qualified Ecologist (SQE) to undertake a series of pre-construction ornithological surveys to update the baseline information in order to finalise the mitigation proposals.	Pre-construction
Habitat Management Plan	To ensure the 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 breeding season (i.e. clearance to be undertaken between October and February inclusive, inclusive), to ensure that no active nests are damaged or destroyed by the proposed works. This would include any areas of shrub clearance and vegetation removal for access tracks, compounds or turbine bases due to the populations of ground nesting birds on and around the site.	Construction
	Removing vegetation from working areas outside the breeding season, wherever possible between October and February inclusive but preferably between November and January, would also reduce the attractiveness of those areas to breeding birds the following season	Construction
	Avoidance of unnecessary disturbance to habitats by minimising the extent of ground clearance and other construction practices as far as practicable.	Construction
	An ecological toolbox talk will be given to all construction personnel as part of site induction on the potential presence of ornithological species and any measures that need to be undertaken should such species be discovered during construction activities. The toolbox talk will also include the requirement to report and log any bird casualties at the Proposed Development during construction and operation of the site	Construction
	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	Construction
Grazing Management Plan	A Grazing Management Plan (GMP) will be developed to improve habitats for breeding waders throughout the Proposed Development site by providing suitable grassland habitat.	Construction
Orkney Native Wildlife Project	The site will be included in the Orkney wide project which involves the trapping of stoat (*Mustela erminea*) for the lifetime of the Proposed Development (or the lifetime of the project should the project end sooner).	Construction
Ecological Clerk of Works (ECoW)	The ECoW will undertake construction phase surveys of birds within the Proposed Development and will record information of breeding success as far as is possible (avoiding disturbance, and following relevant NatureScot survey guidance (SNH, 2017). The data will be used with pre-construction baseline survey data and future data obtained during monitoring work to provide population information across each phase of the Development	Construction
Cultural Heritage		

Environmental Subject Area	Mitigation	Timing
Archaeological Watching Briefs	A watching brief will be undertaken during all groundworks that are located either within or adjacent to two non-designated assets (Assets 164 and 167). All known heritage assets within 50 m of the Proposed Development (working areas) will be fenced off with a visible buffer under archaeological supervision prior to the start of the construction phase in order to avoid accidental damage by heavy plant movement.	Construction
	A watching brief will also be maintained on a proportion of all other ground breaking works to assess the potential for hitherto unrecorded buried archaeological remains to survive within the Proposed Development Area. The aim of the watching brief 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. If significant archaeological remains are identified during the batching brief 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 County Archaeologist through a Written Scheme of Investigation (WSI).	Construction
Geophysical survey	A geophysical survey of the Hundland Hill enclosure will be undertaken in order to inform understanding of this designated asset and assess the extent to which burnt material, an indication of cremation activity, may be present. A Metal and Mineral Detecting Consent (MMDC) will need to be obtained from HES prior to the work being undertaken.	Pre-construction
Noise		
Construction Noise	Good practice measures will be implemented during construction to limit unnecessary noise including but not limited to the following: ▪ avoid unnecessary revving of engines and switching off plant when not required (i.e. no idling); ▪ haul routes to be kept well maintained; ▪ minimising the drop height of materials during delivery to, and movement around, site; ▪ starting up plant and vehicles sequentially, rather than all together; ▪ specification of plant with white-noise or directional reversing alarms, rather than beeper type alarms; ▪ where possible, selection of quiet / noise reduced plant; ▪ vehicles accessing the site will have regard to the normal operating hours of the site and the location of nearby NSR.; and ▪ use and siting of equipment will be considered such that noise is minimised.	Construction
Non-turbine fixed plant noise	Noise from the final type and location of the substation will be attenuated by acoustic enclosure (if required), such that it meets the derived non-turbine noise limits. A total sound power level of 100 dB(A), equivalent to a sound pressure level of 72 dB(A) at 10 m, would enable the noise limit to be met. The installed plant will meet these criteria	Operation

Environmental Subject Area	Mitigation	Timing
Wind turbine noise	Agreements will be in place with the owners/operators of the Nisthouse, Hundland and Newhouse turbines that these turbines will be switched off at wind speeds of 9 ms-1 and above to preserve headroom for operation of the Proposed Development.	Operation
Traffic and Transport		
Construction Traffic Management Plan (CTMP)	The Applicant will prepare a Construction Traffic Management Plan (CTMP) for agreement with OIC prior to construction works commencing. The CTMP will detail the management of traffic to and from site. It shall also include mitigation for impacts to public transport, local private access and public footpaths/rights of way, cycleways and bridleways. The Contractor and/or Applicant shall amend and improve the CTMP as required throughout the construction and decommissioning period.	Construction
Abnormal wear and tear on roads	The Applicant will cover the cost of abnormal wear and tear on roads not designed for that purpose and propose that this imposed by a planning condition. Any necessary repairs will be coordinated with OIC. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to road users, will be repaired immediately	Construction
Operational/ Maintenance traffic	Site entrance roads will be well maintained and monitored during the operational life of the development. Regular maintenance will be undertaken to keep the site access track drainage systems fully operational and the road surface in good condition and to ensure there are no adverse issues affecting the public road network.	Operational
Abnormal Load Transport Management Plan	An AIL Traffic Management Plan (TMP) will also be developed to ensure road safety for all road users during transit of development loads. The TMP will outline measures for managing the convoy and set out procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay-over areas to allow overtaking.	Construction
Staff Travel Plan	A Staff Travel Plan would be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport.	Construction
Port Management Plan	To ensure that there are no detrimental issues at Hatston Pier, the Applicant would produce a Port Management Plan secured by planning condition that will be agreed prior to the delivery of the first turbine component.	Construction
Hydrology, Geology, Hydrogeology and Peat		
Watercourses	No proposed infrastructure is sited within 50 m of a major watercourse or water body, nor within 50 m of the nearby West Mainland Moors SSSI.	Construction

Environmental Subject Area	Mitigation	Timing
	The detailed design of watercourse (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.	
CEMP	A CEMP will be developed, agreed with SEPA and OIC prior to commencement of construction, and implemented by the lead contractor. and will cover aspects such as: timing and phasing of construction works; delineating working areas; control of surface runoff; storage of oils and chemicals; protection of watercourse banks during construction; appropriate methods for stockpiling soils; dewatering of excavations; concrete delivery and washing out of vehicles; contingency planning; emergency procedures; and monitoring of construction procedures to ensure risks are minimised	Construction
ECoW	All construction activities will be supervised by a suitably qualified Environmental Clerk of Works (ECoW).	
Pre-construction site investigations	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. The requirement for any additional specific mitigation resulting from the findings of these investigations would be agreed with SEPA in advance of construction.	Pre-construction
Peat Management Plan (PMP)	A PMP will be produced in consultation with SEPA, OIC and NatureScot. This will set out details of how any peat excavated will be stored, re-used and managed. **Appendix 12.2** provides an outline of the proposed PMP.	Construction
Peat Landslide during Construction	A 'Peat Hazard Emergency Plan' to instruct Contractors of response procedures in the event of a peat slide, and the further refinement of layout design through detailed pre-construction ground investigations will be prepared. The construction process will be undertaken using a detailed Geotechnical Risk Register and under the supervision of a resident Geotechnical Engineer	Construction
Soils, peat and groundwater	At all construction work areas, clean runoff (i.e., non-silty surface water flow) would be kept separate from potentially contaminated water from construction areas as far as possible. Where required, interceptor ditches and other drainage diversion measures would be installed immediately in advance of any excavation works in order to collect and divert clean runoff away from construction disturbed areas	Construction
	The borrow pit would feature a perimeter surface drain, which would aim to prevent water in-flow into the borrow pit. The water collected within the surface drains would be discharged either into the surrounding vegetation, or into a suitably located sediment lagoon	Construction
	Discharge of diverted clean runoff would be into an area of vegetation for dispersion or infiltration and would occur as close as possible to the location of interception in order to ensure that there is no effect on soil moisture regimes downstream of the works.	Construction

Environmental Subject Area	Mitigation	Timing
Surface water	The use of SuDS, petrol interceptors and spill kits will be utilised where chemical spillage, for example as a result of refuelling, is a possibility. Site personnel will be trained in river and stream protection measures to ensure a quick response to any accidental spillages or contamination.	Construction
Aviation		
Aviation obstruction lighting	Aviation lighting will be installed on each turbine in accordance with the requirements of the Air Navigation Order 2016 and approved by the Civil Aviation Authority (CAA) and Ministry of Defence (MoD).	Operation
Socio-economics, Recreation and Tourism		
No significant adverse effects associated with the Proposed Development have been identified, therefore no mitigation measures were considered necessary.		
Telecoms		
Micrositing	Additional micrositing has been incorporated into the design to ensure Turbine 3 can be sited so it does not cause unacceptable interference associated with the telecommunications link operated by EE. The Applicant will undertake further consultation with EE as necessary.	Pre-construction
Shadow Flicker		
Shadow Flicker Protocol	Prior to the erection of the first turbine a written scheme (a Wind Farm Shadow Flicker Protocol) shall be submitted to and approved in writing by OIC. The protocol would come into effect if a complaint is made of unacceptable shadow flicker at either of the receptors where significant effect may occur. This would set out mitigation measures to alleviate shadow flicker attributable to the Proposed Development, for example shut down periods for certain turbines during certain meteorological conditions when shadow flicker is predicted, as well as a protocol for addressing any complaints received from a receptor within the study area.	Pre-construction