



ESB Asset Development UK Limited

Millmoor Rig Wind Farm

Technical Appendix 2.1: Schedule of Environmental Commitments

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.



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1 INTRODUCTION

- 1.1 The assessment of the Proposed Development has identified a number of impacts that would arise as a result of its construction and operation. Mitigation measures have accordingly been identified and developed to counter adverse impacts and reduce the residual significance of effects on the receiving environment.
- 1.2 The embedded and additional environmental mitigation measures identified during the EIA process are reported in **Chapters 6 to 17 of Volume 1** of the EIA report of which this document is a technical appendix. Subject to the granting of consent, these measures will form a mandatory schedule of commitments under the terms of any contract(s) for the construction and operation of the Proposed Development.
- 1.3 Environmental commitments are provided in **Table 1** below.

Table 1: Summary of Environmental Commitments

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
Proposed Development					
2.1	Micrositing	The proposed turbine locations and ancillary infrastructure would be subject to a proposed maximum micrositing tolerance of 50 m in any direction. In those places where environmental features may be potentially affected by the micrositing, tolerance would be constrained to less than 50 m, and such changes would be managed in consultation with an Environmental Clerk of Works (ECoW) for the Proposed Development during its construction phase. Any movement of the turbines from the Proposed Development layout outwith the micrositing tolerance would be agreed with Scottish Borders Council (SBC) and would be in accordance with the mitigation set out in this Environmental Impact Assessment (EIA) Report.	Construction	Contractor	Chapter 2 Proposed Development in Volume 1 of the EIA Report
2.2	Battery Energy Storage System	<ul style="list-style-type: none"> The battery technology type for the Proposed Development would meet all the relevant safety and environmental standards. Any requirements for environmental (e.g., PPC permitting) or health and safety consents (e.g., COMAH) would be discussed, confirmed and agreed with the relevant authority prior to construction. The number, dimensions, housing type, finish, arrangement, security fencing and landscaping of energy storage elements would be subject to SBC consultation and approval prior to construction. 	Pre-construction	Applicant	Chapter 2 Proposed Development in Volume 1 of the EIA Report
Landscape and Visual Assessment					
6.1	Visual Impact	The turbines themselves will be painted a mid-grey colour with a low reflectivity semi-matt finish (or similar as agreed with the SBC). Such a finish is widely regarded to be the least intrusive in the landscape when seen against the sky	Construction and Operation	Contractor appointed by Applicant to operate the	Chapter 6 Landscape and Visual Impact Assessment in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		in a host of weather conditions typically experienced within the UK.		Proposed Development	
Cultural Heritage and Archaeology					
7.1	Direct construction impacts on known heritage assets	<ul style="list-style-type: none"> To avoid adverse impacts on known heritage assets within the access area by any cut or fill operations, as well as reinforcement works; cut/fill at discrete locations in the access area to allow for the turning of abnormal loads will be carried out to the east of the existing track and avoid any groundworks within the boundary of SM6601 and SM6599, assets; Direct construction effects upon known heritage assets would be mitigated through a programme of archaeological works, during or in advance of construction. The scope and nature is to be agreed with SBC and Historic Environment Scotland (HES) as appropriate. Scheduled Monument consent (SMC) will be required from HES for works within SM6602 Martinlee Sike, farmstead, field system and assart bank. HES has advised that the top 30 cm of the existing access track, which runs through SM6602, is excluded from the scheduling, however any upgrading works that would be deeper than this, or that would extend beyond the boundaries of the existing track and its drainage ditches would require SMC. Given the proximity, it is possible that substantial reinforcement works to the bridge over Carter Burn may involve works within the Scheduled Monument which would also require SMC; and Certain known heritage assets within the Inner Study Area (ISA) would be demarcated (identified and protected) prior to construction works commencing in 	Pre-construction/ Construction	Applicant / Contractor	Chapter 7 Cultural Heritage and Archaeology in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>order to highlight their presence. This may be achieved through appropriate survey, demarcation/ fencing and signage. It is recommended that the following heritage assets are fenced off with a suitable buffer throughout construction to prevent accidental damage:</p> <ul style="list-style-type: none"> ○ SM3425 - Westshiels, spur earthwork 1,550m SW of; ○ SM3423 - Wheel Causeway, section 640m long on S slope of Wardmoor Hill; ○ SM10605 / 56832 - Tamshiel Rig, fort, settlement and field system; ○ SM6599 - Martinlee Sike, enclosure bank, field system, cairns & old road; ○ SM6601 - Martinlee Plantation, homestead SE of Martinlee Sike; and ○ SM6602 - Martinlee Sike, farmstead, field system and assart bank. <ul style="list-style-type: none"> • Should any element of the Proposed Development infrastructure be subject to re-design, a direct impact assessment should be carried out by an experienced professional archaeologist. Should any such re-design or ancillary works result in a direct impact on any of the known heritage assets within the ISA, additional mitigation work would be proposed as required. 			
7.2	Direct construction impacts on previously unknown heritage assets	Direct construction effects upon previously unknown heritage assets would be mitigated through a programme of archaeological works, during or in advance of construction. The scope and nature is to be agreed with SBC and HES as appropriate.	Pre-construction/ Construction	Applicant / Contractor	Chapter 7 Cultural Heritage and Archaeology in Volume 1 of the EIA Report
7.3	Operational impacts on setting	Depending on the final Proposed Development access track design, assessment may be required to consider the impact of a proposed crossing of the Carter Burn upon the setting of SM6602 Martinlee Sike, farmstead, field system and assart bank. Through consultation (potentially through	Pre-Construction	Applicant	Chapter 7 Cultural Heritage and Archaeology in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		SMC application), mitigation measures will be embedded into the design of the Proposed Development to avoid or minimise adverse effects upon SM6602. Should any residual adverse operational effects be identified, additional mitigation measures will be proposed.			
Ecology					
8.1	River Tweed Site of Special Scientific Interest and Special Area of Conservation	<ul style="list-style-type: none"> Production of a comprehensive Construction Environmental Management Plan (CEMP) detailing how pollution and run-off, including sediment control would be prevented. A Habitats Regulations Assessment (HRA) Stage 1 screening assessment would be undertaken to consider further the potential for the Proposed Development to result in likely significant effects on internationally important sites. 	Pre-Construction	Contractor/ Applicant	Chapter 2 Proposed Development in Volume 1 of the EIA Report Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report
8.2	Protected Species - General	<p>Construction best practice methods should be implemented where works are due to commence near watercourses, including:</p> <ul style="list-style-type: none"> it is recommended that construction activities would be undertaken during daylight hours. As such they would be avoided during night-time hours when working near watercourses, in order to avoid the crepuscular activity of otters. Where this is not possible and night-time working is necessary in order for the works to proceed, then any artificial lighting must be implemented for the duration of the works activity; and all trenches and excavations would be fenced or covered-over at night to prevent any animals from falling in and becoming trapped. Where this is not possible, a means of escape should be provided. 	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
8.3	Protected Species - Bats	<p>Bat activity levels and casualties during operation would be monitored to determine if additional mitigation is required. An initial Bat Mitigation and Monitoring Plan (BMMP) would specify bat activity surveys, carcass searches and the collection of high-resolution weather data, once the turbines are operational. The BMMP will include the following details:</p> <ul style="list-style-type: none"> ○ who is responsible for implementing the BMMP; ○ how it will be funded; ○ methods, equipment and survey effort; and ○ triggers for remedial action. <p>This monitoring would continue for a minimum of three years. After the first year, the results of casualty monitoring would inform any requirement for additional mitigation.</p>	Pre-construction/ Construction	Applicant/ Contractor	Chapter 8 Ecology of Volume 1 of the EIA Report
8.4	Protected Species - Otters	Pre-construction surveys would be undertaken to search for any new otter resting sites immediately prior to construction works in proximity to Black Burn or Jed Water. If any works are due to commence within 30 m of a confirmed resting site or within 200 m of a natal holt, a disturbance licence from NatureScot and a species protection plan (SPP) will be required before works can proceed.	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report
8.5	Protected Species – Red Squirrel	During construction, if evidence of red squirrel is recorded within 30 m of site operations, then works would cease and an ecologist would be consulted.	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report
8.6	Protected Species – Reptiles	Watching brief in areas of suitable reptile habitat and vegetation clearance works will be carried out in accordance with a precautionary method of working.	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report
8.7	Protected Species – Great Crested Newt	As a precautionary approach RAMS (reasonable avoidance measures) would be adopted in order to avoid and/or minimise any unforeseen disturbance impacts on potential	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		local GCN populations. Further environmental DNA (eDNA) surveys would be taken prior to construction to confirm GCN presence / absence of the ponds within the access area.			
8.8	Protected Species - Badger	<ul style="list-style-type: none"> • A preconstruction survey prior to any works would be undertaken to determine badger presence / likely absence from the working areas: <ul style="list-style-type: none"> ○ If required, a species protection plan would then be written up. ○ Should any new badger setts be identified, turbines and access tracks will be microsited to avoid affecting these. ○ If any setts were within 30 m and were required to be destroyed as a result of the works, a licence from NatureScot will be required to facilitate badger exclusion and a supporting badger protection plan produced, which would include mitigation for potential negative impacts. • Given the potential for badgers to be present within the Proposed Development site, construction best practice methods would be implemented during the works: <ul style="list-style-type: none"> ○ It is recommended that construction activities should be undertaken during daylight hours. As such they should be avoided during night-time hours and the nocturnal activity of badgers. Where this is not possible and night-time working is necessary in order for the works to proceed, then any artificial lighting must be implemented only for the duration of the works activity. ○ All trenches and excavations should be fenced or covered over at night to prevent any animals from falling in and becoming trapped. Where this is not 	Pre-construction/ Construction	Applicant/ Contractor	Technical Appendix 8.2 Protected Species in Volume 3 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>possible, means of escape should be provided i.e. gently sloping banks or a ramp to provide escape.</p> <ul style="list-style-type: none"> ○ Guidance for Pollution Prevention is available on Netregs which should be adhered to to minimise the risk of any pollution incidents. 			
8.9	Outline Habitat Management Plan	<ul style="list-style-type: none"> • An outline habitat management plan (OHMP) has been produced to provide guidance for the creation, enhancement and long-term management of habitats onsite. The OHMP includes a description of the ecological features to be created and managed, aims of habitat management and appropriate management options. Management options are proposed to achieve the following aims: <ul style="list-style-type: none"> ○ enhancement of habitats within an long term retention woodland; ○ enhancement of habitats within natural reserve woodland; and ○ management of habitats within the wind protection zones. • It is proposed that the aims, objectives and management prescriptions outlined in the OHMP will be further refined and prescribed in a Habitat Management Plan (HMP) to be agreed in consultation with NatureScot, and Scottish Borders Council (SBC). • The HMP would run for the 35-year operational lifespan of the Proposed Development, with monitoring results being used to inform amendments to the HMP as required. 	Post-construction	Applicant	Technical Appendix 8.5 Outline Habitat Management Plan in Volume 3 of the EIA Report
8.10	Decommissioning	Environmental commitments during the decommissioning phase would be proposed, in advance of the decommissioning, to consider the results of monitoring during the operation of the wind farm, any additional survey	Pre-Decommissioning	Applicant	Chapter 8 Ecology in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		data and advances in best practice that may have emerged since the wind farm was constructed.			
8.11	Environmental Clerk of Works (ECoW)	<p>A suitably qualified and experienced ECoW would be appointed prior to the commencement of construction and decommissioning activities and through whom appropriate ecological advice will be provided throughout, including:</p> <ul style="list-style-type: none"> The ECoW would be responsible for undertaking and/or coordinating checks for protected species before construction and decommissioning activities commence. The ECoW (or appointed 'clerks' on behalf of the ECoW) would also maintain a watching brief as necessary throughout the construction and decommissioning phases to ensure compliance with relevant legislation. The detailed scope of the role and responsibilities of the ECoW will be agreed in consultation with NatureScot. 	Pre-construction, construction, post construction	Applicant/ Contractor	Chapter 2 Proposed Development in Volume 1 of the EIA Report
Ornithology					
9.1	Construction and Decommissioning	<ul style="list-style-type: none"> A suitably qualified ECoW would be appointed prior to the commencement of construction and decommissioning and they will advise the developer and the Principal Contractor on all ornithological matters (with the assistance of a suitably qualified/licenced ornithologist if required). The ECoW would be present on the site during the construction and decommissioning periods to carry out monitoring of works and briefings with regards to any ornithological sensitivities on the site to the relevant staff within the principal contractor and subcontractors. 	Pre-construction / Construction and Pre-Decommissioning / Decommissioning	Applicant / Contractor	Chapter 9 Ornithology in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> A Bird Disturbance Management Plan (BDMP) would be implemented during construction and decommissioning for legal compliance and safeguard breeding/wintering birds known to be in the area. A BDMP would include pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new breeding bird activity in the vicinity of the construction / decommissioning works. 			
9.2	Operation	<ul style="list-style-type: none"> Directional lighting would be used for any permanent infrastructure to minimise the impact of any lighting on breeding or foraging. SBC stated in their consultation response that specific mitigation plans for Goshawk should be compiled. The BDMP would be provided to SBC and NatureScot in advance of construction commencing as part of the discharge of conditions. 	Post-construction	Contractor	Chapter 9 Ornithology in Volume 1 of the EIA Report
Geology, Hydrogeology, Hydrology and Peat					
10.1	Soil and Peat	<ul style="list-style-type: none"> Soil stripping would be undertaken with care and would be restricted to as small a working area as practicable. Topsoil would be removed and laid in a storage bund, up to 2 m in height, on unstripped ground adjacent to the working area. It would be attempted to retain the turf layer vegetation-side-up where possible, although ground conditions may make this challenging. Subsoils and superficial geological deposits would be removed subsequently and laid in storage bunds, also up to 2 m in height, clearly separated from the topsoil bund. Care would be taken to maintain separate bunds for separate soil types in order to preserve the soil quality. For work within areas of peat, acrotelmic peat (the uppermost 0.5 m) would be removed as for the topsoil. 	Pre-construction, construction, post-construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>It would be attempted to retain the acrotelm vegetation-side-up where possible, although ground conditions may make this challenging. The underlying catotelmic peat would be stored in bunds up to 1 m in height. Catotelmic peat is sensitive to handling, and loses its internal structure easily, so would be transported as short a distance as possible to its storage location. Excavation of peat has been limited by careful infrastructure design.</p> <ul style="list-style-type: none"> Limited smoothing or 'blading' of stockpiled soils and catotelmic peat would be undertaken to help shed rainwater and prevent ponding of water on the stockpile. Bunds on notably sloping ground would have sediment control measures installed near the base, on the downslope side, to collect and retain any sediment mobilised by rainfall. Excavated soil and peat would be used in site restoration and rehabilitation at the end of the construction period, in order to promote fast re-establishment of vegetation cover on worked areas and areas of bare soil or peat that are not required for the operational phase of the Proposed Development. Soils and peat would be stored for as short a time as practicable, in order to minimise degradation through erosion and desiccation. Should prolonged periods of dry weather occur, a damping spray would be employed to maintain surface moisture on the soil and peat bunds. This would help to maintain vegetation growth in the turves and to retain the soil structure. Construction work would make use of current best practice guidance relating to developments in peatland areas. A risk management system, such as a 			

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>geotechnical risk register, would be compiled and maintained at all stages of the Proposed Development and developed as part of the post-consent detailed design works, and would be updated as new information becomes available.</p> <ul style="list-style-type: none"> • Micrositing would be used to avoid possible problem areas identified during ground investigation or other detailed design works. This would be assisted by additional verification of peat depths, to full depth, in any highlighted areas where construction work is required. Track drainage would be installed in accordance with published good practice documentation and would be minimised in terms of length and depth in order to minimise concentration of flows. • Construction activities would be restricted during periods of wet weather, particularly for any work occurring within 20 m of a watercourse or within areas of identified deeper peat. Careful track design would ensure that the volume and storage timescale for excavated materials would be minimised as far as practicable during construction works. • Vegetation cover would be re-established as quickly as possible on track and infrastructure verges and cut slopes, by re-laying of excavated peat acrotelm, to improve slope stability and provide erosion protection. Additional methods, including hydroseeding and/or use of a biodegradable geotextile, would be considered if necessary in specific areas. 			
10.2	Surface Watercourses and Groundwater	<ul style="list-style-type: none"> • Silt fencing and other appropriate alternative sediment control protection, such as cut-off drains or barrier bunds, would be installed on the downhill side of 	Pre-construction, construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>excavations to prevent inadvertent discharge of silty water into or towards any site watercourse.</p> <ul style="list-style-type: none"> • All engineering works adjacent to watercourses, including access tracks and watercourse crossing structures, would have appropriate sediment control measures established prior to any groundworks. • Vegetation would be retained along watercourse banks to act as additional protection to the watercourses. • A water quality monitoring programme would be established. Details would be agreed with SEPA, but are anticipated to include at least the following: <ul style="list-style-type: none"> ○ visual checks for entrained sediment; and ○ in situ measurements of pH, temperature, specific conductivity. • <i>In situ</i> measurement of turbidity and dissolved oxygen may be recommended for locations with particular sensitivity, such as the Jed Water and Black Burn downstream from the Proposed Development. • Pre-construction monitoring would be undertaken on a monthly basis for a minimum period of three months prior to any work taking place within the Proposed Development site. • During construction, the monitoring would be undertaken by the ECoW or suitably experienced alternative individual. Any change from baseline conditions of pH and/or specific conductivity would potentially indicate an incident and additional investigation would be required in order to identify the origin of the change. Control locations (WQ2 and 6) are intended to help differentiate between incidents arising within the Proposed Development and incidents that are unrelated to the development. The recommended frequency of monitoring for the different locations are 			Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>shown in Table 10.14 of Volume 1, and the locations in Figure 10.7 of Volume 2.</p> <ul style="list-style-type: none"> Groundwater monitoring boreholes would be established within the two borrow pit areas prior to any construction work beginning, to a depth at least 1 m below the deepest expected excavation. Groundwater level monitoring would be undertaken to determine whether groundwater is present within the borrow pit areas and, if it is, at what level the seasonally highest groundwater table stands. Any groundwater within the borrow pit area would be managed in line with best practice, with discharge via a settlement pond to allow any entrained sediment to be removed prior to discharge. Additional sediment management such as use of a SiltBuster™ may be used if necessary. Any required discharge licence would be obtained prior to excavation commencing. All works through and adjacent to wetland areas would be supervised by the ECoW. 			<p>Table 10.14 in Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report</p> <p>Figure 10.7 in Volume 2 of the EIA Report</p>
10.3	Drainage Infrastructure	<ul style="list-style-type: none"> Trackside drainage would be no longer or deeper than necessary to provide the required track drainage. Cross-drains under tracks would be installed at an appropriate frequency to mimic natural drainage patterns and to minimise concentration of flows. All drainage infrastructure would be designed with a capacity suitable for a rainfall intensity of a 1-in-200 year storm event plus allowance for climate change. Where track sections cross wetland or bog areas, cross-drainage would be provided within the track construction to ensure continuity of flow. This may take the form of a drainage layer within the track, suitably closely-spaced drainage pipes, or both as appropriate. 	Pre-construction, construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>These would be determined on a case-by-case basis to suit each individual area.</p> <ul style="list-style-type: none"> • All required licences for watercourse crossings and construction site works would be in place prior to works within the site beginning. • All long-term and temporary drainage infrastructure would be established on a running-basis ahead of excavation works. This includes temporary bunding and cut-off drains around turbine bases, hardstanding areas and borrow pits. Where possible, trackside drainage would be laid up to 100 m ahead of track construction works on a running basis. • Temporary water control measures would be implemented as necessary adjacent to larger areas of excavation. These would include borrow pit sites and may also include turbine base excavations and hardstanding areas. These measures would take the form of temporary settlement ponds, filter drains or proprietary treatment measures such as SiltBusters™. Detail would be provided within the Pollution Prevention Plan(s) required for the Construction Runoff Permit and suitability would be determined following appropriate onsite soil tests. • All earthmoving activity would be restricted during periods of wet weather, particularly for work occurring within 20 m of a watercourse, to minimise mobilisation of sediment in heavy rainfall. The 'stop' conditions provided in Table 10.13 of Volume 1 of the EIA Report are recommended to guide all earthmoving activity at all stages of the Proposed Development. • Long-term drainage infrastructure would have a monitoring and maintenance programme established, to include regular visual inspection of drainage 			<p>Table 10.13 in Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report</p>

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>infrastructure to check for blockages, debris or damage that may impede flow. Remediation would be undertaken immediately. Routine maintenance would be scheduled where possible for dry weather.</p>			
10.4	Excavations	<ul style="list-style-type: none"> • Any water collecting within excavations would be pumped out prior to further work within the excavation. The water is likely to require treatment to remove suspended solids prior to discharge to ground. • Cable trenches would be laid in disturbed trackside material. In areas where cable routes cross up or down steep slopes, clay bunds or alternative impermeable barrier would be placed for every 0.5 m change in elevation along the length of the trench to minimise in-trench groundwater flow. • Vegetation cover would be re-established as quickly as possible on all areas of stripped ground, once activity involving these areas is complete. This would include track verges, cut slopes and much of the design development area during decommissioning and restoration works. Where possible this would be achieved using excavated peat acrotelm and soil turves. Additional measures including hydroseeding and/or use of a biodegradable geotextile would be considered if insufficient peat and soil turf is available and for areas of particular sensitivity that require immediate protection. • Rock testing would be undertaken on appropriate samples from the borrow pit areas to determine its suitability for unbound track and hardstanding construction. This would include testing to determine likely degradation patterns during the lifespan of the Proposed Development. Should the tests identify problems with parts of the rock within the borrow pit 	Construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>footprints, care would be taken to ensure that unsuitable material is not used for construction, but would be retained for use in borrow pit restoration.</p> <ul style="list-style-type: none"> Any unused or remaining unsuitable aggregate material, plus any spare rock material arising from hardstanding or track reinstatement, may be used to reinstate the borrow pits to a suitable profile, and capped with soil or turf to promote re-establishment of natural vegetation cover. Only tracked or low ground pressure vehicles would be permitted access to unstripped ground. 			
10.5	Site Traffic	<ul style="list-style-type: none"> Tracks and hardstanding areas would be monitored on a regular basis, particularly following periods of heavy or prolonged rainfall or after snow clearance. Any sections of track or hardstanding showing signs of excessive wear would be repaired as necessary with suitable rock from the borrow pits or external sources. The bridge structures at watercourse crossings would have appropriate splash control measures as part of their design, to prevent silty water splashing into the watercourses from vehicle movements. The splash controls would be monitored regularly to ensure they remain effective and have not become damaged in any way. Routine monitoring checks of project infrastructure, including track and hardstanding surfaces and all drainage infrastructure, would be undertaken on a quarterly basis throughout project operation. Monitoring would involve visiting all aspects of the infrastructure and undertaking a visual inspection to identify the following: 	Pre-construction, construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> ○ areas where track surfaces or hardstanding areas were showing evidence of erosion or surface damage; ○ any areas where surface water was ponding or collecting on tracks or hardstanding areas; and ○ any areas where drainage infrastructure was damaged, blocked or inadequate. ● Any areas of track or hardstanding surface showing signs of damage, erosion or excessive wear would be repaired as necessary. Drainage features would be repaired, reinstated or replaced as necessary to ensure continued efficient operation. ● Site-specific mitigation, including track drainage segregation to avoid 'flushing' from excavation works, and micro-siting to avoid specific higher sensitivity areas, would be identified and established where appropriate. ● All traffic routes would be clearly demarcated and vehicles would not be permitted access outwith these areas. 			
10.6	Pollution Prevention	<ul style="list-style-type: none"> ● Oil and fuel storage and handling on site would be undertaken in compliance with SEPA's Guidance on Pollution Prevention 2 – Above ground oil storage tanks and with the Water Environment (Oil Storage) (Scotland) Regulations 2006 and Water Environment (Miscellaneous) (Scotland) Regulations 2017. ● Risk assessments would be undertaken and all Hazardous Substances and Non-Hazardous Pollutants that would be used and/or stored within the site would be identified. Hazardous substances likely to be on site include oils, fuels, hydraulic fluids and anti-freeze. No non-hazardous pollutants have been identified as likely to be used on site. Herbicides would not be used. 	Pre-construction, construction	Contractor	Chapter 10 Geology, Hydrogeology, Hydrology and Peat in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> • All deliveries of oils and fuels would be supervised by the site manager or nominated deputy. • All storage tanks would be located within impermeable, bunded containers where the bund is sufficient to contain 110% of the tank's capacity. For areas containing more than one tank, the bund would be sufficient to contain 110% of the largest tank's capacity or 25% of the total capacity, whichever is the greater. • Any valve, filter, sight gauge, vent pipe or other ancillary equipment would be located within the containment area. • Waste oil would not be stored within the site, but would be removed to dedicated storage or disposal facilities off-site. • Management procedures and physical measures would be put in place to deal with spillages, such as spill kits and booms. • Maintenance procedures and checks would ensure the minimisation of leakage of fuels or oils from plant. • Refuelling and servicing would be undertaken in a designated area or location with adequate precautions in place, such as a dedicated impermeable surface with lipped edges to contain any contaminants, plus a self-contained drainage network to prevent any cross-contamination. • Where vehicle maintenance is necessary in the field, owing to breakdown, additional precautions would be taken to contain contaminants, such as spill trays or absorbent mattresses. • The access track would be designed and constructed to promote good visibility where possible and two-way 			

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>access where visibility is restricted, to minimise risk of vehicle collisions.</p> <ul style="list-style-type: none"> • If required, concrete batching would take place in one designated location within the site construction compound. This location would be at least 100 m from the nearest watercourse. Protective bunding would be installed around the batching area to ensure that contaminated runoff is contained. Dedicated drainage would be installed to ensure that water from the batching area can be suitably treated to reduce alkalinity and suspended sediment load prior to discharge or removed from site by tanker for treatment and disposal off-site. • Washing-out of concrete mixers and tankers would take place at a designated location within the construction compound with an impermeable surface and dedicated drainage, to ensure that the water is captured for treatment or off-site disposal. • It is anticipated that construction-phase welfare facilities would use a suitably sized holding tank with waste water removed off site by tanker for disposal at a licensed disposal facility. Operational and decommissioning-phase welfare facilities may use a similar procedure, or would install a waste treatment package plant with associated discharge. All relevant water environment authorisations would be put in place should there be any requirement for these. • The Site Spillage and Emergency Procedures would be prominently displayed at the site office and staff would be trained in their application. The Procedures document would incorporate guidance from the relevant SEPA Guidance Notes. 			

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> • In the event of any spillage or discharge that has the potential to be harmful to or to pollute the water environment, all necessary measures would be taken to remedy the situation. These measures would include: <ul style="list-style-type: none"> ○ identifying and stopping the source of the spillage; ○ containing the spillage to prevent it spreading or entering watercourses by means of suitable material and equipment; ○ absorbent materials, including materials capable of absorbing oils, would be available on site to mop up spillages. These would be in the form of oil booms and pads and, for smaller spillages, quantities of proprietary absorbent materials; ○ sandbags would also be readily available for use to prevent spread of spillages and create dams if appropriate; ○ where an oil/fuel spillage may have soaked into the ground, the contaminated ground would be excavated and removed from site by a licensed waste carrier to a suitable landfill facility; ○ the emergency contact telephone number of a specialist oil pollution control company would be displayed on site; and ○ sub-contractors would be made aware of the guidelines for handling of oils and fuels and of the spillage procedures at the site. • SEPA would be informed of any discharge or spillage that may be harmful or polluting to the water environment. Written details of the incident and its resolution would be forwarded to SEPA no later than 14 days after the incident. 			

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> All works through and adjacent to wetland areas would be supervised by the Environmental Clerk of Works. 			
Noise and Vibration					
11.1	Construction Noise	<ul style="list-style-type: none"> All construction activities shall adhere to good practice as set out in BS 5228. Activities that may give rise to audible noise at the surrounding properties and heavy goods vehicle deliveries to the site would be limited to the hours 07:00 to 19:00 Monday to Friday and 08:00 to 13:00 on Saturdays unless otherwise approved in advance by the South Borders Council (SBC) (except in case of an emergency). Those activities that are unlikely to give rise to noise audible at the project area boundary, or light vehicle traffic accessing the site such as that involved with staff mobilisation, may continue outside of the stated hours. 	Construction	Contractor	Chapter 2 Proposed Development in Volume 1 of the EIA Report
11.2	Borrow Pit Blasting Operations	Rock extraction from borrow pits by means of blasting operations is not anticipated. However, in the occasion that blasting would be required, operations would be undertaken in strictly controlled conditions at regular times within the working week, that is, Mondays to Fridays, between the hours of 07.00 and 19.00. Blasting on Saturday mornings should be a matter for negotiation between the contractor and the local authorities.	Construction	Contractor	Chapter 2 Proposed Development
11.3	Operational Noise and Vibration	The selection of the final turbine to be installed at the site would be made on the basis of enabling the relevant ETSU-R-97 noise limits to be achieved at the surrounding properties, accounting for any correction for tonality if relevant. For the case of the Proposed Development, 35 dB LA90 is the fixed lower value element of the daytime noise	Operation	Contractor appointed by Applicant to operate the Proposed Development	Chapter 11 Noise and Vibration in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		limit. The fixed lower value of the night-time noise limit is given in ETSU-R-97 as 43 dB L _{A90} .			
Traffic and Transportation					
12.1	Construction Traffic	<ul style="list-style-type: none"> • A CTMP would be in place to actively mitigate the predicted effects as discussed above. The following measures would be implemented through a CTMP during the construction phase. The CTMP would be agreed with SBC prior to construction works commencing: <ul style="list-style-type: none"> ○ detailed design processes that minimise the volume of material to be imported to site to help reduce HGV numbers; ○ a site worker transport and travel arrangement plan, including transport modes to and from the worksite (including pick up and drop off times); ○ a Traffic Management Plan to control the operation of the access junctions; ○ all materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads; ○ specific training and disciplinary measures should be established to maintain the highest standards to prevent construction vehicles from carrying mud and debris onto the carriageway; ○ wheel cleaning facilities will be provided at access junction(s); ○ normal site working hours would be limited to between 07:00 and 19:00 Monday to Friday and 08:00 and 13:00 on Saturday; and ○ all drivers must attend a detailed induction prior to undertaking any works on the Proposed Development site. 	Pre-construction and Construction	Contractor, Applicant	Chapter 12 Traffic and Transport in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> • Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist). The location and numbers of signs will be agreed post consent. • The location and numbers of signs would be agreed post consent and would form part of the wider traffic management proposals for the Proposed Development. • A police escort would be required to facilitate the delivery of the predicted abnormal loads. The police escort would be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort would warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy would remain in radio contact at all times where possible. The abnormal loads convoys would be no more than four-long, or as advised by the police, to permit safe transit along the delivery route and to allow limited overtaking opportunities for following traffic where it is safe to do so. The times in which the convoys would travel would need to be agreed with Police Scotland who have sole discretion on when loads can be moved. 			
12.2	Operational Access	Regular maintenance would be undertaken the site entrance to keep the site access track drainage systems fully operational and the road surface in good condition and to alleviate adverse issues that could affect the public road network.	Construction and Operation	Applicant, Contractor appointed by Applicant to operate the Proposed Development	Chapter 12 Traffic and Transport in Volume 1 of the EIA Report
Aviation and Radar					

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
13.1	Spadeadam Deadwater Fell Air Traffic Control (ATC) Radar	A new radar was installed in 2022. The radar is stated to have an in-built capability to mitigate the impacts of wind turbines. In the event the mitigation performance of the new radar is not found to be adequate for the Proposed Development, alternative technical solutions are available. The applicant will continue to explore all routes to mitigation and engage fully with the MoD to identify acceptable solutions and agree an appropriate Radar Mitigation Scheme	Pre-Construction	Applicant	Chapter 13 Aviation and Radar in Volume 1 of the EIA Report
13.2	NATS Great Dun Fell Radar	A technical mitigation solution has been agreed with NATS to remove the impacts affecting both NATS services and the MoD. The applicant would enter a contract for the mitigation with NATS directly, conditional on the approved Radar Mitigation Scheme being implemented before turbine construction.	Pre-construction	Applicant	Chapter 13 Aviation and Radar in Volume 1 of the EIA
13.3	Aviation Obstruction Lighting	<ul style="list-style-type: none"> • A cardinal lighting scheme was agreed with stakeholders, with the final approval of the CAA outstanding at the time of submission. The specification of the lighting design is provided below: <ul style="list-style-type: none"> ○ six turbines are proposed to have nacelle mounted medium-intensity steady red (2000 candela) obstacle lights, operating from dusk until dawn. This will include the most elevated turbine, (T11). In addition, T01, T03, T08, T09 and T12 will be lit to define the geographical footprint; and ○ a second 2000 candela light on the nacelles of the above turbines to act as alternates in the event of a failure of the main light; ○ the lights on these turbines to be capable of being dimmed to 10% of peak intensity when the visibility as measured at the Proposed Development exceeds 5 km; and 	Operation	Contractor appointed by Applicant to operate the Proposed Development	Chapter 13 Aviation and Radar in Volume 1 of the EIA Report

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> ○ infra-red lights to MoD specification would also be installed on the nacelles of all perimeter turbines, that is all turbines except T04, T05 and T13. ● Further mitigation has been incorporated to reduce the intensity of lighting in certain atmospheric conditions by reducing the intensity and attenuating the amount of vertical downwards lighting in order to reduce the visual impact experienced by receptors below the lights: <ul style="list-style-type: none"> ○ Visibility sensors will be installed on relevant turbines to measure the prevailing atmospheric conditions and visibility range. Should atmospheric conditions mean that visibility from the turbines within the site is greater than 5 km from the Proposed Development, CAA policy permits lights to operate in a lower intensity mode, being a minimum of 10% of their capable illumination. Therefore, the 2,000 candela steady state lights would operate at 200 candela. However, if visibility is restricted to 5 km or less, the lights would operate at 2,000 candela. ○ Additionally, the inherent directional intensity of 2,000 candela lights can be used to reduce vertical downwards lighting impacts at elevations less than -1° degree vertical angle from the horizontal plane from the aviation light. By ensuring the lights installed comply with the ICAO recommendations, it is possible to attenuate the vertical downwards light to a level that reduces the visual impact from receptors at ground levels below the lights. Implementing the ICAO recommendations, at -1 degrees the aviation lights should only be 1,125 cd and at -10 degrees should only be 75 cd, when visibility is greater 5 km. 			

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
13.4	Aircraft Detection Lighting System (ADLS)	The CAA, together with the UK Wind Sector, is exploring the future use of Aircraft Detection Lighting Systems (ADLS). Such systems are unable to be used within the current regulatory environment, with anticipated changes offering the potential alongside UK airspace modernisation. The Developer will review whether the Proposed Development can be fitted with ADLS at the time of implementation.	Operation	Contractor appointed by Applicant to operate the Proposed Development	Chapter 13 Aviation and Radar in Volume 1 of the EIA Report
13.5	Aviation Lighting Operation	The lights should be turned on only when illuminance reaches a vertical surface fall below 500 LUX (dusk like conditions). If the horizontal meteorological visibility in all directions from every wind turbine generator in the Proposed Development is more than 5 km, the intensity of the nacelle mounted lights may be reduced to not less than 10% of the minimum peak intensity specified for a light of this type.	Operation	Contractor appointed by Applicant to operate the Proposed Development	Chapter 13 Aviation and Radar in Volume 1 of the EIA Report
Socio Economics, Land use and Tourism					
14.1	Land Use and Recreational Paths	<ul style="list-style-type: none"> The applicant would continue to work with the landowner during construction so they can continue activities safely. Temporary path diversions will be agreed with the SBC Access Officer, and implemented during the construction phase. All diversions will be sign-posted accordingly, and closures will be advertised in advance. 	Pre-Construction, Construction, Post-Construction Construction	Applicant Applicant and Contractor	Chapter 14 Socio-Economics, Recreation, Land Use and Tourism in Volume 1 of the EIA Report
Climate Change Mitigation					
16.1	Access Tracks	Any new access tracks to be constructed using established cut-and-fill construction methods, designed to maintain or impede drainage through habitats, whichever is most appropriate. Areas of peat would be avoided where possible.	Construction	Contractor	Chapter 16 Climate Change Mitigation in Volume 1 of the EIA Report
16.2	Decommissioning	Decommissioning of the Proposed Development would be undertaken in line with SEPA Guidance (2016) regarding	Decommissioning	Contractor	Chapter 16 Climate Change Mitigation in

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<p>Life Extension and Decommissioning of Onshore Windfarms¹. Specifically, that is to:</p> <ul style="list-style-type: none"> ○ remove infrastructure unless the potential environmental risks posed by removal (e.g., carbon loss, impacts on the water environment) would outweigh the benefits; ○ maximise recovery of materials from removed infrastructure and treat as high up the waste hierarchy as possible; ○ optimise habitat restoration of areas affected by infrastructure removal; and ○ establish a long-term aftercare programme to monitor/manage any potential long-term environmental risks. 			Volume 1 of the EIA Report
Forestry					
17.1	Existing Forestry	<p>The following measures would be adhered to in relation to potential forestry impacts:</p> <ul style="list-style-type: none"> ○ forestry plans and operations will fully comply with the UK Forestry Standard (2017); and ○ the extraction of the timber produce will be carried out after the access tracks have been installed, so any felled trees will be very close to the access tracks, most of the timber extraction will be carried out on the hard road and not over the bare ground. This will avoid/minimise any damage to the soil. 	Construction	Contractor	Chapter 17 Forestry in Volume 1 of the EIA Report
17.2	Restocking	The following areas of temporary felling during construction would be restocked:	Construction, Operation and Decommissioning	Applicant, Contractor appointed by	Figure 17.2 and 17.4 in Volume 2 of the EIA Report

¹ SEPA (2016), Guidance regarding Life Extension and Decommissioning of Onshore Windfarms. Available at: <https://www.sepa.org.uk/media/219689/sepa-guidance-regarding-life-extension-and-decommissioning-of-onshore-windfarms.pdf> [accessed November 2022].

Ref	Effect	Description of Mitigation Measure	Development Phase	Responsible Party	Document Sources
		<ul style="list-style-type: none"> ○ areas of additional felling to a compartment boundary or to create a windfirm edge, to facilitate the construction of the Proposed Development; and ○ locations of temporary compounds. 		Applicant to operate the Proposed Development	Chapter 17 Forestry in Volume 1 of the EIA Report
17.3	Compensatory Planting	<ul style="list-style-type: none"> • Compensatory planting would be cover a total area of 81.96 ha. Areas of restocking identified above would account for 14.04 ha of compensatory planting. This would reduce the remaining compensatory planting requirement to 67.92 ha. • There is potential for more of the compensatory planting requirement to be met onsite through the proposed enrichment planting of the natural reserve areas identified in the Outline Habitat Management Plan (OHMP); however, the exact area of enrichment planting would be subject to further investigation and is still to be determined. • It would not be possible to accommodate all the compensatory planting onsite given the existing forestry coverage; however, indications are that a site could be found nearby. • Once the area for compensatory planting has been chosen, a full specification will be drawn up to include ground preparation, drainage, planting technique, stocking density, species, maintenance and protection. Consultees would be consulted as required during this process. 	Post-Construction	Applicant	<p>Technical Appendix 8.5 Outline Habitat Management Plan Volume 3 of the EIA Report</p> <p>Chapter 17 Forestry in Volume 1 of the EIA Report</p>

2 REFERENCES

Ecology:

Guidance for Pollution Prevention (GPP) documents (NetRegs. Available at: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>)

Geology, Hydrology, Hydrogeology and Peat:

SEPA (2017), Guidance on Pollution Prevention 2 – Above ground oil storage tanks and in compliance with the Water Environment (Oil Storage) (Scotland) Regulations 2006 and the Water Environment (Miscellaneous) (Scotland).

SEPA (2017), Planning guidance on onshore windfarm Proposed Developments. Scottish Environment Protection Agency, Land Use Planning System Guidance Note 4 (LUPS-GU4), Available at: <https://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-Proposed-Developments.pdf> [accessed June 2022].

SEPA (2021), Supporting Guidance (WAT-SG-75) Sector Specific Guidance: Water Run-Off from Construction Sites.

Noise:

British Standard BS 5228-2:2009-A:2014 (2009). 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'.

Aviation:

Civil Aviation Authority (February 2016), 'CAP 764: CAA Policy and Guidelines on Wind Turbines'.
Civil Aviation Authority (June 2017), 'Policy Statement - Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level'.

Forestry:

Forestry Commission (2017), The UK Forestry Standard – The Government's Approach to Sustainable Forestry.