

17.A. Summary of Mitigation Table

- 17.1.1.1 The purpose of this appendix is to provide a summary of mitigation measures proposed throughout the EIA Report to minimise or offset the potential effects of the Proposed Development on the receiving environment.
- 17.1.1.2 During the construction phase, these measures shall be detailed within and implemented through the site-specific Construction Environmental Management Plan (CEMP).
- 17.1.1.3 **Table 17.A.1** provides a summary of mitigation measures identified throughout the EIA Report. The summary provided differs from that of **Chapter 17: Summary of Significant Effects**, as it aims to present all pertinent mitigation presented in the EIA Report, including embedded mitigation.

Table 17.A.1: Summary of Mitigation

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Renewable Energy and Peat			
Carbon Balance and Peat Management	Outline Peat Management Plan (oPMP; Appendix 6A), which sets out a series of control measures for in-situ peat protection, peat stripping and excavation, temporary peat stockpiling and reinstatement to ensure that impacts upon excavated peat will be minimised. The oPMP also demonstrates how excavated peat can be beneficially re-used within the Development Site following construction.	Appendix 6A	Contractor
Peat Landslide Risk	A post-consent detailed ground investigation is recommended to assist in detailed assessment of peat slope stability in the most sensitive areas of the Proposed Development. Should the detailed pre-construction ground investigations identify features that may increase the susceptibility of peat to slide (e.g. peat pipes and flushes), the primary mitigation to be employed will be use of the micro-siting allowance. The mitigation measures employed should also aim to minimise additional loading of susceptible peat covered slopes, maintain the current drainage of the peat, avoid ponding of surface water and where necessary redirect drainage to a purpose-built network. In addition, monitoring of slopes is recommended in key areas of the Proposed Development situated within or near susceptible slopes or areas of Moderate peat landslide risk.	Chapter 6; Appendix 6B	Contractor
Peat Landslide Risk	A detailed monitoring programme will be developed for sensitive areas prior to construction. The slope monitoring methods may include tension crack pegs (placed on cracks, furrows and ditches), surface monuments or subsurface slip indicators placed in key locations up and downslope of the Proposed Development. The monitoring will be undertaken at regular intervals (e.g. daily or weekly), immediately following excavation of peat or blasting and immediately following heavy or prolonged rainfall. Where movement	Appendix 6B	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	is detected monitoring intervals will be increased and where acceleration is recorded the contractor will stop work and design measures to prevent further failure of the peat slope. Visual monitoring will also be undertaken across the Proposed Development to record any signs of tearing, creeping, heaving, subsidence, recent closing of grips / furrows and changes to the peat hydrology. Where movement is suspected, quantitative monitoring will be undertaken to confirm that movements is occurring and/or measures to support the slope will be implemented immediately.		
Noise			
Noise – Operational Noise Limits	Turbine sound power levels not to exceed noise limits presented in Appendix 7B: Cumulative Wind Farm Noise Assessment. No additional mitigation measures are proposed as all relevant and implementable measures have been embedded into the development proposals and no significant effects are predicted.	Appendix 7B	Applicant
Noise – Construction Noise	Several safeguards exist to minimise the effects of construction noise and it is anticipated that these would be implemented, where necessary, during the construction of the turbines and associated infrastructure. These safeguards include: - The various EC Directives and UK Statutory Instruments that limit noise emissions of a variety of construction plant; - Guidance set out in BS 5228-1:2009 which covers noise control on construction sites; and	Chapter 7	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	The powers that exist for local authorities under Section 60 of the Control of Pollution Act 1974 to control environmental noise on construction sites.		
Noise – Construction Noise	Best Practicable Means (as defined in Section 72 of the Control of Pollution Act 1974) is usually the most effective way to control noise from construction sites. Such measures, where appropriate, will be captured in the Construction Environment Management Plan (CEMP) and include the following: - 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; - The majority of deliveries to be programmed to arrive during normal working hours only; - Care to be taken when unloading vehicles to minimised noise. Delivery vehicles to be routed so as to minimise disturbance to local residents; - Delivery vehicles to be prohibited from waiting within or in the vicinity of the site with their engines running; - 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 is minimised; - Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy activities; and - For the purposes of this EIA Report, construction activities have been assumed to take place between 07:00 to 19:00 hours on weekdays (Monday to Friday). For Saturdays, assumed hours will be between 07:00 to 19:00 during summer months,	Chapter 7	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	and 07:00 to 17:00 in winter months. Quiet onsite working activities (for example electrical commissioning) have been assumed to extend outside the core working times noted (where required). Working hours may be reduced at times due to seasonal or weather restrictions. Some works such as delivery of the components of turbines may take place outside the core working hours to reduce disturbance to other users of the road network. Work outside these hours is not usual, though if required to meet specific demands (e.g., during foundation pours, tower erection and highly weather dependent activities), where possible permission for short term extensions to these hours would be sought from Argyll and Bute Council (ABC) as required.		
Noise – Operational Noise	The various measures available for the control of noise impact from wind turbines include the following: • Selection of appropriate turbines; • Selection of appropriate turbine locations; and • Use of turbine management schemes, e.g. to use noise-reducing operating modes under certain wind conditions. Turbine selection will be made to ensure that the noise level limits detailed within this chapter will not be exceeded.	Chapter 7	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Landscape and Visual			
LVIA - general	Site management to ensure adequate maintenance of site facilities and landscape features such as access tracks, field boundaries, gates and signage. It should be noted that this does not reduce the significance of effects.	Chapter 8	Contractor
Visual Appearance – height	The Proposed Development has evolved from the scoping stage, through the design process which has involved many iterations. This has led to a reduction in the horizontal and vertical scale of the Proposed Development and a reduction in turbine numbers from 26 to 22 and reducing the horizontal extent of the Proposed Development. The vertical turbine height has also reduced from 230m to blade tip at scoping to up to 200m to blade tip.	Chapter 8	Applicant
Visual Appearance – cumulative effects	In common with other nearby existing and consented wind farm development, the Proposed Development is located within a forested upland / moorland landscape. It is set well back from the shores and slopes of Loch Awe and Loch Fyne. Whilst An Suidhe Wind Farm is visible in conjunction with the Proposed Development, particularly in views from the Loch Awe direction (Viewpoints 2, 3, 4, 5 and 16), both developments would be perceived as separate wind farms such that differences in turbine height, scale and rotation speed can be appreciated as distinctly separate, allowing both to be reasonably accommodated in landscape and wider views.	Chapter 8	Applicant
Visual Appearance – landscape character	The scale of the turbines can be accommodated in this location, creating a simple, cohesive, balanced and clear design and visual composition that minimises excessive ‘turbine clutter’ in the form of uneven gaps / overlaps and outlying turbines. This has the following design advantages:	Chapter 8	Applicant

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	- Through design, the proposed turbines have been located within the central plateaux of the landscape and set within a forested area, that limits their visibility from surrounding areas; - The Proposed Development would appear as a clearly recognisable scheme that 'fits' with the scale and simplicity of the local landscape character, such that the aesthetics and visual composition of the turbines (appearing as a simple and reasonably balanced composition) can be appreciated in their own right where visible; and - The simple visual composition of the proposed turbines reflects the character of the Craggy Upland Landscape Character Type and the pattern of other existing and consented wind farm development nearby.		
Landscape – construction	The CEMP will include measures to mitigate adverse landscape and visual effects during construction such as the restriction of construction traffic to designated routes, to avoid damage to the road corridor such as the creation of wheel ruts and ensure these are cleared-up and reinstated. Peat and topsoil will be handled in accordance with a Peat Management Plan (PMP). There would be regular environmental monitoring and reporting to ensure the removal, reinstatement, and clear up of temporary construction compounds / laydown areas and any related construction arisings / redundant material. A Site Restoration Plan will be submitted for approval by ABC before construction begins. The key elements will include the reinstatement of the borrow pit working areas, construction compounds, laydown areas and cable trenches. Development Site tracks would be 'softened' with shoulders graded with excavated subsoil or peat and completed with the original topsoil or turfs where available. Two temporary construction compounds are proposed. The laydown areas would be fully re-instated, and temporary construction compounds partially re-instated with stored turfs	Chapter 8	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	or excavated soil and / or re-planted to accord with the Site Restoration Plan and Integrated Wind Farm and Forestry Design Plan. Part of temporary construction compound 1 will be retained for battery storage.		
Landscape – internal access tracks	On completion of construction, the Development Site entrance and access tracks would be cleared of any construction signage and left in a tidy condition with verges restored and field boundary fencing neatly tied into new gates / access details	Chapter 8	Contractor
Landscape – turbines	The turbines would be a uniform semi-matte grey colour (no company logos or advertising) to reduce their contrast with the background sky and minimise their reflectivity. This measure would also ensure a reasonable degree of parity between the proposed turbines and other existing, nearby turbines.	Chapter 8	Contractor
Landscape – substation and energy storage system	The proposed turbines and the on-site substation and control building / battery storage compound would be linked by underground electrical cables, routed along the verges of the internal access tracks. These compounds have been located within the existing forestry, away from visual receptors.	Chapter 8	Contractor
Landscape – borrow pits	The majority of the proposed borrow pit search areas are surrounded by existing forestry that is to be retained throughout the operational period of the Proposed Development. Upon completion, all of the borrow pits would be restored in accordance with the Site Restoration Plan and programme, drawing upon the advice of a landscape architect or other suitable environmental consultant in agreement with ABC. This will ensure that	Chapter 8	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	proposed reinstatement techniques are suitable and may identify appropriate environmental enhancement opportunities. It is anticipated that steep faces would be backfilled and/ or re-profiled to match the surrounding topography, and disturbed surfaces would be covered with soil and re-seeded / re-turfed or left as exposed rock outcrops.		
Landscape – decommissioning	All visible, above ground structures (turbines, battery storage and substation) would be removed upon decommissioning, thereby rendering the vast majority of the landscape and visual effects as reversible. Subject to forestry / landowner requirements, the main operational site entrance and some of the internal access tracks would remain as permanent features, with redundant areas and crane hard standings removed and restored in accordance with industry guidance. A Site Decommissioning Plan will set out environmental protection measures and restoration principles which will be implemented. This plan will be agreed with ABC.	Chapter 8	Applicant/ Contractor
Historic Environment			
Historic Environment	Areas of the drove road (HA169, HA224) that would be affected will be recorded prior to disturbance and a watching brief undertaken by a suitably qualified archaeologist during disturbance to record the sub-surface remains of the road.	Chapter 9	Applicant
Historic Environment	All archaeological mitigation measures will be set out within an archaeological Project Design (previously a Written Scheme of Investigation), to be approved by the West of Scotland Archaeology Service (WoSAS) on behalf of ABC.	Chapter 9	Applicant
Historic Environment	Data gathered for both designated and non-designated heritage assets have been made available to the design team to allow consideration for avoidance of direct physical impacts upon the heritage assets within the Development Site and to identify areas of higher sensitivity to heritage assets within the Study Area. An iterative design process has	Chapter 9	Applicant

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	been applied to minimise adverse change as far as reasonably practicable. These are similar to LVIA measures, such as locating the turbines to minimise impacts on assets.		
Ecology			
Ecology – general	Pre-construction surveys & Environmental Clerk of Works (ECoW) during construction. A Species Protection Plan (SPP) for otter will be prepared as part of the CEMP to ensure compliance with legislation. It will include details of toolbox talks and pre-construction surveys to check on the presence of otters, including a suite of embedded measures that would be implemented across the Development Site to avoid causing harm to, or disturbing this species. An outline Habitat Management Plan (oHMP) supports the EIA Report, identifies proposals for mitigation and enhancement in respect to peatland habitats, low density broadleaf woodland, riparian woodland and montane scrub creation. No additional mitigation measures are proposed as all relevant and implementable measures have been embedded into the development proposals and no significant effects are predicted.	Chapter 10; Table 10.9	Applicant/ Contractor
Blanket bog communities (M17, M18, M19, M20 and M25) (construction)	The layout of the Proposed Development has avoided important vegetation communities, including upland mire, montane heath and base-rich flushes. However, an Ecological Clerk of Works (ECoW) will provide toolbox talks, and advice to minimise preventable impacts on blanket bog habitats, including preservation of the topsoil/ acrotelm from the habitat that is lost and laying it over the top of the areas to be reinstated (e.g. over the 'cut and fill'). This will provide a local seed source as well as viable root matter for the areas being reinstated. Therefore, the reinstated vegetation is likely to be similar, if not the same, habitat type as previously present.	Chapter 10; Table 10.9	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	As part of an overarching CEMP, a Peat Management Plan (PMP) will be developed and submitted pursuant to an anticipated condition of the deemed planning permission, in consultation with a suitably experienced peatland ecologist, forestry consultant, hydrologist and the relevant consultees, in advance of construction works commencing. This will include the method of removal and storage for vegetated turves and peat together with good practice reinstatement measures for the re-use of excavated peat within the Development Site. Best practice techniques of vegetation and habitat reinstatement will be adopted and implemented in areas of disturbed vegetation, such as cut track sides, crane hardstandings, substation and borrow pits. Early reinstatement of all disturbed areas will be undertaken to minimise the effects of soils and peat exposure erosion. Any plant material used in reinstatement techniques will be of local provenance and be appropriate for locations being restored. Reinstatement techniques will be agreed in consultation with relevant consultees before construction operations begin; and a Habitat Management Plan (HMP) will be implemented with the aim of ensuring successful restoration of affected blanket bog within candidate Habitat Management Units on-site. The HMP will be submitted pursuant to a condition of the deemed planning permission, following consultation with NatureScot and Scottish Environment Protection Agency (SEPA).		
Otter (construction)	A SPP for otter will be prepared as part of the CEMP to ensure compliance with legislation. It will include details of toolbox talks and pre-construction surveys to check on the presence of otters, including a suite of embedded measures that would be implemented across the Development Site to avoid causing harm to, or disturbing this species. Site supervision will be provided by a suitably experienced ECoW, who will be responsible for ensuring the successful implementation of any embedded measures, including	Chapter 10; Table 10.9	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	pollution prevention, monitoring of buffers around construction areas and reference to areas of high ecological sensitivity, and adherence to current construction best practice.		
Bats (construction)	Directional lighting and light spill within 50m of watercourses will be avoided during the hours of darkness (taken to be 30 minutes before sunset to 30 minutes after sunrise). Turbines will be sited the minimum distance from suitable habitat features (equating to a stand-off area of 50m from blade tip to habitat feature), based upon the calculation set out in Section 10.8) and in accordance with current guidance (NatureScot et al., 2021).	Chapter 10; Table 10.9	Applicant/ Contractor
Red squirrel (construction)	The CEMP, which will be prepared in advance of construction works commencing, will include a SPP for red squirrel. A programme of mitigation and pre-construction monitoring of squirrel activity will be undertaken within any proposed coniferous plantation compartments proposed for felling. Potential dreys would be identified and micro-siting of the site will then occur to avoid impacts. Trees with any confirmed red squirrel dreys will only be felled once a licence for their removal has been attained from Nature Scot under the provisions of the Wildlife and Natural Environment (Scotland) Act (2011).	Chapter 10; Table 10.9	Applicant/ Contractor
All aquatic features (including freshwater fish) (construction)	- With the exception of watercourse crossings and five identified encroachments at T2, T4, T6, T9 and T13, the layout of the Proposed Development has been designed with a buffer of 50m around watercourses and waterbodies, wherever possible. - Embedded mitigation is proposed to address these, including turbine micro-siting, site drainage and careful reinstatement of ground. - Watercourse crossing designs/construction would be informed by SEPA Good Practice Guide for the Construction of River Crossings (SEPA, 2010) and CIRIA Culvert Design and Operation Guide (CIRIA 2010). Bridged watercourse crossings will be used where feasible/practicable.	Chapter 10; Table 10.9	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	- Culvert construction will be supervised by the ECoW, with culverts transferred to watercourse crossings intact, avoiding mixing concrete near to watercourse crossings. - Watercourse crossings will be micro-sited to avoid unconsolidated gravel and pebble substrates and riffle habitats. - Culverts will be sunk in and angled so as not to prohibit fish passage. - Additional measures to minimise the risk of pollution sediment release to watercourses are set out in detail in Chapter 12: Geology, Hydrology and Hydrogeology. Pollution prevention measures will be detailed within the CEMP and will be implemented as part of the Construction Site Licence (CAR) licensing requirements.		
Blanket bog communities (M17, M18, M19, M20 and M25) (operation)	The majority of the specific measures applied during ongoing and operational activities relate to the application of good practice in terms of managing and controlling activities to minimise the risk of pollution upon receptors and hydrological features. A detailed explanation of the general site pollution control, emergency procedures and contingency planning is set out within Chapter 12: Geology, Hydrology and Hydrogeology. The potential risks to surface water during operation are likely to be limited and localised based on the planned turbine servicing works and the nature and volume of potentially polluting substances required. The operator will ensure a site-specific risk assessment is completed and that control measures are implemented to ensure all environmental risks are minimised. Storage, use and disposal of oils will be in accordance with good practice and SEPA guidance.	Chapter 10; Table 10.9	Applicant/ Contractor
Otter, bats, red squirrel (operation)	All operational and maintenance work requirements will be undertaken within working areas clearly defined in advance of works and the storage of materials will be restricted to areas of hardstanding e.g. permanent tracks, crane hardstanding, substation and control building, and associated infrastructure.	Chapter 10; Table 10.9	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	Strict speed limits will be followed on access tracks during all phases of development, and 'otter crossing' signs will be placed on the access tracks at all watercourse crossings.		
Bats (operation)	In accordance with current guidance (SNH et al., 2021), turbines will be sited the minimum distance from suitable habitat features (equating to a stand-off area of 50m from blade tip to habitat feature), based upon the calculation set out in Section 10.8). Although this offset has been included in the design of the Proposed Development, this standoff buffer will be maintained throughout the operational life of the Proposed Development by ensuring that tree regeneration does not encroach on the buffer. Based on location-specific results of bat activity monitoring and assessment, turbines that pose the greatest potential collision risk to 'high risk' bat species is T12 (Appendix 10D: Bat Survey Report). In order to reduce the potential for bat casualties to occur at this location, mitigation in the form of 'feathering' will be implemented. This process involves pitching turbine blades out of the wind to reduce rotation speeds while idling, in turn reducing the risk of bat injury/ mortality. Feathering is considered good practice and is recommended for all turbines.	Chapter 10; Table 10.9	Applicant/ Contractor
All aquatic features (including freshwater fish) (operation)	The majority of the specific measures applied during ongoing and operational activities relate to the application of good practice in terms of managing and controlling activities to minimise the risk of pollution upon hydrological features. A detailed explanation of the general site pollution control, emergency procedures and contingency planning is set out within Chapter 12: Geology, Hydrology and Hydrogeology. The production of a CEMP, which is likely to be secured through a planning condition, will ensure that control measures are implemented to ensure all environmental risks are minimised. Storage, use and disposal of oils will be in accordance with good practice and SEPA guidance.	Chapter 10; Table 10.9	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
All ecological features (decommissioning)	During the decommissioning of the Proposed Development, potential effects on ecological features are expected to be similar to those encountered during the construction phase and therefore similar environmental measures will be required. Any new legislation published prior to decommissioning will be adhered to and incorporated into an Environmental Management Plan prior to decommissioning taking place.	Chapter 10; Table 10.9	Applicant/ Contractor
Ornithology			
Construction and decommissioning disturbance	The presence of initial diver nests and a diver flight corridor were fed into an ecology constraints plan that informed the Proposed Development design. Turbine locations have been kept outside the flight corridor and 500m buffer zones around these nests. This minimises disturbance to red-throated and black-throated divers. Two turbines (T8 - layout 1, and T24 - layout 2) were specifically removed from sensitive areas at design stage to minimise impacts on ornithology receptors including golden eagles. The removal of the other two turbines, although not removed specifically for ornithological reasons, will inherently reduce collision risk to all collision-sensitive species present, including eagles. The constraints plan will also be used to inform the implementation of the following measures incorporated into the Proposed Development to minimise effects on birds: - As part of an overarching CEMP, a Bird Protection Plan (BPP) would be developed in consultation with the relevant consultees in advance of construction works commencing. Species-specific buffers detailed in the BPP would be implemented between construction areas and active nests/'winter' roosts, or method statements developed outlining solutions to allow works to continue within buffer areas where appropriate. Construction Method Statements (CMSs) would also be developed to detail the mitigation approach for all ornithological features. - Site supervision would be provided by a suitably experienced ECoW, who would be responsible for ensuring the successful implementation of embedded	Chapter 11; Table 11.10	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	measures. An ornithologist may be required to monitor the nesting birds during the working phase in certain areas and halt any significantly disturbing activities in consultation with the ECoW. • Pre-construction check surveys would be undertaken for all protected bird species where potential significant effects or legal breaches could occur otherwise. • Construction activities would avoid the dawn and dusk periods during April and May to avoid disturbing lekking black grouse, and vehicle speed limits would be imposed within the Zone of Influence (Zol).		
Habitat Loss	An HMP will be implemented, based on the oHMP (Appendix 10H). This includes aims specifically directed at benefitting black grouse and divers (see Section 11.12). The HMP will be submitted pursuant to a condition of the deemed planning permission, following consultation with NatureScot and SEPA.	Chapter 11; Table 11.10	Applicant/ Contractor
Operational disturbance	Mitigation would be expected to be of a similar nature to that implemented during construction. However, as the potential for disturbance is much reduced during this period, mitigation measures would be proportionally reduced in scale.	Chapter 11; Table 11.10	Applicant/ Contractor
Changes to surface hydrology	A construction area stand-off of at least 50m has been applied to watercourses and water bodies (except for watercourse crossings) as far as was reasonably practicable. All watercourse crossings would be designed in accordance with the SEPA Good Practice Guide for the Construction of River Crossings (2010) and, where culverts are required, will be designed in accordance with the CIRIA Culvert Design and Operation Guide (2010).	Chapter 11; Table 11.10	Applicant/ Contractor
Pollution incidents	A Pollution Prevention Plan (PPP) and Pollution Incident Response Plan (PIRP) would be prepared. This would be subject to consultation with SEPA and NatureScot in advance of any construction activities, and implemented as part of the overall CEMP. It would set out site management and working practices, and draw heavily upon SEPA's Pollution Prevention and Control Guidelines.	Chapter 11; Table 11.10	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Potential collision with turbines	Turbine locations have been kept outside the diver flight corridor and nesting buffer zones. This minimises collision risk to red-throated and black-throated divers. The removal of four turbines at design stage also reduces collision risk to all collision-sensitive species present, including eagles.	Chapter 11; Table 11.10	Applicant/ Contractor
Geology, Hydrology and Hydrogeology			
Design evolution	A review of the baseline information for the Study Area identified potential development constraints associated with the Development Site. This has led to some areas being avoided by infrastructure and other areas being considered for development only if appropriate mitigation could be implemented. To establish an indicative wind farm layout, buffer zones were placed around specific areas of the Development Site where significant constraints were identified to exclude these from the possible development areas. Maps of hydrological constraints showing the Proposed Development layout are presented in Figures 12.5a and 12.5b.	Chapter 12; Table 12.7	Applicant
Deep peat deposits	Areas of deeper peat were identified during surveys of the Development Site (Appendix 6B: Peat Landslide Risk Assessment, Figure 6.7). Minimising encroachment of such areas serves to minimise the volume of peat needing to be excavated.	Chapter 12; Table 12.7	Applicant/ Contractor
Steep gradients	Parts of the Study Area where steep slopes at or greater than 7° have been identified as a significant constraint due to potential peat slide risks and enhanced run-off (see Appendix 6B: Peat Landslide Risk Assessment, Figure 6.2). These areas, along with other areas identified as having historic peat slides, have been avoided for construction of turbines, as well as for access tracks and other infrastructure.	Chapter 12; Table 12.7	Applicant

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Flood zones	With respect to fluvial flood risk, apart from at watercourse crossings, no part of the Proposed Development is proposed to be located within areas of high to medium likelihood of flooding which are limited to the main watercourses (the Abhainn a' Bhealaich, Douglas Water, Leacann Water and River Add) and some of their larger tributaries. In any case, such flood risk is largely confined to within the 50m buffer for these watercourses.	Chapter 12; Table 12.7	Applicant
Watercourse buffer	A 50m buffer zone has been applied to the watercourse network (Figures 12.5a and 12.5b). As well as providing further reassurance regarding flood risk, this considers the risk of pollution to watercourses and the surface water abstraction from construction activities and provides a buffer to reduce the risk of uncontrolled run-off to watercourses. With the exception of watercourse crossings and limited turbine infrastructure at T2, T4 and T6 and more extensive infrastructure at T9 and T13, the buffer zone has been avoided by development. At the five locations where encroachment is unavoidable, appropriate mitigation is provided with respect to excavations and associated drainage in the CEMP and its supporting Appendix 12G: Mitigation Measures (for inclusion in CEMP). No encroachment of the watercourse buffer is proposed at other turbine locations previously identified by SEPA as of concern (namely T7, T11, T21 and T22). For more information regarding buffer zones and encroachments, please refer to Chapter 3: Design Evolution and Alternatives and Figure 3.2. Appendix 12G: Mitigation Measures (for inclusion in CEMP) will inform the final CEMP. It presents key embedded mitigation, such as mitigation with respect to the proposed within-watercourse buffer construction works which would include the following: - the turbine foundation design minimises excavation requirements in accordance with BS6031: 2009 Code of Practice for Earth Works; - where possible, excavations required to facilitate the construction of foundations for the wind turbines, service trenches and each crane hardstanding would be designed so that they can freely drain by gravity. Cut-off drains would be installed around the excavation areas to prevent surface run-off entering the excavations or	Chapter 12; Table 12.7; Appendix 12G	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	nearby watercourses in the case of infrastructure in the vicinity of T2, T4, T6, T9 and T13; • where gravity drainage is not possible the excavations would be dammed and drained by pumping. These dewatering activities would be undertaken in accordance with Control Activity Regulations (CAR) and Best Practice, including WAT-SG-29 on Temporary Construction Methods and SEPA's GPP Notes; • the design for the dewatering would ensure collection and settling of suspended sediment i.e. use of silt traps, fences, straw bales or lagoons. Any water removed from excavations would be treated and pumped to bunded and vegetated settlement and infiltration swales, downgradient of the excavations and away from watercourses, and there would be no discharge of water directly into a watercourse. Should local topography or ground conditions prove unsuitable for construction of either infiltration swales or settlement lagoons, the use of portable silt trap devices such as 'Siltbuster' type tanks could be considered for removal of elevated suspended solids from water pumped from excavations; • if any discharge to surface watercourses is required, the water would be treated beforehand and the need for any consent from SEPA agreed (it is expected that in most cases the activities would be covered by CAR GBR3 and / or GBR15); • to minimise the potential of concrete leaching and alkaline pollution of groundwater, suitable sulphate-resistant concrete would be used in any construction. The designs would be checked with SEPA and, if necessary, the excavations would incorporate an adequate barrier to prevent the mitigation of any on-site pollutants to the underlying groundwater; and • following erection of the turbines, the auxiliary crane hardstanding and blade laydown foundations depicted on EIA Report Chapter 4 – Description of the Proposed Development, Figure 4.4 would be reinstated. This would involve removal of the geogrids and compacted gravel and placement of previous cover, thereby facilitating the reestablishment of the original drainage conditions with respect to infiltration and reduced surface run-off.		

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Groundwater Dependant Terrestrial Ecosystems (GWDTE) Buffer Zones	No significant constraints were identified regarding risks to designated conservation sites. However, the Proposed Development layout aimed to minimise incursions into buffer areas around GWDTEs (Figures 12.5a and 12.5b) based on SEPA LUPS-GU31 (100m (shallow excavation, <1m deep) and 250m (deep excavation, >1m deep).	Chapter 12; Table 12.7	Applicant/ Contractor
Micro-siting	A micro-siting allowance of 50m for wind turbines and associated turbine infrastructure and 100m for all other infrastructure of the Proposed Development is proposed. This allows the movement of infrastructure to reduce potential environmental impacts if unforeseen ground conditions are encountered.	Chapter 12; Table 12.7	Applicant/ Contractor
CAR	Under CAR, a proposed construction site in Scotland may need to obtain a Construction Site Licence (CSL) ¹ prior to commencing work. A CSL for the Proposed Development is likely to be required since the construction site is greater than 4 hectares in area and include trackways of greater than 5km in length. This licence application requires the holder to adhere to a PPP that SEPA has reviewed and must consider the potential impacts of construction on the water environment. Further details of SEPA's requirements for a PPP to accompany a CSL is provided in guidance document WAT-SG-75.	Chapter 12; Table 12.7	Applicant/ Contractor
CEMP	The CEMP would also include or be accompanied by a Water Management Plan (WMP), a PPP and a PIRP for construction activities at the Development Site. The PPP would set out specific measures to protect hydrology and hydrogeology receptors from pollution arising from construction activities and a programme for inspection and monitoring to ensure the effectiveness of these measures. The PIRP would describe the response plan	Chapter 12; Table 12.7	Applicant/ Contractor

¹ <https://www.sepa.org.uk/regulations/water/pollution-control/construction-site-licences/>

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	for pollution incidents, should accidental spillages occur despite the control measures in place. A WMP would be developed in consultation with SEPA. Additional remedial action would be taken if pollution relating to the construction and operation of the Proposed Development was identified. The WMP would be used to establish whether there are any effects on surface water quality within and immediately downstream of the Development Site and would be supervised by the ECoW during the construction phase.		
Traffic and Transport			
Construction	Construction Traffic Management Plan (CTMP) would be delivered as part of the standard construction best practice measures: • Wheel washing facilities will be installed on site; • Sheeting installed prior to leaving site; • Specific travel routes to and from site are defined for delivery vehicles; • No existing accident problem identified. HGVs to use identified route; • Specific travel routes to and from site are defined for delivery vehicles; and • No existing accident problem identified. HGVs to use identified route.	Chapter 13; Table 13.12	Contractor
Daily delivery profiles; control construction vehicle movements; and routeing of HGVs to/from the construction site	• Upon commencement, all deliveries, operatives and visitors to the construction site will report to the security gate. This will be communicated to all early works contractors at their pre-start meeting; • The main contractor will develop a logistics plan highlighting the access point for the project, loading bay, pedestrian/vehicular segregation, welfare, storage, security and material handling that would be enforced following full site establishment;	Chapter 13	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	• Approved haul routes to the construction site will be identified and protocols put in place to ensure that HGV drivers adhere to these routes; • All contractors will be provided with a site induction pack containing information on delivery routes and restrictions on routing; • Temporary signage will be erected along the identified construction routes to warn people of construction activities and associated construction vehicles; • An integral part of the progress meetings held with all trade contractors is the delivery schedule pro-forma. All contractors will be required to give details of proposed timing of material deliveries to the construction site; • A CTMP and compliance monitoring therein will be included within all trade contractor tender enquiries to ensure early understanding and acceptance/compliance with the rules that would be enforced for the Proposed Development; • Under no circumstances will HGVs be allowed to lay-up in surrounding roads; • Roads will be maintained, and road sweeper deployed as required; and • A wheel wash facility will be installed on-site during the construction period to reduce mud and debris being deposited onto the local road network.		
Contractor travel	Given the rural location of the construction site in relation to the public transport network, the opportunity for contractors to travel to work by public transport is not a viable choice. The distance of the construction site from the established cycle network and lack of footway connections to local amenities and establishments also means that travel by alternative sustainable modes is unlikely to be chosen by contractors. However, car-sharing will be promoted. To identify and support travel choice initiatives, a site travel information pack and car-sharing club could be developed and distributed to construction staff.	Chapter 13	Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Socio-economics (including tourism)			
Construction	The Applicant will engage a Contractor to construct the Proposed Development. The CMS will be supported by a number of documents to reduce or mitigate the environmental impact of the construction phase including: CEMP, PPP, and Site Waste Management Plan. Emergency procedures will fall under the wider CMS. Of relevance to this assessment, the CEMP will include measures and procedures to manage public access and amenity effects during construction, including to existing residential development and open and community space.;	Chapter 14	Contractor
Landscape	The Proposed Development has been designed to balance technical and project requirements with a need to safeguard the environment and satisfactorily accommodate it within its landscape setting. The design evolution has aimed to reduce landscape, visual and cumulative effects and to respect the local landscape characteristics. This is discussed further in Chapter 8: Landscape and Visual . It is of note that development of the wind farm draws upon the guidance set out in SNH guidance 'Good Practice during Wind Farm Construction'.	Chapter 14	Applicant
Access	The Applicant will engage with the access team at ABC and produce an Access Management Plan (in consultation with ABC), in order to retain continued public recreational access during construction of the Proposed Development, where possible. If it is agreed that Core Path C119 (b-c): Braevallich, Loch Awe to Furnace / Scottish Hill Track 104, would be temporarily closed or diverted for a short period during construction, this would be discussed and agreed with ABC. Any temporary closures/diversions of core paths will be communicated to the public via the Proposed Development's Community Liaison Group.	Chapter 14	Applicant

Issue	Mitigation Measure	EIA Report Reference	Responsibility
Aviation			
Ministry of Defence (MoD) – construction	In Visual Meteorological Conditions ² (VMC), pilots are ultimately responsible for seeing and avoiding obstructions such as wind turbines and would be aware through notification of construction activities. Pilots would plan their flying activities in advance to be familiar with any en-route obstacles that they may encounter. Appropriate information about the site construction and any associated lighting (where applicable), for example, the height and temporary location of construction cranes, would be provided, as per the notification requirements in Section 15.6.1 .	Chapter 15; Section 15.6.1	Applicant
MoD – operation	In order to safeguard general use of the area by military aircraft during operation, the lighting arrangement combines CAA approved Air Navigation Order (ANO) visible lighting and MoD infra-red (IR) lighting. The resulting lighting strategy would therefore involve visible ANO lighting on thirteen turbines and IR lights on all turbines. ANO lighting produces medium intensity red light which is visible to the naked eye but is not visible to pilots flying on Night Vision Goggles (NVG). In contrast, the MoD compliant IR lighting is invisible to the human eye, but highly visible to pilots using NVG.	Chapter 15; Section 15.11	Applicant
MoD – decommissioning	In order to safeguard general use of the area by military traffic, the applicant will adhere to the notification requirements.	Chapter 15;	Applicant
National Air Traffic Services (NATS)	NATS Safeguarding originally advised that they anticipate that Turbine 8 in the Proposed Development will have an unacceptable impact on its radar. However, the site layout has changed since this response, resulting in only a minor marginal effect from T1 on the Lowther Hill radar. As such, NATS will need to be re-consulted. In the unlikely event NATS	Chapter 15;	Applicant

² Visual Meteorological Conditions (VMC): A flight category which allows flight to be conducted under visual flight rules defined by in flight visibility and clearance from cloud.

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	assume that T1 will unacceptably affect the radar, a simple 'single cell blank' mitigation should be available in order to sufficiently mitigate effects.		
Infrastructure and Other Issues			
Television reception	Within 12 months of the first export date, any claim by any individual person regarding TV picture loss or interference at their house, business premises or other building, shall be investigated by a qualified engineer appointed by the developer and the results shall be submitted to the planning authority. Should any impairment to the TV or radio signal be attributable to the development, the developer shall remedy such impairment.	Chapter 16; Table 16.4	Applicant
Public Safety – construction	To ensure the risk to public safety is minimised during the construction phase of the Proposed Development, the appointed Contractors will adhere to the Construction (Design and Management) Regulations 2015³ and other relevant UK health and safety legislation including: • Health and Safety at Work Act 1974; • Management of Health and Safety at Work Regulations 1999; • Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013; - and • Onshore Wind Health and Safety Guidelines, RenewableUK, 2015. All potentially hazardous areas such as excavations and electrical installation works will be fenced off and all unattended machinery will be stored in the site compound or immobilised to prevent unauthorised use.	Chapter 16; Table 16.4	Applicant/ Contractor

³ If planning permission is granted, the Applicant will produce a Construction Phase Health and Safety Plan in accordance with the Construction (Design and Management) Regulations (CDM) 2015. The purpose of the Health and Safety Plan would be to outline and define the approach to health and safety that will be adopted specifically for the Proposed Development and to draw attention to the hazards known to the Applicant regarding the construction site which may affect the execution of the works. The Applicant will appoint a Project Manager for the duration of the detailed design, procurement and construction phases who will work with the Principal Contractor and CDM Co-ordinator as defined in the CDM Regulations 2015.

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	Appropriate warning signage will be installed to provide notification of any hazards, any areas where access is restricted or prohibited (such as in the vicinity of transformers, switchgear and metering systems), and to alert any Development Site users to the potential for increased risks under certain meteorological and operating conditions.		
Public Safety – operation	Wind turbines installed at the Development Site will comply with the BS EN 61400 series which provides the design requirements for onshore and offshore wind turbines. Access to all turbines and electrical infrastructure will be controlled to authorised individuals only. Wind farms have a proven good public safety track record. Appropriate measures are included in the turbine design to conduct lightning strike down to earth and minimise the risk of damage to turbines. Occasionally, lightning can strike and damage a wind turbine blade. Modern wind turbine blades are manufactured from a glass-fibre or wood-epoxy composite in a mould, such that the reinforcement runs predominantly along the length of the blade. This means that blades should stay attached to the turbine if damaged by lightning and in all cases, the turbine will automatically shut down if damaged. In cold weather, ice can build up on blade surfaces when operating. The turbine can continue to operate with a very thin accumulation of snow or ice but will shut down automatically as soon as there is a sufficient build up to cause aerodynamic or physical imbalance of the rotor assembly. After shutdown due to icing, the turbine can be restarted remotely further to a manual, visual or technical inspection to ensure that the turbine blades are free of ice, thereby eliminating the potential for ‘ice-throw’. The wind turbines will also be fitted with vibration sensors which would detect any imbalance which might be caused by icing, which would allow the turbines to be shut down automatically. While ice-throw and the risk to public safety is extremely low, notices would be installed at access points to the Proposed Development to warn visitors and members of the public of this possibility during colder weather.	Chapter 16; Table 16.4	Applicant/ Contractor

Issue	Mitigation Measure	EIA Report Reference	Responsibility
	Turbine power and monitoring systems operate with several levels of redundancy to protect the plant from damage. In the case of faults arising, including over-speed of the blades, overpower production, or loss of grid connection, turbines shut down automatically through braking mechanisms. In addition, turbines may be fitted with vibration sensors so that in the unlikely event a blade is damaged, the turbine will automatically and immediately shut down.		

17.2 References

CIRIA (2010). *Culvert Design and Operation Guide*.

NatureScot., Natural England., Natural Resources Wales., RenewableUK., Scottish Power Renewables., Ecotricity Ltd., the University of Exeter., Bat Conservation Trust. (2021). *Bats and onshore wind turbines: survey, assessment and mitigation*. Version: August 2021 (updated with minor revisions)

Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, and the Forestry Commission Scotland joint publication (2015), Good Practice during Windfarm Construction: Version 3. Available at: <https://www.nature.scot/sites/default/files/2018-08/Guidance%20-%20Good%20Practice%20during%20wind%20farm%20construction.pdf>. (Accessed March, 2024)

