Chapter 18 Schedule of Mitigation Measures

Slieveacurry Renewable Energy Development, Co. Clare

Environmental Impact Assessment Report (EIAR)

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18. SCHEDULE OF MITIGATION AND MONITORING MEASURES

All mitigation and monitoring measures relating to the pre-commencement, construction, operational and decommissioning phases of the Proposed Project are set out in the relevant chapters of this EIAR.

All mitigation which will be implemented during the various phases of the Proposed Project are presented in Table 18-1 below. The mitigation measures have been grouped together according to their EIAR Chapter and Proposed Project phase and are presented under the following headings:

- Pre-Commencement Phase;
- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

The mitigation proposals in the below format provides an easy-to-audit list that can be reviewed and reported on during each phase of the Proposed Project. The proposals for site inspections and environmental audits are set out in the Construction and Environmental Management Plan (CEMP) which is included as Appendix 4-5 of this EIAR. The tabular format in which the below information is presented can be further expanded upon during each Proposed Project phase to provide a reporting template for site compliance audits.

All monitoring measures which will be implemented during the pre-commencement, construction, operational and decommissioning phases of the Proposed Project are outlined in Table 18-2. All monitoring measures were set out in the relevant chapters of this EIAR. The monitoring proposals are presented in terms of the monitoring requirement, frequency of monitoring and the mechanism for reporting results where applicable. By presenting the monitoring proposals in the below format, it is intended to provide a monitoring schedule that can be reviewed and tracked during all phases of the Proposed Project to ensure that all required monitoring is completed.

It is intended that the CEMP will be updated where required prior to the commencement of construction to include all mitigation and monitoring measures, planning conditions and/or alternative monitoring and mitigation measures should they emerge during the course of the planning process and would be submitted to the Planning Authority for written approval prior to the commencement of development.

18.1 EIAR Mitigation Measures

Table 18-1 Schedule of Mitigation Measures

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 4 – Description of the Proposed Project					
Pre-Construction Phase					
MM1	Environmental Management	EIAR Chapter 4	All proposed construction activities and associated mitigation measures for the site will be provided for in a Construction and Environmental Management Plan (CEMP). A CEMP has been prepared for the Proposed Project and is included in Appendix 4-5 of this EIAR. The CEMP includes details of drainage, peat and spoil management, waste management, and clearly outlines the mitigation measures and monitoring proposals that are required to be adhered to in order to comply with the environmental commitments outlined in the EIAR. In the event that planning permission is granted for the Proposed Project, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned, and will be submitted to the Planning Authority for approval.		
MM2	Environmental Management	Appendix 4-5	› The Project Developer will be required to engage a qualified Environmental Engineer, Environmental Scientist, or equivalent, with experience in wind farm construction to fulfil the role of Environmental Clerk of Works (ECoW) to oversee the construction works and audit the implementation of the CEMP. The ECoW will report to the Project Developer and Project Contractor but will liaise closely with the Construction Manager in relation to the Project Contractor's day-to-day implementation of the CEMP on site. › The level, detail and frequency of reporting expected from the ECoW for the Construction Manager, Developer's Project Manager, and any Authorities or other Agencies, will be		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			agreed by all parties prior to commencement of construction, and may be further adjusted as required during the course of the Proposed Project.		
MM3	Surface Water Quality	Appendix 4-7	› Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of felling and construction at the Site. › Analysis will be for a range of parameters with relevant regulatory limits along with Environmental Quality Standards (EQSs) and sampling will be undertaken at designated locations within the Site. › Baseline sampling will be completed on at least two occasions, and these should ideally coincide with low flow and high flow stream conditions. The high flow sampling event will be undertaken after a period of sustained rainfall, and the low flow event will be undertaken after a dry spell.		
MM4	Site Drainage Plan	EIAR Chapter 4 Appendix 4-3 Appendix 4-5 Appendix 4-7	› The Project Hydrologist will complete a detailed drainage design and maintenance plan before construction commences and will attend the Site to set out and assist with micro-siting of proposed drainage controls as outlined in Section 4.7 of the EIAR. › Prior to any works commencing on the upgrade of existing roads, the requirement for additional roadside drainage will be considered by the Project Hydrologist in line with the proposals outlined in Section 3 of the CEMP. The key principles of drainage design that will be implemented and adhered to as part of the Proposed Project are as follows: › Keep clean water clean by intercepting it where possible, upgradient of works areas, and divert it around the works areas for discharge as diffuse overland flow or for rewetting of land. › Collect potentially silt-laden runoff from works areas via downgradient collector drains and manage via series of avoidance, source, in-line, treatment and outfall controls prior to controlled diffuse release as overland flow or for rewetting of land.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› No direct hydraulic connectivity from construction areas to watercourses or drains connecting to watercourses. › Where possible, maintain 50-metre watercourse buffer zones for the wind turbines. › No alteration of natural watercourses. › Maintain the existing hydrology of the Site. › Blocking of existing manmade drainage as appropriate. › Daily inspection and recording of surface water management system by on-site Environmental Clerk of Works and immediate remedial measures to be carried out as required and works temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the Site.		
MM5	Preparative Site Drainage Management	Chapter 4 Appendix 4-5 Appendix 4-7	› Drains will be excavated, and silting ponds constructed to eliminate any suspended solids within surface water running off the Site. › An adequate quantity of straw bales, clean stone, terram, stakes, etc. will be kept on site at all times to implement the detailed drainage design measures as necessary. The detailed drainage measures will be installed prior to, or at the same time as the works they are intended to drain.		
MM6	Drainage Inspection	Appendix 4-5 Appendix 4-7	Prior to commencement of works in sub-catchments across the Site, main drain inspections will be completed to ensure ditches and streams are free from debris and blockages that may impede drainage. It is proposed to complete these inspections on a catchment-by-catchment basis as the construction works develop across the site, as works in all areas will not commence simultaneously.		
MM7	Collector Drains	EIAR Chapter 4	› Collector drains will be installed downgradient of the main works areas to collect surface flow runoff where it might have come into contact with exposed surfaces and collected silt and sediment. Swales will intercept the potentially silt-laden water from the excavations and construction areas of the site and prevent it reaching natural watercourses.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5 Appendix 4-7	Collector drains will be installed in advance of any main construction works commencing. The material excavated to make the swale will be compacted on the downslope edge of the drain to form a diversion dike.		
MM8	Interceptor Drains	EIAR Chapter 4, 9 Appendix 4-5 Appendix 4-7	› Interceptor drains will be installed upgradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site where it might otherwise have come into contact with exposed surfaces and collected silt and sediment. The drains will be used to divert upslope runoff around the works area to a location where it can be redistributed over the ground surface as sheet flow. › Where required, interceptor drains will be installed in advance of any construction works commencing.		
MM9	Watercourse Inspection	EIAR Chapter 4 Appendix 4-5	Confirmatory inspections of the proposed watercourse crossing locations will be carried out by the Project Civil/Structural Engineer and the Project Hydrologist prior to the construction of the crossing.		
MM10	Drainage Maintenance	Chapter 4 Appendix 4-5 Appendix 4-7	› An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed.		
MM11	Pre-construction Drainage	Appendix 4-5 Appendix 4-7	Drainage and associated pollution control measures will be implemented onsite before the main construction works commence. Where possible drainage controls will be installed during seasonally dry ground conditions. This will reduce the possibility of impact on surface waters by suspended sediment released during construction and entrained in surface run-off. Where artificial drains are currently in place in the vicinity of proposed works areas, these drains may have to be diverted around the proposed works areas to minimise the amount of water in the vicinity of works areas. Where it may not be possible to divert artificial drains around proposed work areas, the drains will be blocked to ensure sediment laden water from the works areas has no direct route to other watercourses. Where drains have to be blocked, the blocking will only take place after an alternative drainage system to handle the same water has been put in place. Existing artificial drains in the vicinity of existing Proposed Wind Farm roads will be maintained in their present location where possible. If it is expected that these artificial drains will receive drainage water from works areas post treatment, check dams will be added (as specified below) to control flows and sediment loads in these existing artificial drains. If road widening or improvement works are necessary along the existing roads, where possible, the works will take place on the opposite side of the road to the drain.		
MM12	Tree Felling Drainage Measures	Appendix 4-5 Appendix 4-7	Prior to the commencement of tree felling for subsequent road construction the following key temporary drainage measures will be installed: › All existing land and forestry drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using forestry check dams/silt traps; › Clean water interceptor drains will be installed upgradient of the works areas;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Check dams/silt fence arrangements (silt traps) will be placed in all existing that have surface water flows; and, › A double silt fence perimeter will be placed down-slope of works areas that are located inside the watercourse 50m buffer zone. Before the commencement of any felling works, an Environmental Clerk of Works (ECoW) shall be appointed to oversee the keyhole and extraction works. The ECoW shall be experienced and competent, and shall have the following functions and operate their record using a Schedule of Works Operation Record (SOWOR), as proposed in the planning application: › Attend the Site for the setup period when drainage protection works are being installed and be present onsite during the remainder of the forestry keyhole felling works. › Prior to the commencement of works, review and agreement of the positioning by the Operator of the required Aquatic Buffer Zones (ABZs), silt traps, silt fencing (see below), water crossings and onsite storage facilities for fuel, oil and chemicals (see further below). › Be responsible for preparing and delivering the Environmental Toolbox Talk (TBT) to all relevant parties involved in site operations, prior to the commencement of the works. › Conduct daily and weekly inspections of all water protection measures and visually assess their integrity and effectiveness in accordance with Section 3.4 (Monitoring and Recording) and Appendix 3 (Site Monitoring Form (Visual Inspections)) of the Forestry & Freshwater Pearl Mussel Requirements. › Take representative photographs showing the progress of operation onsite, and the integrity and effectiveness of the water protection measures. › Collect water samples for analysis by a 3rd party accredited laboratory, adhering to the following requirements:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Surface water samples shall be collected upstream and downstream of the keyhole felling at suitable sampling locations. › Sampling shall be taken from the stream / riverbank, with no in-stream access permitted. › The following minimum analytical suite shall be used: pH, EC, TSS, BOD, Total P, Ortho-P, Total N, and Ammonia. › Review of operator's records for plant inspections, evidence of contamination and leaks, and drainage checks made after extreme weather conditions. › Prepare and maintain a contingency plan. › Suspend work where potential risk to water from siltation and pollution is identified, or where operational methods and mitigation measures are not specified or agreed. › Prepare and maintain a Water Protection Measure Register. This document is to be updated weekly by the ECoW. To protect watercourses, the following measures will be adhered to during all keyhole/tree felling activities. › All relevant measures, best practice methods and requirements set out in Chapter 9 of the EIAR will be adhered to including Forestry & Water Quality Guidelines, Forest Harvesting & the Environment Guidelines and the Forest Protection Guidelines. › Machine combinations (i.e. handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance; › All machinery will be operated by suitably qualified personnel; › Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicle through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			points. Where possible, existing drains will not be disturbed during felling works; › Machines will traverse the Site along specified off-road routes (referred to as racks); › The location of racks will be chosen to avoid wet and potentially sensitive areas; › Brash mats will be placed on the racks to support the vehicles on soft ground, reducing mineral soil disturbance and erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal should take place when they become heavily used and worn. Provision should be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there is risk of severe erosion occurring, extraction will be suspended during periods of high rainfall; › Silt fences will be installed at the outfalls of existing drains downstream of felling areas. No direct discharge of such drains to watercourses will occur. Sediment traps and silt fences will be installed in advance of any felling works and will provide surface water settlement for runoff from work areas and will prevent sediment from entering downstream watercourses. Accumulated sediment will be carefully disposed of at pre-selected spoil repository areas. Where possible, all new silt traps will be constructed on even ground and not on sloping ground; › In areas particularly sensitive to erosion it will be necessary to install double or triple sediment traps and increase buffer zone width. These measures will be reviewed onsite during construction; › Double silt fencing will also be put down slope of felling areas which are located in close proximity to streams and/or relevant watercourses; › Drains and silt traps will be maintained throughout all felling works, ensuring that they are clear of sediment build-up and are not severely eroded;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Timber will be stacked in dry areas, and outside watercourse buffer zones. Check dams and silt traps will be emplaced on the down gradient side of timber storage/processing sites; › Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water runoff; › All refuelling will be completed outside of the designated 50m hydrological buffer zones. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; and, › Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors.		
MM13	Peat and Spoil Management	EIAR Chapter 4, 8 Appendix 4-2 Appendix 4-3 Appendix 4-5	› An interceptor drain will be installed upslope of the designated peat and spoil management areas to divert any surface water away from these areas. This will reduce the likelihood of debris run-off. › A silting pond will be required at the lower side of the management areas. › All the recommendations/best practice guidelines for the placement of spoil in identified spoil management areas and alongside access roads will be confirmed by the Geotechnical Engineer prior to construction.		
MM14	Underground Electrical (33kV) and	EIAR Chapter 4	Before works commence, updated surveying will take place along the proposed cabling route, with all existing culverts and services identified. All relevant bodies i.e., ESBN, Clare County Council, GNI etc. will be contacted and all up to date information for all existing services sought.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Communications Cabling	Appendix 4-5			
MM15	Waste Management	EIAR Chapter 4 Appendix 4-5	Prior to the commencement of the construction phase, a Construction Waste Manager will be appointed by the Contractor. The Construction Waste Manager will be responsible for the implementation of the objectives of the Waste Management Plan (WMP), ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated must have sufficient authority so that they can ensure everyone working on the development adheres to the management plan.		
MM16	Traffic Management	EIAR Chapter 4, 15 Appendix 4-5 Appendix 15-2	› A detailed Traffic Management Plan (TMP), incorporating all the mitigation measures set out within the CEMP along with Chapter 15: Material Assets of the EIAR, will be finalised and detailed provisions in respect of traffic management agreed with the Roads Authority and An Garda Síochána prior to construction works commencing on-site. Prior to the TMP being finalised, a full dry run of the transport operation along the potential routes will be completed using vehicles with attachments to simulate the dimensions of the wind turbine transportation vehicles. This dry run will inform the TMP for agreement with the relevant Authorities.		
Construction Phase					
MM17	Refuelling	EIAR Chapter 4, 8, 9 Appendix 4-5	› Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. › All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Site. › On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-6 Appendix 4-7	› Heavy plant and machinery will be refuelled on-site by a fuel truck, with spill kits kept onboard, that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area in the construction compound when not in use › Only designated trained operatives will be authorised to refuel plant on-site; › Refuelling or maintenance of machinery will not occur within the delineated hydrological buffer zones; › Fuels stored on the Proposed Wind Farm Site will be minimised; › Any diesel or fuel oils stored at the temporary construction compound will be bunded. The bund capacity will be sufficient to contain 110% of the storage tank's maximum capacity; and, › An emergency plan for the construction phase to deal with accidental spillages will be contained within the CEMP. Spill kits will be available to deal with accidental spillages		
MM18	Concrete-Based Products Deliveries and Management	EIAR Chapter 4, 9 Appendix 4-5	› No batching of wet-concrete products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place; › Where possible pre-cast elements for culverts and concrete works will be used; › Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined concrete washout ponds; › Weather forecasting will be used to plan dry days for pouring concrete; and, › The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event; and, › At proposed turbine foundations, sand blinding, DPM, and lean-mix blinding are used to vertically contain the concrete. While the concrete is contained laterally by temporary/permanent shuttering. The concrete cures within 72hrs.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM19	Concrete Pouring	EIAR Chapter 4, 9 Appendix 4-5	› Using weather forecasting to assist in planning large concrete pours and avoiding large pours where prolonged periods of heavy rain is forecast. › Restricting concrete pumps and machine buckets from slewing over watercourses (including drains and ditches) while placing concrete. › Ensuring that excavations are sufficiently dewatered before concreting begins and that dewatering continues while concrete sets. › Ensuring that covers are available, and used, when necessary, for freshly placed concrete to avoid the surface washing away in heavy rain. › The small volume of water that will be generated from washing of the concrete truck's chute will be directed into a temporary, lined, impermeable containment area, or a Siltbuster-type concrete wash unit or equivalent. › Surplus concrete after completion of a pour will be taken off-site and disposed of at an appropriately authorised facility. › Concrete pours will be managed and supervised to ensure there will be no leakage/seepage/discharge of concrete or concrete water during the construction phase. › Concrete wash water, and waste concrete will be managed appropriately on site at a lined concrete wash out pit(s).		
MM20	Road Cleanliness	EIAR Chapter 4 Appendix 4-5	› The Proposed Wind Farm Site roads will be well finished with compacted hardcore, and so the public road-going vehicles will not be travelling over soft or muddy ground where they might pick up mud or dirt. › A road sweeper will be available if any section of the public roads requires cleaning due to construction traffic associated with the Proposed Project. › When necessary, sections of the haul route will be swept using a truck mounted vacuum sweeper.		
MM21	Watercourse Buffers	EIAR Chapter 4, 9	› There will be no direct discharges to natural watercourses or drains. All discharges from the proposed works areas or from interceptor drains will be made over vegetated ground at an appropriate distance from watercourses. Buffer zones around the existing natural		

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		Appendix 4-3 Appendix 4-5	drainage features have informed the layout of the Proposed Project and are indicated on the drainage design drawings. › Buffered outfalls, which will be numerous over the Proposed Wind Farm Site, will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the Proposed Wind Farm Site.		
MM22	Water Discharge	EIAR Chapter 4 Appendix 4-5 Appendix 4-7	› Apart from interceptor drains, which will convey clean runoff water to the downstream drainage system there will be no direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the Proposed Wind Farm Site drainage into the existing site drainage network where possible. This will reduce the potential for any increased risk of downstream flooding or sediment transport/erosion › Silt traps will be placed in the existing drains upstream of any streams where construction works / tree felling is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area.		
MM23	Wastewater Management	EIAR Chapter 4	› The temporary construction compounds will consist of temporary site offices, staff facilities and car-parking areas for staff and visitors. Temporary port-a-loo toilets and toilets located within a staff portacabin will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply onsite for hygiene purposes, by way of a temporary storage tank. The construction compound will also include a bunded refuelling and containment area for the storage of oil, lubricants and site generators etc, and full retention oil interceptor.		
MM24	Interceptor Drains	EIAR Chapter 4, 9	› Interceptor drains will be installed upgradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site where it might otherwise have come into contact with exposed surfaces and collected silt and sediment.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5 Appendix 4-7	› The drains will be used to divert upslope runoff around the works area to a location where it can be redistributed over the ground surface as sheet flow. › Where required, interceptor drains will be installed in advance of any construction works commencing.		
MM25	Check Dams	EIAR Chapter 4 Appendix 4-5 Appendix 4-7	› The velocity of flow in the interceptor drains will be controlled by check dams, which will be installed at regular intervals along the drains to ensure flow in the channel is non-erosive. On steeper sections where erosion risks are greater, a geotextile membrane will be added to the channel.		
MM26	Vegetation Filters	EIAR Chapter 4 Appendix 4-5 Appendix 4-7	› Vegetation filters are the existing vegetated areas of land that will be used to accept surface water runoff from upgradient areas. The selection of suitable areas to use as vegetation filters will be determined by the size of the contributing catchment, slope and ground conditions.		
MM27	Settlement Ponds	EIAR Chapter 4 Appendix 4-5	› Settlement ponds will be used to attenuate runoff from main works areas (i.e., from turbine base/hardstand areas, construction compounds, and the substation) of the site during the construction phase. › Settlement ponds will be located towards the end of swales, close to where the water will be reconverted to diffuse sheet flow.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-7			
MM28	Silt Bags	EIAR Chapter 4 Appendix 4-5 Appendix 4-7	› Dewatering silt bags allow the flow of water through them while trapping any silt or sediment suspended in the water. The silt bags provide a passive non-mechanical method of removing any remaining silt contained in the potentially silt-laden water collected from works areas within the site. › Dewatering silt bags can also be used as an additional filtration measure downgradient of settlement ponds, wherever it is deemed appropriate, throughout the site. The water will flow, via a pipe, from the settlement ponds into the silt bag. The silt bag will allow the water to flow through the geotextile fabric and will trap any of the finer silt and sediment remaining in the water after it has gone through the previous drainage measures. The dewatering silt bags will ensure that there will be no loss silt into the stream.		
MM29	Siltbuster	Chapter 4 Appendix 4-5	› A “siltbuster” or similar equivalent piece of equipment may be used to filter any water pumped out of excavation areas, if necessary, prior to its discharge to settlement ponds or swales. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction sites. › The unit stills the incoming water/solids mix and routes it upwards between a set of inclined plates for separation. Fine particles settle onto the plates and slide down to the base for collection, whilst treated water flows to an outlet weir after passing below a scum board to retain any floating material. The inclined plates dramatically increase the effective settling area of the unit giving it a very small footprint on site and making it highly mobile.		
MM30	Bottomless Box Culvert Crossing	EIAR Chapter 4	The standard construction methodology for the installation of a bottomless box culvert crossing is as follows:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5	› The access road on the approach either side of the watercourse will be completed to a formation level which is suitable for the passing of plant and equipment required for the installation of each watercourse crossing. › All drainage measures along the proposed road will be installed in advance of the works. › A foundation base will be excavated to rock or competent ground with a mechanical excavator with the foundation formed in-situ using a semi-dry concrete lean mix. The base will be excavated along the stream bank with no instream works required. › Access to the opposite side of the watercourse for excavation and foundation installation will require the installation of a temporary pre-cast concrete bridge across the watercourse to provide temporary access for the excavator. Plant and equipment will not be permitted to track across the watercourse. › Once the foundation base has been completed, the pre-cast bottomless culvert will be installed using a crane which will be set up on the bank of the watercourse and will be lifted into place from the bank with no contact with the watercourse. › Once the crossing is in position stone backfill will be placed and compacted against the structure up to the required level above the foundations. › Underground cabling ducting will be contained within the road make-up of the proposed crossing. The watercourse crossing will be constructed to the specifications of the OPW bridge design guidelines '*Construction, Replacement or Alteration of Bridges and Culverts - A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945*', and in consultation with Inland Fisheries Ireland. Abutments will be constructed from precast units combined with in-situ foundations, placed within an acceptable backfill material.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Confirmatory inspections of the proposed new watercourse crossing locations will be carried out by the Project Civil/Structural Engineer and the Project Hydrologist prior to the construction of the crossing. A constraint/buffer zone will be maintained for all crossing locations where possible. In addition, measures which are outlined below will be implemented to ensure that silt laden or contaminated surface water runoff from the excavation work does not discharge directly to the watercourse.		
MM31	Culvert Crossing	EIAR Chapter 4, 9. Appendix 4-5	› All new proposed culverts and proposed culvert upgrades at field drain crossings required for the Proposed Wind Farm will be suitably sized for the expected peak flows in the watercourse. Some culverts may be installed to manage drainage waters from works areas of the Proposed Wind Farm, particularly where the waters must be taken from one side of an existing roadway to the other for discharge. The size of culverts will be influenced by the depth of the track or road sub-base but will have a minimum 900mm diameter. In all cases, culverts will be oversized to allow mammals to pass through the culvert. › Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance.		
MM32	Silt Fences	EIAR Chapter 4, 9 Appendix 4-5 Appendix 4-7	› Silt fences will be installed as an additional water protection measure around existing watercourses in certain locations, particularly where works are proposed within the 50m buffer zone of a stream. Installation locations will be confirmed during the finalisation of detailed drainage design following a pre-construction survey by the appointed contractor. › Silt fences will be installed as single, double or a series of triple-silt fences, depending on the space available and the anticipated sediment loading. The silt fence designs follow the technical guidance document *'Control of Water Pollution from Linear Construction Projects'* published by CIRIA (No. C648, 2006). Silt fence material will comprise Terrastop™ Premium material, and silt fences will be installed per the manufacturer's guidelines. Silt fences will be inspected on a regular basis to ensure that they are operating effectively. › Silt fences will be inspected regularly to ensure water is continuing to flow through the fabric and the fence is not coming under strain from water backing up behind it.		
MM33	Sedimats	EIAR Chapter 4 Appendix 4-5 Appendix 4-7	› Sediment entrapment mats, consisting of coir or jute matting, will be placed at the outlet of the silt bag to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to the ground surface using stakes/pegs. The sedimat will extend to the full width of the outfall to ensure all water passes through this additional treatment measure.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM34	Internal Cabling Trench	EIAR Chapter 4 Appendix 4-5	› Before works commence, surveying will take place along the proposed 33kV underground cabling, with all existing culverts identified. All relevant bodies i.e. ESB, Clare County Council etc. will be contacted and all drawings for all existing services sought. › When the cable is located on public roads, a traffic management plan will be set up prior to any works commencing. A road opening licence will be obtained where required and all plant operators and general operatives will be inducted and informed as to the location of any services. › The cable ducts will be concrete surrounded where they pass under the public road and under drains or culverts. › A tracked 360-degree excavator will then proceed to dig out the proposed trench, typically to a depth of 1200mm, within which the ducts will be laid. › Trench supports will be installed, or the trench sides will be benched or battered back where appropriate and any ingress of ground water will be removed from the trench using submersible pumps, fitted with appropriate silt filtration systems, to prevent contamination of any watercourse. › Once the trench has been excavated, a base-layer will be laid and compacted, comprising Clause 804, or 15 Newton CBM4 concrete as required. › The ducting will be installed as per specification, with couplers fitted and capped to prevent any dirt etc. entering the duct. In poor ground conditions, the ends of the ducts will be shimmed up off of the bed of the trench, to prevent any possible ingress of water dirt. The shims will be removed again once the next length has been connected. Extreme care will be taken to ensure that all duct collars (both ends) are clean and in good condition prior to ducts being joined. › As the works progress, the as-built location of the ducting will be recorded using a total station or GPS. › As per the associated base-layer (Clause 804 material or 15 Newton CBM4 concrete) will be installed and compacted as per approved detail, with care not to displace the ducting.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM35	Turbine/Met Mast Foundation Excavations	EIAR Chapter 4 Appendix 4-5	› The extent of the excavation will be marked out and will include an allowance for trimming the sides of the excavation to provide a safe working area and slope batter; › Where practical, the soil will be stripped over the area of the excavation and stored locally for reuse, the subsoil will be excavated and stored to one side for reuse during the landscaping around the finished turbine; › No material will be removed from the Proposed Wind Farm Site with excavated peat and spoil being transported to the identified peat and spoil management areas within the Proposed Wind Farm Site. › All groundwater and surface water arising from turbine base excavation will be pumped to the dirty water system prior to discharge from the works area; › Soil excavation shall be observed by a qualified archaeologist in accordance with a scheme of archaeological monitoring to identify any significant remains as they come to light; › The foundations excavation will be raised to formation level by compacted layers of well graded granular material will be spread and compacted to provide a hard area for the turbine foundation.		
MM36	Peat and Spoil Management	Chapter 4 Appendix 4-2 Appendix 4-5	As identified in the Peat and Spoil Management Plan (Appendix 4-2), the following recommendations/best practice guidelines for the placement of peat alongside the proposed infrastructure elements should be considered and taken into account during construction: › Excavated peat will be placed/spread across the clearfell areas around 4 no. of the Proposed Turbines. › The peat placed will be restricted to a maximum height of 1.2m. Any weak/liquified peat (if any is encountered) will be placed within the proposed borrow pit and not stored within these areas. Spoil will be placed to a height of 1.5m in the spoil management area adjacent to the borrow pit.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The placement of peat within the placement areas will require the use of long reach excavators and low ground pressure machinery in particular for drainage works. › The surface of the placed peat will be shaped to allow efficient run-off of surface water. Shaping of the surface of the peat will be carried out as placement of peat within the peat placement area progresses. This will reduce the likelihood of debris run-off and reduce the risk of instability of the placed peat. › Finished/shaped side slopes in the placed peat will be not greater than 1 (v): 4 (h). This slope inclination will be reviewed during construction, as appropriate. › The acrotelm will be placed on the finished surface with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the placed peat and spoil within the placement areas. › Movement monitoring instrumentation will be placed around the areas where peat has been placed. The locations where monitoring is required will be both upslope and downslope of the peat storage areas and should be monitored on a weekly basis during construction. › Supervision by the Project Geotechnical Engineer will be undertaken during the works. › An interceptor drain will be installed upslope of the designated peat placement areas to divert any surface water away from these areas. This will help ensure stability of the placed peat and reduce the likelihood of debris run-off. › All the above mentioned general guidelines and requirements will be undertaken by the Contractor during construction.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM37	Temporary Construction Compound	EIAR Chapter 4 Appendix 4-5	› Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply onsite for hygiene purposes, by way of a temporary storage tank. The construction compound will also include a bunded refuelling and containment area for the storage of oil, lubricants and site generators etc, and full retention oil interceptor. › The area to be used as the compound will be marked out at the corners using ranging rods or timber posts. Drainage runs and associated settlement ponds will be installed around the perimeter; › The compound platform in the northern section of the Proposed Wind Farm Site will be established using a similar technique as the construction of new floated road (Type D) as discussed above; › The compound platform to the southwest of T05 will be established using a similar technique as the construction of new excavated roads (Type C) as discussed above; › A layer of geo-grid will be installed and compacted layers of well graded granular material will be spread and lightly compacted to provide a hard area for site offices and storage containers; › Areas within the compound will be constructed as site roads and used as vehicle hardstandings during deliveries and for parking; › The compounds will be fenced and secured with locked gates if necessary; and, › Upon completion of the Proposed Project the temporary construction compounds will be decommissioned and allowed to vegetate naturally.		
Operational Phase					
MM38	Wastewater Management	EIAR Chapter 4	The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. The wastewater storage tank alarm		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			will be part of a continuous stream of data from the Proposed Turbines, wind measurement devices and electricity substation extension that will be monitored remotely 24 hours a day, 7 days per week. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended), will be employed to transport wastewater away from the site to a licensed facility.		
Decommissioning Phase					
MM39	Decommissioning	EIAR Chapter 4 Appendix 4-6	A Decommissioning Plan has been prepared (Appendix 4-6). The Decommissioning Plan will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and will agree with the competent authority at that time. The potential for effects during the decommissioning phase of the Proposed Project has been fully assessed in the EIAR.		
MM40	Decommissioning	EIAR Chapter 4 Appendix 4-6	› Upon decommissioning of the Proposed Project, the turbines and met mast will be removed from the Proposed Wind Farm Site in a similar manner to how they will be transported to the site originally in extended articulated trucks. All above ground turbine and mast components would be separated and removed off-site for recycling. The turbines will be disassembled with a similar model of crane that was used for their erection. The turbines will be removed from site using the same transport methodology adopted for delivery to site initially. The turbine materials will be transferred to a suitable recycling or recovery facility. › On the dismantling of turbines and met mast, it is not intended to remove the concrete foundation from the ground. It is considered that its removal will be the least preferred options in terms of potential effects on the environment. Therefore, the foundations of the 9 no. turbine and met mast will be covered with soil material. If there is usable soil or overburden material on the Proposed Wind Farm Site after construction, this material will be used. Alternatively, where material is not readily available on site, soil will be sourced locally and imported to site on heavy good vehicles (HGVs). The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			enhanced by spreading of an appropriate seed mix to assist in revegetation and accelerate the resumption of the natural drainage management that will have existed prior to any construction. › The internal underground cabling within the Proposed Wind Farm Site, connecting the turbines and the meteorological mast to the proposed extension to the existing Slievecallan 110kV substation, will be pulled from the cable duct using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at each of the pull pits along the cabling route. The ground above original pulling pits will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. › The proposed extension to the 110kV electricity substation will remain in place as it will be part of the Electricity Grid under the ownership and control of the ESB Networks and EirGrid.		
MM41	Refuelling	EIAR Chapter 4, 8, 9 Appendix 4-5	› Road-going vehicles will be refuelled off-site wherever possible. › On-site refuelling of machinery will be carried out at dedicated refuelling locations using a mobile double-skinned fuel bowser. › Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double-skinned fuel bowser. › The fuel bowser will be parked on a level area in an appropriately bounded area when not in use and only designated trained and competent operatives will be authorised to refuel plant on site. › All refuelling will be carried out outside designated watercourse buffer zones. › Only designated trained and competent operatives will be authorised to refuel plant on-site. › Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. The following mitigation measures are proposed to avoid release of hydrocarbons at the site:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. › All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Site. › On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site. › Heavy plant and machinery will be refuelled on-site by a fuel truck, with spill kits kept onboard, that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area in the construction compound when not in use › Only designated trained operatives will be authorised to refuel plant on-site; › Refuelling or maintenance of machinery will not occur within the delineated hydrological buffer zones; › Fuels stored on the Proposed Wind Farm Site will be minimised; › Any diesel or fuel oils stored at the temporary construction compound will be bunded. The bund capacity will be sufficient to contain 110% of the storage tank's maximum capacity; and, › An emergency plan to deal with accidental spillages will be contained within Section 6.1.4 of the CEMP. Spill kits will be available to deal with accidental spillages.		
EIAR Chapter 5: Population and Human Health					
Pre-construction Phase					
MM42	Human Health	EIAR Chapter 5	› Prior to commencement of any works, the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be made known. Local access to properties will also be maintained throughout any construction works and local residents will be supplied with		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		
MM43	Traffic and Transport	EIAR Chapter 5	› Prior to commencing Proposed Grid Connection works in the local road network in the townland of Knockalassa, goal posts will be established under the 110kV and 38kV overhead lines. They will remain in place for the duration of the works in this area. The goal posts will not exceed a height of 4.2 metres, unless specifically agreed with ESB Network. › A Traffic Management Plan (TMP) has been developed in order to minimise any potential effect on the local population during the construction phase of the Proposed Project due to traffic. › Prior to commencement of any Proposed Grid Connection works, the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be made known. ○ Local access to properties will be maintained throughout any construction works and local residents will be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum It is not anticipated that any section of the public road network will be closed during transport of turbines, although there will be some delays to local traffic at pinch points. During these periods it may be necessary to operate local diversions for through traffic. All deliveries comprising abnormally large loads where required will be made outside the normal peak traffic periods, usually at night, to avoid disruption to work and school-related traffic.		
Construction Phase					
MM44	Land Use Patterns & Activities	EIAR Chapter 5	› The construction of the Proposed Grid Connection Site 33kV underground cabling will be undertaken in a rolling construction method with 100m of road constructed and back filled each day providing access in the evenings and night hours along the Proposed Grid Connection Site.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A Traffic Management Plan, agreed with the Local Authority, will be in place for the construction phase of the Proposed Grid Connection underground cabling route. The Traffic Management Plan is included as Appendix 15-2 to this EIAR. The identified 20.7ha of coniferous forestry that will be permanently felled for the built infrastructure footprint of the Proposed Project, will be replaced or replanted on a hectare for hectare basis, and an additional 123.3ha will be permanently felled as part of the hen harrier enhancement plan included in Appendix 6-4 Biodiversity Management and Enhancement Plan (BMEP), which will be subject to the condition of any felling licence that will be issued in respect of the Proposed Project		
MM45	Human Health	EIAR Chapter 5 Appendix 4-5	The Proposed Project will be constructed, operated and decommissioned in accordance with all relevant Health and Safety Legislation, including: › Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); › Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016); › S.I. No. 528/2021 - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021 and › Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). The following measures below are also detailed in Chapter 18 Schedule of Monitoring and Mitigation Measures. › A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail. This will be prepared on a preliminary basis at the procurement stage and developed further at construction stage.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All hazards will be identified, and risks assessed. Where elimination of the risk is not feasible, appropriate mitigation and/or control measures will be established. The contractor will be obliged under the construction contract and current health and safety legislation to adequately provide for all hazards and risks associated with the construction phase of the project. Safepass registration cards are required for all construction, delivery and security staff. Construction operatives will hold a valid Construction Skills Certificate Scheme card where required. The developer is required to ensure a competent contractor is appointed to carry out the construction works. The contractor will be responsible for the implementation of procedures outlined in the Safety and Health Plan. Public safety will be addressed by restricting Site access during construction. Fencing will be erected in areas of the Site where uncontrolled access is not permitted. › Goal posts will be established, where necessary, under overhead electricity lines for the entirety of the construction phase of the Proposed Wind Farm Site. › The suitability of machinery and equipment for use near power lines will be risk assessed. › All staff will be trained on operating voltages of overhead electricity lines running through the Site. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the Site are made aware of the location of lines before they come on to Site. › Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire. › When activities must be carried out beneath overhead lines, e.g., component delivery or substation construction, a Site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required. › Information on safe clearances will be provided to all staff and visitors. › Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on Site. › All staff will be made aware of and adhere to the Health & Safety Authority's '*Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and*		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Welfare at Work (Construction) (Amendment) Regulations 2021[1]. This will encompass the use of all necessary Personal Protective Equipment and adherence to the Site Health and Safety Plan. The scale and scope of the Proposed Project necessitates that a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013'*. The PSDP appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to): › Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the project; › Where possible, eliminate the hazards or reduce the risks; › Communicate necessary control measures, design assumptions or remaining risks to the PSCS so they can be dealt with in the Safety and Health Plan; › Ensure that the work of designers is coordinated to ensure safety; › Organise co-operation between designers; › Prepare a written Safety and Health Plan; › Prepare a safety file for the completed structure and give it to the client; and › Notify the Authority and the client of non-compliance with any written directions issued. The PSCS appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to):		

[1] *Health & Safety Authority (2013) Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013. Available at: https://www.hsa.ie/eng/publications_and_forms/publications/construction/guidelines_on_the_procurement_design_and_management_requirements_of_the_safety_health_and_welfare_at_work_construction_regulations_2013_updated_.pdf*

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			⟩ Development of the Safety and Health Plan for the construction stage with updating where required as work progresses; ⟩ Compile and develop safety file information. ⟩ Reporting of accidents / incidents; ⟩ Weekly Site meeting with PSCS; ○ Coordinate arrangements for checking the implementation of safe working procedures. Ensure that the following are being carried out: ○ Induction of all Site staff including any new staff enlisted for the project from time to time; ○ Toolbox talks as necessary; ○ Maintenance of a file which lists personnel on Site, their name, nationality, current Safe Pass number, current Construction Skills Certification Scheme (CSCS) card (where relevant) and induction date; ○ Report on Site activities to include but not limited to information on accidents and incidents, disciplinary action taken and PPE compliance; ○ Monitor the compliance of contractors and others and take corrective action where necessary; and ⟩ Notify the Authority and the client of non-compliance with any written directions issued.		
MM46	Air Quality: Dust and Exhaust Emissions	EIAR Chapter 5, 10	Truck wheels will be washed to remove mud and dirt before leaving. All plant and materials vehicles shall be stored in the compound area or other dedicated areas. Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. Construction traffic will be restricted to defined routes, and a speed limit will be implemented. The active construction area along the proposed underground cabling route will be small, ranging from 100m in length at any one time. Should separate crews be used during the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			construction phase they will generally be separated by 1-2km. All construction machinery will be maintained in good operational order while on-site, minimising any emissions that are likely to arise. Aggregate materials for the construction of the cabling route will be sourced locally to reduce the amount of emissions associated with vehicle movements. Potential dust emissions during the construction period will not be significant and will be relatively short-term in duration. All mitigation as outlined in Chapter 10 Air Quality will be implemented in order to reduce insofar as possible, impacts on air quality in the vicinity of Proposed Project construction works.		
MM47	Water Quality	EIAR Chapter 5	› A bespoke drainage design which includes but is not limited to interceptor drains, check dams, swales and ponds will be implemented on the Site, please see Section 4.6 in Chapter 4 for details on the different type of drainage measures to be implemented on the Site. Chapter 9 of this EIAR details all best practice and mitigation measures to minimise the potential for entrainment of suspended sediment or potential hydrocarbon leak. Please see Chapter 9 for details and Chapter 18 for a full list of mitigation and monitoring measures for the Proposed Project.		
MM48	Noise and Vibration	Chapter 5, 12	Best practice measures for noise control will be adhered to on-site during the construction phase of the Proposed Project to impacts associated with this phase of the development. Please refer to Chapter 12: Noise and Vibration and Chapter 18 Schedule of Mitigation and Monitoring Measures for a full list of measures. › No plant used on site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. › Any plant, such as generators or pumps, which is required to operate outside of general construction hours will be surrounded by an acoustic enclosure or portable screen as appropriate. › During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Section 12.6.1.1 of Chapter 12 using methods outlined in British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise.* › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs Monday to Saturday. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e. concrete pours, turbine component deliveries) it could occasionally be necessary to work out of these hours.		
MM49	Traffic and Transport	Chapter 5, 15	› A complete Traffic and Transport Assessment (TTA) of the Proposed Project has been carried out by Alan Lipscombe Traffic and Transport Consultants. The full results of the TTA are presented in Chapter 15: Material Assets. A Traffic Management Plan (TMP), included as Appendix 15-2 to the EIAR, has also been developed in order to minimise any potential effect on the local population during the construction phase of the Proposed Project due to traffic. The plan will be developed and implemented to ensure any effect is short term in duration and imperceptible in significance during the construction of the Proposed Project. Prior to commencement of any works,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be made known. Local access to properties will also be maintained throughout any construction works and local residents will be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		
MM50	Major Accidents & Natural Disasters	Chapter 5, 16	› The Proposed Project will be designed and built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. In accordance with the provision of the European Commission 'Guidance on the preparation of Environmental Impact Assessment Reports' 2017, a Risk Management Plan will be prepared and implemented on site to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures. › A Construction and Environmental Management Plan (CEMP) has been prepared for the Proposed Project and is included in Appendix 4-5 of this EIAR. Upon a grant of planning permission for the Proposed Project, the CEMP will be updated to reflect the conditions stipulated in the consent prior to the commencement of the development. The CEMP will be a live document maintained by the contractor that will work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 4-5 for the CEMP that sets out the minimum standards to be employed by the contractor. › Potential effects associated with contamination during construction, operation and decommissioning are addressed fully in Chapter 8 Land, Soils and Geology, and Chapter 9 Hydrology and Hydrogeology The mitigation measures outlined in Chapter 8 and Chapter 9 to protect environmental receptors as well as the procedures and measures described in the CEMP will ensure that the risk from these sources is low.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The Proposed Project will also be subject to a fire safety risk assessment in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, which will assist in the identification of any major risks of fire on site, and mitigation of the same during operation		
Operational Phase					
MM51	Property Values	EIAR Chapter 5	› All mitigation relevant to property values, outlined above and the corresponding chapters: Chapter 10 Air Quality, Chapter 12 Noise and Vibration, Chapter 13 Landscape, and Chapter 15 Material Assets, will be implemented in order to reduce insofar as possible, impacts on property values at properties located in the vicinity of the Proposed Project construction works. › The Proposed Project has been designed in accordance with the parameters set out in the Guidelines (DoEHLG, 2006) and with cognisance of the Draft Guidelines (DoHPLG, 2019).		
MM52	Human Health	EIAR Chapter 5	› Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits. The doors will only be unlocked as required for entry by authorised personnel and will be locked again following their exit. › Staff associated with the Proposed Project will conduct frequent visits, which will include inspections to establish whether any signs have been defaced, removed, faded, or are becoming hidden by vegetation or foliage, with prompt action taken as necessary. › Signs will also be erected at suitable locations across the Site as required for the ease and safety of operation of the wind farm. These signs include: ○ Buried cable route markers at 50m (maximum) intervals and change of cable route direction; ○ Directions to relevant turbines at junctions; ○ "No access to Unauthorised Personnel" at appropriate locations; ○ Speed limits signs at Site entrance and junctions;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			○ "Warning these Premises are alarmed" at appropriate locations; ○ "Danger HV" at appropriate locations; ○ "Warning – Keep clear of structures during electrical storms, high winds or ice conditions" at Site entrance; ○ "No unauthorised vehicles beyond this point" at specific Site entrances; and ○ Other operational signage required as per Site-specific hazards. › The proposed extension to the existing Slievecallan 110kV substation, which will be operated by EirGrid will be locked and fenced off from public access. The proposed substation extension will be operational remotely and manually 24 hours per day, 7 days a week. Supervisory operational and monitoring activities will be carried out remotely using a SCADA system, with the aid of computers connected via a telephone modem link. › Periodic service and maintenance work which include some vehicle movement. › For operational and inspection purposes, substation access is required. › Servicing of the substation equipment will be carried out in accordance with the manufacturer's specifications, which would be expected to entail the following: ○ Six-month service – three-week visit ○ Annual service – six-week visit ○ Weekly and daily visits as required. › An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the Site. Access for emergency services will be available at all times. ○ Six-month service – three-week visit ○ Annual service – six-week visit ○ Weekly and daily visits as required. › An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the Site. Access for emergency services will be available at all times.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM53	Residential Amenity	EIAR Chapter 5	All mitigation as outlined under noise and vibration, dust, traffic, visual amenity, shadow flicker, and telecommunications in this EIAR will be implemented in order to reduce insofar as possible impacts on residential amenity at properties located in the vicinity of the Proposed Project works, including along the proposed turbine delivery route and construction materials haul route, Proposed Grid Connection Site and the Proposed Enhancement Site.		
MM54	Shadow Flicker	EIAR Chapter 5	Where daily or annual shadow flicker exceedances are predicted at any inhabitable or third-party dwelling of the identified 15 no. sensitive receptors, a site visit will be undertaken firstly to determine the presence of existing screening and window orientation at each potentially affected property. This will determine if the receptor has an actual line of sight to any turbine and actual potential for shadow flicker to occur. Once this exercise is completed and all of the potentially affected properties, the following measures will be employed. Screening Measures In the event of an occurrence of shadow flicker exceeding guideline threshold values of 30 minutes per day at residential receptor locations, mitigation options will be discussed with the affected homeowner, including: › Installation of appropriate window blinds in the affected rooms of the residence; › Planting of screening vegetation; › Other site-specific measures which might be agreeable to the affected party and may lead to the desired mitigation. If agreement can be reached with the homeowner, then it would be arranged for the required mitigation to be implemented in cooperation with the affected party as soon as practically possible and for the full costs to be borne by the wind farm operator.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Wind Turbine Control Measures If it is not possible to mitigate any identified shadow flicker limit exceedance locally using the measures detailed above, wind turbine control measures will be implemented. Wind turbines can be fitted with shadow flicker control units to allow the turbines to be controlled to prevent the occurrence of shadow flicker at properties surrounding the wind farm. The shadow flicker control units will be added to any required turbines. A shadow flicker control unit allows a wind turbine to be programmed and controlled using the wind farm's Supervisory Control and Data Acquisition (SCADA) system to change a particular turbine's operating mode during certain conditions or times, or even turn the turbine off if necessary. All predicted incidents of shadow flicker can be pre-programmed into the wind farm's control software. The wind farm's SCADA control system can be programmed to shut down any particular turbine at any particular time on any given day to avoid excessive shadow flicker occurrences at properties which are not naturally screened or cannot be screened with measures outlined above. Where such wind turbine control measures are to be utilised, they need only be implemented when the specific combined circumstances occur that are necessary to give rise to the shadow flicker effect in the first instance. Therefore, if the sun is not shining on a particular day that shadow flicker was predicted to occur at a nearby property, there would be no need to shut down the relevant turbines that would have given rise to the shadow flicker at the property. Similarly, if the wind speed was below the cut-in speed that caused the turbine rotor to rotate and give rise to a shadow flicker effect at a nearby property, there would be no need to shut down the relevant turbines that otherwise would have caused shadow flicker.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The atmospheric variables that determine whether shadow flicker will occur or not, are continuously monitored at the Proposed Wind Farm Site and the data fed into the wind farm's SCADA control system. The strength of direct sunlight is measured by way of photocells, and if the sunlight is of sufficient strength to cast a shadow, the shadow flicker control mechanisms come into effect. Wind speed and direction are measured by anemometers and wind vanes on each turbine and on the wind farm's met mast, and similarly, and if wind speed and direction is such that a shadow will be cast, the shadow flicker control mechanisms come into effect. The moving blades of the turbine will require a short period of time to cease rotating and as such there may be a very short period (less than 3 to 5 minutes) during which the blades are slowed to a complete halt. The turbines giving rise to shadow flicker may be turned off on different days to prevent excessive wear and tear on any single turbine. In order to ensure that the model and SCADA system is accurate and working well a site visit will be carried out to verify the system. The shadow flicker prediction data will be used to select dates on which a shadow flicker event could be observed at one or multiple affected properties and the following process will be adhered to. 1. *Recording the weather conditions at the time of the site visit, including wind speeds and direction (i.e. blue sky, intermittent clouds, overcast, moderate breeze, light breeze, still etc.).* 2. *Recording the house number, time and duration of site visit and the observation point GPS coordinates.* 3. *Recording the nature of the sensitive receptor, its orientation, windows, landscaping in the vicinity, any elements of the built environment in the vicinity, vegetation.* 4. *In the event of shadow flicker being noted as occurring the details of the duration (times) of the occurrence will be recorded.* 5. *The data will then be sent to the wind farm operational team to confirm that the model and SCADA system are working.*		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			6. *Following 12 months of full operation of the Proposed Project a report can be prepared for the Local Authority describing the shadow flicker mitigation measures used at the wind farm and confirming the implementation and successful operation of the system.*		
Decommissioning Phase					
MM55	Decommissioning Phase	EIAR Chapter 4, Chapter 5 Appendix 4-6	The wind turbines proposed as part of the Proposed Project are expected to have a lifespan of approximately 35 years. Following the end of their useful life, the wind turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the site may be decommissioned fully. The substation will remain in place as it will be under the ownership of ESB/EirGrid. The works required during the decommissioning phase are described in Section 4.12 in Chapter 4 of the EIAR. Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration, and the mitigation measures outlined above will be implemented during the decommissioning phase also. A Decommissioning Plan has been prepared as part of this EIAR and is included as Appendix 4-6. This Decommissioning Plan follows the most up to date NatureScot guidance. By its nature, the Decommissioning Plan is a working document and, in accordance with the NatureScot guidance, an updated Decommissioning Plan will be agreed with the local authorities three months prior to decommissioning the Proposed Project. The principles that will inform the final decommissioning plan are contained in the CEMP (see Appendix 4-5).		
EIAR Chapter 6 Biodiversity					
Pre-Construction					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM56	Invasive Species Management	EIAR Chapter 6 Appendix 6-5	During field surveys, a search for Invasive Alien Species (IAS) listed under the 'Third Schedule' of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the 'First Schedule' of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. Rhododendron (*Rhododendron ponticum*) was recorded at 19 locations within the Site. Prior to the commencement of any works, the following site setup procedures will be carried out: › A pre-commencement survey for Rhododendron will be undertaken by a fully qualified ecologist to determine the locations and extent of the species within the Site and to determine whether there have been any changes in the extent of the infestation since the undertaking of surveys in 2024, 2025 and 2026. › The locations and extent of Rhododendron within the Site will be clearly marked out using hazard tape to ensure they are not disturbed. A 10m buffer zone (Higgins, G.T. 2008) surrounding each stand will also be applied using temporary fencing, to avoid disturbance of potentially contaminated soils. Given the largely interspersed recordings of this species within the Site, it is proposed to treat the plant *in-situ*. The recommended option for *in-situ* treatment is to manually remove the upper parts of the plant and apply the Ecoplug method (www.landscapedepot.ie) as to avoid spray drift and to minimise the potential for spraying of non-target species. The Ecoplug method is outlined below. › Cut the tree/plant as close to the ground as possible. This should be carried out from October to early March, outside the bird nesting season. › The cut material can be stacked and stored on site, used as firewood or mulched. › A 30 mm hole will be drilled into the remaining stump and the Ecoplug will be inserted into the hole until it is flush with the top of the stump.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Where immature plants occur, hand pulling can be undertaken at any time of the year and left to dry out on an impermeable surface. Where the Ecoplug method is unsatisfactory, such as with smaller saplings, manual extraction of the root/stump from the ground is recommended. The following methods for root extraction are outlined below. › Cut the tree/plant as close to the ground as possible. This should be carried out from October to early March, outside the bird nesting season. › The root/stump will be removed from the ground using hand tool or an excavator. › The cut material can be stacked and stored on the Site, used as firewood or mulched. The root/stump will be placed on an impermeable surface such as palettes or a radon barrier membrane and left to dry out.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM57	Otter	EIAR Chapter 6	**Disturbance/Mortality** Taking a precautionary approach, and due to the time that can elapse between the original surveys, any future planning consent and construction, a pre-construction otter survey will be carried out by a qualified ecologist to identify the presence of any breeding sites within the Site, that may have been established in the intervening period. As such, prior to the commencement of construction works associated with the installation of watercourse crossings, the following measures will be undertaken for the avoidance of disturbance/displacement and direct mortality and to ensure that no otter holts/breeding sites have been established since the original surveys undertaken (TII, 2008b): From a precautionary basis, a pre-commencement otter survey will be undertaken in accordance with standard best practice guidance prior to the commencement of site works. Should the surveys identify the presence of an otter holt, the following measures will be undertaken. › A National Parks and Wildlife Service derogation licence will be applied for (although compliance with such a licence has not been relied on in this assessment). › No works will be undertaken within 150m of any holts at which breeding females or cubs are present. › No wheeled or tracked vehicles (of any kind) will be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance will also not take place within 15m of such holts, except under licence (TII, 2008b). › All of the above works will be undertaken or supervised by an appropriately qualified ecologist.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Currently based on the finding of the surveys and current information regarding the Site, no derogation licence is required for this application, as no breeding sites have been recorded in close proximity to the Site. However, should the pre-commencement surveys identify a new breeding site and exclusion is required, a derogation licence will be obtained place from the NPWS prior to any works being carried out. **Habitat Degradation (impacts on water quality)** The potential for deterioration of water quality, and degradation of otter habitat, has been considered in Table 6-12 of Chapter 6, which assesses the potential for significant impacts on aquatic receptors, and provides mitigations to prevent any such effects.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM58	Badger	EIAR Chapter 6	**Disturbance/Mortality** Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction badger survey will be carried out to identify the presence of any setts that may have been established in the intervening period. Any setts identified within 150m of the Project Footprint will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. If an active badger sett is identified and works can be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett as follows: › Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities. If a newly established and active sett was identified within an area where works could not avoid direct impacts on the sett, then the sett would likely need to be excluded prior to works commencing. This would need to be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing and in consultation with NPWS. Where open excavations are left unattended, a ramp will be placed from the pit floor to ground level to allow safe egress of the excavation should any badger fall in. The bottom of the ramp will weighed down or secured, to ensure it remains in place should the excavation fill with water.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM59	Marsh Fritillary	EIAR Chapter 6	**Direct Effects/Mortality** › A pre-commencement survey for marsh fritillary larvae will be undertaken at the suitable time of year (i.e. August – September) in advance of construction commencing. This pre-commencement survey will cover the entirety of the Project Footprint. › If active larval webs are recorded within the Project Footprint, these webs will be translocated by a suitably qualified ecologist to adjacent suitable existing foraging habitat outside of the Project Footprint. This will be achieved by translocating a sod of earth with entire, intact Devil's-bit scabious plants upon which the larvae are feeding. › Larval webs and associated food plants will only be translocated by a suitable qualified Ecologist or the appointed Ecological Clerk of Works (ECoW) to suitable supporting marsh fritillary habitat a minimum of 20m from the Project Footprint. › Existing breeding areas will be fully fenced off with a minimum exclusion zone distance of 5 metres to construction works. › ECoW supervision will be required for construction of components near existing breeding areas. Where suitable marsh fritillary habitat occurs in close proximity to Project Footprint side casting of material will be to the opposite side of the proposed infrastructure to where the suitable habitat occurs.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM60	Bats	Appendix 6-1	**Loss or Damage to Commuting and Foraging Habitat** No mitigation required. However, taking a precautionary approach, standard best practice measures, as detailed in Section 6 of Appendix 6-1, will be implemented.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM61	Red Squirrel/Pine Marten	EIAR Chapter 6	**Disturbance/Mortality** Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction survey for pine marten/red squirrel will be carried out to identify the presence of any new breeding sites. These surveys will focus on areas of Conifer plantation (WD4) to be felled and all suitable habitat within 50m of the felling blocks. Any potential breeding sites should be monitored using camera traps to ascertain if they are active. Surveys will be undertaken in line with Nature Scot and TII guidelines. Should active dreys/dens be identified within the blocks to be felled, the following mitigations and best practice procedures will be followed to ensure that no breeding site for either red squirrel or pine marten is impacted: › Felling works will be undertaken in October–January inclusive, as this will avoid the main breeding season (February-September) when vulnerable young are most likely to be found within breeding sites for both species. › Any breeding sites identified within the 50m buffer that wouldn't be directly affected by felling works, but are vulnerable to disturbance related impacts, will be clearly marked out with an exclusion zone, and works/access through these areas will be avoided. › Plant machinery will be turned off when not in use. Operating machinery will be restricted to the Proposed Project works site area (and outside any exclusion zone)		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM62	Reptiles and Amphibians	EIAR Chapter 6	**Disturbance/Mortality** Prior to construction of the Proposed Project, pre-commencement surveys for viviparous lizard, common frog, and smooth newt will be undertaken within potential supporting habitat identified within the Project Footprint. Surveys will be undertaken by a suitably qualified ecologist and during the optimal season for each species, as per TII (2008) guidelines. Any individuals or population of these species will then be translocated outside of the Project Footprint to other areas of suitable habitats. An Ecological Clerk of Works will also be appointed for the construction works, who will translocate any further individuals recorded during the construction works.		
Construction Phase					
MM63	Surface Watercourses and Sensitive Aquatic Faunal Species	EIAR Chapter 6, 9	**Proposed Wind Farm Site and Proposed Enhancement Site** Detailed mitigation measures in relation to the protection of surface and ground water during construction are provided in Section 9.5.2 of Chapter 9: Hydrology and Hydrogeology. In summary the key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by application of suitable buffer zones. A self-imposed buffer zone of		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			50m has been put in place for streams and rivers within the Proposed Wind Farm Site where possible. Manmade forestry drains at the Site are not considered a hydrological constraint and therefore no buffering of forestry drains has been undertaken. All of the key infrastructure areas are located significantly away from watercourses with the exception of the upgrades to access track and water crossings. Detailed control measures in relation to the protection of surface and ground waters during construction are detailed in Section 9.5.2. of Chapter 9. In addition, the Construction Environmental Management Plan (CEMP) that is provided as Appendix 4-5 of the EIAR provides the details of exactly how the measures will be implemented during construction. A drainage management plan for the Proposed Project is provided in Section 9.4.2 of Chapter 9: Hydrology and Hydrogeology, as well as in Section 3.2.4 of the CEMP. This plan provides details of how water quality will be protected during the construction of the Proposed Project. The maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works with regular inspections of all installed drainage systems undertaken throughout the Site. **Proposed Grid Connection Site** Mitigations around the protection of watercourses from the construction of the proposed 33kV underground cabling are provided in Section 9.5.2.13 of Chapter 9. The mitigations include for: › Pre-commencement of works › Underground cabling watercourse crossing works › Fracture Blow-out (Frac-out) Prevention and Contingency Plan for HDD		
MM64	Bats	Appendix 6-1	The below describes the best practice and site-specific mitigation measures that are in place to avoid and reduce the potential for significant effects on local bat populations. <u>Noise Restrictions</u>		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			During the construction phase, plant machinery will be turned off when not in use and all plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (S.I. No. 632 of 2001, as amended). Lighting Restrictions Where lighting is required, directional lighting will be used to prevent overspill on to woodland/forestry edges and linear features. Exterior lighting, during construction and post construction, will be designed to minimize light spillage, reducing the effect on surrounding habitat features and bat activity. Lighting will be directed away from mature trees and treelines around the periphery of the site boundary to minimize disturbance to bats. Directional accessories will be used to direct light appropriately, such as light shields (Stone, 2013). All luminaires will be of a type that prevents upward and lateral spillage. The proposed lighting will comply with ILP Guidance Note 08/23 – Bats and Artificial Lighting at Night (ILP, 2023). The applicant also commits to the Dark Sky Ireland Lighting Recommendations, ensuring that: › Every light is justified; › Light is used only when necessary; › It is directed where needed; › Light intensity is minimised; › Spectra are adapted to the environment; › White light sources will have a “warm” colour temperature (less than 3000K). Bat Felling Buffers › In accordance with NatureScot (2021) and NIEA (2021) guidance, a minimum **50 m buffer** is applied between turbine blade tips and habitat features used by bats (e.g.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			hedgerows, treelines). Although increased buffers of 100–200m are recommended around woodland by Eurobats Publication No. 6 and NIEA, these recommendations are not currently supported by empirical evidence from the UK or Ireland and are not routinely applied in wind farm planning. › NatureScot recommends that a distance of 50m between turbine blade tip and nearest woodland (or other key habitat features) is adequate mitigation. This 50m buffer will be implemented from the outset and monitored as per the post-construction monitoring. The success of the buffer mitigation will be assessed as part of post construction monitoring and updated where necessary. › For the Proposed Wind Farm Site, a **50 m buffer** between turbine blade tip and the nearest habitat feature has been implemented, based on a conservative worst-case turbine specification (blade length: **75 metres;** hub height: **100metres**; total height: **175m**). Buffer distances were calculated using the Natural England formula (NatureScot, 2021) as illustrated in Plate 6-1 and have been incorporated into the turbine layout. Removal of areas of conifer plantation will be required to provide the necessary bat buffers within the Proposed Wind Farm Site. These vegetation-free areas (i.e. less than 2m in height) will be maintained for the duration of the operational phase and form part of the overall collision-risk mitigation strategy for bats.		
MM65	Marsh Fritillary	EIAR Chapter 6	**Dust Mitigation** The following mitigation applies to construction areas within 20m of potential marsh fritillary habitat (in line with Table 4 of Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction 2024): › Groundworks (i.e. works with potential to create dust) associated with the Proposed Project will be fully supervised by an Ecological Clerk of Works (ECoW).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The ECoW will regularly monitor adjacent marsh fritillary habitat on a daily basis for potential signs of dust deposition or any other habitat degradation. Dust level thresholds and weather will also be monitored. › If any signs of habitat degradation are noted, the dust-producing works will be immediately halted and further mitigation to protect larval web areas from dust will be implemented in advance of resuming work. › The ECoW will have power to halt construction works if required as outlined above. › The following additional dust mitigation measures, as set out in Chapter 10: Air Quality, will apply: › Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored by the ECoW to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Turbine components and construction materials will be transported to the Proposed Wind Farm Site on specified haul routes only, as agreed with the local authority. › Construction materials for the Proposed Project will be sourced locally from the onsite borrow pit. › The agreed haul route roads adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the Proposed Wind Farm Site entrance will be checked weekly for damage/potholes and repaired as necessary. › The transport of construction materials around the onsite borrow pit will be covered by tarpaulin where necessary.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The MRF facility will be local to the Site to reduce the amount of emissions associated with vehicle movements › A CEMP will be in place throughout the construction phase (see Appendix 4-5). **Loss of Suitable Breeding Habitat** As part of the proposed BMEP (Appendix 6-4) it is recommended to manage approx. 20 ha of agricultural wet grassland into species rich grassland, within which frequent Devil's-bit scabious has been recorded. Additionally, within the Proposed Wind Farm Site, approx. 29.7 ha of identified potential supporting habitat for marsh fritillary (under grazed) will be subject to adaptive grazing regime, which will be monitored and adjusted to enhance existing habitat within the Site. Full details on habitat establishment, as well as operational, monitoring are provided in Appendix 6-4.		
MM66	Invasive Species – Site hygiene and biosecurity measures	EIAR Chapter 6	The following site hygiene and biosecurity measures will be adhered to for the management of invasive species within the entire Proposed Project site: › No ground works will take place on site prior to the application of this site-specific ISMP. The ISMP will ensure all measures are taken to avoid the spread of species discussed. › All works in relation to the invasive species will be supervised by an ECoW. › All staff will be given a Toolbox Talk, by a suitably qualified person or ecologist, on invasive species removal in relation to Rhododendron and their management on site.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The contractor will assign a member of their team as Environmental Officer to ensure the management plan is adhered to throughout the proposed works. › A designated bio-secure area/exclusion zone will be set up at recorded invasive species locations to prevent disturbance in these areas. Invasive species will be marked with hazard tape in order to identify the species prior to vegetation clearance works and to keep it separate from other brash material. › All machinery should be thoroughly cleaned down prior to arriving on the site to avoid the potential spread of invasive species from elsewhere. › Machinery that is used for excavation and onsite removal of invasive material will not be used for any other works until they are fully cleaned down and then visually inspected by a specialist to ensure no fragments of invasive plant material are present. › Prior to leaving the invasive species exclusion zones, all boots and clothing will be thoroughly brushed down to remove any contaminated material prior to leaving the area. › As a precautionary measure, machinery will be thoroughly cleaned down before exiting the site to prevent potential spread of invasive species elsewhere. › Clean down will be carried out using brushes and shovels and power washing will be avoided insofar as possible. This is to prevent potentially contaminated run-off spreading outside the Site. › Material used for tracking machinery out of the contaminated areas on site e.g. plywood will be thoroughly cleaned down under supervision of the ECoW prior to removal off site. › Any soil and topsoil required on the Site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. › Any material imported to the site should be screened for invasive species by a suitably qualified ecologist before transportation to the Site.		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM67	Bats	EIAR Chapter 6 Appendix 6-1	**Blade Feathering** NIEA Guidelines also recommend that, in addition to buffers applied to habitat features, all wind turbines are subject to 'feathering' of turbine blades when wind speeds are below the cut-in speed of the proposed turbine. This means that the turbine blades are pitched at 90 degrees or parallel to the wind to reduce their rotation speed to below two revolutions per minute while idling. This measure has been shown to significantly reduce bat fatalities (by up to 50%) in some studies (NIEA, 2021). Blade feathering below the turbine cut-in speed is expected to be implemented automatically through the turbine control system. Feathering will be limited to periods and locations as follows: › Seasonal Application: Feathering will be applied during the main bat activity season (typically April–October) when bats are active and at potential increased risk of collision. Blade feathering will not be applied during winter months (November - March) when bats are largely inactive. › Spatial Targeting: Feathering will be implemented only at turbines located in areas of high bat activity, as identified through baseline surveys. Turbines positioned in habitats unsuitable for bats (e.g., extensive bare peat, exposed upland areas with no foraging or commuting value) will not require feathering at low wind speeds. Section 6.1.3 of Appendix 6-1 of the EIAR outlines areas which recorded high bat activity for high collision risk bat species. Should any variations in activity or risk levels be identified during post-construction monitoring, this will be adjusted accordingly as part of the mitigation and monitoring strategy		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Operational Monitoring **Year 1** Bat Activity Surveys The post-construction surveys will be carried out as per the pre-construction survey effort. Static monitoring will take place at each turbine during the bat activity season (between April and October) (NatureScot, 2021, NIEA, 2021). Full spectrum recording detectors will be utilised for the same duration as during pre-application surveys and at the same density (NatureScot, 2021). Walked survey transects will also be conducted. Key weather parameters and other factors that are known to influence collision risk will be monitored and shall include: › Windspeed in m/s (measured at nacelle height) › Temperature (°C) › Precipitation (mm/hr) Carcass Searches Carcass searches, to monitor and record bat fatalities, shall be conducted at each turbine in accordance with most recent NatureScot/NIEA Guidance. This shall include searcher efficiency trials and an assessment of scavenger removal rates to determine the appropriate correction factor to be applied in relation to determining an accurate estimate of collision mortality. Surveys should cover all activity seasons and the use of a trained dog detection team will be carried out to ensure maximum efficiency. **Years 2 & 3**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Monitoring surveys shall continue in Year 2 and 3, and where a curtailment requirement has been identified, the success of the curtailment strategy shall be assessed in line with the baseline data collected in the preceding year(s). The performance of any curtailment programme in terms of its ability to respond to the changes in bat abundance based on temperature and wind speed shall be analysed to confirm it is neither significantly over- nor under- curtailing during different periods of bat activity. At the end of each year, the efficacy of any mitigation/curtailment programme shall be reviewed, and any identified efficiencies incorporated into the programme. The requirement for continued post-consent monitoring will also be considered. Should no bat fatalities be recorded in Year 1, curtailment (where applicable) in Year 2 and Year 3 could be reduced/re-evaluated or removed with monitoring continuing to inform this strategy.		
Decommissioning Phase					
MM68	Decommissioning Phase	EIAR Chapter 6	The same mitigation to prevent significant impacts on water quality and associated aquatic fauna and other terrestrial fauna during construction will be applicable to the decommissioning phase. It can be concluded that following the implementation of preventative mitigation, there is no potential for the decommissioning of the Proposed Project to result in significant effects on biodiversity.		
EIAR Chapter 7 Ornithology					
Pre-Construction Phase					
MM69	Birds	EIAR Chapter 7	› Pre-commencement confirmatory surveys will be undertaken within one month prior to the initiation of works at the Proposed Project to identify sensitive sites (e.g. roosts).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Any requirement for construction works to run into the subsequent breeding or winter seasons following commencement will be subject to a repeat of the pre-commencement bird surveys to confirm the absence of breeding or roosting birds of conservation concern. These surveys will be conducted once per month during the breeding season (April to July) and once at the start of the winter season (October). The survey will aim to identify sensitive sites (e.g., nests or roosts depending on the season in question). › This monitoring will involve surveying onsite and to a 500m radius of the development footprint/works areas. Monitoring will be undertaken by a suitably qualified ornithologist. The survey period will include one month prior to the initiation of works, four visits between April and July and one visit during the winter period (October). If a sensitive area is identified, the nest/roost sites will be located, and no works shall be undertaken within a species-specific buffer in line with best practice guidance (e.g. Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007). No works within the buffer zone shall be permitted until it can be demonstrated that the species is no longer reliant on the area for breeding or roosting. All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area(s) will also be marked off using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.		
Construction Phase					
MM70	Birds	EIAR Chapter 7	› If a sensitive area is identified, the nest/roost sites will be located, and no works shall be undertaken within a species-specific buffer in line with best practice guidance (e.g. Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			No works within the buffer zone shall be permitted until it can be demonstrated that the species is no longer reliant on the area for breeding or roosting.		
MM71	Birds	EIAR Chapter 7	› Works will commence outside the bird nesting season (1st of March to 31st of August inclusive). In the event that construction works to run into the subsequent breeding season following commencement, confirmatory bird surveys will be carried out to identify breeding sites of species of high conservation concern, as outlined in the Section 7.8.1 of Chapter 7. › Significant impacts on hen harrier were predicted, as such a BMEP will be implemented. Please see Section 7.6.3 of Chapter 7 for further details. › Where sections of woody vegetation are removed for the purposes of the junction and road upgrades, all work will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2022 and areas will be replaced with suitable hedge/tree species which are common in the local context. › During the construction phase, noise limits, noise control measures, hours of operation (i.e. dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. All plant and equipment for use will comply with the European Communities (Noise Emission By Equipment For Use Outdoors) Regulations, 2001, as amended (SI 632/2001). Plant machinery will also be turned off when not in use. Please see Chapter 12: Noise and Vibration for more detail associated with noise during the construction phase. › Water protection measures will be implemented around existing watercourses as outlined in Chapter 9, to protect the use of watercourses by birds.		
MM72	Hen Harrier	EIAR Chapter 7	› A comprehensive Hen Harrier Habitat Enhancement Plan is proposed. › This plan will be implemented prior to the construction of the Proposed Project. The plan measures will be implemented as follows. › Forestry Areas		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			1. The Applicant will employ a suitably qualified contractor(s) to carry out the measures as detailed in Section 4.2.2 of Appendix 6-4. 2. A meeting will be held with the contractor to outline the general aims, objectives and requirements of the BMEP for all enhancement areas. 3. Site-specific felling methods will be devised between the Applicant and their forestry consultant. › Farmland Areas 4. The Applicant will engage a suitably qualified contractor to carry out the measures as detailed in Section 4.2.3 of Appendix 6-4. 5. A meeting will be held with the contractor to outline the general aims, objectives and requirements of the plan for all enhancement areas. › A farm plan will be prepared which will outline the individual prescriptions required to ensure the implementation of this plan. The plan will include a map of the landholding, and a prescriptive list of actions to be undertaken, and the time of year when the necessary works and management measures are to be undertaken. It is proposed that a suitably qualified environmental scientist or ornithologist/ecologist will be engaged by the Applicant to oversee the implementation of this plan generally and the farm management plan in particular. The implementation will likely require the input of agricultural advisors including with regard to appropriate stocking levels.		
Operational Phase					
MM73	Birds	EIAR Chapter 7	› Operational monitoring will be in line with guidelines issued by the NatureScot (NatureScot, 2009 and NatureScot, 2025a). Surveys will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the wind farm's lifetime.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Operational monitoring will include the following survey methods: › Flight activity surveys: vantage point surveys. › Distribution and abundance surveys: breeding raptor surveys. Targeted bird collision surveys (corpse searches) will be undertaken by a trained dog and handler. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.		
MM74	Hen Harrier	EIAR Chapter 7	The Proposed Hen Harrier Habitat Enhancement Areas will be the subject of annual monitoring to assess the effectiveness of the measures proposed and employed and to contribute to advances in habitat management methods, which can be applied to future similar projects. The monitoring can also aid adaption and implementation of improved methods and measures as they emerge, or intensification of successful measures deployed from farm plan to farm plan. Please refer to Appendix 6-4 for further details. The monitoring measures will include the following during the breeding season: › Hen harrier surveys of each of the Proposed Hen Harrier Habitat Enhancement Areas. › Passerine point counts at each of the Proposed Hen Harrier Habitat Enhancement Areas. › Habitat mapping and scoring at each of the Proposed Hen Harrier Habitat Enhancement Areas. › Vegetation sampling at each of the Proposed Hen Harrier Habitat Enhancement Areas.		
Decommissioning Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM75	Birds	EIAR Chapter 7	During the decommissioning phase, disturbance limitation measures and monitoring will be as per the pre-construction phase and construction phase, respectively.		
EIAR Chapter 8 Land, Soils and Geology					
Construction Phase					
MM76	Peat and Subsoil Excavation	EIAR Chapter 4, 8	› Placement of turbines and associated infrastructure in areas with shallow peat where possible (this has been confirmed by extensive site investigations); › Use of the existing road network to reduce peat excavation and borrow pit volumes; › The peat and subsoil which will be removed during the construction phase will be localised to the Proposed Project infrastructure; › No turbines or related infrastructure will be constructed near or on any designated sites such as NHAs, SACs or SPAs; › A minimal volume of peat and subsoil will be removed to allow for infrastructural work to take place in comparison to the total volume present on the Site due to optimisation of the layout by mitigation by design; and, › The majority of peat excavated during road construction will be permanently stored in the on-site borrow pit and at dedicated peat/spoil storage areas. A smaller proportion of excavated peat will be cast aside and landscaped at locations carefully selected by the project geotechnical expert and project hydrologist.		
MM77	Leakages and Spillages	EIAR Chapter 4, 8 Appendix 4-4	› Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station; › On-site re-fuelling will be undertaken using a double skinned bowser with spill kits kept on site for accidental leakages or spillages; › Only designated trained operatives will be authorised to refuel plant on-site; › Taps, nozzles or valves associated with refuelling equipment will be fitted with a lock system;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5	› Fuels stored on-site will be minimised. All storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area; › Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage; › The plant used during construction will be regularly inspected for leaks and fitness for purpose; and, › An emergency response plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan.		
MM78	Erosion of Exposed Subsoils and Peat	Chapter 8 Appendix 4-2	› All excavated material will be completed in accordance with the Peat and Spoil Management Plan (FT. 2026 (a)), refer to Appendix 4-2). Material will be moved over the least possible distance. › Any excess peat will be moved to peat storage areas or will be temporarily surrounded by earthen berms to prevent erosion. This will prevent erosion of soil. Silt fences will be installed around temporary stockpiles to limit movement of entrained sediment in surface water runoff. The use of earthen berms and silt fencing around earthworks and spoil mounds will prevent egress of water from the works. › In order to minimize erosion of mineral subsoils stripping of peat will not take place during extremely wet periods2 (to prevent increased silt rich runoff). Temporary drainage systems (as outlined in Section 9.3.17 of the Chapter 9) will be required to limit runoff impacts during the construction phase.		

[2] › >10 mm/hr (i.e. high intensity local rainfall events);
› >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or,
› >half monthly average rainfall in any 7 days.

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› During tree felling brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. These best practice measures related to water quality protection are incorporated into the forestry management and mitigation measures as presented in Section 9.5.2.1 of Chapter 9.)		
MM79	Peat Instability and Failure	Chapter 8 Appendix 8-1	The following measures incorporated into the construction phase of the Proposed Project will assist in the management of the risks for this Site; › Appointment of experienced and competent contractors; › The site will be supervised by experienced and qualified personnel; › Allocate sufficient time for the project (be aware that decreasing the construction time has the potential to increase the risk of initiating a peat movement); › Prevent undercutting of slopes and unsupported excavations; › Maintain a managed robust drainage system; › Prevent placement of loads/overburden on marginal ground; › Set up, maintain and report findings from monitoring systems; › Ensure construction method statements are followed or where agreed modified/ developed; and, › Revise and amend the Geotechnical Risk Register as construction progresses.		
MM80	Biodiversity Management and Enhancement Plan	EIAR Chapter 8	All proposed habitat management and enhancement works will be in accordance with the best practice Forest Service regulation, policies and strategic guidance documents as well as Coillte, DAFM and NatureScot guidance documents to ensure minimal potential negative effects on the local peat, soil and subsoil environment. Given the nature of the restoration measures the following mitigation measures are proposed:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Before any works are completed silt fences will be installed to limit the movement of entrained sediment in surface water runoff; › Proposed off-road routes will be walked in advance of any machinery; › All machinery operators will be experienced; › The Proposed Wind Farm Site will be walked before a machine goes off-road; › Bog mats will be used where the excavator is required to travel over wet ground; and, › A low ground pressure excavator with wide tracks (1.9m or greater) will be used to reduce compaction of the peat and subsoils.		
Operational Phase					
MM81	Site Road Maintenance	EIAR Chapter 8	› Use of aggregate from authorised quarries for use in road and hardstand maintenance.		
MM82	Site Vehicle/Plant Use	EIAR Chapter 4, 8 Appendix 4-5	› Vehicles used during the operational phase will be refuelled off site before entering the Proposed Project site; › It is not envisioned that fuels will be stored on-site during the operational phase; › Spill kits will be available in all site vehicles to deal with an accidental spillage and breakdowns; and, › An emergency plan for the operational phase to deal with accidental spillages and breakdowns will be contained in the Construction and Environmental Management Plan (CEMP) (see Appendix 4-5).		
MM83	Use of Oil in Transformers	EIAR Chapter 4, 8	› All transformers and substation areas will be bunded to 110% of the volume of oil used in each transformer/substation;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5	› An emergency plan for the operational phase to deal with accidental spillages will be contained in the Construction and Environmental Management Plan (CEMP, refer to Appendix 4-5) for the wind farm operational phase.		
Decommissioning Phase					
MM84	Decommissioning Phase	EIAR Chapter 8	The potential impacts associated with decommissioning of the Proposed Project will be similar to those associated with construction but of reduced magnitude. Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant. Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by on-site plant will be implemented as per the construction phase mitigation measures.		
EIAR Chapter 9 Hydrology and Hydrogeology					
Pre-Construction Phase					
MM85	Clear Felling of Coniferous Plantation	EIAR Chapter 4, 9 Appendix 4-5 Appendix 4-7	All felling operations will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte and DAFM guidance documents, including the specific guidelines listed below, to ensure that felling, planting and other forestry operations result in minimal potential negative effects to the receiving environment. › Forestry Standards Manual (Forest Service, 2015); › Forest Protection Guidelines (Forest Service, 2002); › Forest Operations and Water Protection Guidelines (Coillte, 2013); › Forestry and Water Quality Guidelines (Forest Service, 2000b); › Coillte Planting Guideline SOP;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A Guide to Forest Tree Species Selection and Silviculture in Ireland (Horgan et al., 2003); › Management Guidelines for Ireland's Native Woodlands. Jointly published by the National Parks & Wildlife Service (Cross and Collins, 2017); › Native Woodland Scheme Framework (Forest Service, 2018); and, › Code of Best Forest Practice (Forest Service, 2000) **Mitigation by Avoidance:** There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document *"Forestry and Water Quality Guidelines"* are shown in Chapter 9 Table 9-15. During the wind turbine construction phase a self-imposed buffer zone of 50 metres will be maintained for all streams where possible. These buffer zones are shown on **Figure 9-8**. With the exception of proposed new roads, proposed upgrades to existing roads and proposed watercourse crossings all proposed tree felling areas are located outside of imposed buffer zones. Additional mitigation (detailed below) will be carried where tree felling is required inside the buffer zones. The large distance between most of the proposed felling areas and sensitive aquatic zones means that potential poor quality (sediment laden) runoff from felling areas will be adequately managed and attenuated prior to even reaching the aquatic buffer zone and primary drainage routes. Where tree felling is required within the 50m buffer, the following additional mitigation measures will be employed. **Mitigation by Design**:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows: › Machine combinations (i.e., handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance; › Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicle through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing points. Where possible, existing drains will not be disturbed during felling works; › Ditches which drain from the proposed area to be felled towards existing surface watercourses will be blocked, and temporary silt traps will be constructed. No direct discharge of such ditches to watercourses will occur. Drains and sediment traps will be installed during ground preparation. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and will avoid being placed at right angles to the contour; › Sediment traps will be sited in drains downstream of felling areas. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of in the peat disposal areas. Where possible, all new silt traps will be constructed on even ground and not on sloping ground; › In areas particularly sensitive to erosion or where felling inside the 50 metre buffer is required, it will be necessary to install double or triple sediment traps;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All drainage channels will taper out before entering the 50m buffer zone. This ensures that discharged water gently fans out over the buffer zone before entering the aquatic zone, with sediment filtered out from the flow by ground vegetation within the zone. On erodible soils, silt traps will be installed at the end of the drainage channels, to the outside of the buffer zone; › Drains and silt traps will be maintained throughout all felling works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled; › Brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there is risk of severe erosion occurring, extraction will be suspended during periods of high rainfall; › Timber will be stacked in dry areas, and outside a local 50 metre watercourse buffer. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites; › Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water run-off; › Checking and maintenance of roads and culverts will be on-going through the felling operation; › Refuelling or maintenance of machinery will not occur within 100m of a watercourse. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; › A permit to refuel system will be adopted; › Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			completed, but care will be taken to avoid removing natural debris deflectors; › Crossing of streams will not be permitted; › Trees will be cut manually from along streams and using machinery to extract whole tree; and, › Travel only perpendicular to and away from stream. **Silt Traps**: Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner. **Drain Inspection and Maintenance**: The following items shall be carried out during pre-felling inspections and after: › Communication with tree felling operatives in advance to determine whether any areas have been reported where there is unusual water logging or bogging of machines; › Inspection of all areas reported as having unusual ground conditions; › Inspection of main drainage ditches and outfalls. During pre-felling inspections the main drainage ditches shall be identified. Ideally the pre-felling inspection shall be carried out during rainfall; › Following tree felling all main drains shall be inspected to ensure that they are functioning; › Extraction tracks near drains need to be broken up and diversion channels created to ensure that water in the tracks spreads out over the adjoining ground; › Culverts on drains exiting the site will be unblocked; and,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All accumulated silt will be removed from drains and culverts, and silt traps, and this removed material will be deposited away from watercourses to ensure that it will not be carried back into the trap or stream during subsequent rainfall. **Surface Water Quality Monitoring**: Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The 'before' sampling will be conducted within 4 weeks of the felling activity commencing, preferably in medium to high water flow conditions. The "during" sampling will be undertaken once a week or after rainfall events. The 'after' sampling will comprise as many samplings as necessary to demonstrate that water quality has returned to pre-activity status (i.e., where an impact has been shown). Details of the proposed surface water quality monitoring programme are outlined in the Surface Water Management Plan (refer to Appendix 4-7). Criteria for the selection of water sampling points include the following: › Avoid man-made ditches and drains, or watercourses that do not have year-round flows, i.e. avoid ephemeral ditches, drains or watercourses; › Select sampling points upstream and downstream of the forestry activities; › It is advantageous if the upstream location is outside/above the forest in order to evaluate the impact of land-uses other than forestry; › Where possible, downstream locations will be selected: one immediately below the forestry activity, the second at exit from the forest, and the third some distance from the second (this allows demonstration of no impact through dilution effect or contamination by other land-uses where impact		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			increases at third downstream location relative to second downstream location); and, › The above sampling strategy will be undertaken for all on-site sub-catchments streams where tree felling is proposed. Also, daily surface water monitoring forms will also be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.		
Construction Phase					
MM86	Earthworks Resulting in Suspended Solids Entrainment in Surface Waters	EIAR Chapter 4, 9 Appendix 4-3 Appendix 4-4 Appendix 4-5	**Mitigation by Avoidance:** The key mitigation measure during the construction phase is the avoidance of sensitive aquatic areas where possible. From **Figure 9-8** it can be seen that all of the key areas of the Proposed Project are actually significantly away from the delineated buffer zones with the exception of sections of proposed upgrades to existing roads, proposed new roads, proposed stream crossings and existing stream crossings requiring upgrading. Additional control measures, which are outlined further on in this section, will be undertaken at these locations. The large setback distance from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures (discussed below) to be properly installed and operated effectively. The proposed buffer zone will: › Avoid physical damage to watercourses, and associated release of sediment; › Avoid excavations within close proximity to surface water courses; › Avoid the entry of suspended sediment from earthworks into watercourses; and,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Avoid the entry of suspended sediment from the construction phase drainage system into watercourses, achieved in part by ending drain discharge outside the buffer zone and allowing percolation across the vegetation of the buffer zone. **Mitigation by Design:** › Source controls: ○ Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sand bags, oyster bags filled with gravel, filter fabrics, and other similar/equivalent or appropriate systems. ○ Small working areas, covering stockpiles, weathering off stockpiles, cessation of works in certain areas or other similar/equivalent or appropriate measures. › In-Line controls: ○ Interceptor drains, vee-drains, oversized swales, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps/attenuation lagoons, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems. › Treatment systems: ○ Temporary sumps and attenuation ponds, temporary storage lagoons, sediment traps, and settlement ponds, and proprietary settlement systems such as Siltbuster, and/or other similar/equivalent or appropriate systems.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The main elements of interaction with existing drains will be as follows: › Apart from interceptor drains, which will convey clean runoff water to the downstream drainage system, there will be no direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the Proposed Project drainage into the existing site drainage network. This will reduce the potential for any increased risk of downstream flooding or sediment transport/erosion; › Silt traps will be placed in the existing drains upstream of any streams where construction works / tree felling is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area; › Runoff from individual turbine hardstanding areas will be not discharged into the existing drain network but discharged locally at each turbine location through stilling ponds and buffered outfalls onto vegetated surfaces; › Buffered outfalls which will be numerous over the site will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the site; and, › Drains running parallel to the existing roads requiring widening will be upgraded, widening will be targeted to the opposite side of the road. Velocity and silt control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works. Regular buffered outfalls will also be added to these drains to protect downstream surface waters. **Pre-commencement Temporary Drainage Works**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Prior to the commencement of road upgrades (or new road/hardstand or turbine base installs) the following key temporary drainage measures will be installed: › All existing dry forestry drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using forestry check dams/silt traps; › Clean water diversion drains will be installed upgradient of the works areas; › Check dams/silt fence arrangements (silt traps) will be placed in all existing forestry drains that have surface water flows and also along existing forestry roadside drains; and, › A double silt fence perimeter will be placed down-slope of works areas that are located inside the watercourse 50m buffer zone. Refer to the drainage plan (Appendix 4-3) for the location of these temporary measures. **Water Treatment Train:** A final line of defence will be provided by a water treatment train such as a "Siltbuster". If the discharge water from construction areas fails to be of a high quality during regular inspections, then a filtration treatment system (such as a 'Siltbuster' or similar equivalent treatment train (sequence of water treatment processes) will be used to filter and treat all surface discharge water collected in the dirty water drainage system. This will apply for all of the construction phase. **Silt Fences:** Silt fences will be emplaced within drains down-gradient of all construction areas. Silt fences are effective at removing heavy settleable solids. This will act to prevent entry to water courses of sand and gravel sized sediment, released from excavation of mineral sub-soils of glacial and glacio-fluvial origin, and entrained in surface water runoff. Inspection and maintenance of these		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			of these structures during construction phase is critical to their functioning to stated purpose. They will remain in place throughout the entire construction phase. Double silt fences will be placed within drains down-gradient of all construction areas inside the hydrological buffer zones. **Silt Bags:** Silt bags will be used where small to medium volumes of water need to be pumped from excavations. As water is pumped through the bag, the majority of the sediment is retained by the geotextile fabric allowing filtered water to pass through. Silt bags will be used with natural vegetation filters or sedimats (Sediment entrapment mats), consisting of coir or jute matting, will be placed at the silt bag location to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to the ground surface using stakes/pegs. The sedimat will extend to the full width of the outfall to ensure all water passes through this additional treatment measure. **Settlement Ponds:** The Proposed Wind Farm Site infrastructure footprint has been divided into drainage catchments (based on topography, outfall locations, and catchment size) and stormwater runoff rates based on the 10-year return period rainfall event were calculated for various catchment areas in order to size the settlement ponds. The location and dimensions of proposed settlement ponds are shown on the Proposed Wind Farm Site drainage plan drawings (Appendix 4-3). **Level Spreaders and Vegetation Filters:**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Level spreaders and vegetation filters will be implemented at the settlement ponds. The purpose of level spreaders is to release treated drainage flow in a diffuse manner, and to prevent the concentration of flows at any one location thereby avoiding erosion. Level spreaders are not intended to be a primary treatment component for development surface water runoff. They are not stand-alone but occur as part of a treatment train of systems that will reduce the velocity of runoff prior to be released at the level spreader. In the absence of level spreaders, the potential for ground erosion is significantly greater than not using them. Vegetation filters are essentially end-of-line polishing filters that are located at the end of the treatment train. In fact, vegetation filters are ultimately a positive consequence of not discharging directly into watercourses which is one of the mitigation components of the drainage philosophy. This makes use of the natural vegetation of the Site to provide a polishing filter for the Proposed Wind Farm Site drainage prior to reaching the downstream watercourses. Again, vegetation filters are not intended to be a single or primary treatment component for treatment of works area runoff. They are not stand alone but are intended as part of a treatment train of water quality improvement/control systems (i.e. source controls→check dams→silt traps→settlement ponds→level spreaders →silt fences→vegetation filters). **Pre-emptive Site Drainage Management** The works programme for the entire construction stage of the development will also take account of weather forecasts, and predicted rainfall in particular. Large excavations and movements of peat/subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The following forecasting systems are available and will be used on a daily basis at the site to direct proposed construction activities: › General Forecasts: Available on a national, regional and county level from the Met Eireann website (www.met.ie/forecasts). These provide general information on weather patterns including rainfall, wind speed and direction but do not provide any quantitative rainfall estimates; › MeteoAlarm: Alerts to the possible occurrence of severe weather for the next 2 days. Less useful than general forecasts as only available on a provincial scale; › 3-hour Rainfall Maps: Forecast quantitative rainfall amounts for the next 3 hours but does not account for possible heavy localised events; › Rainfall Radar Images: Images covering the entire country are freely available from the Met Eireann website (www.met.ie/latest/rainfall_radar.asp). The images are a composite of radar data from Shannon and Dublin airports and give a picture of current rainfall extent and intensity. Images show a quantitative measure of recent rainfall. A 3-hour record is given and is updated every 15 minutes. Radar images are not predictive; and, › Consultancy Service: Met Eireann provide a 24-hour telephone consultancy service. The forecaster will provide interpretation of weather data and give the best available forecast for the area of interest. Using the safe threshold rainfall values will allow work to be safely controlled (from a water quality perspective) in the event of forecasting of an impending high rainfall intensity event. Works will be suspended if forecasting suggests either of the following is likely to occur: › >10 mm/hr (i.e., high intensity local rainfall events); › >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, › >half monthly average rainfall in any 7 days.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Prior to works being suspended the following control measures will be completed: › Secure all open excavations; › Provide temporary or emergency drainage to prevent back-up of surface runoff; and, › Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded. **Management of Runoff from Peat and Subsoil Management Areas:** During the initial construction of management areas, silt fences, straw bales and biodegradable geogrids will be used to control surface water runoff from works areas. Where applicable, the vegetative top-soil layer of the peat and spoil management areas will be rolled back to facilitate placement of excavated spoil, following which the vegetative-top soils layer will be reinstated. Where reinstatement is not possible, spoil and peat management areas will be sealed with a digger bucket and seeded as soon possible to reduce sediment entrainment in runoff. Drainage from peat and spoil storage areas will ultimately be routed to an oversized swale and a number of stilling ponds pond with appropriate storage and settlement designed for a 1 in 10-year return period before being discharged to the on-site drains. Peat/subsoil reinstatement areas will be sealed with a digger bucket and vegetated as soon possible to reduce sediment entrainment in runoff. Once re-vegetated and stabilised peat/subsoil reinstatement areas will no longer be a potential source of silt laden runoff. Therefore, at each stage of the peat and spoil management area development the above mitigation measures will be deployed to ensure protection of downstream water quality.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Timing of Site Construction Works: Construction of the site drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses. Construction of the drainage system during this period will also ensure that attenuation features associated with the drainage system will be in place and operational for all subsequent construction works. **Monitoring:** An inspection and maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be undertaken, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water in parts of the systems where it is not intended. Inspections will also be undertaken after tree felling. Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. Checks will be carried out on a daily basis. During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for each primary watercourse and specifically following heavy rainfall events (as per the CEMP is included in Appendix 4-5 of this EIAR).		
MM87	Excavation Dewatering and Potential Impacts	EIAR Chapter 9	Management of groundwater seepages and subsequent treatment prior to discharge into the drainage network will be undertaken as follows:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	on Surface Water Quality		› Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; › If required, pumping of excavation inflows will prevent build-up of water in the excavation; › The interceptor drainage will be discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters; › The pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit; › There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur; › Daily monitoring of excavations by a suitably qualified person will occur during the construction phase. If high levels of seepage inflow occur, excavation work will immediately be stopped and a geotechnical assessment undertaken; and, › A mobile 'Siltbuster' or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites. They will be used as final line of defence if needed.		
MM88	Leakages or Spillages of Hydrocarbons	Chapter 9	Mitigation measures proposed to avoid release of hydrocarbons at the site are as follows: › Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station; › On-site re-fuelling will be undertaken using a fuel truck with spill kits kept on site for accidental leakages or spillages;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Only designated trained operatives will be authorised to refuel plant on-site; › Taps, nozzles or valves associated with refuelling equipment will be fitted with a lock system; › All fuel storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area; › Fuels stored on-site will be minimised. All storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area; › Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage; › The transformer within the proposed substation extension will be bunded appropriately to the volume of oils likely to be stored and to prevent leakage of any associated chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; › The plant used during construction will be regularly inspected for leaks and fitness for purpose; and, › An emergency response plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan (which is contained in Appendix 4-5).		
MM89	Release of Cement-Based Products	EIAR Chapter 4, 9	› No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place; › Where possible pre-cast elements for culverts and concrete works will be used;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-4	› Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds; › Weather forecasting will be used to plan dry days for pouring concrete; and, › The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event; and, › At proposed turbine foundations, sand blinding, DPM, and lean-mix blinding are used to vertically contain the concrete. While the concrete is contained laterally by temporary/permanent shuttering. The concrete cures within 72hrs.		
MM90	Wastewater Disposal	EIAR Chapter 9	› It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. It is not proposed to treat wastewater on-site.		
MM91	Morphological Changes to Surface Water Course & Drainage Patterns	EIAR Chapter 9	› Watercourse crossings will be bottomless or clear span structures and the existing banks will remain undisturbed. No in-stream excavation works are proposed and therefore there will be no direct impact on the stream at the proposed crossing location; › Where the proposed cable route follows an existing road or road proposed for upgrade, the cable will pass over or below the culvert within the access road; › All guidance / mitigation measures proposed by the OPW or the Inland Fisheries Ireland[3] is incorporated into the design of the proposed crossings; › As a further precaution, near stream construction work, will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works		

[3] *Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			according to the Eastern Regional Fisheries Board (2004) guidance document "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites", i.e., May to September inclusive. This time period coincides with the period of lowest expected rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses (any deviation from this will be done in discussion with the IFI); › During the near stream construction work double row silt fences will be emplaced immediately down-gradient of the construction area for the duration of the construction phase. There will be no batching or storage of cement allowed in the vicinity of the crossing construction areas; › All new river/stream crossings will require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent; and, › All crossings will be designed to accommodate a 100-year design flood with allowance for 300mm freeboard The watercourse crossings will be constructed to the specifications of the OPW bridge design guidelines 'Construction, Replacement or Alteration of Bridges and Culverts - A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945', and in consultation with Inland Fisheries Ireland. Abutments will be constructed from precast units combined with in-situ foundations, placed within an acceptable backfill material. Confirmatory inspections of the proposed new watercourse crossing location will be carried out by the Project Civil/Structural Engineer and the Project Hydrologist prior to the construction of the crossing. In relation to the new proposed culverts and proposed culvert upgrades at forestry drain crossings, the culverts will be suitably sized (approx. 900mm) for the expected peak flows in the relevant drain. All culverts will be installed with a minimum internal gradient of 1% (1 in 100).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.		
MM92	Hydrologically Connected Designated Sites	EIAR Chapter 9	Drainage mitigation measures for surface water quality protection during the construction phase are summarised again below: (Please refer to MM85 and MM86 above for the full description of these measures and how they will be applied). › The proposed mitigation measures will include 50m buffer zones for avoidance of sensitive hydrological features (streams and rivers); › Pre-construction drainage control measures (Section 9.5.2.2); › Robust drainage control measures (i.e. interceptor drains, swales, settlement ponds and treatment trains such as Siltbuster) will ensure that the quality of runoff from Proposed Project areas will be very high; and, › Best practice measures with regard use of oils, fuels (MM87) and cement based compounds (MM88).		
MM93	WFD Status	EIAR Chapter 9	Comprehensive surface water mitigation and drainage controls are outlined in MM84 (Felling of Coniferous Plantations), MM85 (Earthworks), MM86 (Excavation Dewatering), Section MM87 (Hydrocarbons), MM88 (Cement-based Products) and MM90 (Morphological Changes to Watercourses). These will ensure the protection of surface water quality and flows in all downstream receiving watercourses.		
MM94	Use of Siltbuster	EIAR Chapter 9	Measures employed to prevent overdosing and potential chemical carryover:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The siltbuster system comprises an electronic in-line dosing system which provides an accurate means of adding reagents, so overdosing cannot occur; › Continued monitoring and water analysis of pre and post treated water by means of an inhouse lab and dedicated staff will be carried out, which means the correct amount of chemical is added by the dosing system; › Dosing rates of chemical to initiate settlement is small, being in the order of 2-10 mg/L and the vast majority of the chemical is removed in the deposited sediment; › Final effluent not meeting the discharge criteria is recycled and retreated, which has a secondary positive effect of reducing carryover; and, › Use of biodegradable chemical will be used at very sensitive sites (i.e. upstream of SACs).		
MM95	Earthworks Works and Watercourse Crossings	EIAR Chapter 9	Pre-commencement Temporary Drainage Works: Prior to the commencement of the cable trenching or crossing works the following key temporary drainage measures will be installed: › All existing roadside drains (where present) that intercept the proposed works area will be temporarily blocked down-gradient of the works using check dams/silt traps; › Culverts, manholes and other drainage inlets (where present) will also be temporarily blocked; and, › A double silt fence perimeter will be placed along the road verge on the down-slope side of works areas that are located inside a watercourse 50m buffer zone. The following mitigation measures will be implemented for the proposed 33kV underground cabling watercourse crossing works: › No stock-piling of construction materials will take place along the grid route;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› No refuelling of machinery or overnight parking of machinery is permitted within 100m of a watercourse crossing; › No concrete truck chute cleaning is permitted along the Proposed Grid Connection Site underground cabling route; › Works will not take place at periods of high rainfall, and will be scaled back or suspended if heavy rain is forecast; › Local road drainage, culverts and manholes will be temporarily blocked during the works; › Machinery deliveries will be arranged using existing structures along the public road; › All machinery operations will take place away from the stream and ditch banks, apart from where crossings occur. Although no instream works are proposed or will occur; › Any excess construction material will be immediately removed from the area and sent to a licenced waste facility; › Spill kits will be available in each item of plant required to complete the stream crossing; and, › Silt fencing will be erected on ground sloping towards watercourses at the stream crossings if required. Fracture Blow-out (Frac-out) Prevention and Contingency Plan for HDD: › The drilling fluid/bentonite will be non-toxic and naturally biodegradable (i.e. Clear Bore Drilling Fluid or similar will be used); › The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage; › One or more lines of silt fencing will be placed between the works area and the adjacent river; › Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Adequately sized skips will be used where temporary storage of arisings are required; › The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; › This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur, then drilling will be immediately stopped; › Any frac-out material will be contained and removed off-site; › The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, › If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location.		
MM96	Biodiversity Management and Enhancement Plan	EIAR Chapter 9	All proposed habitat management and enhancement works will be in accordance with the best practice Forest Service regulation, policies and strategic guidance documents as well as Coillte, DAFM and NatureScot guidance documents to ensure minimal potential negative effects on the local peat, soil and subsoil environment. Refer also to Section 9.5.2.1 above for tree felling mitigation. Given the nature of the restoration measures the following mitigation measures are proposed: › Before any works are completed silt fences will be installed to limit the movement of entrained sediment in surface water runoff; › Proposed off-road routes will be walked in advance of any machinery; › All machinery operators will be experienced; › The proposed areas will be walked before a machine goes off-road; › Bog mats will be used where the excavator is required to travel over wet ground;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A low ground pressure excavator with wide tracks (1.9m or greater) will be used to reduce compaction of the peat and subsoils.; and, › Standard tree felling water quality protection mitigation as presented in MM84 above will be employed.		
MM97	Doo Lough Public Water Supply (PWS)	EIAR Chapter 9	As stated previously in the chapter, a comprehensive surface water management plan has been prepared for the Proposed Project, and this will ensure that surface water runoff from the developed areas of the Site will be of a high quality and will therefore not impact on the quality of downstream rivers and lakes. Refer to MM95 above for proposed mitigation measures at the Proposed Enhancement Site. During the layout optimisation process, all surface waters at the site were classified as very sensitive. Very sensitive surface waters are receptors of high environmental importance such as designated sites (i.e. NHA or SAC), or public drinking water supplies. The surface waters at the Proposed Project were applied the highest possible sensitivity rating and appropriate mitigation measures which include avoidance and best practice engineering design measures are proposed to avoid significant impacts.		
Operational Phase					
MM98	Removal of Vegetation Cover Progressive Replacement of Natural Surfaces with Lower Permeability Surfaces	EIAR Chapter 4, 9 Appendix 4-4	The operational phase drainage system of the Proposed Project will be installed and constructed in conjunction with the road and hardstanding construction work as described below and as shown on the Drainage drawings submitted with this planning application: › Interceptor drains will be maintained up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it will be re-distributed over the ground by means of a level spreader;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the site, likely to have entrained suspended sediment, and channel it to settlement ponds for sediment settling; › On steep sections of access road transverse drains ('grips') will be constructed in the surface layer of the road to divert any runoff off the road into swales/road side drains; › Check dams will be used along sections of access road drains to intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock; › Settlement ponds, emplaced downstream of road swale sections and at turbine locations, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to watercourses; and, › Settlement ponds will be designed in consideration of the greenfield runoff rate.		
MM99	Runoff	EIAR Chapter 9	The mitigation measures outlined in Sections 9.5.2.2 and 9.5.3.1 will ensure all surface water runoff from upgraded roads and new road surfaces (including hardstand and turbine base areas) will be captured and treated prior to discharge/release. Settlement ponds, checks dams and buffered outfalls will prevent roads acting as preferential flowpaths by providing attenuation and water quality treatment (refer to Appendix 4-3).		
Decommissioning Phase					
MM100	Decommissioning Phase	EIAR Chapter 9	The potential impacts associated with decommissioning of the Proposed Project will be similar to those associated with construction but of a reduced magnitude, due to the reduced scale of the proposed decommissioning works in comparison to construction phase works. Mitigation proposed in Line Items MM84 to MM98 will be implemented as appropriate.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 10 Air Quality					
Construction Phase					
MM101	Exhaust Emissions: Construction of the Proposed Project Infrastructure	EIAR Chapter 10	› Proposed Project Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager will produce and follow a site inspection and machinery checklist which will be followed and updated as required. › All plant and materials vehicles shall be stored in dedicated areas (onsite). Machinery will be switched off when not in use. › Turbines and construction materials will be transported to the site on specified routes only, unless otherwise agreed with the Planning Authority. Please see Chapter 15 Material Assets for details. › All plant and materials vehicles will be stored in dedicated areas (onsite). › Areas of excavation will be kept to a minimum, and stockpiling of excavated material will be minimised by coordinating excavation, placement of material in peat and spoil management areas. › The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. › Aggregate materials for the construction of the Proposed Project will be sourced from local quarries.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5).		
MM102	Exhaust Emissions: Transportation to and from the Site	EIAR Chapter 10: Air Quality	› Aggregate materials for the construction of Site access tracks and all associated infrastructure will all be locally sourced where possible, which will further reduce potential emissions. › Turbines and construction materials will be transported to the Site on specified haul routes only. › The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. Waste material will be transferred to a licensed /permitted MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. › A CEMP will be in place throughout the construction phase (see Appendix 4-5).		
MM103	Dust Emissions: Construction of Proposed Project	EIAR Chapter 10: Air Quality	› Groundworks (i.e. works with potential to create dust) associated with the Proposed Project will be fully supervised by an Ecological Clerk of Works (ECoW). › The ECoW will regularly monitor adjacent marsh fritillary habitat on a daily basis for potential signs of dust deposition or any other habitat degradation. Dust level thresholds and weather will also be monitored. › If any signs of habitat degradation are noted, the dust-producing works will be immediately halted and further mitigation to protect larval web areas from dust will be implemented in advance of resuming work. › The ECoW will have power to halt construction works if required as outlined above.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored by the Ecological Clerk of Works (ECoW) to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Areas of excavation will be kept to a minimum, and stockpiling of excavated material will be minimised by coordinating excavation, placement of material in peat and spoil management areas. › Turbines and construction traffic will be transported to the Proposed Wind Farm Site on specified haul routes only. › The agreed haul route road adjacent to the Proposed Wind Farm Site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the Proposed Wind Farm Site proposed new entrance will be checked weekly for damage/potholes and repaired as necessary. › The transportation of construction materials from locally sourced quarries for the Proposed Grid Connection Site infrastructure and for the Proposed Wind Farm Site will be covered by tarpaulin where necessary. › If necessary, excavated material will be dampened prior to transport to the spoil management areas. › Approximately 5 dust monitoring gauges will be deployed across the Proposed Wind Farm Site to detect any exceedances of acceptable dust levels. › Waste material will be transferred to a licensed/permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Proposed Project to reduce the amount of emissions associated with vehicle movement.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM104	Dust Emissions: Transport to and from the Site	EIAR Chapter 10: Air Quality	› Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored by the ECoW to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Turbine components and construction materials will be transported to the Proposed Wind Farm Site on specified haul routes only, as agreed with the local authority. › Construction materials for the Proposed Project will be sourced locally from the onsite borrow pit. › The agreed haul route roads adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the Proposed Wind Farm Site entrance will be checked weekly for damage/potholes and repaired as necessary. › The transport of construction materials around the onsite borrow pit will be covered by tarpaulin where necessary. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The MRF facility will be local to the Site to reduce the amount of emissions associated with vehicle movements › A CEMP will be in place throughout the construction phase (see Appendix 4-5).		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM105	Exhaust Emissions	EIAR Chapter 10	› Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise. › When stationary, delivery and onsite vehicles will be required to turn off engines. › Waste material will be transferred to a licensed/permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.		
Decommissioning Phase					
MM106	Air Quality	EIAR Chapter 10: Air Quality	Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, albeit of lesser impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential impacts.		
EIAR Chapter 11 Climate					
Construction Phase					
MM107	Greenhouse Gas Emissions	EIAR Chapter 11	› Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager produce and follow a site inspection and machinery checklist which will be followed and updated if/when required. › All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› When stationary, delivery and on-site vehicles will be required to turn off engines. › Turbines and construction materials will be transported to the site on specified routes only unless otherwise agreed with the Planning Authority. Please see Chapter 15: Material Assets for details. › It is intended to obtain the majority of materials for the construction of the Proposed Project from the proposed onsite borrow pits, with some material being imported from local licenced quarries as needed. This will significantly reduce the number of delivery vehicles accessing the site, thereby reducing the emissions associated with vehicle movements. › A CEMP (Appendix 4-4) will be in place throughout the construction phase. › The CEMP includes a Resource Waste Management Plant (RWMP) which outlines the best practice procedures that will occur during the construction phase relating to waste material. ○ The RWMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Project. Disposal of waste will be seen as a last resort. ○ Section 4.5.6 of Chapter 4 for this EIAR refers to the methodology that will be utilised to manage onsite waste. This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor. ○ The MRF facility will be local to the Proposed Project site to reduce the amount of emissions associated with vehicle movements. The closest MRF to the Proposed Project and is approximately 19.4km southeast of the Proposed Wind Farm. › Where applicable, low-carbon intensive construction materials will be sourced and utilised onsite.		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM108	Greenhouse Gas Emissions	EIAR Chapter 11	Ensure that all maintenance and monitoring vehicles will be maintained in good operational order while onsite, and, when stationary, be required to turn off engines thereby minimising any emissions that arise.		
Decommissioning Phase					
MM109	Decommissioning Phase	EIAR Chapter 11	Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, albeit of lesser impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential impacts.		
EIAR Chapter 12 Noise					
Construction Phase					
MM110	Construction Phase Noise	EIAR Chapter 12	Construction activities will be undertaken in accordance with best practice noise and vibration control measures set out in BS 5228-1 and BS 5228-2. The assessment has demonstrated that construction noise and vibration levels are expected to comply with relevant criteria, and therefore no specific mitigation is required. Nevertheless, a range of standard control measures will be implemented through the Construction and Environmental Management Plan to minimise potential impacts, including restricting working hours, selecting low-noise plant, appropriate siting of equipment, monitoring at sensitive receptors, and maintaining communication with local authorities and residents. Additional targeted measures will be applied where necessary for specific activities such as tree felling, rock breaking or blasting, including plant orientation, use of temporary noise screens,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			equipment damping, charge control, restricted blasting hours, monitoring, and a formal complaints procedure.		
MM111	Construction Phase Vibration	EIAR Chapter 12	The assessment has demonstrated that no significant vibration impacts are expected during construction and that compliance will be achieved with the recommended vibration limits. Where blasting is required, a specialist blast design engineer will undertake a detailed assessment and define appropriate design parameters, with all recommended mitigation measures implemented to ensure vibration levels remain within the specified criteria.		
Operational Phase					
MM112	Operational Wind Turbine Noise	EIAR Chapter 12	In the event of a complaint indicating potential excessive amplitude modulation or tonality associated with the Proposed Project, the Developer will fully investigate the complaint in collaboration with the turbine manufacturer, through review of the meteorological periods and conditions during which the reported AM or tonality occurs. A noise monitoring protocol would be established, in consultation with the relevant local authorities, which would set out the location and analysis methodology to be employed for the noise monitoring. The measurement method outlined in the IOA AMWG document, known as the 'Reference Method', provide a robust and reliable indicator of AM and yield important objective information on the frequency and duration of occurrence, which can be used to evaluate different operational conditions including methods, determined in liaison with the turbine manufacturer, to minimise the occurrence of excessive AM. These mitigation measures, if required, will consist of either turbine blade modifications or the implementation of operational controls for the relevant turbine type, which will include operating turbines in different operational modes or turbine curtailment under specific operational conditions and may in very unlikely circumstance require turning specific turbines off under certain conditions.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM113	Operational Fixed Plant Noise (Substation)	EIAR Chapter 12	Operational noise from the fixed plant at the proposed extension to the Slievecallan 110 kV substation is predicted to comply with the applicable noise criteria and no specific mitigation is required. Nevertheless, at the detailed design stage, measures will be incorporated to minimise potential noise impacts at nearby sensitive locations, including appropriate selection, siting and maintenance of plant, ensuring replacement plant complies with noise limits, and preventing tonal or impulsive noise characteristics, particularly during night-time periods.		
Decommissioning Phase					
MM114	Decommissioning Noise & Vibration	EIAR Chapter 12	No specific mitigation measures are required for decommissioning. To ameliorate any potential noise impacts that may present during the decommissioning phase, a schedule of noise control measures has been formulated in accordance with best practice guidance. These are outlined in the Decommissioning Plan (Appendix 4-6) that has been prepared for the Proposed Project.		
EIAR Chapter 13 Landscape and Visual					
Construction Phase					
MM115	Visual Effects	EIAR Chapter 13	In all circumstances, excavation depths and volumes will be minimised, and excavated material will be re-used where possible.		
Operational Phase					
MM116	Landscape Effects	EIAR Chapter 13	**Strategic Siting** › The Proposed Wind Farm Site is primarily sited within the Slieve Callan Uplands Landscape Character Area (LCA), an LCA of the lowest landscape		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			sensitivity rating for wind energy development in County Clare, as set out in local planning policy. The landscape characteristics of this LCA make it highly suitable and capable of absorbing multiple large scale wind energy developments. › The Proposed Project is not located within any high sensitivity landscape designations of County Clare ('Heritage' Landscapes'). › The Proposed Wind Farm Site is primarily comprised of a marginal upland landscape strongly influenced by land uses such as commercial forestry and historical peat extraction. As such, it is a modified working landscape with low sensitivity, deemed capable of absorbing the Proposed Turbines. › The Proposed Turbines are sited in an upland landscape of large scale, capable of effectively accommodating multiple wind energy developments. **Design Considerations** › The spatial configuration of the proposed infrastructure footprint has been carefully designed to minimise the loss of valuable landscape receptors on the Site, such as peatland of high biodiversity value. › The proposed internal site road layout maximises the use of the existing forestry tracks wherever possible, to minimise the requirement for new tracks within the Site. › In all circumstances, excavation depths and volumes will be minimised, and excavated material will be re-used where possible. › To minimise cut and fill activities required to construct the Proposed Project, the proposed access roads, and other infrastructure such as hardstands have been designed to align with the existing terrain within the landscape of the Site. › During initial vegetation stripping, all useful topsoil material will be temporarily stored on the Proposed Wind Farm Site and used for 'landscaping' the edges of the development infrastructure during		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			reinstatement/regrading, including that of the peat and spoil management areas and proposed borrow pits. This will be particularly important in areas of cut and fill. The stripped topsoil will contain a natural seed source of local provenance and result in the re-establishment of baseline vegetation.		
MM117	Visual Effects	EIAR Chapter 13	**Mitigation By Design** › The turbine layout has been designed to create a coherent arrangement of turbines, contiguous and connected to each other visually and with consistent spacing in line with the guidance for design and siting of wind farms in 'Mountain Moorland' Landscape Types in the Guidelines (DoEHLG, 2006), and regard to the Draft Guidelines (DoHPLG, 2019). › Siting of Proposed Turbines adheres to the minimum 500m set back distance in the current Guidelines (DoEHLG, 2006) and also the recommended larger 4 times tip height set back distance to third party properties, explicitly set out for residential visual amenity, prescribed by the Draft Guidelines (DoHPLG, 2019); › The Proposed Turbines are sited in a sparsely populated area with appropriate setback distances from local population centres. › The topographical characteristics of the marginal upland landscape and its surrounding area naturally limit the visual exposure of the Proposed Turbines. Distinctive ridgelines and landforms of the upland landscape to the east and north effectively obscure visibility of the turbines from much of the broader landscape, thereby limiting the extent of landscape and visual impact upon large numbers of receptors as shown by the ZTV map › The Proposed Wind Farm Site is located nearby (approx. 3.6km) to the existing Slievecallan substation and grid infrastructure where the grid connection occurs, this proximity significantly reduces the extent of grid infrastructure required to facilitate renewable energy generation and therefore		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			minimises landscape and visual impacts that could potentially arise from this component of the Proposed Project. › The proposed 33kV cabling is underground and follows the local road network and existing forestry tracks. › The proposed extension to the existing 110kV Slievecallan substation is sited at a location surrounded by coniferous plantations, thereby eliminating limiting potential landscape and visual effects during the operational phase.		
EIAR Chapter 14 Cultural Heritage					
Construction Phase					
MM118	Recorded Monuments (Direct Effects)	EIAR Chapter 14	› A 30m exclusion zone will be established around Stone Circle CL031-052— prior to the commencement of the construction phase of the project. The exclusion zone will be established under the supervision of the appointed archaeologist and be delimited by durable fence posts and fencing with 'Keep Out' signage. A photographic record of the exclusion zone will be made by the appointed archaeologist and included in the subsequent reporting for the Site. The requirement for the exclusion zone, fencing materials and signage will be included in the CEMP. › The location of recorded monuments CL031-018— Ringfort and CL031-019— Earthwork should be clearly shown in the CEMP. No tracking of machinery or other activities associated with the conifer felling will take place in the area of the recorded monuments. The location of any potential Cultural Heritage features therein will be recorded and a photographic record made of same. A report on the results of the walk-over survey will be compiled on completion of same and will include any further required mitigation measures such as additional buffer zones, etc, deemed necessary.		
MM119	Previously Unrecorded	EIAR Chapter 14	The Proposed Enhancement Site includes areas proposed for clear-felling which are currently densely forested. Such forestry cover may obscure the presence of previously unknown Cultural		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Monuments within the Site		Heritage assets, although none are indicated on the available historic mapping. In this regard and in the interest of ensuring the continued preservation of any items of Cultural Heritage merit which may be located within the Proposed Enhancement Site some mitigation is proposed as a precautionary measure. › A walk-over survey of the Proposed Enhancement Site will be carried out post-clear-felling but prior to any other works such as stump flipping or drain blocking. › The location of any potential Cultural Heritage features therein will be recorded and a photographic record made of same. A report on the results of the walk-over survey will be compiled on completion of same and will include any further required mitigation measures such as additional buffer zones, etc, deemed necessary.		
MM120	Sub-Surface Archaeological Potential	EIAR Chapter 14	Archaeological monitoring of ground works (including pre-commencement site investigation works) in areas of previously undisturbed ground. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance). The National Monuments Service will be informed of such findings to discuss how best to proceed. On completion of the work, a report on the results of the monitoring will be compiled and submitted to the NMS and the Local Authority. › Archaeological monitoring under licence from the NMS of any geotechnical / engineering trial pits or investigations will be carried out by a suitably qualified archaeologist. A report detailing the results of the monitoring will be compiled on completion of the work and submitted to the NMS and Planning Authority/Body. › Pre-development testing, under licence from the NMS, will be carried out in areas where peat depths allow a meaningful investigation. Testing will only be undertaken in areas where ground disturbance will take place as part of the Proposed Project. Where peat		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			depths become a limitation to testing, monitoring at the construction stage will be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the NMS through the licensing system. A report on the testing will be compiled on completion of the work. Should archaeological finds, structures or deposits be uncovered as a result of the testing further mitigation measures such as preservation in situ or preservation by record (excavation) may be required and will be decided in consultation with the NMS. Such mitigation measures will be implemented, where relevant, following consultation with the NMS. › Archaeological monitoring of ground works during the construction stage of the Proposed Project under licence from the NMS will be carried out by a suitably qualified archaeologist. Should archaeological finds, structures or deposits be uncovered as a result of the monitoring further mitigation measures such as preservation in situ or preservation by record (excavation) may be required and will be decided in consultation with the NMS. Such mitigation measures will be implemented where relevant following consultation with the NMS. A report detailing the results of the monitoring and/or any further necessary mitigation as referred to above will be compiled on completion of the work and submitted to the NMS and Planning Authority/Body. › A walk-over survey of the Proposed Enhancement Site will be carried out post-clear-felling but prior to any other works such as stump flipping or drain blocking. › The location of any potential Cultural Heritage features therein will be recorded and a photographic record made of same. A report on the results of the walk-over survey will be compiled on completion of same and will include any further required mitigation measures such as buffer zones, etc, deemed necessary. › A second phase of walk-over survey will be carried out after stump flipping to ensure that any potential finds, features or deposits, if present, can be recorded and any other mitigation required can be implemented where necessary.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM121	Items of Local Cultural Heritage Merit	Chapter 14	A 10m exclusion zone will be established around CH1 stone structure prior to the commencement of the construction phase of the project. The exclusion zone will be established under the supervision of the appointed archaeologist and be delimited by durable fence posts and fencing with 'Keep Out' signage. A photographic record of the exclusion zone will be made by the appointed archaeologist and included in the subsequent reporting for the Site. The requirement for the exclusion zone, fencing materials and signage will be included in the CEMP.		
EIAR Chapter 15 Material Assets					
Material Assets - Traffic					
Construction Phase					
M122	Mitigation by Design	Chapter 15 Section 15.1	Mitigation by design measures include the following: › Selection of the most appropriate delivery route to transport the wind turbine components, requiring the minimum remedial works to accommodate the vehicles as set out in Section 15.1.2.2. › Selection of the shortest Proposed Grid Connection Site diversion routes, minimising the impacts on the existing road network and traffic. › Use of on-site borrow pit to produce materials to minimise deliveries to site during construction.		
MM123	Delivery of Abnormal Loads	Chapter 15	The following are the main points to note for these deliveries which will take place after peak evening traffic:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised. › The deliveries will be made in consultation with the Local Authority and An Garda Síochána. › It is estimated that 72 abnormal sized loads will be delivered to the Site, comprising 24 convoys of 3 vehicles, undertaken over 24 separate nights. › These nights will be spread out over an approximate period of 5 weeks and will be agreed in advance with the relevant authorities › In order to manage each of the travelling convoys, for each there will be two Garda escort vehicles that will stop traffic when required at the front and rear of the convoy of 3 vehicles. › There will also be two escort vehicles provided by the haulage company for each convoy.		
MM124	Other Traffic Management Measures	EIAR Chapter 15 Section 15.1 Appendix 15-2	A detailed **Traffic Management Plan (TMP)** will be provided specifying details relating to traffic management and included in the CEMP prior to the commencement of the construction phase of the Proposed Project. The TMP will be agreed with the local authority and An Garda Síochána prior to construction works commencing onsite. The detailed TMP will include the following: › **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the development, and this person will be the main point of contact for all matters relating to traffic management. › **Delivery Programme** – a programme of deliveries will be submitted to Clare County Council in advance of deliveries of turbine components to the Site. Liaison with the relevant local authorities, TII and MMaRC and will be carried out where required regarding requirements such as delivery		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the Site. › **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. › **A Pre and Post Construction Condition Survey** – Where required by the local authority, a pre-condition survey of roads associated with the Proposed Project can be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. Where required the timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. › **Diversion routes during underground cabling construction –** The identification and agreement with suitable diversion routes during the construction of the proposed 33kV underground cabling. › **Liaison with the relevant local authority** - Liaison with Clare County Council and An Garda Síochána, will be carried out during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (in compliance with the provisions of the CEMP), the Roads section will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› **Implementation of temporary alterations to road network at critical junctions** – at locations highlighted in Section 15.1.9. In addition, in order to minimise the impact on the existing environment during turbine component deliveries the option of blade adaptor trailers will also be used where deemed practicable. › **Identification of delivery routes** – These routes will be agreed with Clare County Council and adhered to by all contractors. › **Delivery times of large turbine components** - The TMP will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage. › **Travel plan for construction workers –** While the assessment above has assumed the worst case in that construction workers will drive to the Site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Site and identification of an area for parking. › **Additional measures** - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities on site and sweeping / cleaning of local roads as required. These are set out in the CEMP which is contained in Appendix 4-5. › **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. › **One-way delivery systems** (concrete pour days) - HGVs leaving the site on the busiest construction days (i.e. the 9 days when the concrete foundations are poured) to return to their plant via a short detour.		
Decommissioning Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM125	Decommissioning Phase	EIAR Chapter 15 Appendix 4-5	In the event that the Proposed Project is decommissioned after the 35 years of operation, a decommissioning plan, will be prepared for agreement with the local authority, as described in Chapter 4 and Appendix 4-6 Decommissioning Plan. This plan will include a material recycling / disposal and traffic management plan will be prepared for agreement with the local authority prior to decommissioning, in accordance with Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013).		
Material Assets - Other					
Pre-Construction/Construction Phase					
MM126	Electricity	EIAR Chapter 4, 5, 15 Appendix 4-5	› The construction of the proposed underground cable connection will be in phases along the Proposed Grid Connection Site, to minimise the duration of outage whilst making the connection to the proposed extension to the existing Slievecallan 110kV substation. › Goal posts will be established under overhead lines for the entirety of the construction phase. They will not exceed a height of 4.2 metres, unless specifically agreed with ESB Networks o Prior to construction, the Applicant will engage with ESB via the 'Dial Before You Dig' procedure online. ESB will be contacted via dig@esb.ie before excavating near any overhead lines. › The suitability of machinery and equipment for use near power lines will be risk assessed. › Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire. › Prior to the delivery of turbines to the Proposed Wind Farm Site, a dry run of the route using vehicles with similar dimensions will occur. Please see Section 15.1.8 of Chapter 15: Material Assets for details.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› When activities must be carried out beneath overhead lines, e.g. component delivery or grid cable laying, a site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used is undertaken prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required. › Information on safe clearances will be provided to all staff and visitors. › Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on site. › All staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan. › All health and safety measures as detailed in Section 5 of the CEMP and Chapter 5 Population and Human Health will be adhered to during the construction, operation and decommissioning phases. › Any area where excavations are planned will be surveyed and all existing services will be identified prior to commencement of any works. › Liaison will be had with the relevant sections of the Local Authority including all the relevant area engineers to ensure all services are identified. › Excavation permits will be completed, and all plant operators and general operatives will be inducted and informed as to the location of any services. › The contractor must comply with and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks. › Prior to construction, the Applicant will engage with GNI via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 before commencing construction. Furthermore, the 'Safety advice for working in the vicinity of natural gas pipelines' guidance document and the GNI 'Code of Practice' standards will be adhered to during all proposed works.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The developer will also carry out further consultation in the pre-construction phase and construction phase with GNI to confirm the crossing methodology to be deployed and to ensure that no new service crossings have been implemented. Furthermore, site investigation will be undertaken post planning grant and results will be shared with GNI as part of the Design Review process prior to construction. › In advance of any construction activity, the contractor will undertake pre-commencement surveys to confirm the presence or otherwise of any services such as water supply. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works. › In the event that water mains are encountered the water supply will be turned off by the utility so work can commence on diverting the service. The section of existing pipe will be removed and will be replaced with a new pipe along the new alignment of the service. The works will be carried out in accordance with the specifications of the relevant utility provider.		
MM127	Waste Management	EIAR Chapter 15 Section 15.2 Appendix 4-5	› The CEMP, Appendix 4-5 of this EIAR, includes a Waste Management Plan (WMP) which outlines the best practice procedures during the construction and decommissioning phases of the project. › Waste management will be carried out in accordance with 'Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects '(2021) produced by the EPA. The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Proposed Project. Disposal of waste will be seen as a last resort. › All hazardous wastes will be stored in bunded containers/areas before being collected by an authorised waste contractor and brought to an EPA licensed waste facility. Hazardous wastes will be kept separate from non-hazardous wastes that contamination does not occur. Please see the CEMP for best practise measures to prevent the creation of waste materials.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All non-hazardous waste generated on-site by the Proposed Project will be contained in waste skips at a waste storage area on-site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. › The expected waste volumes generated on-site are unlikely to be large enough to warrant source segregation at the Site. Therefore, all waste streams generated on-site will be deposited into a single waste skip. This waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. › The waste generated from the turbine erection will be limited to the associated protective covers which are generally reusable. Considering the specialist nature of this packaging material the majority will be taken back by suppliers for their own reuse. Any other packaging waste generated from the turbine supply will be deposited into the on-site skips and subsequently transferred to the MRF. › It is not envisaged that there will be any waste material arising from the materials used to construct the site roads as only the quantity of stone necessary will be sourced from local quarries and brought on site on an 'as needed' basis. › Site personnel will be instructed at induction that under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on-site is forbidden.		
Operational Phase					
MM128	Waste Management Services	EIAR Chapter 15	There will be no operational phase impacts or associated effects on waste management associated with the Proposed Project. It is not anticipated that any significant volume of waste will be generated within the Site during the operational phase of the Proposed Project as only a small number of operational and maintenance personnel will be present within the Proposed Wind Farm Site at certain times. Any waste generated due to the operation and maintenance of the Proposed Project will be disposed of in a covered skip, located within the existing onsite 110kV substation compound. The waste material will be transferred to a Materials Recovery		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal.		
MM129	Telecommunications	EIAR Chapter 15	While no mitigation measures are required, a standard Protocol Document has been prepared by 2RN for the Proposed Project. It is standard practice of 2RN to produce a protocol document for wind farm developments, which will be signed by the developer prior to construction. The Protocol Document is further detailed in Section 15.2.4 of Chapter 15.		
MM130	Aviation	EIAR Chapter 15	As no impacts were identified by IAA or DoD, no mitigation measures are required. However, the following IAA and DoD requests will be complied with should the Proposed Project be consented: Irish Aviation Authority 1. *Agree an aeronautical obstacle warning light scheme for the wind farm development* 2. *Provide as-constructed coordinates in WGS84 format together with ground and blade tip height elevations at each wind turbine location and* 3. *Notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.* Department of Defence All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near InfraRed (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light.		

18.2 EIAR Monitoring Measures

Table 18-2 Schedule of Monitoring Measures

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	Water Quality and Monitoring	Appendix 4-5 Appendix 4-7	Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of felling and construction at the Site. Analysis will be for a range of parameters with relevant regulatory limits along with Environmental Quality Standards (EQSs) and sampling will be undertaken at designated locations within the Site. Baseline sampling will be completed on at least two occasions, and these should ideally coincide with low flow and high flow stream conditions. The high flow sampling event will be undertaken after a period of sustained rainfall, and the low flow event will be undertaken after a dry spell.	As required	As Necessary	Project Hydrologist
MX2	Drainage Maintenance	EIAR Chapter 4, 9 Appendix 4-5 Appendix 4-7	An inspection and maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. Any excess build-up of silt levels at dams, the settlement pond, or any	Ongoing	Monthly	Project Hydrologist

			other drainage features that may decrease the effectiveness of the drainage feature, will be removed. The inspection of the drainage system will be the responsibility of the ECoW or the Project Hydrologist. Please see Chapter 9 and CEMP (Appendix 4-5) for further information.			
MX3	Traffic and Transport	Appendix 4-5 Appendix 15-2	The agreed haul route roads adjacent to the Site will be regularly inspected for cleanliness and cleaned as deemed necessary by the construction Site Supervisor/Site Manager.	As required	Monthly	ECoW
MX4	Invasive Species	EIAR Chapter 6 Appendix 4-5 Appendix 6-5	A pre-commencement invasive species survey of the construction footprint will be undertaken by a qualified ecologist to determine if any invasive species have established on the site since the undertaking of the previous surveys. Ongoing monitoring will be required, with suitable follow-up management in order to control new growth or re-establishment of this species within the infested areas.	Once	As required	Project Ecologist
MX5	Otter	EIAR Chapter 6	A pre-construction otter survey will be carried out by a qualified ecologist to identify the presence of any breeding sites within the Site, that may have been established since the undertaking of the previous surveys. Surveys will follow the following guidelines issued by Transport Infrastructure Ireland - Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Roads Schemes (TII, 2008).	Once	As required	Project Ecologist

MX6	Badger	EIAR Chapter 6	A pre-construction badger survey will be carried out by a qualified ecologist to identify the presence of any breeding sites within the Site, that may have been established since the undertaking of the previous surveys. Surveys will follow the following guidelines issued by Transport Infrastructure Ireland - Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Roads Schemes (TII, 2008) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (TII, 2005).	Once	As required	Project Ecologist
MX7	Marsh Fritillary	EIAR Chapter 6	A pre-commencement survey for marsh fritillary larvae will be undertaken at the suitable time of year (i.e. August – September) in advance of construction commencing. This pre-commencement survey will cover the entirety of the Project Footprint.	Once	As required	Project Ecologist
MX8	Red Squirrel/Pine Marten	EIAR Chapter 6	A pre-construction survey for pine marten/red squirrel will be carried out to identify the presence of any new breeding sites. These surveys will focus on areas of Conifer plantation (WD4) to be felled and all suitable habitat within 50m of the felling blocks. Surveys will be undertaken by a suitably qualified ecologist and during the optimal season for each species, as per TII (2008) guidelines.	Once	As required	Project Ecologist
MX9	Reptiles and Amphibians	EIAR Chapter 6	Prior to construction of the Proposed Project, pre-commencement surveys for viviparous lizard, common frog, and smooth newt will be undertaken within potential supporting habitat identified within the Project Footprint. Surveys will be undertaken by a suitably qualified	Once	As required	Project Ecologist

			ecologist and during the optimal season for each species, as per TII (2008) guidelines.			
MX10	Birds	EIAR Chapter 7 Appendix 7-7	It is proposed that construction works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs. Works are defined as the clearing of woody vegetation, any building or engineering works. Pre-commencement surveys will be undertaken within one month prior to the initiation of works. The purpose of these surveys is to identify sensitive roosting sites. If works run into the subsequent breeding season(s) (April-September), surveys will be conducted to identify sensitive nesting sites. Breeding season surveys will be conducted once per month from April to July inclusive when works are taking place. If works run into the subsequent winter season(s) (October to March), surveys will be repeated to identify sensitive roost sites. These surveys will be conducted at the beginning of each winter season (e.g., October) and continue if evidence of roosting of birds of conservation concern is observed. Surveys will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the Proposed Project footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during works, works will cease within a species-specific buffer of its location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to	Once	As required	Project Ornithologist

			avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. Aerial surveys using a drone may be used to confirm the presence or absence of roosting/nesting birds, where conditions are suitable. All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area will also be marked to alert all personnel on site to the suspension of works within that area.			
MX11	Effects on Cultural Heritage	Chapter 14	Archaeological monitoring under licence from the NMS of any geotechnical / engineering trial pits or investigations will be carried out by a suitably qualified archaeologist. A report detailing the results of the monitoring will be compiled on completion of the work and submitted to the NMS and Planning Authority/Body. Pre-development testing, under licence from the NMS, will be carried out in areas where peat depths allow a meaningful investigation. Testing will only be undertaken in areas where ground disturbance will take place as part of the Proposed Project. Where peat depths become a limitation to testing, monitoring at the construction stage will be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the NMS through the licensing system. A report on the testing will be compiled on completion of the work. Should archaeological finds, structures or deposits be uncovered as a result of the testing further mitigation measures such as preservation in situ or preservation by record (excavation) may be required and will be decided in consultation with the NMS. Such mitigation measures will be implemented, where relevant, following consultation with the NMS.	As Required	As Necessary	Suitably Qualified Archaeologist

Construction Phase						
MX12	Health and Safety	EIAR Chapter 4, 5 Appendix 4-5	The Project Supervisor Construction Stage (PSCS) appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to): › Development of the Safety and Health Plan for the construction stage with updating where required as work progresses; › Compile and develop safety file information. › Reporting of accidents / incidents; › Weekly site meeting with PSCS; › Coordinate arrangements for checking the implementation of safe working procedures. Ensure that the following are being carried out: ○ Induction of all site staff including any new staff enlisted for the project from time to time; ○ Toolbox talks as necessary; ○ Maintenance of a file which lists personnel on site, their name, nationality, current SafePass number, current Construction Skills Certification Scheme (CSCS) card (where relevant) and induction date; ○ Report on site activities to include but not limited to information on accidents and incidents, disciplinary action taken and Personal Protective Equipment (PPE) compliance; ○ Monitor the compliance of contractors and others and take corrective action where necessary; and ○ Notify the Planning Authority and the client of non-compliance with any written directions issued.	Daily	Daily	PSCS

MX13	Reactive Site Drainage Management	EIAR Chapter 4, 9	The effectiveness of drainage measures designed to minimise runoff entering works areas and capture and treat potentially silt-laden water from the works areas, will be monitored continuously by the ECoW on-site. The ECoW or project hydrologist will respond to changing weather, ground or drainage conditions on the ground as the project proceeds, to ensure the effectiveness of the drainage design is maintained. The ECoW or Project Hydrologist will respond to changing weather, ground or drainage conditions on the ground as the Proposed Project proceeds, to ensure the effectiveness of the drainage design is maintained in so far as is possible. This may require the installation of additional check dams, interceptor drains or swales as deemed necessary on-site. The drainage design may have to be modified on the ground as necessary, and the modifications will draw on the various features outlined above in whatever combinations are deemed to be most appropriate to situation on the ground as a particular time.	As required	As Necessary	ECoW
MX14	Water Quality and Monitoring (Daily Visual Inspections)	EIAR Chapter 9 Appendix 4-7	An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed.	Daily	As Necessary	ECoW / Project Hydrologist

			During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs should be undertaken for each primary watercourse along the Proposed Grid Connection Site 33kV underground cable route and specifically following heavy rainfall events (i.e. weekly, monthly and event based). The following periodic inspection regime will be implemented: › Daily general visual inspections of site operations and inspections of all drainage infrastructure within the site and in the surrounding area by the ECoW or a suitably qualified and competent person as delegated by the ECoW; › Inspections to include all elements of drainage infrastructure to ensure the system is operating correctly and to identify and maintenance that is required. Any changes, such as discolouration, odour, oily sheen or litter will be noted and corrective action will be implemented. High risk locations such as settlement ponds will be inspected daily. Daily inspections checks will be completed on plant and equipment, and whether materials such as straw bales or oil absorbent materials need replacement; › Event based inspections by the ECoW as follows: ○ >10 mm/hr (i.e. high intensity localised rainfall event); ○ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, ○ Rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week).			

			› Monthly site inspections by the Project Hydrologist/ ECoW during construction phase; › Quarterly site inspections by the Project Hydrologist/ ECoW after construction for a period of one year following the construction phase; and, A written record will be maintained or available on-site within the CEMP which will be maintained on-site during the construction phase.			
MX15	Water Quality and Monitoring (Continuous Turbidity Monitoring)	Appendix 4-7	Turbidity monitors or sondes can be installed where required at locations surrounding the Site. The sondes will provide continuous readings for turbidity levels in the watercourse. This equipment will be supplemented by daily visual monitoring at their locations as outlined in the sections below. The proposed locations for continuous, in-situ monitoring will be confirmed by the Project Hydrologist prior to the commencement of the construction phase.	Continuous	Daily	Project Hydrologist
MX16	Water Quality and Monitoring (Laboratory Analysis)	EIAR Chapter 9	Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken as per water monitoring programme for the Proposed Project. This will not be restricted to just these locations around the Proposed Project Site with further sampling points added as deemed necessary by the ECoW in consultation with the Project Hydrologist and Site Manager.	As Required	Monthly	ECoW
MX17	Water Quality and Monitoring (Field Monitoring)	Appendix 4-7	Field chemistry measurements of unstable parameters, (pH, conductivity, temperature) will be taken at the surface water monitoring locations, as per water monitoring programme for the Proposed Project. These analyses will be carried out by either the ECoW or the Project Hydrologist. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm	As Necessary	As Required	ECoW/ Project Hydrologist

			rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.			
MX18	Biodiversity	Appendix 4-5	The Project Ecologist will be available to support the ECoW on matters relating to the protection of sensitive habitats and species encountered prior to or during the construction phase of the Proposed Project. The Project Ecologist will not be full time on site but will undertake pre-commencement surveys and visit the site as required. The responsibilities and duties of the Project Ecologist/Ornithologist will include the following: › Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided. › Inform and educate on-site personnel of the ornithological and ecological sensitivities within the site. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological and ecological issues as they arise. › Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. › Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress.	As required	As required	Project Ecologist
MX19	Birds	EIAR Chapter 7	An Environmental Clerk of Works and Project Ecologist will be appointed, and a suitably qualified ornithologist will undertake bird surveys. › If a sensitive area is identified, the nest/roost sites will be located, and no works shall be undertaken within a species-specific buffer in line with best practice guidance (e.g.	As Required	As required	Project Ornithologist

			Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007). No works within the buffer zone shall be permitted until it can be demonstrated that the species is no longer reliant on the area for breeding or roosting. In the event that construction works to run into the subsequent breeding season following commencement, confirmatory bird surveys will be carried out to identify breeding sites of species of high conservation concern, as outlined in the Section 7.8.1 of Chapter 7.			
MX20	Peat and Spoil Management (Movement Monitoring Posts)	Appendix 4-2	To monitor possible peat movements, it is proposed to install sighting posts upslope and downslope of the access road at staggered intervals at locations where the peat depth is greater than 2.0m, such as along the main entrance road and around T04. Additional monitoring locations will be required at infrastructure locations with deeper peat deposits, as determined by the Designer or Project Geotechnical Engineer. Details of sighting posts are given below. › A line of sighting posts will comprise: o A line of wooden stakes (typically 1 to 1.5m long) placed vertically into the peat to form a straight line. o The sighting line will comprise 6 no. posts at 5m centres that is a line some 25m long. o A string line will be attached to the first and last posts and all intervening posts will be adjusted so they are just touching the string line › Lines of sighting posts will be placed across the existing slope about 5m away from the area to be worked. The posts will be located along the road at 10m intervals in areas of deep peat (say greater than 2.0m). Where there are relatively steeper slopes or softer ground a sighting line will	Daily	Daily	Project Geotechnical Engineer

			be placed down the slope, or at any location where monitoring is deemed necessary by the Designer or the Project Geotechnical Engineer. › Each line of sighting posts will be uniquely referenced with each post in the line given a reference. › The post reference will be marked on each post (e.g. reference 1-1, 1-2, 1-3, 1-4, 1-5, 1-6 for posts in line 1). › The sighting lines will be monitored at the beginning of each working day, and during the day where considered appropriate (e.g. when working activity is concentrated at a specific location). › Monitoring of the posts will comprise sighting along the line and recording any relative movement of posts from the string line. › Where increased movements are recorded the frequency of monitoring will be increased. › A monitoring record will be kept of the date, time and relative movement of each post, if any. This record will be updated and stored as a spreadsheet.			
MX21	Peat and Spoil Management (Post-construction monitoring) Instability	Appendix 4-2 Appendix 8-1	To monitor possible peat movements following the construction of the Proposed Project, it is recommended that the Proposed Wind Farm Site is inspected by a suitably qualified engineer once every six months for the first three years following commissioning of the Proposed Project. Particular attention will be given to the peat deposition areas and the proposed borrow pits, as well to any areas where the site drainage is not functioning as intended. Should any signs of instability be noted, a site visit by a suitably qualified geotechnical engineer will be arranged and suitable remediation measures enacted and the site inspections should continue on an annual basis for a further three years.	As required	Every 6 Months	Geotechnical Engineer

		Chapter 9 Appendix 4-7	Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The 'before' sampling will be conducted within 4 weeks of the felling activity commencing, preferably in medium to high water flow conditions. The "during" sampling will be undertaken once a week or after rainfall events. The 'after' sampling will comprise as many samplings as necessary to demonstrate that water quality has returned to pre-activity status (i.e., where an impact has been shown). Details of the proposed surface water quality monitoring programme are outlined in the Surface Water Management Plan (refer to Appendix 4-7). Criteria for the selection of water sampling points include the following: › Avoid man-made ditches and drains, or watercourses that do not have year-round flows, i.e. avoid ephemeral ditches, drains or watercourses; › Select sampling points upstream and downstream of the forestry activities; › It is advantageous if the upstream location is outside/above the forest in order to evaluate the impact of land-uses other than forestry; › Where possible, downstream locations will be selected: one immediately below the forestry activity, the second at exit from the forest, and the third some distance from the second (this allows demonstration of no impact through dilution effect or contamination by other land-uses where impact			

			increases at third downstream location relative to second downstream location); and, › The above sampling strategy will be undertaken for all on-site sub-catchments streams where tree felling is proposed. Also, daily surface water monitoring forms will also be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.			
MX22	Clear Felling of Coniferous Plantation and Potential Surface Water Quality Effects	Chapter 9	The following items shall be carried out during pre-felling inspections and after: › Communication with tree felling operatives in advance to determine whether any areas have been reported where there is unusual water logging or bogging of machines; › Inspection of all areas reported as having unusual ground conditions; › Inspection of main drainage ditches and outfalls. During pre-felling inspections the main drainage ditches shall be identified. Ideally the pre-felling inspection shall be carried out during rainfall; › Following tree felling all main drains shall be inspected to ensure that they are functioning; › Extraction tracks nears drains need to be broken up and diversion channels created to ensure that water in the tracks spreads out over the adjoining ground; › Culverts on drains exiting the site will be unblocked; and, All accumulated silt will be removed from drains and culverts, and silt traps, and this removed material will be deposited away from watercourses to ensure that it will not be carried back into the trap or stream during subsequent rainfall.	Monthly	Monthly	ECoW

MX23	Potential Hydrological/ Water Quality Effects on River Waterbody Drinking Water Supply Abstractions (Proposed Project)	Chapter 9	Daily inspections will be undertaken to assess the effectiveness of the water treatment trains and this will include a visual assessment of water quality and also portable probes for field hydrochemistry monitoring (turbidity, pH, electrical conductivity etc) will be used by the ECoW to make on the spot checks. Corrective measures will be carried out as appropriate (i.e. silt build-up removal or replacement/upgrade works) in the event treatment is ineffective.	Daily	Daily	ECoW
MX24	Effects on Cultural Heritage	Chapter 14 Appendix 4-5	Archaeological monitoring will be ongoing during the construction phase of the Proposed Project which is outlined below: › Archaeological monitoring under licence from the NMS of any geotechnical / engineering trial pits or investigations will be carried out by a suitably qualified archaeologist. A report detailing the results of the monitoring will be compiled on completion of the work and submitted to the NMS and Planning Authority/Body. › Pre-development testing, under licence from the NMS, will be carried out in areas where peat depths allow a meaningful investigation. Testing will only be undertaken in areas where ground disturbance will take place as part of the Proposed Project. Where peat depths become a limitation to testing, monitoring at the construction stage will be undertaken. The areas to be tested will be chosen by the appointed archaeologist and the number of test trenches agreed between the archaeologist and the NMS through the licensing system. A report on the testing will be compiled on completion of the work. Should archaeological finds, structures or deposits be uncovered as a result of the testing further mitigation measures such as preservation in situ or	As Necessary	As Required	Suitably Qualified Archaeologist

			preservation by record (excavation) may be required and will be decided in consultation with the NMS. Such mitigation measures will be implemented, where relevant, following consultation with the NMS. › Archaeological monitoring of ground works during the construction stage of the Proposed Project under licence from the NMS will be carried out by a suitably qualified archaeologist. Should archaeological finds, structures or deposits be uncovered as a result of the monitoring further mitigation measures such as preservation in situ or preservation by record (excavation) may be required and will be decided in consultation with the NMS. Such mitigation measures will be implemented where relevant following consultation with the NMS. A report detailing the results of the monitoring and/or any further necessary mitigation as referred to above will be compiled on completion of the work and submitted to the NMS and Planning Authority/Body. › A walk-over survey of the Proposed Enhancement Site will be carried out post-clear-felling but prior to any other works such as stump flipping or drain blocking. › The location of any potential Cultural Heritage features therein will be recorded and a photographic record made of same. A report on the results of the walk-over survey will be compiled on completion of same and will include any further required mitigation measures such as buffer zones, etc, deemed necessary. › A second phase of walk-over survey will be carried out after stump flipping to ensure that any potential finds, features or deposits, if present, can be recorded and any other mitigation required can be implemented where necessary.			

MX25	Traffic and Transport	Appendix 4-5	The agreed haul route roads adjacent to the site will be regularly inspected for cleanliness and cleaned as deemed necessary by the construction Site Supervisor/Site Manager.	As required	Monthly	ECoW
Operational Phase						
MX26	Wastewater Management	Chapter 4	The wastewater storage tank alarm will be part of a continuous stream of data from the Proposed Turbines, wind measurement devices and electricity substation extension that will be monitored remotely 24 hours a day, 7 days per week.	Continuous	Daily	ECoW
MX27	Drainage Management	Appendix 4-5 Appendix 4-7	An inspection and maintenance plan for the drainage system onsite will be prepared in advance of commencement of any works on the Proposed Project. Regular inspections of all installed drainage features will be necessary, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the ECoW or the supervising hydrologist.	Weekly	Weekly	ECoW
MX28	Shadow Flicker	Chapter 5	Where daily or annual shadow flicker exceedances are predicted at any inhabitable or third-party dwelling of the identified 15 no. sensitive receptors, a site visit will be undertaken firstly to determine the presence of existing screening and window orientation at each potentially affected property. This will determine if the receptor has an actual line of sight to any turbine and actual potential for shadow flicker to occur. In order to ensure that the model and SCADA system is accurate and working well a site visit will be carried out to verify the system	As Necessary	As Required	Wind Farm Operator

MX29	Bats	EIAR Chapter 6 Appendix 6-1	**Bat Monitoring Plan** › To assess the effects of the Proposed Project on bat activity, 3 years of post-construction monitoring is proposed. Post-construction monitoring will include static detector surveys, walked survey transects and corpse searching to record any bat fatalities resulting from collision. › At the end of each year, the efficacy of the mitigation and monitoring plan will be reviewed, and any identified efficiencies incorporated into the programme. The post-construction surveys will be carried out as per the pre-construction survey effort. › Full spectrum recording detectors will be utilised for the same duration as during pre-application surveys and at the same density (NatureScot, 2021). Carcass searches, to monitor and record bat fatalities, shall be conducted at each turbine in accordance with NatureScot/NIEA Guidance. This shall include searcher efficiency trials and an assessment of scavenger removal rates to determine the appropriate correction factor to be applied in relation to determining an accurate estimate of collision mortality. › Monitoring surveys shall continue in Year 2 and 3, and where a curtailment requirement has been identified, the success of the curtailment strategy shall be assessed in line with the baseline data collected in the preceding year(s).	Years 1, 2, 3	Annually	Project Ecologist
MX30	Biodiversity	Appendix 6-4	Monitoring will be undertaken by a suitably qualified ecologist and will focus on the enhancement measures provided for marsh fritillary habitat, peatland habitats, and linear habitat planting. Results will be documented within a Monitoring Report, which will identify any shortcomings, recommend corrective actions or amendments where required, and inform updates to management measures.	As required	As required	Project Ecologist

			Monitoring of habitat enhancement will be carried out annually until the proposed habitats have been sufficiently established and have given consistent results for 3 consecutive years after the establishment phase. During this time the Project Ecologist will ascertain whether the establishment methodology needs to be adapted. Once the habitats been successfully established, monitoring can be carried out every other year (years 5, 7, 10, 15 and 20 post-establishment) as deemed appropriate by the Project Ecologist. **Marsh Fritillary and Species Diverse Wet Grassland Habitat** Marsh fritillary habitat condition assessments will be undertaken throughout the target areas, as per NBDCs marsh fritillary monitoring scheme. **Peatland Enhancement** High level monitoring assessments will be carried out within the target area for the first 5 years post initial restoration works. These will serve to identify if the restoration works are progressing as planned, in the potential absence of positive habitat condition assessments, which may take some years to establish. In conjunction with the high-level assessments, vegetation monitoring will be undertaken following the methodology set out in Irish Wildlife Manual No. 79 Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland Version 2.0" (Perrin et al, 2014) (IWM 75) to provide a detailed assessment of the blanket bog restoration for the operational life of the prospective development. A minimum of five permanent vegetation monitoring plots, the location of which will be selected to provide a comprehensive coverage of the site condition. Cover and abundance	Annually Annually	As required As required	Project Ecologist Project Ecologist

			of vascular and bryophyte species will be recorded and it will be assessed as per the condition assessment monitoring criteria as per those that are set out in Appendix V of the IWM 75 in relation to Blanket Bog (7130). Fixed point photography, and aerial imagery collection will also be undertaken at each plot. Monitoring will commence following the completion of the initial restoration works and will be undertaken annually for a period of five years. Following this, it will be surveyed every five years throughout the lifetime of the Proposed Project. Where monitoring reveals that actions need to be undertaken to ensure the success of the project in achieving its aims of restoring Blanket Bog habitat adaptive measures such as dam maintenance, further surface smoothing, seedling removal or furrow/drain blocking will be undertaken as necessary. Recommendations for ongoing or remedial management required will be specified within the Annual Environmental Report. **Linear Habitats** The entire enhancement area will be walked/surveyed to ensure all planted trees are healthy. Should dead/dying trees be identified, additional planting will be required to fill any gaps.	Years 1, 3, 5, 7, 10, 15, and 20 years	Annually	Project Ecologist
MX31	Birds	EIAR Chapter 7 Appendix 7-7	Operational monitoring will be in line with guidelines issued by the NatureScot (NatureScot, 2009 and NatureScot, 2025a). Surveys will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the wind farm's lifetime. Operational monitoring will include the following survey methods:	Years 1-5, 10 and 15	As Necessary	Project Ornithologist

			› Flight activity surveys: vantage point surveys. › Distribution and abundance surveys: breeding raptor surveys. Targeted bird collision surveys (corpse searches) will be undertaken by a trained dog and handler. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.			
MM32	Hen Harrier	Appendix 6-4	The Proposed Hen Harrier Habitat Enhancement Areas will be the subject of annual monitoring to assess the effectiveness of the measures proposed and employed and to contribute to advances in habitat management methods, which can be applied to future similar projects. The monitoring can also aid adaption and implementation of improved methods and measures as they emerge, or intensification of successful measures deployed from farm plan to farm plan. Please refer to Appendix 6-4 for further details. The monitoring measures will include the following during the breeding season: › Hen harrier surveys of each of the Proposed Hen Harrier Habitat Enhancement Areas. › Passerine point counts at each of the Proposed Hen Harrier Habitat Enhancement Areas. › Habitat mapping and scoring at each of the Proposed Hen Harrier Habitat Enhancement Areas. Vegetation sampling at each of the Proposed Hen Harrier Habitat Enhancement Areas.	Annually	As Necessary	Project Ornithologist

MX33	Noise and Vibration	EIAR Chapter 12	A Noise Compliance Monitoring Plan will be implemented to verify that operational wind turbine noise complies with any planning conditions. Prior to commissioning, a Noise Compliance Monitoring Protocol will be submitted to and agreed with the planning authority, setting out measurement methodologies, reporting procedures and a complaints management process in accordance with current guidance and best practice. Post-commissioning compliance surveys will be undertaken, typically within six months of operation, following the IOA Good Practice Guide and relevant supplementary guidance. Should any exceedances or noise issues such as tonality or amplitude modulation be identified, appropriate corrective measures will be implemented, including operational controls or curtailment of specific turbines. All complaints will be fully investigated in collaboration with the turbine manufacturer, with further mitigation applied where necessary to ensure ongoing compliance.	Once within six months	As Required	Noise Consultant
MX34	Peat and Spoil Management / Instability	Appendix 4-2	To monitor possible peat movements following the construction of the Proposed Project, it is recommended that the Proposed Wind Farm Site is inspected by a suitably qualified engineer once every six months for the first three years following commissioning of the Proposed Project. Particular attention will be given to the peat storage areas and the borrow pit, as well to any areas where the site drainage is not functioning as intended. Should any signs of instability be noted, a site visit by a suitably qualified geotechnical engineer will be arranged and suitable remediation measures enacted. The site inspections should continue on an annual basis for a further three years.	As required	Every 6 Months	Geotechnical Engineer

Decommissioning Phase						
MX35	Decommissioning	Appendix 4-6	As noted in the Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013) reinstatement proposals for a wind farm are made approximately 30 years in advance, so within the lifespan of the wind farm, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore: *"best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm".* In this regard, the Decommissioning Plan (DP) (Appendix 4-6) will be reviewed and updated prior to commencement of decommissioning works to take account of the relevant conditions of the planning permission and current health and safety standards at the time of decommissioning.	End of Operational Life	As Required	Developer Appointed/ Contractor
MX36	Decommissioning	Appendix 4-6	The ECoW will maintain responsibility for monitoring the decommissioning works and Contractors/Sub-contractors from an environmental perspective. The ECoW will act as the regulatory interface on environmental matters. The Site Manager will be responsible for reporting to and liaising with Clare County Council and other statutory bodies as required.	End of Operational Life	As Required	Site Manager/ ECoW
MX37	Decommissioning	Appendix 4-6	The Site Manager in consultation with the ECoW will be responsible for employing the services of a suitably qualified ecologist and any other suitably qualified professionals as required throughout the decommissioning works.	End of Operational Life	As Required	Site Manager/ ECoW

MX38	Decommissioning	Appendix 4-6	Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the site to identify invasive species where any minor excavation will be required. If present in these areas, the ecologist will propose suitable management measures.	End of Operational Life	As Required	Project Ecologist
MX39	Health and Safety	Appendix 4-6	› Report on site activities to include but not limited to information on accidents and incidents, disciplinary action taken and PPE compliance; › Monitor the compliance of contractors and others and take corrective action where necessary; and › Notify the Authority and the client of non-compliance with any written directions issued.	End of Operational Life	As Required	PSCS
MX40	Birds	Appendix 7-7	› It is proposed that decommissioning works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs. Pre-commencement surveys will be undertaken within one month prior to the initiation of works. The purpose of these surveys is to identify sensitive roosting sites. › If works run into the subsequent breeding season(s) (April-September), surveys will be conducted to identify sensitive nesting sites. Breeding season surveys will be conducted once per month from April to July inclusive of when works are taking place. If works run into the subsequent winter season(s) (October to March), surveys will be repeated to identify sensitive roost sites. These surveys will be conducted at the beginning of each winter season (e.g., October) and continue if there is evidence to justify continuing (i.e. potential roosting behaviour of birds of conservation concern).	End of Operational Life	As Required	Project Ornithologist

			› Surveys will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the development footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during works, works will cease within a species-specific buffer of its location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. Aerial surveys using a drone may be used to confirm the presence or absence of birds, where conditions are suitable. › All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all decommissioning staff. The restricted area will also be marked to alert all personnel on site to the suspension of works within that area.			