17. SCHEDULE OF MITIGATION AND MONITORING PROPOSALS

17.1 Introduction

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

All mitigation which will be implemented during the various phases of the project are presented in Table 17-1 below. The mitigation measures have been grouped together according to their EIAR Chapter and project phase and are presented under the following headings:

- Pre-Commencement Phase
- Construction Phase
- Operational Phase
- Decommissioning Phase

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The proposal for site inspections and environmental audits are set out in the Construction and Environmental Management Plan (CEMP) which is included as Appendix 4-3 of this EIAR. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases 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 project are outlined in Table 17-2. 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 project to ensure all the required monitoring is completed as required.

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

17.2 EIAR Mitigation Measures

Table 17-1 Schedule of Mitigation

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 4 – Description of the Proposed Development					
Pre-Commencement Phase					
MM1	Environmental Management	EIAR Section 4	All proposed site activities will be provided for in a Construction Environmental Management Plan (CEMP), prepared prior to the commencement of any operations onsite. The CEMP will set out all measures necessary to ensure works are carried out in accordance with the mitigation measures set out in the EIAR and will set out the monitoring and inspections procedures and frequencies.		
MM2	Environmental Management	EIAR Section 4	The ECoW will maintain responsibility for monitoring the construction works and audit the implementation of the CEMP. In addition, a Project Ecologist, Project Hydrologist, Project Archaeologist, Project Geotechnical Engineer will visit the site regularly and report to the ECoW.		
MM3	Environmental Management	CEMP Section 4	A Site ECoW will oversee the site works and implementation of the Construction Environmental Management Plan (CEMP), and provide on-site advice on the mitigation measures necessary as necessary to ensure the project proceeds as intended. 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 agreed by parties where required prior to commencement of construction, and may be further adjusted as required during the course of the project.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM4	Surface Water Quality	CEMP Section 4	Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of felling and construction at the site. The baseline monitoring programme will be subject to agreement with Mayo County Council. Baseline laboratory analysis of a range of parameters with relevant regulatory limits and Environmental Quality Standards (EQSs) will also be undertaken as per water monitoring programme for the Proposed Development and each primary watercourse along the route.		
MM5	Concrete Deliveries	EIAR Section 4 CEMP Section 3	The arrangements for concrete deliveries to the site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout of trucks and discussing emergency procedures.		
MM6	Site Drainage Plan	EIAR Section 4 CEMP Section 4	The Project Hydrologist will prepare detailed drainage design before construction commences.		
MM7	Preparative Site Drainage Management,	EIAR Section 4 CEMP Section 4	The detailed drainage design will specify all materials and equipment necessary to implement the drainage measures effectively, which will be brought on site in advance of any works commencing. 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.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM8	Drainage Inspection	CEMP Section 3	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.		
MM9	Drainage Maintenance	EIAR Section 4 CEMP Section 4	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems 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 site ECoW or the Project Hydrologist.		
MM10	Earthworks	CEMP Section 3	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.		
MM11	Felling	EIAR Section 4, 7	Construction will not commence during the Breeding Bird season from March to August inclusive. If breeding activity is identified, the nest site will be located, and no works shall be undertaken within a 500m buffer (Forestry Commission Scotland 2006; Ruddock & Whitfield 2007). No works shall be permitted within the buffer until it can be demonstrated that the nest is no longer occupied.		
MM12	Felling Licence	EIAR Section 4	Felling will be carried out under the terms of a licence application to the Forest Service, as per the Forest Service's policy on granting felling licenses for wind farm developments.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM13	Peat Management	EIAR Section 4 CEMP Section 4	› Prior to commencing the construction of the excavated roads movement monitoring posts will be installed in areas where the peat depth is greater than 1.5m. › Interceptor drains will be installed upslope of the access road alignment to divert any surface water away from the construction area.		
			Construction Phase		
MM14	Wastewater Management	EIAR Section 4 CEMP Section 2	The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. Full details of the proposed tank alarm system can be submitted to the Planning Authority in advance of any works commencing on-site. The wastewater storage tank alarm will be part of a continuous stream of data from the site's turbines, wind measurement devices and electricity substation 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.		
MM15	Refuelling	EIAR Section 4 CEMP Section 3	› On-site refuelling will be carried out using a mobile double skinned, bunded fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site and will be towed around the site by a 4x4 jeep to where machinery is located. It is not practical for all vehicles to travel back to a single refuelling point, given the size of the cranes, excavators, etc. that will be used during the construction of the Proposed Development. The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages. The fuel bowser will be parked on a level area in the construction when not in use. Refuelling operations will be carried out only by designated trained and competent operatives. Mobile anti-pollution measures such as drip trays and fuel absorbent mats will be used during all refuelling operations.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Fuels stored on site will be minimised. Storage areas where required will be bunded appropriately for the fuel storage volume for the time period of the construction and 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; An emergency plan for the construction phase to deal with accidental spillages is contained within section 5 of the CEMP. Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.		
MM16	Plant and Equipment Inspections	CEMP Section 3	A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the construction phase.		
MM17	Concrete Deliveries and Management	EIAR Section 4 CEMP Section 3	The following mitigation measures will be implemented to avoid release of cement leachate from the site: › No batching of wet-cement products will occur on site; › The arrangements for concrete deliveries to the site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout of trucks and discussing emergency procedures. › 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; › No washing out of any plant used in concrete transport or concreting operations will be allowed on-site; › Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible to		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			dedicated impermeable concrete washout area which requires monitoring and maintenance. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. › Use weather forecasting to plan dry days for pouring concrete (see Section 3.2.4.2.2); › The pour site will be free of standing water and plastic covers will be ready in case of sudden rainfall event; The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a concrete washout area, built using straw bales and lined with an impermeable membrane. below. The areas are generally covered when not in use to prevent rainwater collecting. In periods of dry weather, the areas can be uncovered to allow much of the water to be lost to evaporation. At the end of the concrete pours, any of the remaining liquid contents is tankered off-site. Any solid contents that will have been cleaned down from the chute will have solidified and can be broken up and disposed of along with other construction waste		
MM18	Road Cleanliness	EIAR Section 4. CEMP Section 3	A road sweeper will be available if any section of the public roads were to be dirtied by trucks associated with the Proposed Development.		
MM19	Watercourse Buffers	EIAR Section 4. CEMP Section 3	All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM20	Water Discharge	EIAR Section 4	There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows.		
MM21	Wastewater Management	EIAR Section 4. CEMP Section 3	During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the service contractor as required and will be removed from the site on completion of the construction phase.		
MM22	Drainage Swales	EIAR Section 4 CEMP Section 3	Swales will be used to intercept and collect run off from construction areas of the site during the construction phase, and channel it to settlement ponds for sediment attenuation as per the drainage design.		
MM23	Interceptor Drains	EIAR Section 4 CEMP Section 3	Interceptor drains will be installed up-gradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site. It will then be directed to areas where it can be re-distributed over the ground as sheet flow as per the drainage design.		
MM24	Check Dams	EIAR Section 4 CEMP Section 3	Check dams will not be used in any natural watercourses, only artificial drainage channels and interceptor drains. The check dams will be installed at regular intervals along interceptor drains to restrict flow velocity, minimise channel erosion and promote sedimentation behind the dam as per the drainage design.		
MM25	Level Spreaders,	EIAR Section 4	A level spreader will be constructed at the end of each interceptor drain to convert concentrated flows in the drain into diffuse sheet flow on areas of vegetated ground. The levels spreaders will be located downgradient of any proposed works areas in		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3	locations where they are not likely to contribute further to water ingress to construction areas of the site.		
MM26	Piped Slope Drains	EIAR Section 4	Piped slope drains will be used to transfer water away from areas where slopes are too steep to use level spreaders and will only remain in place for the duration of the construction phase.		
MM27	Vegetation Filters	EIAR Section 4	Vegetation filters, that is areas of existing vegetation, accepting drainage water issuing from level spreaders as sheet flow, will remove any suspended sediment from water channelled via interceptor drains or any remaining sediment in waters channelled via swales and settlement ponds.		
MM28	Settlement Ponds	EIAR Section 4 CEMP Section 3	Settlement ponds, placed either singly or a pair in series, will buffer volumes of run-off 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 water courses as per the drainage design.		
MM29	Dewatering Silt Bag	EIAR Section 4 CEMP Section 3	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.		
MM30	Siltbuster	EIAR Section 4	A “siltbuster” or similar equivalent piece of equipment will be available to filter any water pumped out of excavation areas if necessary, prior to its discharge to stilling 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.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM31	Culvert Upgrades	EIAR Section 4	The following mitigation is proposed for completion of wind farm culvert upgrades: › Where possible pre-cast elements for culverts and concrete works will be used; › All new proposed culverts and proposed culvert upgrades will be suitably sized for the expected peak flows in the watercourse; › 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. › All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance › All proposed new stream crossings will be bottomless or clear span culverts 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 underground cabling 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 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 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			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; and, › 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.		
MM32	Silt Fences	EIAR Section 4	› Silt fences will be emplaced within drains down-gradient of all construction areas. › They will remain in place throughout the entire construction phase. › 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 (Ciria, No. C648, 1996). Up to three silt fences may be deployed in series. › All silt fencing will be formed using Terrastop Premium or equivalent silt fence product. › 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 Section 4	› 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		
MM34	Hydrocarbon Interceptors	EIAR Section 4	› A suitably sized hydrocarbon interceptor will be installed wherever it is intended to store hydrocarbons and oils (i.e construction compounds and substation compound) or where it is proposed to park vehicles during the construction and operational phases of the proposed development (i.e construction compounds, substation compound and visitor car park).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM35	Excavation seepages and treatment	EIAR Section 4,	› 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, along with use of more specialist treatment systems such as a Siltbags; › There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur; › 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		
MM36	Peat Management	EIAR Section 4	› Excavation will take place to a competent stratum beneath the peat.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 4	› Road construction will be carried out in sections of approximately 50m lengths i.e., no more than 50m of access road should be excavated without re-placement with stone fill. › Once excavated, peat will be placed within the borrow pit or the peat and spoil repository. › Excavation of materials with respect to control of peat stability. ○ Acrotelm (top about 0.3 to 0.4m of peat) is generally required for landscaping and will be stripped and temporarily stockpiled for re-use as required. Acrotelm stripping will be undertaken prior to main excavations. ○ Where possible, the acrotelm will be placed with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation. ○ All catotelm peat (peat below about 0.3 to 0.4m depth) will be transported immediately on excavation to the borrow pit or to the designated peat repository. › Side slopes in peat will be not greater than 1 (v): 3 (h). This slope inclination will be reviewed during construction, as appropriate. Where areas of weaker peat are encountered then slacker slopes will be required. Battering of the side slopes of the excavations will be carried out as the excavation progresses. › The excavated access road will be constructed of up to 1000mm of selected granular fill. Granular fill to be placed and compacted in layers in accordance with the TII Specification for Road Works. › A layer of geogrid/geotextile may be required at the surface of the competent stratum should excessive rutting be noted in the track. › At transitions between floating and excavated roads a length of road of about 10 to 20m will have all peat excavated and replaced with suitable fill. The surface of this fill will be graded		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			so that the road surface transitions smoothly from floating to excavated road. › Where slopes of greater than 5 degrees are encountered along with relatively deep peat (i.e., greater than 1.5m) and where it is proposed to construct the access road perpendicular to the slope contour sit is best practice to start construction at the bottom of the slope and work towards the top, where possible. This method avoids any unnecessary loading to the adjacent peat and greatly reduces any risk of peat instability. › A final surface layer will be placed over the excavated road and will be graded to accommodate wind turbine construction and delivery traffic.		
MM37	Peat and Spoil Placement Areas	EIAR Section 4. CEMP Section 3	The following measures which will be implemented during the construction phase of the 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; › Sufficient time will be allocated for the project (be aware that decreasing the construction time has the potential to increase the risk of initiating a localised peat movement); › Undercutting of slopes and unsupported excavations will be prevented. › A managed robust drainage system will be maintained. › Placement of loads/overburden on marginal ground will be prevented › Set up, maintain and report findings from monitoring systems (as outlined in the Geotechnical and Peat Stability Assessment);		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Construction method statements will be developed and agreed before commencement of construction and are followed by the contractor; and, › The Construction Risk Register will be revised and amended as construction progresses to ensure that risks are managed and controlled for the duration of construction. › The hydrology of area will be maintained as far as possible by maintaining existing drains to water pressures in the peat to avoid peat becoming "boyant" › The use of experienced geotechnical staff for site investigations › The use of experienced contractors and trained operators will carry out the work. › Detailed ground investigation will determine peat, mineral soil and bedrock condition and properties. › Potential requirement for small buttress on upslope side of access road to retain peat will be used should any instability be noted.		
Operational Phase					
MM38	Wastewater Management	EIAR Section 4	The removal and disposal of wastewater from the site will be carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the Waste Management (Collection Permit) Regulations, 2007.		
MM39	Electrical Substation	EIAR Section 4, CEMP Section	The electrical substation will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Decommissioning Phase		
MM40	Decommissioning	EIAR Chapter 4	Prior to the end of the operational period the Decommissioning Plan (Appendix 4-6 of the EIAR) will be updated in line with decommissioning methodologies that may exist at the time and will agreed with the competent authority at that time.		
MM41	Decommissioning	EIAR Chapter 4 DP Section 2	On removal of turbines, the covering of the foundation will be completed using locally sourced material imported to site as the required quantity of material does not currently exist at the site. The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation enhanced by spreading of an appropriate seed mix to assist in revegetation.		
MM42	Decommissioning	EIAR Chapter 4 DP Section 3	The following mitigation measures are proposed to avoid release of hydrocarbons at the site: › Road-going vehicles will be refuelled off site wherever possible; › On-site refuelling will be carried out at designated refuelling areas at various locations throughout the site. Machinery will be refuelled directly by a fuel truck that will come to site as required › Only designated trained and competent operatives will be authorised to refuel plant on site. › Fuel volumes stored on site should be minimised. Any fuel storage areas will be bunded appropriately; › The plant used will be regularly inspected for leaks and fitness for purpose; and, › An emergency plan for the decommissioning phase to deal with accidental spillages will be developed (refer to EIAR Section 4). Spill kits will be available to deal with and accidental spillage in and outside the refuelling area.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the decommissioning phase.		
MM43	Decommissioning	EIAR Chapter 4	Upon completion of the Proposed Development the temporary construction compound will be decommissioned by backfilling the area with the material arising during excavation, landscaping with topsoil as required.		
Chapter 5: Human Beings					
Pre-Commencement Phase					
MM44	Human Health	EIAR Section 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 identified in line with the engagement plan. Local access to properties will also be maintained throughout any construction works and local residents will also be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		
Construction Phase					
MM45	Human Health	EIAR Section 5	The Proposed Development 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail.		
MM46	Human Health	EIAR Section 5	Signage indicating the designated pedestrian route site along the Western Way will be in place during the construction phase of the development. Likewise, appropriate construction site warning signage and health and safety signage will be in place along the Western Way and on the approach to the construction site at all times during the construction phase to ensure that any potential impacts pertaining to existing amenity access is mitigated against. Furthermore, all health and safety procedures as detailed in section 5.10.2.1 will be strictly adhered to ensure not only the safety of construction staff but any users of the Western Way during the construction phase.		
MM47	Human Health	EIAR Section 5	› Local residents will be kept informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern; › The core hours for construction activity will be 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 Saturday. There will be no working on Sundays and Public Holidays; › Any extraordinary site work occurring outside of the core working hours (for example, crane operations lifting components onto the tower) will be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the site between 19:00 and 07:00, with the exception of abnormal loads that would be scheduled to avoid anticipated periods of high traffic flows; › All vehicles and mechanical plant will be fitted with effective exhaust silencers and be subject to programmed maintenance; › Inherently quiet plant will be selected where appropriate and available - all major compressors would be 'sound reduced' models		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use; › All ancillary pneumatic percussive tools will b e fitted with mufflers or silencers of the type recommended by the manufacturers; › Machines will be shut down between work periods (or when not in use) or throttled down to a minimum; › All equipment used on site will be regularly maintained, including maintenance related to noise emissions; › Vehicles will be loaded carefully to ensure minimal drop heights so as to minimise noise during this operation; and › All ancillary plant such as generators and pumps will be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures will be provided.		
			Operational Phase		
MM48	Human Health	EIAR Section 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. › Staff associated with the project will conduct frequent visits, which will include inspections to establish whether any signs have been defaced, removed 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 proposed renewable energy development. 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. 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 and providing for access for emergency services at all times		
MM49	Shadow Flicker	EIAR Section 5	Where daily shadow flicker exceedances have been predicted at buildings by the modelling software, a site visit will be undertaken firstly to determine the level of occurrence, existing screening and window orientation. **Screening Measures** In the event of an occurrence of shadow flicker exceeding guideline threshold values of 30 minutes per day at a residential receptor, 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. 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 ensure that shadow flickers occurrences at properties which are not naturally screened or cannot be screened with measures outlined above		
Chapter 6: Biodiversity					
Pre-Commencement Phase					
MM50	Invasive Species Management	EIAR Section 6 CEMP Section 3	A pre-construction invasive species survey will be undertaken a part of the proposed project. This will provide updated data in advance of any construction given the intervention time period between the original survey work and any future grant of permission/ construction. Measures will be in place to prevent the spread of these species during the proposed works. In addition, all necessary precautions will be taken to prevent the introduction of invasive species to the site from elsewhere.		
MM51	Fauna	EIAR Section 6	› A pre-construction badger survey will be undertaken at the location of the identified sett by a qualified ecologist prior to the commencement of any works to determine if the setts are in use and to identify any additional sett entrances that may have been excavated in the intervening period. › The sett will be monitored for 2 weeks prior to construction using a camera trap to determine if it is in use.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› If the sett is found to be in use exclusion measures will be put in place prior to construction in line with NRA Guidelines to ensure that the sett is evacuated. › As per NRA guidelines Exclusion from an active sett will only be carried out during the period of July to November inclusive in order to avoid the badger breeding season. › During the breeding season (December to June inclusive) no works will be undertaken within 50m of active setts nor blasting or pile driving within 150m of active setts. › Exclusion zone fencing and appropriate signage will be put in place around the main sett to the south of the substation which lies outside the construction footprint. This will ensure that there will be no vehicles tracking in the area and no temporary storage of construction materials that could impact the sett.		
MM52	Fauna	EIAR Section 6	› 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 and a 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) should be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence (TII, 2008b).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM53	Bats	Appendix 6-2	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.		
Construction Phase					
MM54	Bats	EIAR Section 6 Appendix 6-2	› 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 (SI 359/1996). › Exterior lighting, during construction, will be designed to minimize light spillage, thus reducing the effect on areas outside the Proposed Development, and consequently on bats i.e. Lighting will be directed away from mature trees/treelines around the periphery of the site boundary to minimize disturbance to bats. Directional accessories can be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands.		
MM55	Invasive Species	EIAR Section 6	› The treatment of Rhododendron is fully described in section 2.2 of the Biodiversity Management and Enhancement Plan (BMEP), available in appendix 6-5. › Previously identified infested areas will be resurveyed prior to the commencement of the treatment procedures. The purpose of this is to identify if the Rhododendron has spread outside of previously mapped areas.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Prior to the commencement of treatment, all areas identified for treatment will be marked with barrier tape. › All staff will be fully trained and competent in the use of herbicides › Rhododendron will be cut to a height of between 2 and 4cm above the ground and immediately sprayed with a 20% solution of glyphosate mixed with a dye. › The application of herbicide will adhere to legislation and best practice protocols on all aspects including: the storage and application of herbicides, PPE, record keeping. › All herbicide mixtures will be prepared off-site or in a designated area on the forest road network. › Alternatively eco- plugs may be used. https://www.forestresearch.gov.uk/research/the-use-of-ecoplugs-for-woody-weed-control/ › Treated area will be monitored annually for three years, following the initial treatment. Further cutting and herbicide treatment will be carried out if required › Good construction site hygiene will be employed to prevent the spread and introduction of problematic invasive alien plant species (e.g. Japanese knotweed, Rhododendron, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the 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.		
MM56	Aquatic Fauna	EIAR Section 6	In relation to new watercourse crossings, Inland Fisheries Ireland (IFI) will be consulted a minimum of four weeks in advance of the installation of pre-cast concrete bottomless box culverts. The Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters; and the Scottish		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Natural Heritage (SNH) Good Practice During Wind Farm Construction (SNH, 2019, 4th Edition) will also be adhered to. 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).		
MM57	Invasive Species	EIAR Section 6 CEMP Section 3	The following measures are proposed to establish good site hygiene to ensure the control of any potential spread of invasive species during construction works, if they are identified prior to the commencement of the construction phase: › A risk assessment and method statement must be provided by the Contractor prior to commencing works. › Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected. › A designated wash-down area will be created, where power-washed material from machinery can be contained, collected and disposed of with other contaminated material. This area will contain a washable membrane or hard surface. › Stockpile areas will be chosen to minimise movement of contaminated soil. › Stockpiles will be marked and isolated. › Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes will be protected by a layer of sand above and below and topped with a layer of hardcore. › The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material. › An ECoW/suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species management plans.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Plant and equipment which is operated within an area for the management of materials in contaminated areas should be decontaminated prior to relocating to a different works area. The decontamination procedures should take account of the following: › Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it. › Decontamination will only occur within designated wash-down areas. › Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g. wheel treads and arches. › All run-off will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.		
MM58	Flora and Fauna	EIAR Section 6	The Proposed Development has the potential to result in enhancement of the surrounding areas through habitat rehabilitation management (as described in the Biodiversity and Enhancement Management Plan) that will be implemented during the construction phase of the Proposed Development and maintained during the operational phase. Details of the management that will be undertaken are provided in the Biodiversity and Enhancement Management Plan in Appendix 6-4 of the EIAR. These include: › Conifer Felling › Drain Blocking › Vegetation Monitoring › Hydrological Monitoring		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM59	Bats	EIAR Section 6 Appendix 6-2	In order to reduce the value of the habitat for bat species in the areas surrounding the turbines, a buffer of at least 50m between the tip of the blade and any trees or other tall vegetation that could provide high quality foraging habitat for bat species will be implemented. A full description of the mitigation measures proposed during operational phase are described in section 6.1 of the Bat report. Details of this mitigation and how it is calculated is provided in Appendix 6-2. **Blade Feathering** On a precautionary basis, and in addition to buffers applied to habitat features, it is proposed that 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). **Bat Mitigation and Monitoring Plan** Full details of the proposed operational bat monitoring programme for the Proposed Development are provided in Section 6.2.1 of the Bat Report (Appendix 6-2) › The post-construction surveys will be carried out as per the pre-construction survey effort. Post-construction monitoring will include static detector surveys, walked survey transects and corpse searching to record any bat fatalities resulting from collision.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Static monitoring shall take place at each turbine during the bat activity season (between April and October) (NatureScot, 2021, NIEA, 2021). › Carcass searches, to monitor and record bat fatalities, shall be conducted at each turbine in accordance with 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).		
Decommissioning Phase					
MM60	Decommissioning	EIAR Section 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. An outline decommissioning plan is contained in the CEMP, Appendix 4-4 of the EIAR. The CEMP for the project provides the details of the mitigation and best practice that will be employed to avoid any potential for significant residual effects on biodiversity during decommissioning of the proposed wind farm.		
Chapter 7 Birds (Appendix 7-1)					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase					
MM61	Birds	Appendix 7-1	During the breeding season (March-August) bird monitoring surveys within the Proposed Development site will take place to a distance of 500 m from the development area. However, for the bogs to the west of site, the survey that was carried out in 2022 will be repeated, with transects up to 1,000 m from the edge of the forest.		
MM62	Birds	Appendix 7-1	It is noted that the wet bog to the southwest and south of the site had not been included in the 2022 survey for health and safety reasons –. The assumption has been made that sensitive breeding species may be present (as habitat is certainly suitable to support same) and a restrictive zone of 500 m from the forest/bog edge will be implemented during the breeding season as a precautionary measure. The survey for breeding birds on the bog (following Brown and Shepherd 1993) will take place in the April to July period (4 visits) in the season before works, including tree felling, commence. This schedule will provide guidance to the contractor on where restrictive zones are likely to be required.		
Construction Phase					
MM63	Birds	Appendix 7-1	Should any of these species be recorded breeding within the given distances of the works area (as established through confirmatory surveys before and/or during construction) a buffer zone (see appendix 7-1) shall be established around the expected location of the nest (location identified as far as is possible without causing disturbance to the bird) and all works will be restricted within the zone until it can		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			be demonstrated by an ornithologist that the species has completed the breeding cycle in the identified area. Any restricted area that is required to be set up will be marked clearly using hazard tape fencing and all site staff will be alerted through toolbox talks. The above mitigation, which will apply from March to August (inclusive), will ensure that the works will not have adverse effects on the identified IEFs.		
MM64	Birds	Appendix 7-1	Any ground clearance of habitat that could support breeding birds (during period March to August) will be walked to establish the presence of breeding birds (mainly passerines). This will be done by an ornithologist up to 10 days before the clearance works take place. If 10 days elapse without the clearing commencing, a further survey will take place. The focus will be on the area to be cleared but zones up to 100 m (approximately) around the area will also be included. Should a breeding territory be identified, the surveyor will attempt to establish the phase of building, e.g. nest building, incubating, feeding young, and will advise the contractor accordingly on measures to be followed		
Operational Phase					
MM65	Birds	Appendix 7-1	Areas of forest around turbines which are cleared of trees will be managed to prevent establishment of scrub and rank vegetation which would encourage small mammals and birds and attract species such as kestrel to hunt near the turbines and increase risk of collision. This maintenance will be carried out on an annual basis by mowing or strimming.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Decommissioning Phase					
MM66	Birds	Appendix 7-1	As the decommissioning works will involve works similar to those involved at construction stage, these could result in similar effects on birds. Hence, the mitigation that will be undertaken during construction will also be applied during the decommissioning phase (taking into account changes that may have occurred locally during the operational life of the project).		
EIAR Chapter 8 Land Soils & Geology					
Pre-Commencement Phase					
MM67	Earthworks	EIAR Section 8	› Placement of turbines and associated infrastructure in areas with shallower peat has been achieved during the design phase; › Maximum use of the existing road network to reduce peat excavation and borrow pit volumes; › 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 (avoidance of deep peat areas); › A suitable drainage system to be constructed to ensure continuity of the site hydrology (EIAR Chapter 9). › All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Gravel/rock fill will be used to provide additional support to temporary cuts/excavations where appropriate, as determined by the Project Geotechnical Engineer. Unstable temporary cuts/excavations will not be left unsupported.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Where appropriate and necessary, temporary cuts and excavations will be protected against the ingress of water or erosion. › To mitigate against the compaction of soil at the site, prior to the commencement of any earthworks, the work corridor will be pegged, and machinery will stay within this corridor so that peatland / soils outside the work area is not damaged. Excavations will then be carried out from access tracks, where possible, as they are constructed in order to reduce the compaction of soft ground. › Soil excavated from trenches along the proposed grid connection route will be stored with the borrow pits on the Site. The tarmac / asphalt layers will be taken to a licenced facility for disposal or recycling. If feasible, the upper layers of tarmac and asphalt will be excavated separately to the lower engineered fill layers		
Construction Phase					
MM68	Contamination of Soils	EIAR Section 8	› Minimal refuelling or maintenance of construction vehicles or plant will take place on site. 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 readily available on site for accidental leakages or spillages; › On site re-fuelling will be undertaken by suitably trained personnel only under a permit to refuel system; › Fuels stored on site will be minimised. Storage areas located at the temporary compounds where required will be bunded appropriately for the fuel storage volume for the time period of the construction and fitted with a storm drainage system and an appropriate oil interceptor;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The electrical substation will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and 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; › All waste tar material arising from the chipping and resurfacing of the public road portion of the temporary construction access road will be removed off-site and taken to licenced waste facility; › An emergency plan for the construction phase to deal with accidental spillages is contained within the Construction and Environmental Management Plan (Appendix 4-3 of this EIAR). Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.		
MM69	Erosion of soils	EIAR Section 8	To mitigate against erosion of the exposed soil or rock, all excavations will be constructed and backfilled as quickly as possible. Excavations will stop during or prior to heavy rainfall events. To mitigate against possible contamination of the exposed soils and bedrock, refuelling of machinery and plant will only occur at designated refuelling areas.		
MM70	Felling	EIAR Section 8	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.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM71	Peat Instability	EIAR Section 8 Appendix 8-1	The following measures which will be implemented during the construction phase of the project will ensure the management of the risks for this site. › Appointment of experienced and competent contractors; › The site will be supervised by experienced and qualified personnel, including a project Geotechnical Engineer; › 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. All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Gravel/rock fill will be used to provide additional support to temporary cuts/excavations where appropriate, as determined by the Project Geotechnical Engineer. Unstable temporary cuts/excavations will not be left unsupported. Where appropriate and necessary, temporary cuts and excavations will be protected against the ingress of water or erosion. › Excavation will be carried out from access roads or hardstanding areas to avoid tracking of construction plant across areas of soft ground/peat. › Maintain a managed robust drainage system (see Chapter 4 and 9 of this EIAR for details); › Prevent placement of loads/overburden on marginal ground as detailed in the peat stability assessment report; › Set up, maintain and report findings from monitoring systems (as described in the Peat & Spoil Management Plan, Appendix 4-2); › Where possible , earthworks will not be commenced when heavy or sustained rainfall is forecast. A rainfall gauge will be installed on site to provide a record of rainfall intensity. An inspection of site stability and drainage by the Project Geotechnical Engineer will be carried out on site when a daily rainfall of over 15mm is recorded on site,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			works will only recommence after heavy rain with the prior approval of the Project Geotechnical Engineer following their inspection. › Engineer and Contractor to ensure that construction method statements are followed; and, Revise the Geotechnical Risk Register, as necessary, as construction progresses to ensure that risks are managed and controlled.		
Operational Phase					
MM72	Soils and Geology	EIAR Section 8	Mitigation measures for soils and geology during the operational stage include the use of aggregate from local, authorised quarries for use in road and hardstand maintenance. Oil used in transformers (at the substation and within each turbine) and storage of oils in tanks at the substation could leak during the operational phase and impact on ground/peat and subsoils and groundwater or surface water quality. The substation transformer, and oil storage tanks will be in a concrete bund capable of holding 110% of the stored oil volume. Turbine transformers are located within the turbines, so any leaks would be contained within the turbine structure. These mitigation measures are sufficient to reduce risk to ground/peat/soils and subsoils, and groundwater and surface water quality.		
Decommissioning Phase					
MM73	Decommissioning Phase	EIAR Section 8	Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant.		
EIAR Chapter 9 Hydrology					
Pre-Commencement Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM74	Clear-felling of Coniferous Plantation	EIAR Section 9	**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. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document "Forestry and Water Quality Guidelines" **Mitigation by Design:** Mitigation measures will be implemented wherever clear-felling is planned. The objective will be to mitigate the risk of mobilising suspended solids and nutrients into drains and surface water courses, as follows: Small felling areas (<25ha), sequencing of felling to avoid intense felling in one sub catchment. › Limiting felling areas and sequencing the felling to avoid intense felling in one subcatchment. › Machine combinations (*i.e.* handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance. › Sediment/Silt traps will be strategically placed downslope within forestry drains near streams before ground preparation. The purpose is to slow water flow, increase residence time, and allow settling of silt. No direct discharge of such ditches to water courses will occur. › Crossing of streams away from bridges and culverts will not be permitted. Checking and maintenance of roads and culverts will be on-going throughout felling activity. No tracking of vehicles through watercourses will occur. Existing interceptor drains will also not be disturbed. › Clay, soil and silts will be removed from roads during wet periods and dust will be suppressed during dry spells.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Main drains that accommodate the discharge from collector drains will include rock armour, as required, where there are steep gradients. › On steep slopes and where felling inside the 50 metre buffer is required, it will be necessary to install double or triple sediment traps. All drainage channels will taper out before entering the buffer zone. This ensures that discharged water fans out over the buffer zone before entering the aquatic zone, with sediment filtered out by ground vegetation within the 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. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of in dedicated disposal areas. › Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled. › Brash management/removal. › Brash mats will be used to support vehicles on soft ground, reducing soil erosion and avoiding the formation of rutted areas. 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, extraction will be suspended during periods of high rainfall. › Timber will be stacked in dry areas and outside a 50 metre buffer. Straw bales and check dams will be emplaced on the downgradient side of timber storage/processing sites. › Works will not be carried out during significant rainfall events (see Section 9.4.2.2) in order to minimise entrainment of exposed sediment in surface water run-off. › Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when tree-felling operations have been completed.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Drain Inspection and Maintenance: The following items will 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 (*i.e.,* hot spot areas). › Inspections of plant and machinery will be carried out prior to any works to assure all are in good condition. › Inspection of drainage ditches and outfalls. During pre-felling inspections, the main drainage ditches will be identified. The pre-felling inspection will be carried out during rainfall events. › Following tree felling, all main drains will 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. › 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.		
MM75	Earthworks	EIAR Section 9	**Mitigation by Avoidance:** Works areas will be kept at least 50 m from water courses to the extent possible. The proposed setback distance/buffer will serve to avoid: › Direct physical damage to watercourses and associated releases of sediment. › Direct entry of suspended sediments from earthworks into watercourses. › Direct entry of suspended sediments from the drainage system into watercourses, which is achieved in part by ending drain discharges		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			outside the buffer and allowing percolation across the vegetation within the buffer. Risks and effects of earthworks are made greater during storm events. Hence, earthworks will not be carried out during significant storm events. The works programme for the entire construction stage of the development will take account of weather forecasts, notably predicted rainfall. Large excavations and movements of soil/subsoil or vegetation stripping will be scaled back or suspended if heavy rain is forecast. Threshold rainfall values will serve to guide decisions to suspend works, visually and/or judged from weather forecasting, by either of the following: › High-intensity rainfall events, >10 mm/hr. › Heavy frontal rainfall lasting most of the day, >25 mm in a 24-hour period. › More than half the monthly average rainfall over 7 days. The checking and communication of weather forecasts are part of the CEMP. Prior to suspending works for climatic reasons, the following control measures will be completed: › Open excavations will be secured. › Temporary or emergency drainage will be provided to prevent back-up of surface runoff in work areas. › Working for up to 12 hours after heavy rainfall events will be avoided to ensure drainage systems are not overloaded. Decisions are subject to visual inspection and judgement by the resident (supervising) engineer. The intent and objective is to control erosion, avoid collapses of embankments, and limit the mobilisation and transport of sediments. **Mitigation by Design:** Key mitigation by design measures that will be implemented comprise source controls, in-line controls and treatment systems, as follows:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Source control measures cover working areas, staging areas and stockpiles. Methods that will be employed are diversion drains, flume pipes, sand bags, oyster bags filled with gravel, and filter fabrics. Flexibility to adapt methods will be required based on location-specific conditions, as judged by supervising engineers from visual inspection. › In-Line controls involve settling of suspended sediments and particulate organic matter with the use of silt fences, straw bales, sand or oyster bags, weirs, baffles, and check dams. Flow limiters and sump pumping systems may be employed where needs arise in order to maintain the hydraulic functioning of the existing drain system. › Treatment systems involve sediment traps and temporary sumps/attenuation ponds.		
MM76	Site Drainage Management	EIAR Section 9 CEMP Section 3	The works programme for the entire construction stage of the development will take account of weather forecasts and predicted rainfall. Large excavations and movements of soil/subsoil or vegetation stripping will be scaled back or suspended if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount and intensity of rainfall that is forecast. The following relevant forecasting systems are available and will be relied on for said purpose, on a daily basis: › General Weather Forecasts: Available from national to county level from Met Éireann (www.met.ie/forecasts). These do not provide quantitative rainfall estimates. › 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 Éireann 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			measure of recent rainfall. A 3-hour record is given and is updated every 15 minutes. Radar images are sequenced but not predictive. › Consultancy Service: Met Éireann 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 threshold rainfall values will allow work to be safely controlled from a water management and protection perspective. 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); › >half monthly average rainfall in any 7 days. 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. › Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.		
Construction Phase					
MM77	Spills & Leaks	EIAR Section 9	Proposed mitigation measures to avoid releases of fuel and other chemicals at the site are: › Onsite refuelling will be carried out by trained personnel only.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3	› Onsite refuelling of machinery will be done by mobile double-skinned fuel bowsers. › Drip trays and fuel absorbent mats will be available and used during all refuelling operations › A permit for the fuel system will be put in place. › Fuels stored onsite will be minimised. Fuel storage areas will be bunded to contain 110%v of the fuel storage volume for the time period of the construction. Rainwater will not be allowed to accumulate within the bund, and will thus be fitted with a storm drainage system and appropriate oil interceptor. › The plant used during construction will be regularly inspected for leaks and fitness for purpose. › Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.		
MM78	Peat & Spoil Placement Areas	EIAR Section 9	During the initial placement of peat and spoil, silt fences, straw bales and biodegradable matting will be used to control runoff from reinstatement areas. 'Siltbuster' treatment trains will be employed if previous treatment as listed above is not to a high quality. Drainage from peat placement areas will ultimately be routed to swales and stilling ponds with storage and settlement designed for a 6-hour duration, 1 in 100 year storm event, before being discharged to the on-site drains. Peat and spoil placement areas will be vegetated to reduce sediment entrainment in runoff. Once stabilised, these areas will no longer be a potential source of silt-laden runoff.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM79	Culverting	EIAR Section 9 CEMP Section 3	**Mitigation Measures by Avoidance:** Machinery and personnel are kept out of the river directly. Direct in-stream works will be avoided. **Mitigation Measures by Design:** All works will be carried out in accordance with the CEMP which incorporates the best practice IFI "Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters" (IFI, 2016). Related activity incorporates many of the same measures that are presented in Section 9.4.2.2 (earthworks). Moreover: › All stream crossings will be bottomless-box or clear span culverts. Existing banks will remain undisturbed. › Where proposed underground cabling routes follow an existing access track or a track proposed for upgrade, cables will pass over or below the culvert. › Based on IFI (2016), the relevant work period is July to September inclusive, *i.e.,* the relatively drier summer period. Any deviation that may be temporarily necessary will be done in discussion with the IFI. › During near-stream construction works, double-row silt fences will be emplaced immediately downgradient of work areas for the duration of activity. › All new 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.		
MM80	Directional Drilling	EIAR Section 9	Mitigation measures relating to the use of a mixture of a natural, inert and fully biodegradable drilling fluid such as Clear Bore™ and water for directional drilling will be implemented in full, as follows:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The area around the Clear Bore™ batching, pumping and recycling plants will be bunded using terram and sandbags in order to contain any spillages. › One or more lines of silt fences will be placed between the works area and adjacent rivers and streams on both banks. › Accidental spillage of fluids will be cleaned up immediately and transported off site for disposal at a licensed facility. Adequately sized skips will be used for temporary storage of drilling arisings during directional drilling works. This will ensure containment of drilling arisings and drilling flush		
MM81	Release of Cement-based Products	EIAR Section 9	**Mitigation Measures by Avoidance:** › Concrete will be delivered in sealed concrete delivery trucks. Batching of wet-cement products will not occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. › Pre-cast elements for culverts and concrete works will be used. › Concrete trucks will not be washed out on site but will be directed back to their batching plant for washout. **Mitigation Measures by Design:** › 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 Siltbuster-type cement washout ponds, or		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			equivalent (https://www.siltbuster.co.uk/sb_prod/siltbuster-roadside-concrete-washout-rcw/) › Where temporary lined impermeable containment areas are used, such containment areas are typically built using straw bales and lined with an impermeable membrane. These are covered when not in use to prevent rainwater collecting. › Pour sites of cement will be kept free of standing water, and plastic covers will be ready in case of sudden rainfall events. Risks of pollution will be further reduced as follows: › Concrete will not be transported around the site in open trailers or dumpers so as to avoid spillage while in transport. › All concrete used in the construction of turbine bases will be pumped directly into the shuttered formwork from the delivery truck. If this is not practical, the concrete will be pumped from the delivery truck into a hydraulic concrete pump or into the bucket of an excavator, which will transfer the concrete locally to the location where it is needed. › Arrangements for concrete deliveries to the site will be discussed with suppliers before work starts, confirming routes, prohibiting on-site washout and discussing emergency procedures. › Clearly visible signage will be placed in prominent locations close to concrete pour areas specifically stating washout of concrete lorries is not permitted on the site. › Weather forecasting will be used to assist in planning large concrete pours and large pours will be avoided where prolonged periods of heavy rain is forecast.. › Concrete pumps and machine buckets from slewing over watercourses will be restricted while placing concrete.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Excavations will be sufficiently dewatered before concreting begins and dewatering will continue while concrete sets. › Covers will be available for freshly placed concrete to avoid the surface washing away in heavy rain. › Any potential, small surplus of concrete will be disposed of after completion of a pour in suitable locations away from any watercourse or sensitive habitats.		
MM82	Wastewater Management	EIAR Section 9	Wastewater from staff welfare facilities will be collected and brought offsite for disposal by authorised means to a wastewater treatment plant. The operation makes use of a sealed storage tank and a permitted waste/wastewater collector. Wastewater will not be treated or disposed of onsite.		
MM83	Pumping from Open Pits	EIAR Section 9	**Mitigation by Avoidance:** An upslope interceptor drain will be established upslope of the excavation area to prevent greenfield runoff into the excavations. Berms can also be used, as necessary, to keep runoff waters from entering open pits. **Mitigation by Design:** The water pumped by sump pumps will pass through silt bags before being discharged into the swale. As the water pass through the silt bags, the majority of sediment and organic matter is retained by geotextile fabric. The silt bags will be used with natural vegetation filters or sedimats. The sedimats will be secured to the ground surface using stakes/pegs. They will extend to the full width of the outfall to ensure that all water passes through this treatment measure. Level spreaders will be installed for each outfall. The footprints of excavations for infrastructure foundation works and hardstanding have been planned to be as small as practicable. Excavations will be backfilled after completion of installations, which will serve to restore water levels and drainage patterns, hence reduce the temporary drainage effects.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM84	WFD Water Body Status	EIAR Section 9	**Mitigation by Design:** Mitigation measures are necessary and proposed to break potential source- receptor linkages and allow for attenuation. The means and methods of achieving the necessary levels of protection are proven and established based on existing guidance and practical experiences from other similar sites. Relevant mitigation measures are all of those described in the preceding sections for the construction phase. The Contractor will be legally required to adhere to the CEMP. Extensive monitoring will be undertaken to monitor water quality, identify potential effects, and take corrective action as necessary.		
Operational Phase					
MM85	Maintenance Works	EIAR Section 9 CEMP Section 3	**Mitigation by Design:** Maintenance works will be subject to control measures contained in the CEMP. Sediments removed will be staged, transported and disposed offsite at suitable and agreed disposal sites.		
MM86	Wastewater	EIAR Section 9	**Mitigation Measures by Avoidance:** Wastewater will not be treated or disposed of onsite.		
Decommissioning Phase					
MM87	Decommissioning	EIAR Section 9	During decommissioning, it will be possible to reverse or at least reduce some of the potential effects caused during construction, and to a lesser extent operation, by rehabilitating constructed areas such as turbine bases and hardstanding areas. This will be done by re-establishing vegetation, thereby reducing runoff and sediment loads.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			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. With these measures, no significant effects on the hydrological and hydrogeological environment will occur during the decommissioning stage of the proposed development.		
Chapter 10 Air & Climate					
Construction Phase					
MM88	Exhaust Emissions	EIAR Section 10	› All construction vehicles and plant used onsite during the construction phase will be maintained in good operational order. If a vehicle requires repairs this work will be caried out, thereby minimising any emissions that arise. › Turbines components will be transported to the Site on specified routes only, unless otherwise agreed with the Planning Authority. › All machinery will be switched off when not in use. › Users of the Site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum. › The majority of aggregate materials for the construction of the Proposed Development will be obtained from the borrow pits on site. This will significantly reduce the number of delivery vehicles accessing the site, thereby reducing the amount of emissions associated with vehicle movements. › The MRF facility will be local to the Proposed Development site to reduce the amount of emissions associated with vehicle movements. The nearest licensed waste facility to the Wind Farm Site is located approximately 37km to the east of the Wind Farm Site. › Waste associated with the construction of the Grid Connection underground electrical cabling route will be disposed of at the closest		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			MRF to where waste is generated along the underground electrical cabling route. There closest licensed waste facilities in the vicinity of the underground electrical cabling route, is located approximately 37km to the east.		
MM89	Dust Emissions	EIAR Section 10 CEMP Section 3	› A wheel wash facility will be installed on the Proposed Development site and will be used by vehicles before leaving site. › In periods of extended dry weather, dust suppression may be necessary along haul roads, site roads, grid route, road widening sections, substation, and construction compounds and around the borrow pit area to ensure dust does not cause a nuisance. If necessary, such as during periods of dry weather, de-silted water will be taken from stilling ponds in the site's drainage system and will be pumped into a bowser or water spreader to dampen down haul roads, turbine bases, borrow pit and site compounds to prevent the generation of dust where required. Water bowser movements will be carefully monitored by the Ecological Clerk of Woks to avoid, insofar as reasonably possible, increased runoff as outlined in the CEMP. › 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 placement areas and restoration of borrow pits. › Turbines components and construction materials will be transported to the site on specified haul routes only, as agreed with the local authority. › 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. › The transport of construction materials may have the potential to generate dust in dry weather conditions. Roads will be watered down to suppress dust particles in the air as deemed necessary by the Site Supervisor/Manager.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The transport of dry excavated material from the on-site borrow pits, which may have potential to generate dust will be minimised. If necessary, such as in periods of dry weather, excavated material will be dampened prior to transport from the borrow pits. › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase		
Operational Phase					
MM90	Exhaust Emissions	EIAR Section 10	Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order		
Decommissioning Phase					
MM91	Decommissioning Phase	EIAR Section 10	The mitigation measures prescribed for the construction phase of the Proposed Development will be implemented during the decommissioning phase thereby minimising any potential impacts.		
EIAR Chapter 11 Noise					
Pre-Commencement Phase					
MM92	Construction Noise	EIAR Section 11	Local residents will be kept informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;		
Construction Phase					
MM93	Construction Noise	EIAR Section 11	Good site practices will be implemented to minimise the likely effects. Section 8 of BS5228-1:2009+A1:2014 recommends a number of simple control measures as summarised below that will be employed onsite: › Local residents will be kept informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern; › Any extraordinary site work occurring outside of the core working hours (for example, crane operations lifting components onto the tower) will be programmed, when appropriate, so that haulage		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			vehicles would not arrive at or leave the site between 19:00 and 07:00, with the exception of abnormal loads that would be scheduled to avoid anticipated periods of high traffic flows; › All vehicles and mechanical plant will be fitted with effective exhaust silencers and be subject to programmed maintenance; › Inherently quiet plant will be selected where appropriate and available - all major compressors would be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use; › All ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers; › Machines will be shut down between work periods (or when not in use) or throttled down to a minimum; › All equipment used on site will be regularly maintained, including maintenance related to noise emissions; › Vehicles will be loaded carefully to ensure minimal drop heights so as to minimise noise during this operation; and › All ancillary plant such as generators and pumps will be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures will be provided.		
Operational Phase					
MM94	Operational Phase Noise	EIAR Section 11	In order to meet the noise limits at NAL3 and H02, Turbine 18 will need to be operated in a lower noise mode for a limited range of wind speeds (5 ms-1 during the daytime and 7-9 ms-1 during the night time period) and wind directions (north westerlies) when considering the 170 m rotor diameter candidate wind turbine modelled in the noise assessment.		
EIAR Chapter 12 Cultural Heritage					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase					
MM95	Sub Surface Archaeological Potential	EIAR Section 12	› Archaeological monitoring of ground works during construction. This will include all excavation works within the EIAR site boundary as well as any topsoil removal along the haul route (two junction accommodation areas located at Tawnaghmore and Ballygalss East as described in Section **Error! Reference source not found.**. 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). Once the project is completed, a report on the results of the monitoring will be compiled and submitted to the local authorities and the National Monuments Service. The National Monuments Service will be informed of such findings to discuss how best to proceed.		
Chapter 14 Material Assets					
Pre-Commencement					
MM96	Water Supply	EIAR Section 14	In advance of any construction activity for the grid route, the contractor will undertake pre-commencement surveys of the proposed route 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 within the public road corridor.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The works will be carried out in accordance with the specifications of the relevant utility provider.		
Construction Phase					
MM97	Gas Pipeline	EIAR Chapter 14	› GNI will be notified within a minimum of 5 working days prior to commencement of construction. › A minimum of 3 working days will be provided to GNI to mark out the transmission pipeline route. › The marked area will be fenced off from wind farm vehicle or personnel entry during the construction phase. However, continuous access will be provided to all GNI members. › The required construction zone setbacks as listed in Table 14-2 above will be in place and adhered to for the duration of the construction phase. As required in the GNI *Code of Practise*, where works e.g. road upgrades and crossing points fall within these zones, notification will be given to GNI. + › Should any backfilling over, or alongside the transmission pipeline, the developer will seek GNI's agreement to proceed. GNI require two working days' notice prior to any proposed backfilling. › In the event of gas leakage do not switch any machinery on or off in the vicinity of the leak. › Prohibit smoking, the use of naked flames, the use of electrical switches, the use of mobile phones and the use of all other ignition sources in the vicinity of the leak/damage. › Evacuate all personnel away from and up wind of the affected area. › Ensure that no one approaches the affected area without the consent of Gas Networks Ireland. › Once clear of the area, report the damage or leakage, however minor it may appear, to the Gas networks Ireland 24hr Emergency Service on 1850 20 50 50.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Do not attempt to repair the damage or stop the leak. › 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) Regulations 2006'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.		
MM98	Overhead Lines	EIAR Section 14	› Goal posts will be established under the two 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 › The suitability of machinery and equipment for use near power lines will be risk assessed. › All staff will be trained on the routes and operating voltages of overhead electricity lines running across the L-52926. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the sites 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. › Prior to the delivery of turbines to the Proposed Development site, a dry run of the route using vehicles with similar dimensions will occur. Please see section 14.1 above for details. › 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			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.		
Operational Phase					
MM99	Gas Pipeline	EIAR Chapter 14	Any maintenance works by the developer in the pipeline area will first require approval by GNI and all health and safety measures will be adhered to.		
MM100	Telecommunications	EIAR Chapter 14	In the event of interference occurring to telecommunications, the Department of the Environment, Heritage and Local Government Wind Farm Planning Guidelines (2006) state that these effects can be dealt with by the use of divertor relay links out of line with the proposed wind turbines.		
MM101	Aviation	EIAR Chapter 14	IAA noted that given the distance from the site to the airports, general observations pertaining to lighting and turbine coordinate provision should be followed. Department of Defence provided general observations pertaining to lighting specifications. The requirements outlined will be adhered to.		
Decommissioning Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM102	Decommissioning	EIAR Section 14	The measures outlined for the construction phase are considered the same for the decommissioning phase.		
Chapter 14 – Traffic					
Pre-Commencement					
MM103	Traffic		Prior to the commencement of the construction phase of the Proposed Development a detailed Traffic Management Plan will be prepared by the Contractor for agreement with the relevant local authorities and An Garda Síochána . The TMP includes recommendations, which will include the measures below as a minimum requirement, for the following: › **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project 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 the County Council in advance of deliveries of turbine components to site. Liaison with the relevant local authorities and Transport Infrastructure Ireland (TII) will be carried out where required regarding requirements such as delivery 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			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 Development will 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. › **Liaison with the relevant local authority** - Liaison with the County Councils and An Garda Síochána / Police Service of Northern Ireland, 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. › **Implementation of temporary alterations to road network at critical locations** – at locations highlighted in section 14.1.8. 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.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			➢ **Identification of delivery routes** – These routes will be agreed with the County Councils and adhered to by all contractors. ➢ **Delivery times of large turbine components** - The management plan includes 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. ➢ **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 4.3. ➢ **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.		
Construction Phase					
MM104	Traffic		The construction of this development will require significant coordination and the following comprehensive set of mitigation measures will be put in place before and during the construction stage of the project in order to minimise the effects of the additional traffic generated by the proposed wind farm. **Delivery of abnormal sized loads**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The following are the main points to note for these deliveries. These will take place after peak evening traffic: › 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 189 abnormal sized loads will be delivered to the site, comprising 38 convoys of 5, undertaken over 38 separate nights. › These nights will be spread out over an approximate period of 19 weeks and will be agreed in advance with the relevant authorities › In order to manage each of the travelling convoys, for each convoy there will be two police escort vehicles that will stop traffic at the front and rear of the convoy of 5 vehicles. › There will also be two escort vehicles provided by the haulage company for each convoy.		
Decommissioning Phase					
MM105	Decommissioning	EIAR Section 14	When the Proposed Development is decommissioned, a decommissioning plan will be prepared for agreement with the local authority, as described in Section 4.11 of Chapter 4. This plan will include a traffic management plan and other similar mitigation measures to those implemented during the construction phase. In terms of traffic effects the decommissioning stage will generally mirror the constructions stage although the effects will be significantly reduced as the volumes of materials removed from the site will be less.		

17.3 EIAR Monitoring Measures

Table 17-2 Monitoring Schedule

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	Drainage Maintenance	EIAR Section 4 SWMP Section 4	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems 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 site ECoW or the Project Hydrologist.	On going	Monthly	Project Hydrologist
MX2	Clear Felling of Coniferous Plantation	EIAR Section 9 SWMP Section 3	Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The 'before' sampling should 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). Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will also be undertaken as per water monitoring programme for the overall Proposed Development and each primary watercourse along the route.	As Required	Monthly	ECoW
MX3	Drainage Inspection	SWMP Section 4	Prior to commencement of works in sub-catchments across the site main drain inspections will be competed to ensure ditches and streams are free from debris and blockages that may impede drainage.	As Required	Monthly	Project Hydrologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX4	Surface Water Monitoring	SWMP Section 4	Baseline sampling will be completed on at least two occasions and these will 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.	Twice	As Required	Project Hydrologist
MX5	Invasive Species	EIAR Section 6 CEMP Section 3	A pre-commencement invasive species survey shall be completed for the site.	Once	As required	Project Ecologist
MX6	Birds	EIAR Section 7	During the breeding season (March-August) bird monitoring surveys within the Proposed Development site will take place to a distance of 500 m from the development area. However, for the bogs to the west of site, the survey that was carried out in 2022 will be repeated, with transects up to 1,000 m from the edge of the forest. The purpose of the surveys is to confirm the locations of breeding territories prior to construction e to ensure that mitigation is successfully implemented to avoid disturbance effects on breeding activities as a result of the works. It is noted that the wet bog to the southwest and south of the site had not been included in the 2022 survey for health and safety reasons –. The assumption has been made that sensitive breeding species may be present (as habitat is certainly suitable to support same) and a restrictive zone of 500 m from the forest/bog edge will be implemented during the breeding season as a precautionary measure.	Once	As required	Project Ornithologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			The survey for breeding birds on the bog (following Brown and Shepherd 1993) will take place in the April to July period (4 visits) in the season before works, including tree felling, commence. This schedule will provide guidance to the contractor on where restrictive zones are likely to be required.			
Construction Phase						
MX7	Archaeological Monitoring	EIAR Section 13	An archaeologist will monitor excavation works associated with the grid connection cable route and a full photographic record of the bridges will be made by the archaeologist prior to the removal of any components. A report will be complied on completion of the monitoring and sent to the Local Authority and National Monuments Service.	As Required	As Required	Project Archaeologist
MX8	Water Quality and Monitoring	CEMP Section 3 SWMP Section 4	The effectiveness of drainage measures designed to minimise runoff entering works areas and capture and treat 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 in so far as is possible.	Daily	As Necessary	ECoW
MX9	Water Quality and Monitoring	EIAR Section 9 SWMP Section 4	Daily surface water monitoring forms will be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.	Daily	As Necessary	ECoW
MX10	Surface Water Quality	CEMP Section 4	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 Development and each primary watercourse along the route. This will not	As Required	Monthly	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
		SWMP Section 4	be restricted to just these locations around the proposed renewable energy development site with further sampling points added as deemed necessary by the ECoW in consultation with the Project Hydrologist and Site Manager. In-situ field monitoring will be completed on a weekly basis. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.			
MX11	Surface water Quality Monitoring	SWMP Section 4	During the construction phase, a field monitoring campaign will be undertaken in local streams where construction activity takes place which can affect water quality. This involves a) visual checks of drainage and streams, and b) daily measurements of field parameters temperature, pH, specific electrical conductivity (SEC), alkalinity and turbidity. Field measurements will be taken once a day, upstream and downstream of the construction activity. The field campaign will begin one week prior to activity and cease one week after activity is completed, unless observations dictate that measurements should continue. If visible impact occurs, works will be suspended at the discretion of the supervising engineer, in which case the problem will be identified and corrective action taken before recommencing works. Refer to Section 9.3.13 of the EIAR.	Daily	As Necessary	EcOW
MX12	Clear felling of Coniferous Plantation	EIAR Section 9	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.	As Required	Monthly	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX13	Plant and Equipment Inspections	EIAR Section 9 CEMP Section 4	The plant used should be regularly inspected for fuel leaks, unnecessary noise generation and general fitness for purpose.	As Required	Monthly	ECoW
MX14	Plant and Equipment Inspections	CEMP Section 3	Local areas of the haul route will be condition monitored and maintained, if necessary.	Daily	Monthly	ECoW
MX15	Flora and Fauna	CEMP Section 4	A Project Ecologist will be appointed. The responsibilities and duties of the Project Ecologist 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 Proposed Development area. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological 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
MX16	Noise and Vibration	CEMP Section 4	Monitoring typical levels of noise and vibration during critical periods and at sensitive locations will be carried out.	Daily	Monthly	ECoW
Operational Phase						
MX17	Surface Water Quality	SWMP Section 4	Monthly sampling for laboratory analysis for a range of parameters adopted during pre-commencement and	Monthly	Monthly	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			construction phases will continue for six months during the operational phase. The Project Hydrologist will monitor and advise on the readings being received from the testing laboratory.			
MX18	Drainage Inspections	SWMP Section 4	The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.	Monthly	Monthly	ECoW
MX19	Water Levels in Peat	EIAR Section 9	A network of up to 20 no. standpipes will be installed for monitoring of water levels in peat along the SAC boundaries. The purpose is to gauge potential effects. The standpipes will be measured manually on a monthly interval and a select set of 5 no. standpipes will be equipped with automatic data loggers for continuous water level measurement. The data will be periodically (quarterly) reviewed to assess whether effects are detected.	Monthly	Quarterly	ECoW/Project Hydrologist
MX20	Ornithology	EIAR Section 7	Post-construction bird monitoring is required to ensure no adverse effects on bird species as a result of the project. This extends to the site area and the bogs to the west and south-west of the site. The monitoring programme will comprise the following: › Flight activity surveys › Distribution and abundance surveys within site › Distribution and abundance surveys on bog › Collision searches Searcher efficiency and predation tests will be carried out at the commencement of the programme in order to calibrate	Years 1, 2, 3, 5	Monthly	Project Ornithologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			the results to account for the search dog's ability to find bird corpses and to also account for scavenging of corpses by animals. The collision searches will be carried out on a monthly basis in Years 1, 2, 3, & 5 of the operational phase of the wind farm.			
MX21	Bats	EIAR Section 6	<u>Bat Monitoring Plan</u> Post-construction bat monitoring will be undertaken for at least three years' post construction of the renewable energy development. The monitoring will also include static detector surveys, walked survey transects and corpse searching to record any bat fatalities resulting from collision. The results of post construction monitoring shall be utilised to assess changes in bat activity patterns and to inform the design of any advanced site specified mitigation requirements, including curtailment if deemed necessary following post construction monitoring.	Years 1, 2, 3	Annually	Project Ecologist
MX22	Flora and Fauna	EIAR Section 6	The Proposed Development has the potential to result in enhancement of the surrounding areas through habitat rehabilitation management (as described in the Biodiversity Management and Enhancement Plan) that will be implemented during the construction phase of the Proposed Development and maintained during the operational phase. Details of the management that will be undertaken are provided in the Biodiversity Management and Enhancement Plan in Appendix 6-4 of the EIAR. These include: › Drain blocking within degraded peatlands › Surface Peat Assessments › Vegetation Sampling › Hydrological Monitoring	As required	As required	Project Ecologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Decommissioning Phase						
MX23	Decommissioning	DP Section 3	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.	As required	As required	Site Manager
MX24	Decommissioning	DP Section 3	Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of any material proposed for use as part of foundation backfilling. The invasive species survey will also be undertaken along the cable route to identify invasive species at joint bay locations where excavation to expose the cabling for removal will be required.	As required	As required	Project Ecologist