18. SCHEDULE OF MITIGATION AND MONITORING PROPOSALS

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

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

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

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

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

18.1 EIAR Mitigation Measures

Table 18-1 Schedule of Mitigation

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

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The Environmental Clerk of Works (ECoW) will be nominated by the Project Developer to oversee the Project Contractor's effective implementation of the Proposed Projects environmental requirements and obligations, as captured in the 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 all parties prior to commencement of construction, and may be further adjusted as required during the course of the Proposed Project.		
MM3	Surface Water Quality	CEMP Section 4	› Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of construction at the site. › Analysis will be for a range of parameters with relevant regulatory limits along with Environmental Quality Standards (EQSs) and sampling will be undertaken at designated locations as outlined in Figure 9-5 of the EIAR. › Baseline sampling will be completed on at least two occasions, and these should ideally coincide with low flow and high flow stream conditions. The high flow sampling event will be undertaken after a period of sustained rainfall, and the low flow event will be undertaken after a dry spell.		
MM4	Concrete Deliveries	EIAR Chapter 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. › Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in concrete delivery trucks. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks of on-site batching.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM5	Site Drainage Plan	EIAR Chapter 4, 9 CEMP Section 4	The key principles of drainage design that will be implemented and adhered to as part of the Proposed Project are as follows: › Keep clean water clean by intercepting it where possible, upgradient of works areas, and divert it around the works areas for discharge as diffuse overland flow or for rewetting of land. › Collect potentially silt-laden runoff from works areas via downgradient collector drains and manage via series of avoidance, source, in-line, treatment and outfall controls prior to controlled diffuse release as overland flow or for rewetting of land. › No direct hydraulic connectivity from construction areas to watercourses or drains connecting to watercourses. › No alteration of natural watercourses. › Maintain the existing hydrology of the Site. › Blocking of existing manmade drainage as appropriate. › Daily inspection and recording of surface water management system by on-site Environmental Clerk of Works and immediate remedial measures to be carried out as required and works temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the Site. › Use of siltbuster or equivalent system if required. ›		
MM6	Waste Management	EIAR Chapter 4 CEMP Section 3	› Prior to the commencement of the development a Construction Waste Manager will be appointed by the Contractor. The Construction Waste Manager will be in charge of the implementation of the objectives of the Waste Management Plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM7	Preparative Site Drainage Management	EIAR Chapter 4 CEMP Section 4	› The Project Hydrologist will complete a detailed drainage design and maintenance plan before construction commences and will attend the site to set out and assist with micro-siting of proposed drainage controls as outlined in Section 4.5 of the EIAR. › 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. › 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. › Silt fencing will be emplaced downgradient of turbines, to prevent any runoff of sediment laden water. Silt fences are effective at removing heavy settleable solids. Inspection and maintenance of these structures will be carried out during construction phase. They will remain in place throughout the entire construction phase. › Silt fences will also be emplaced where the Proposed Grid Connection is near sensitive areas (i.e. watercourse crossing over River Clare). › 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, most of the sediment is retained by the geotextile fabric allowing filtered water to pass through. The discharge from the silt bags will be directed to the settlement ponds, where the water will be allowed to naturally infiltrate to ground.		
MM8	Drainage Inspection	EIAR Chapter 4 CEMP Section 3	› Prior to commencement of works in sub-catchments across the Site, main drainage inspections will be completed to ensure ditches are free from debris and blockages that may impede drainage. It is proposed to complete these inspections on a catchment-by catchment basis as the construction works develop across the Site, as works in all areas will not commence simultaneously.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM9	Drainage Maintenance	EIAR Chapter 4 CEMP Section 4	› An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed.		
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	Traffic Management	EIAR Chapter 4, 15	› Prior to the Traffic Management Plan being finalised, a full dry run of the transport operation along the potential route will be completed using vehicles with attachments to simulate the dimensions of the wind turbine transportation vehicles. › When the Proposed Grid Connection is located on public roads, a traffic management plan will be prepared prior to any works commencing. A road opening licence will be obtained where required and all plant operators and general operatives will be inducted and informed as to the location of any services.		
MM12	Spoil Management	EIAR Chapter 4 CEMP Section 3	› An interceptor drain will first be installed upslope of the identified spoil management areas to divert any surface water away from these areas. › Silt fences and double silt-fences will be emplaced down-gradient of spoil management areas and will remain in place throughout the entire construction phase, or until reseeding has been established to a sufficient level.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All the recommended general guidelines and requirements for the placement of spoil in identified spoil management areas and alongside access roads will be confirmed by the Geotechnical Engineer prior to construction		
MM13	Grid Connection Underground Cabling works	EIAR Chapter 4	› Before works commence, updated surveying will take place along the proposed cable route, with all existing culverts identified. All relevant bodies i.e. ESB, Galway County Council, etc. will be contacted and all up to date drawings for all existing services sought.		
Construction Phase					
MM14	Refuelling	EIAR Chapter 4, 8, 9 CEMP Section 3	› Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. › On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site. › Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area on-site when not in use. All refuelling will be carried out outside designated watercourse buffer zones. › Only designated trained and competent operatives will be authorised to refuel plant on-site. › Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. › All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage		
MM15	Concrete Deliveries and Management	EIAR Chapter 4	› Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in concrete delivery trucks. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks of on-site batching.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3	› Before leaving the Site, washing of the delivery truck will be minimised and restricted to designated wash out areas. Wash out will be restricted to the concrete lorry's chute only. Concrete lorries will be washed out fully at the off-site batching plant, where facilities are already in place. › The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a temporary lined impermeable containment area, or a Siltbuster-type concrete wash unit or equivalent. This type of Siltbuster (or similar) unit catches the solid concrete and filters and holds wash liquid for pH adjustment and further solids separation. The residual liquids and solids will be removed off-site by an appropriately authorised waste collector for disposal at an authorised waste facility. Where temporary lined impermeable containment areas are used, such containment areas are typically built using straw bales and lined with an impermeable membrane. › Site roads will initially be constructed with a subgrade and compacted with the use of a roller to allow concrete delivery trucks access all areas where the concrete will be needed. The final wearing course for the roads will not be provided until all turbine foundations have been poured. No concrete will 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 foundations 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 to the location where it is needed. › The arrangements for concrete deliveries to the Site will be discussed with suppliers before work starts, agreeing 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.		
MM16	Road Cleanliness	EIAR Chapter 4	› The site roads will be well finished with compacted hardcore, and so the public road-going vehicles will not be travelling over soft or muddy ground where they might pick up mud or dirt.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3	› A road sweeper will be available if any section of the public roads requires cleaning due to construction traffic associated with the Proposed Project. › When necessary, sections of the haul route will be swept using a truck mounted vacuum sweeper.		
MM17	Watercourse Buffers	EIAR Chapter 4, 9 CEMP Section 3	› Drainage water from any works areas of the Site will not be directed to any natural watercourses within the Site. Two distinct methods will be employed to manage drainage water within the Site. The first method involves keeping clean water clean by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage waters from works areas within the Site that might carry silt or sediment, to allow attenuation and settlement prior to controlled diffuse release via recharge.		
MM18	Wastewater Management	EIAR Chapter 4 CEMP Section 2	› The construction compound will consist of a bunded refuelling and containment area for the storage of lubricants, oils and site generators etc, and full retention oil interceptor, waste storage area, temporary site offices, staff facilities and car-parking areas for staff and visitors. Temporary port-a-loo toilets and toilets located within a staff portacabin will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply on site for hygiene purposes, by way of a temporary storage tank.		
MM19	Water Discharge	EIAR Chapter 4 CEMP Section 3	› Runoff control and drainage management are key elements in terms of mitigation against effects on surface and groundwater bodies. Two distinct methods will be employed to manage drainage water within Site. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations, construction areas and temporary storage areas. The second method involves collecting any drainage waters from works areas within the Site that might carry silt or sediment, and		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			nutrients, to route them towards settlement ponds (or stilling ponds) prior to controlled diffuse release over vegetated surfaces. There will be no direct discharges to surface waters. During the construction phase all runoff from works areas (i.e. dirty water) will be attenuated and treated to a high quality prior to being released. The Proposed Drainage Design is included as Appendix 4-5 of the EIAR.		
MM20	Drainage Measures	EIAR Chapter 4 CEMP Section 3	Drains will be excavated, and stilling ponds constructed to eliminate any suspended solids within surface water running off the site. Drainage measures, consisting of the following measures will be employed at the Site: Source controls: › Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sand bags, oyster bags filled with gravel, filter fabrics, and other similar/equivalent or appropriate systems. › Small working areas, covering stockpiles, weathering off stockpiles, cessation of works in certain areas or other similar/equivalent or appropriate measures. In-Line controls: › Interceptor drains, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps/attenuation lagoons, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems. Treatment systems: › Silt-buster system or equivalent.		
MM21	Interceptor Drains	EIAR Chapter 4	› Interceptor drains will be predominantly installed horizontally across slopes to run in parallel with the natural contour line of the slope. Intercepted water will travel along the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 4	interceptor drains, pass through piped drains, and onto areas downgradient of works areas where the drain will terminate at a level spreader. Across the entire length of the interceptor drains, the design elevation of the water surface along the route of the drains will not be lower than the design elevation of the water surface in the outlet at the level spreader.		
MM22	Collector/Infiltration Drains	EIAR Chapter 4 CEMP Section 4	› Collector/Infiltration drains are drains that will be used to intercept and collect runoff from construction areas of the site during the construction phase. These swales will remain in place to collect runoff from roads and hardstanding areas of the Proposed Wind Farm site during the operational phase. A collector drain is an excavated drainage channel located along the downgradient perimeter of construction areas, used to collect and carry any sediment-laden runoff to a sediment-trapping facility and stabilised outlet. They are similar in design to interceptor drains described above. › Collector/Infiltration drains will be installed in advance of any main construction works commencing. The material excavated to make the drain will be compacted on the downslope edge of the drain to form a diversion dike. All water collected within the drain will ultimately recharge to ground.		
MM23.	Infiltration Areas	EIAR Chapter 4 CEMP Section 4	› An infiltration area 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 infiltration areas will be located downgradient of any proposed works areas where possible in locations where they are not likely to contribute further to water ingress to construction areas of the site. › The water carried in interceptor drains will not have come in contact with works areas of the site, and therefore should be free of silt and sediment. The infiltration area will distribute clean drainage water onto vegetated areas where the water will infiltrate to ground. The discharge point will be on level or only very gently sloping ground rather than on a steep slope so as to prevent erosion.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM24	Check Dams	EIAR Chapter 4 CEMP Section 4	› The velocity of flow in the interceptor drains and drainage swales, particularly on sloped sections of the channel, will be controlled by check dams, which will be installed at regular intervals along the drains to ensure flow in the drain is non-erosive. › Check dams will restrict flow velocity, minimise channel erosion and promote sedimentation behind the dam. The check dams will be installed as the interceptor drains are being excavated. › The check dams will be installed at regular intervals along the interceptor drains to ensure the bottom elevation of the upper check dam is at the same level as the top elevation of the next down-gradient check dam in the drain.		
MM25	Culverts	EIAR Chapter 4 CEMP Section 4	› No surface watercourses have been mapped within the site. Modelling of potential surface waterflow-paths has been completed based on topography of the site which has identified potential flow-paths which surface water could take. Where these locations cross proposed or upgraded access roads, culverts have been incorporated into the design. › Where existing culverts are to be upgraded or extended, the works will be carried out to follow a method statement to be prepared in consultation with Inland Fisheries Ireland; › Where new culverts are proposed within the drainage measures presented in Appendix 4-6, these will be constructed in line with best practice guidance.		
MM26	Silt Bags	EIAR Chapter 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, most of the sediment is retained by the geotextile fabric allowing filtered water to pass through. The discharge from the silt bags will be directed to the settlement ponds, where the water will be allowed to naturally infiltrate to ground.		
MM27	Siltbuster	EIAR Chapter 4	› Siltbusters 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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 4	proven technology and hydraulic design in a rugged unit. They are specifically designed for use on construction sites.		
MM28	Silt Fences	EIAR Chapter 4 CEMP Section 3	› Silt fencing will be emplaced downgradient of turbines, to prevent any runoff of sediment laden water. Silt fences are effective at removing heavy settleable solids. Inspection and maintenance of these structures will be carried out during construction phase. They will remain in place throughout the entire construction phase. › Silt fences will also be emplaced where the Proposed Grid Connection is near sensitive areas (i.e. watercourse crossing over River Clare).		
MM29	Oil Interceptor	CEMP Section 4	› Fuels volumes stored on site should be minimised. Any fuel storage areas 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; ›		
MM30	Water Discharges	EIAR Chapter 4 CEMP Section 3	› There will be no direct discharges to surface waters. During the construction phase all runoff from works areas (i.e. dirty water) will be attenuated and treated to a high quality prior to being released. › All groundwater and surface water arising from excavations will be pumped to the dirty water system prior to discharge from the works area; › All discharges from the proposed works areas or from interceptor drains will be made over vegetated ground at an appropriate distance from natural watercourse and lakes.		
MM31	Excavations	EIAR Chapter 4 CEMP Section 4	› The extent of the excavation will be marked out and will include an allowance for trimming the sides of the excavation to provide a safe working area and slope batter; › Where excavations in spoil are required, side slopes shall be not greater than 1 (v): 2. This slope inclination will be reviewed during construction, as appropriate.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Where practical, the soil will be stripped over the area of the excavation and stored locally for reuse, the subsoil will be excavated and stored to one side for reuse during the landscaping around the finished turbine; › No material will be removed from site with excavated spoil being transported and stored in the identified spoil management areas within the Site. › All groundwater and surface water arising from turbine base excavation will be pumped to the dirty water system prior to discharge from the works area; › Soil excavation shall be observed by a qualified archaeologist in accordance with a scheme of archaeological monitoring to identify any significant remains as they come to light; The foundations excavation will be raised to formation level by compacted layers of well graded granular material will be spread and compacted to provide a hard area for the turbine foundation; › Where underground services are to be traversed during the construction of new roads throughout the Proposed Wind Farm site, roads will be constructed taking in line with the methodologies detailed in Chapter 4. ›		
MM32	Spoil Management	EIAR Chapter 4	› At the identified spoil management areas, the vegetative top-soil layer will be removed to allow for spoil to be placed and upon reaching the recommended height, the vegetative topsoil layer will be reinstated. › The identified spoil management areas will be developed in a phased approach, with the topsoil removed and temporarily stockpiled within the defined area while the spoil is being placed. The stockpiled topsoil will then be reinstated over the placed spoil, and the exercise will continue within the same spoil management area until the area is full. › The placement of spoil will be restricted to a maximum height of 1.0m, subject to confirmation by the Geotechnical Engineer. › The material will be backfilled into the spoil management areas and will be spread evenly across the area.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› It will be compacted to reduce air voids and reduce the migration paths for infiltration by precipitation. This will reduce the amount of potentially silt laden surface water run-off from these spoil management areas. › Where practical, the surface of the placed spoil is shaped to allow efficient run-off of surface water. Where possible, shaping of the surface of the spoil will be carried out as placement of spoil within the area progresses. This will reduce the likelihood of debris run-off and ensure stability of the placed spoil. › Finished/shaped side slopes of the placed spoil will be not greater than 1 (v): 2 (h) in the dedicated spoil management zones and not greater than 1 (v): 1 (h) for linear berms. › Inspections of the spoil management areas will be made by a Geotechnical Engineer through regular monitoring of the works. The appointed contractor will review work practices at spoil management areas when periods of heavy rainfall are expected so as to prevent excessive dirty water runoff from being generated. › An interceptor drain will be installed upslope of the identified spoil management areas to divert any surface water away from these areas where necessary. › Silt fences and double silt-fences will be emplaced down-gradient of spoil management areas and will remain in place throughout the entire construction phase, or until reseeding has been established to a sufficient level. › The surface of the deposited spoil will be profiled to a gradient to be agreed with the Geotechnical Engineer and vegetated or allowed to vegetate naturally as indicated by the Project Ecologist. ›		
MM33	Archaeological Conservation	EIAR Chapter 4, 13	› A 30m buffer zone will be established around the newly recorded possible enclosure. The buffer should comprise durable temporary fencing with 'keep out' signage. The requirement for the buffer zone and associated signage should be included in the CEMP. No ground works or storage of materials or tracking of machinery will take place within the buffer zone.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM34	Hedgerow Removal and Replanting	EIAR Chapter 4 CEMP Section 2	› There will be a loss of approx. 1800m of linear habitat (hedgerow/treeline) to accommodate the footprint of the Proposed Project, including turbines and associated bat buffers, wind farm roads and other key infrastructure. Approximately 3600m linear metres of new replacement hedgerow planting will be carried out along selected boundaries of fields within the Site. The replanting areas will be selected from the potential replanting areas presented in Figure 2-1 of the BMEP (Appendix 6-4), in consultation with the landowners who are supportive of the proposal. This will result in a 100% net gain in this habitat within the Site. Species planted in these locations will be of a similar composition to those occurring on site, namely, hawthorn and hazel, and will be of local provenance. Further details with regard to species, planting location, and management is contained within the BMEP.		
Operational Phase					
MM35	Wastewater Management	EIAR Chapter 4	› The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. 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 Proposed Wind Farm 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 substation underground storage tank		
MM36	Electrical Substation	EIAR Chapter 4 CEMP Section 3	› It is not proposed to treat wastewater on site. Wastewater from the staff welfare facilities in the control buildings will be managed by means of a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to a licenced wastewater treatment plant.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The electrical substation compound will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; › Perimeter fencing will be erected around the substation and control buildings compound area.		
MM37	Drainage Maintenance	EIAR Chapter 4 CEMP Section 3	› The Project Hydrologist will inspect and review the drainage system after construction has been completed to provide guidance on the requirements of an operational phase drainage system. This operational phase drainage system will have been installed during the construction phase in conjunction with the road and hardstanding construction work as described above and in Section 4.6 of the EIAR. › 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.		
MM38	Collector/Infiltration Drains	EIAR Chapter 4 CEMP Section 3	› Collector/Infiltration drains are drains that will be used to intercept and collect runoff from construction areas of the site during the construction phase. These swales will remain in place to collect runoff from roads and hardstanding areas of the Proposed Wind Farm site during the operational phase. A collector drain is an excavated drainage channel located along the downgradient perimeter of construction areas, used to collect and carry any sediment-laden runoff to a sediment-trapping facility and stabilised outlet. › Collector/Infiltration drains will be installed in advance of any main construction works commencing. The material excavated to make the drain will be compacted on the downslope edge of the drain to form a diversion dike. All water collected within the drain will ultimately recharge to ground.		
Decommissioning Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM39	Decommissioning	EIAR Chapter 4	› Prior to the end of the operational period the Decommissioning Plan (Appendix 4-7 of the EIAR) will be updated in line with decommissioning methodologies that may exist at the time and will agree with the competent authority at that time.		
MM40	Decommissioning	EIAR Chapter 4 Decommissioning Plan Section 2	› Upon decommissioning of the Site, all above ground turbine components will be separated and removed offsite. The turbine materials will be transferred to a suitable recycling or recovery facility. Turbine foundations will remain in place underground and will be covered with earth and reseeded as appropriate. › The foundations of the 8 no. turbine and met mast will be backfilled and covered, following the dismantling and removal of the wind turbines, with soil material. If there is usable soil or overburden material on the Site after construction, this material will be used. Alternatively, where material is not readily available on site, soil will be sourced locally and imported to site on heavy good vehicles (HGVs). The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation enhanced by spreading of an appropriate seed mix to assist in revegetation and accelerate the resumption of the natural drainage management that will have existed prior to any construction. › The underground cabling route connecting the turbines to the on-site substation will be removed from the cable ducts. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.		
MM41	Decommissioning	EIAR Chapter 4 DP Section 3	The following mitigation measures are proposed to avoid release of hydrocarbons at the Proposed Wind Farm site: › Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site. › Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area on-site when not in use. All refuelling will be carried out outside designated watercourse buffer zones. › Only designated trained and competent operatives will be authorised to refuel plant on-site. › Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. › All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage		
Chapter 5: Population and Human Health					
MM42	Human Health	EIAR Chapter 5	Prior to commencement of any works, the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be made known. Local access to properties will also be maintained throughout any construction works and local residents will be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		
Construction Phase					
MM43	Land Use Patterns	EIAR Chapter 5	Current land use on the Proposed Wind Farm comprises small scale agriculture. Current use along the Proposed Grid Connection underground cabling route comprises of public road corridor, discontinuous urban fabric and agriculture. The predominant surrounding land use within the Population Study Area is also farmland and one-off rural housing.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The construction of the Proposed Grid Connection underground cabling route through the L-61461 local road, N83 National Road, and L6141 Local Road will be undertaken in a rolling construction method with 100m to 200m of cabling installed and back filled each day providing access in the evenings and night hours along the route. › A Traffic Management Plan, agreed with the Local Authority, will be in place for the construction phase of the Proposed Grid Connection underground cabling route. The Traffic Management Plan is included as Appendix 15-2 to this EIAR. › Local access for residents living along the Proposed Grid Connection underground cabling route will not be closed for the construction phase along the N83 National Road, as the road carriageway is wide enough to have access solutions in place, and there are also alternative access roads into the area.		
MM44	Residential Amenity	EIAR Chapter 5, 11, 12, 15	› All mitigation as outlined and in the corresponding chapters: Chapter 11 Air Quality, Chapter 12 Noise and Vibration, and Chapter 15 Material Assets will be implemented in order to reduce insofar as possible, impacts on residential amenity at properties located in the vicinity of Proposed Project construction works.		
MM45	Human Health	EIAR Chapter 5	› The Proposed Project will be constructed in accordance with all relevant Health and Safety Legislation, including: ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016); ○ S.I. No. 528/2021 - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021 and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). › A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail. This will be prepared on a preliminary basis at the procurement stage and developed further at construction stage.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All hazards will be identified, and risks assessed. Where elimination of the risk is not feasible, appropriate mitigation and/or control measures will be established. The contractor will be obliged under the construction contract and current health and safety legislation to adequately provide for all hazards and risks associated with the construction phase of the project. Safepass registration cards are required for all construction, delivery and security staff. Construction operatives will hold a valid Construction Skills Certificate Scheme card where required. The developer is required to ensure a competent contractor is appointed to carry out the construction works. The contractor will be responsible for the implementation of procedures outlined in the Safety and Health Plan. Public safety will be addressed by restricting Site access during construction. Fencing will be erected in areas of the Site where uncontrolled access is not permitted. › The suitability of machinery and equipment for use near power lines will be risk assessed. › All staff will be trained on operating voltages of overhead electricity lines running the Site. All staff will be trained to be aware of the risks associated with underground cables. All contractors that may visit the Site are made aware of the location of lines before they come on to Site. › When activities must be carried out beneath overhead lines, e.g., component delivery or substation construction, a site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used prior to any works. › Information on safe clearances will be provided to all staff and visitors. › Signage indicating locations and health and safety measures regarding electrical cables 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. › The suitability of machinery and equipment for use near power lines will be risk assessed.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All staff will be trained on operating voltages of electricity cables running the Site. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the Site are made aware of the location of lines before they come on to Site. › When activities must be carried out beneath overhead lines, e.g., component delivery, a site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required. The scale and scope of the project requires that a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Health & Safety Authority's '*Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013*'. The PSDP appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to): › Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the project; › Where possible, eliminate the hazards or reduce the risks; › Communicate necessary control measures, design assumptions or remaining risks to the PSCS so they can be dealt with in the Safety and Health Plan; › Ensure that the work of designers is coordinated to ensure safety; › Organise co-operation between designers; › Prepare a written Safety and Health Plan; › Prepare a safety file for the completed structure and give it to the client; and › Notify the Authority and the client of non-compliance with any written directions issued.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The PSCS appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to): › Development of the Safety and Health Plan for the construction stage with updating where required as work progresses; › Compile and develop safety file information. › Reporting of accidents / incidents; › Weekly Site meeting with PSDP; › Coordinate arrangements for checking the implementation of safe working procedures. › Ensure that the following are being carried out: ○ Induction of all Site staff including any new staff enlisted for the project from time to time; ○ Toolbox talks as necessary; ○ Maintenance of a file which lists personnel on Site, their name, nationality, current Safe Pass number, current Construction Skills Certification Scheme (CSCS) card (where relevant) and induction date; ○ Report on Site activities to include but not limited to information on accidents and incidents, disciplinary action taken and PPE compliance; ○ Monitor the compliance of contractors and others and take corrective action where necessary; and › Notify the Authority and the client of non-compliance with any written directions issued.		
MM46	Human Health	EIAR Chapter 5, 10	› Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Turbines and construction vehicles will be transported to the Site on specified haul routes only. › Construction materials for the Proposed Wind Farm and Proposed Grid Connection will be sourced locally from licenced quarries and transported on specified haul routes only. › The agreed haul route roads adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the Site entrances will be checked weekly or damage/potholes and repaired as necessary. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the amount of emissions associated with vehicle movements. › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). ›		
MM47	Human Health	Chapter 5, 9	› A bespoke drainage design which includes but is not limited to interceptor drains, check dams, swales and ponds will be implemented on the Site. › Chapter 9 of the EIAR details all best practice and mitigation measures to minimise the potential for entrainment of suspended sediment or potential hydrocarbon leak		
MM48	Human Health	Chapter 5, 12	› No plant used on Site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on Site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. › Any plant, such as generators or pumps, which is required to operate outside of general construction hours will be surrounded by an acoustic enclosure or portable screen. › During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Chapter 12 using methods outlined in British Standard BS 5228-1:2014+A1:2019 Code of practice for noise and vibration control on construction and open Sites – Noise. › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs Monday to Saturday. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours, large turbine component delivery, rotor/blade lifting) it could occasionally be necessary to work out of these hours.		
MM49	Human Health	EIAR Chapter 5, 15	› A complete Traffic and Transport Assessment (TTA) of the Proposed Project has been carried out by Alan Lipscombe Traffic and Transport Consultants. The full results of the TTA are presented in Section 15.1 of Chapter 15: Material Assets. › A Traffic Management Plan has also been developed in order to minimise any potential effect on the local population during the construction phase of the Proposed Project due to traffic. The plan will be developed and implemented to ensure any effect is short term in duration and slight in significance during the construction of the Proposed Project. › Prior to commencement of any works, the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be made known. Local access to properties will also be maintained throughout any construction works and local residents will be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Operational Phase					
MM50	Human Health	EIAR Chapter 5	› There are no turbines proposed within 740m (4 x tip height) of any sensitive receptors. › All mitigation measures outlined in Chapter 12 (Noise), shadow flicker (Section 5.9 of Chapter 5 of this EIAR) and visual (Chapter 14) in this EIAR will be implemented in order to reduce insofar as possible, impacts on residential amenity at properties located within the in the vicinity of the Proposed Project. › A 2.6m high palisade fence will be erected around the substation which will be painted RAL 6005 (green) to help blend the substation infrastructure in with the surrounding rural landscape. Please see Chapter 14 for residential amenity pertaining to visual effects.		
MM51	Human Health	EIAR Chapter 5	› The Proposed Project will be operated in accordance with all relevant Health and Safety Legislation, including: ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016); ○ S.I. No. 528/2021 - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021 and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006).		
MM52	Human Health	EAIR Chapter 5	› Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits. The doors will only be unlocked as required for entry by authorised personnel and will be locked again following their exit. › Staff associated with the project will conduct frequent visits, which will include inspections to establish whether any signs have been defaced, removed, faded, or are becoming hidden by vegetation or foliage, with prompt action taken as necessary. › Signs will also be erected at suitable locations across the Site as required for the ease and safety of operation of the wind farm. These signs include:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			○ 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; ○ "Warning these Premises are alarmed" at appropriate locations; ○ "Danger HV" at appropriate locations; ○ "Warning – Keep clear of structures during electrical storms, high winds or ice conditions" at Site entrance; ○ "No unauthorised vehicles beyond this point" at specific Site entrances; and ○ Other operational signage required as per Site-specific hazards. › The Substation, which will be operated by Eirgrid will be locked and fenced off from public access. The substation will be operational remotely and manually 24 hours per day, 7 days a week. Supervisory operational and monitoring activities will be carried out remotely using a SCADA system, with the aid of computers connected via a telephone modem link. › Periodic service and maintenance work which include some vehicle movement. › For operational and inspection purposes, substation access is required. › Servicing of the substation equipment will be carried out in accordance with the manufacturer's specifications, which would be expected to entail the following: ○ Six-month service – three-week visit ○ Annual service – six-week visit ○ Weekly visits as required.		
MM53	Human Health	EIAR Chapter 5	› An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the Site. Access for emergency services will be available at all times. › The components of a wind turbine are designed to last up to 30-35 years and are equipped with a number of safety devices to ensure safe operation during their lifetime. During the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			operation of the wind farm regular maintenance of the turbines will be carried out by the turbine manufacturer or appointed service company. A project or task specific Health and Safety Plan will be developed for these works in accordance with the Site's health and safety requirements.		
MM54	Human Health	EIAR Chapter 5, 9	› The mitigation measures detailed in Chapter 9 Hydrology and Hydrogeology will ensure all surface water runoff from upgraded roads and new road surfaces (including hardstand and turbine base areas) will be captured and treated prior to discharge/release. Please see Chapter 9 for details. › The mitigation measures will ensure all surface water runoff from upgraded roads and new road surfaces (including hardstand and turbine base areas) will be captured and treated prior to discharge/release. Settlement ponds, checks dams and buffered outfalls will prevent roads acting as preferential flowpaths by providing attenuation and water quality treatment. › It is proposed that all rock needed to construct the Proposed Project will be imported into the Site from local quarries. This rock will be used to construct the sub-base layer of proposed upgraded and new access roads, hardstand areas and turbine base areas. Once installed the subbase layer will be overlain by a clean capping layer of high-grade stone material which will be sourced from local quarries.		
MM55	Shadow Flicker	EIAR Chapter 5	Where daily or annual shadow flicker exceedances are predicted at any inhabitable or third-party dwelling of the identified 91 no. sensitive receptors, a site visit will be undertaken firstly to determine the presence of existing screening and window orientation at each potentially affected property. This will determine if the receptor has an actual line of sight to any turbine and actual potential for shadow flicker to occur. Once this exercise is completed and all of the potentially affected properties, the following measures will be employed. **Screening Measures**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			In the event of an occurrence of shadow flicker exceeding guideline threshold values of 30 minutes per day at residential receptor locations, mitigation options will be discussed with the affected homeowner, including: › Installation of appropriate window blinds in the affected rooms of the residence; › Planting of screening vegetation; › Other site-specific measures which might be agreeable to the affected party and may lead to the desired mitigation. If agreement can be reached with the homeowner, then it would be arranged for the required mitigation to be implemented in cooperation with the affected party as soon as practically possible and for the full costs to be borne by the wind farm operator. **Wind Turbine Control Measures** If it is not possible to mitigate any identified shadow flicker limit exceedance locally using the measures detailed above, wind turbine control measures will be implemented. Wind turbines can be fitted with shadow flicker control units to allow the turbines to be controlled to prevent the occurrence of shadow flicker at properties surrounding the wind farm. The shadow flicker control units will be added to any required turbines. A shadow flicker control unit allows a wind turbine to be programmed and controlled using the wind farm's Supervisory Control and Data Acquisition (SCADA) system to change a particular turbine's operating mode during certain conditions or times, or even turn the turbine off if necessary. All predicted incidents of shadow flicker can be pre-programmed into the wind farm's control software. The wind farm's SCADA control system can be programmed to shut down any		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			particular turbine at any particular time on any given day to avoid excessive shadow flicker occurrences at properties which are not naturally screened or cannot be screened with measures outlined above. Where such wind turbine control measures are to be utilised, they need only be implemented when the specific combined circumstances occur that are necessary to give rise to the shadow flicker effect in the first instance. Therefore, if the sun is not shining on a particular day that shadow flicker was predicted to occur at a nearby property, there would be no need to shut down the relevant turbines that would have given rise to the shadow flicker at the property. Similarly, if the wind speed was below the cut-in speed that caused the turbine rotor to rotate and give rise to a shadow flicker effect at a nearby property, there would be no need to shut down the relevant turbines that otherwise would have caused shadow flicker. The atmospheric variables that determine whether shadow flicker will occur or not, are continuously monitored at the Proposed Wind Farm and the data fed into the wind farm's SCADA control system. The strength of direct sunlight is measured by way of photocells, and if the sunlight is of sufficient strength to cast a shadow, the shadow flicker control mechanisms come into effect. Wind speed and direction are measured by anemometers and wind vanes on each turbine and on the wind farm's met mast, and similarly, and if wind speed and direction is such that a shadow will be cast, the shadow flicker control mechanisms come into effect. The moving blades of the turbine will require a short period of time to cease rotating and as such there may be a very short period (less than 3 to 5 minutes) during which the blades are slowed to a complete halt. The turbines giving rise to shadow flicker may be turned off on different days to prevent excessive wear and tear on any single turbine. In order to ensure that the model and SCADA system is accurate and working well a site visit will be carried out to verify the system. The shadow flicker prediction data will be used to select dates on which a shadow flicker event could be observed at one or multiple affected properties and the following process will be adhered to.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Recording the weather conditions at the time of the site visit, including wind speeds and direction (i.e. blue sky, intermittent clouds, overcast, moderate breeze, light breeze, still etc.). › Recording the house number, time and duration of site visit and the observation point GPS coordinates. › Recording the nature of the sensitive receptor, its orientation, windows, landscaping in the vicinity, any elements of the built environment in the vicinity, vegetation. › In the event of shadow flicker being noted as occurring the details of the duration (times) of the occurrence will be recorded. › The data will then be sent to the wind farm operational team to confirm that the model and SCADA system are working. › Following 12 months of full operation of the Proposed Project a report can be prepared for the Local Authority describing the shadow flicker mitigation measures used at the wind farm and confirming the implementation and successful operation of the system. This method of shadow flicker mitigation has been technically well-proven at wind farms in Ireland and also in areas outside Ireland that experience significantly longer periods of direct sunlight. Where a shadow flicker mitigation strategy is to be implemented, it is likely that the control mechanisms would only have to be applied to a turbine to bring the duration of shadow flicker down to the 28-minute post-mitigation shadow flicker target.		
Decommissioning Phase					
MM56	Human Health	EIAR Chapter 5	› Any effect and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent, and the mitigation measures outlined above will be implemented during the Decommissioning Phase. A Decommissioning Plan has been prepared as part of this EIAR and is included		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			as Appendix 4-7. This Decommissioning Plan follows the most up to date Scottish Natural Heritage (SNH) guidance. An updated decommissioning plan will be agreed with the local authorities three months prior to decommissioning the Proposed Project. › The Proposed Project will be decommissioned in accordance with all relevant Health and Safety Legislation, including: ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016); ○ S.I. No. 528/2021 - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021 and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006).		
EIAR Chapter 6 Biodiversity					
Pre-construction					
MM57	Invasive Species Management	EIAR Chapter 6 CEMP Section 3	› A baseline invasive species survey will be carried out at the site to identify the presence and location of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) by a suitably qualified ecologist. If the presence of such species is found at or adjacent to the site, particularly in areas where its excavation may be required, an invasive species management plan will be prepared for the site to prevent the introduction or spread of any invasive species within the footprint of the works.		
MM58	Fauna	EIAR Chapter 6	Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction badger survey will be carried out in order to assess activity levels at setts and to identify any additional sett entrances that may have been established in the intervening period. All setts within 50m of the Proposed Wind Farm infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			ascertain use by badgers and levels of activity. All badger survey work will be undertaken in line with current best practice guidance[Error! Bookmark not defined.]. Taking a precautionary approach, the following measures will be undertaken for the avoidance of disturbance/displacement and will be implemented during the construction phase of the Proposed Wind Farm: › Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities. › All works will be undertaken or supervised by an appropriately qualified ecologist in advance of construction.		
MM59	Bats	EIAR Chapter 6	› In accordance with NatureScot and NIEA Guidance, a minimum 50m buffer to all habitat features used by bats (e.g., hedgerows, tree lines etc.) should be applied to the siting of all wind turbines. However, Eurobats No. 6 guidance and NIEA recommends increased buffers of 100m and 200m around woodland/forestry areas, however, there is no scientific evidence to support these increased buffer distances in the UK. › NatureScot recommends that a distance of 50m between turbine blade tip and nearest woodland (or other key habitat features) is adequate mitigation. This 50m buffer will be implemented from the outset and monitored as per the post-construction monitoring. The success of the buffer mitigation will be assessed as part of post construction monitoring and updated where necessary. The formula provided in Section 6.1.3 of the Bat Report (Appendix 6-2) is presented to provide appropriate mitigation in relation to bats, and the relevant input required from turbine parameters, is the combination of the blade length and hub height. The turbine model to be installed on the Site will have an overall ground-to-blade tip height of 185m, rotor diameter of 163m, and hub height of 103.5m. The minimum bat buffer required for the Site is therefore 87.12m from the centre of the turbine.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› This mitigation measure has been applied and no woodland felling is required within the Site. There will be a requirement to remove some linear vegetation i.e. treelines/hedgerows, to facilitate the required bat buffers. These vegetation-free areas will be maintained during the operational life of the Proposed Wind Farm		
MM60	Habitats	EIAR Chapter 6	› The Proposed Project has been deliberately designed to avoid loss of limestone pavements and associated habitats as identified during the constraints identification stage of the project, by siting all proposed infrastructure within Improved agricultural grassland (GA1). The areas of Annex I habitat within the study area have been avoided in the design of the development.		
Construction Phase					
MM61	Linear Vegetation	EIAR Chapter 6 Appendix 6-4	› There will be a loss of approx. 1800m of linear habitat (hedgerow/treeline) to accommodate the footprint of the Proposed Project, including turbines and associated bat buffers, wind farm roads and other key infrastructure. › Approximately 3600m linear metres of new hedgerow planting will be carried out along selected boundaries of fields within the Site. The replanting areas will be selected from the potential replanting areas presented in Figure 2-1 of the BMEP (Appendix 6-4), in consultation with the landowners who are supportive of the proposal. This will result in a 100% net gain in this habitat within the Site. Species planted in these locations will be of a similar composition to those occurring on site, namely, hawthorn and hazel, and will be of local provenance. Further details with regard to species, planting location, and management is contained within the BMEP. › In addition, in order to ensure that existing hedgerows to be retained are not impacted by the construction works, such as existing hedgerows along proposed new roads, the following measures will be in place: › Trimming and maintenance of the hedgerows to avoid any weak overhanging limbs being damaged.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A minimum set back of 2 meters will be maintained between existing trees and permanent and temporary construction areas. › This area will be roped off from the works area › There will be no access to the exclusion zone around the trees and no storage of materials within these zones		
MM62	Habitats	EIAR Chapter 6	The Proposed Project has been deliberately designed to avoid loss of limestone pavements and associated habitats as identified during the constraints identification stage of the project, by siting all proposed infrastructure within Improved agricultural grassland (GA1). The areas of Annex I habitat within the study area have been avoided in the design of the development. However, due to the proximity of construction areas to Annex I habitat areas, the following mitigation measures will be in place: › Prior to any site clearance/enabling works, the required works area, will be marked out using post and rope by the project engineer and project ecologist, › Annex I habitat areas will be marked out and will be securely fenced or roped off from potential access by machinery or construction personnel with clear signage erected, › In addition, areas of oak-ash-hazel woodland located in close proximity to works areas will be roped off, › There will be no access by construction personnel or machinery to areas of limestone pavement, calcareous dry heath or calcareous grassland, › There will be no temporary storage of materials within areas of limestone pavement, calcareous dry heath or calcareous grassland, › Any materials imported to the Site will be certified to be free of invasive species, › Any transport of materials with potential to give rise to dust will be transported to the Site in a tarpaulin-covered vehicle, and › Hardstanding areas/site roads with the potential to give rise to dust will be regularly watered during dry and/or windy conditions.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Prior to any site clearance/enabling works, the required works area, will be marked out using post and rope by the project engineer and project ecologist, The Proposed Project provides for the additional creation of calcareous grassland habitat through the provision of a Biodiversity Management and Enhancement Plan. This Plan has been developed to convert areas of improved or semi-improved agricultural grassland to vegetation communities similar to those occurring within adjacent areas of Annex I grassland habitat. The Plan has been agreed to by the subject landowners who will implement the necessary actions in consultation with the project ecologist. The management actions are fully described in a site-specific Biodiversity Management and Enhancement Plan (BMEP), provided in Appendix 6-4 of the EIAR. The BMEP aims to ensure that there will be a net gain in species rich semi-natural dry grassland habitat associated with the Proposed Project and will link up existing species rich areas of the Site.		
MM62	Groundwater	EIAR Chapter 4, 6, 9	› A detailed drainage maintenance plan for the Proposed Project is provided in Section 4.6 of this EIAR. This plan provides details of how water quality will be protected during the construction of the Proposed Project. In addition to this, specific mitigation is provided in relation to groundwater quality and flow rates in Chapter 9: 'Water' of this EIAR, see Section 9.4. These mitigations relate to earthworks, groundwater flows and levels due to alteration of recharge, potential effects on groundwater levels during excavations, potential release of hydrocarbons during construction and storage, contamination from wastewater disposal, and release of cement-based products. › Specifically, mitigations are also provided in Chapter 9 with regard to nearby undesignated turloughs which include: ○ Site drainage management will be put in place in order to prevent any surface water runoff from leaving the Site and ensuring that all surface waters infiltrate to ground following short flowpaths (10's of metres) and,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			○ Mitigation measures relating to hydrocarbons, cementitious materials and wastewater disposal (as described in Sections 9.4.2.5, 9.4.2.6 and 9.4.2.7 of Chapter 9) will provide adequate protection to groundwater and surface water quality and ensure that groundwater quality will not be impacted, thus protecting the groundwater quality of any hydraulically downgradient turloughs.		
MM63	Surface Water	EIAR Chapter 4, 6, 9	› A drainage design for the Proposed Project is provided in Section 4.5 of this EIAR. This plan provides details of how water quality will be protected during the construction of the Proposed Project, in particular the Proposed Grid Connection. In addition to this, specific mitigation is provided in relation to protection of surface water quality is provided in Chapter 9: 'Water' of this EIAR, see Section 9.4. These mitigations relate to earthworks, potential release of hydrocarbons during construction and storage, contamination from wastewater disposal, and release of cement-based products.		
MM64	Fauna	EIAR Chapter 6 Appendix 6-4	› Whilst no significant effects on bat species have been identified, the following potential positive effects are noted. A replanting plan has been developed to mitigate the loss of bat foraging/commuting habitat associated with the Proposed Project. The proposed planting design will ensure habitat connectivity is maintained and enhanced around the Site. 3600m of linear hedgerow planting is proposed along select field boundaries within the Site, which will result in a net gain in linear habitat features within the Site. Linear vegetation removal will result in a short-term effect, with connectivity re-established within approximately 2-5 years. No permanent loss of, or damage to, commuting or foraging habitats is anticipated as a result of the Proposed Project. The proposed replanting is shown and discussed in Appendix 6-4, BMEP. › In addition, the following construction best practice measures will be employed to minimise general noise and disturbance potential: ○ Plant machinery will be turned off when not in use and all plant and equipment for use will comply with the Construction Plant and		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Equipment Permissible Noise Levels Regulations (S.I. No. 632 of 2001). ○ The proposed lighting around the Site shall be designed in accordance with the Institute of Lighting Professionals Guidance Note 08/23 Bats and artificial lighting in the UK (ILP, 2023). › In addition, the applicant commits to the use of lights during construction (such that they are necessary) in line with the following guidance that is provided in the Dark Sky Ireland Lighting Recommendations: ○ Every light needs to be justifiable, ○ Limit the use of light to when it is needed, ○ Direct the light to where it is needed, ○ Reduce the light intensity to the minimum needed, ○ Use light spectra adapted to the environment, ○ When using white light, use sources with a "warm" colour temperature (less than 3000K)		
MM65	Fauna	EIAR Chapter 4, 6, 9	Chapter 4 of this EIAR describes the installation options for the Proposed Grid Connection underground cabling route. The Proposed Wind Farm will not require the crossing of any existing streams or watercourses. However, a total of 4 no. existing watercourse crossings will be traversed along the N83 National Road and the L6141 to cater for the Proposed Grid Connection underground cabling towards the existing Cloon 110 kV substation. Instream works are not required at any watercourse crossing along the Proposed Grid Connection underground cabling route. Watercourses will not be directly impacted upon since no instream works or bridge/culvert alterations are proposed. › Specific mitigation is provided in relation to water quality in Chapter 9: "Water" of this EIAR and is summarised in Sections 6.5.2.1.3 and 6.5.2.1.4 above.		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM66	Habitats	EIAR Chapter 6 Appendix 6-4	The operation of the Proposed Project will not result in any additional land take or loss of habitats and as such there is no potential for any significant effects in this regard. Existing habitats on the Site are not considered to be a KER in the context of the operation of the Proposed Project. The implementation of the Biodiversity Management and Enhancement Plan will ensure that any treeline or hedgerow habitats lost to facilitate the proposed infrastructure will be replaced within the Site. The Biodiversity Management and Enhancement Plan also includes for the management and reversion of improved agricultural grassland back to a species-rich dry grassland community. The farm plan will commence during the construction phase of the Proposed Project and will be maintained for the operational lifetime of the Proposed Project.		
MM67	Groundwaters and Surface Waters		**Increased hard-standing/run-off** Mitigation by design: *Proposed Wind Farm Site* The operational phase drainage system of the Proposed Wind Farm site will be installed and constructed in conjunction with the road and hardstanding construction work as described below: › Interceptor drains will be installed up-gradient of proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it can be slowly re-distributed over the ground surface and infiltrate through the soil and subsoils; › Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the Proposed Wind Farm site, likely to have entrained suspended sediment, and channel it to infiltration areas for sediment settling; and,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Check dams will be used along sections of access road drains to attenuate flows and intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock. *Proposed Grid Connection* The trench associated with the Proposed Grid Connection underground cabling route will be backfilled and reinstated following the laying of the cable. As such, the permeability of the ground will remain unchanged. **Hydrogeological impacts:** As outlined above, the potential for effects during the operational phase of the Proposed Wind Farm is reduced as there are no further construction activities along with the associated potential sources such as hydrocarbons/cement/ exposure of subsoils/bedrock.		
MM68	Fauna	EIAR Chapter 6 Appendix 6-4	› The operation of the Proposed Project will not result in any additional habitat loss or deterioration, nor will it result in a significant increase in anthropogenic activity (relative to current agricultural management practices) due to its location and scale. › The Biodiversity Management and Enhancement Plan measures described in Appendix 6-4 will result in the establishment of habitats of higher value for local faunal species. As such, the operation of the Proposed Project will not result in a significant effect at any geographic scale. Such measures will have positive effects for fauna at the Site of the Proposed Project. Additional species rich grassland areas will provide greater foraging opportunities for pollinators within the Site. There will be a net gain in hedgerow habitat with the replanting plan for the Site, which will also provide more foraging opportunities for fauna, as well as additional shelter for birds and mammals, and commuting links for bats. There is no potential for significant negative effects on non-volant terrestrial fauna including otter or badger that were identified as KERs during the construction phase of the development.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM69	Bats	EIAR Chapter 6	A monitoring and mitigation strategy has been devised for the Proposed Wind Farm, in line with the case study example provided in Appendix 5 of the NatureScot 2021 Guidance and based on the site-specific data. After year 1 monitoring, if a curtailment requirement is identified (i.e. significant bat fatalities encountered), a curtailment programme, in line with relevant guidelines, will be devised around key activity periods and weather parameters, as well as a potential increase in buffers. **Bat Vegetation buffer** In accordance with NatureScot and NIEA Guidance, a minimum 50m buffer to all habitat features used by bats (e.g., hedgerows, tree lines etc.) should be applied to the siting of all wind turbines. However, Eurobats No. 6 guidance and NIEA recommends increased buffers of 100m and 200m around woodland/forestry areas, however, there is no scientific evidence to support these increased buffer distances in the UK. NatureScot recommends that a distance of 50m between turbine blade tip and nearest woodland (or other key habitat features) is adequate mitigation. This 50m buffer will be implemented from the outset and monitored as per the post-construction monitoring. The success of the buffer mitigation will be assessed as part of post construction monitoring and updated where necessary. The formula provided in Section 6.1.3 of the Bat Report (Appendix 6-2) is presented to provide appropriate mitigation in relation to bats, and the relevant input required from turbine parameters, is the combination of the blade length and hub height. The turbine model to be installed on the Site will have an overall ground-to-blade tip height of 185m, rotor diameter of 163m, and hub height of 103.5m. The minimum bat buffer required for the Site is therefore 87.12m from the centre of the turbine. This mitigation measure has been applied and no woodland felling is required within the Site. There will be a requirement to remove some linear vegetation i.e. treelines/hedgerows, to		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			facilitate the required bat buffers. These vegetation-free areas will be maintained during the operational life of the Proposed Wind Farm. **Blade feathering** NIEA Guidelines also recommend that, in addition to buffers applied to habitat features, all wind turbines are subject to 'feathering' of turbine blades when wind speeds are below the cut-in speed of the proposed turbine. This means that the turbine blades are pitched at 90 degrees or parallel to the wind to reduce their rotation speed to below two revolutions per minute while idling. This measure has been shown to significantly reduce bat fatalities (by up to 50%) in some studies (NIEA, 2021). In accordance with NIEA Guidelines, blade feathering will be implemented as a standard across all proposed turbines when wind speeds are below the cut-in speed of the turbine. **Lighting** With regard to the potential for lighting to increase collision risk, it is noted that there will be limited illumination of the turbines in the form of aviation lighting. Post construction monitoring will be carried out (as outlined below) to assess any potential changes in bat activity patterns and collision risk. Significant effects as a result of lighting are not anticipated; however, if in the course of this monitoring, any potential for significant effects on bats is identified, the site-specific mitigation measures will be reviewed and any changes necessary will be implemented to avoid any such impacts.		
Decommissioning Phase					
MM70	Decomissioning Phase	EIAR Chapter 6	› The same mitigation to prevent significant impacts on water quality and associated aquatic fauna and other terrestrial fauna during construction will be applicable to the decommissioning phase. It can be concluded that following the implementation of		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			preventative mitigation, there is no potential for the decommissioning of the Proposed Project to result in significant effects on biodiversity.		
MM71	Decomissioning Phase	EIAR Chapter 6 Appendix 4-7	› Any soil material that will be imported to the Proposed Wind Farm site as part of the foundation reinstatement will be free of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The Site Manager will take steps to ensure the sourcing of suitably clean soil material and verify the quality of the material by having it inspected prior to bringing it to site by a suitably qualified ecologist. Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the Site to identify invasive species where any minor excavation will be required. If present in these areas, the ecologist will propose suitable management measures.		
EIAR Chapter 7 Ornithology					
Pre-Construction Phase					
MM72			› Taking a precautionary approach, it is proposed that construction works will commence outside the bird breeding season (1st of March to 31st of August inclusive). Pre-commencement surveys will be undertaken prior to the initiation of works at the wind farm. Any requirement for construction works to run into the subsequent breeding seasons following commencement will be subject to further bird surveys, once per month (April to July), to confirm the absence of breeding birds of conservation concern. › Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase survey no works shall be undertaken within a species-specific buffer (as per Forestry Commission Scotland,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			2006; Ruddock and Whitfield, 2007; Goodship and Furness, 2022) in line with best practice. No works within the buffer zone shall be permitted until it can be demonstrated that that birds of conservation concern are no longer reliant on the roost/nest site.		
MM73	Birds	EIAR Chapter 7	The project design has followed the basic principles outlined below to avoid the potential for significant effects on avian receptors: › The Proposed Project avoids wildlife refuge sites (e.g. waterbodies) › Hard standing areas have been designed to the minimum size necessary to accommodate the turbine model that is selected. › The Proposed Grid Connection underground cabling route has been selected to utilise built infrastructure for the majority of its length (i.e. cables to be laid within public roads). Cables will be laid underground to avoid effects on roadside hedgerows and disturbance to nesting birds.		
Construction Phase					
MM74	Birds	EIAR Chapter 7	A Construction and Environmental Management Plan (CEMP) has been prepared and will be in place prior to the start of the construction phase. Full details of the CEMP are available Appendix 4-2 to Chapter 4 of this EIAR, while details pertinent to birds are summarised below. Note that these measures are proposed as industry best practice rather than to mitigate any identified significant effect and will be updated as required to address any conditions of a grant of permission or findings of any pre-construction survey results. › Works will commence outside the bird nesting season (1st of March to 31st of August inclusive). Any requirement for construction works to run into the subsequent breeding season following commencement will be informed by further bird surveys to identify any potential breeding activity of birds of conservation concern once per month during the breeding season (April to July).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2022. There are no tree removal works along the turbine delivery route, however where sections of vegetation are removed within the Proposed Wind Farm, these will be replaced with suitable hedge/tree species which are common in the local context. Further details can be found in Chapter 6 of this EIAR. › During the construction phase, noise limits, noise control measures, hours of operation (i.e., dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. All plant and equipment for use will comply with the European Communities (Noise Emission By Equipment For Use Outdoors) Regulations, 2001, as amended (SI 632/2001). Plant machinery will also be turned off when not in use. › An Environmental Clerk of Works (ECoW) and Project Ecologist will be appointed. Duties will include: ○ Organise the undertaking of a pre-construction walkover bird survey by a suitably qualified ornithologist to ensure that significant effects on birds will be avoided. Further details are provided in Section 7.7 below. ○ Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Proposed Wind Farm. ○ Oversee management of ornithological 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 necessary.		
MM75	Birds	EIAR Chapter 7	› If winter roosting or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g., Goodship and Furness,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.		
			Operational Phase		
MM76	Birds	EIAR Chapter 7	› No significant operational phase impacts requiring mitigation were identified. However, monitoring in line with best practice is proposed.		
MM77	Birds	EIAR Chapter 7	› A detailed operational Bird Monitoring Programme has been prepared for the operational phase of the Proposed Project (refer to Appendix 7-6 for further details). The programme of works will monitor parameters associated with collision, displacement/barrier effects and habituation during the lifetime of the project. Surveys will be scheduled to coincide with Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm. Monitoring measures are broadly based on guidelines issued by SNH (2009). The following individual components are proposed: ○ Monthly flight activity surveys: vantage point surveys. ○ Breeding bird surveys: adapted Brown and Shepard ○ Targeted bird collision surveys (corpse searches) will be undertaken with trained dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust. › The proposed programme of monitoring was not proposed in response to any identified significant effect but rather as a best practice measure (SNH, 2009). The monitoring is comprehensive and considered entirely adequate in this regard. The results of this monitoring will be reported to the Planning Authority following each monitoring year and will include recommendations that may inform additional mitigation or adaptation if required.		
			Decomissioning Phase		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM78	Decomissioning Phase	EIAR Chapter 7	› During the decommissioning phase, disturbance limitation measures will be as per the construction phase described in Chapter 7 of this EIAR.		
MM79	Decomissioning Phase	EIAR Chapter 7	› Decommissioning monitoring surveys will be undertaken prior to works associated with decommissioning at the wind farm. Survey methodology and timing will be the same as that outlined for construction phase surveys in Chapter 7 off this EIAR. The survey will include a thorough walkover survey to a 500m radius of the development footprint and all works areas, where access allows. If winter roosting or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the decommissioning phase. If it is found to be active during the decommissioning phase, no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g. Forestry Commission Scotland, 2006; Ruddock and Whitfield, 2007; Goodship and Furness, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.		
EIAR Chapter 8 Land, Soils and Geology					
Pre-Construction Phase					
MM80	Design	EIAR Chapter 8	› An iterative design process involving multiple stages of ground investigations, followed by turbine and infrastructure design has been completed to ensure the areas with optimum ground conditions have been selected.		
Construction Phase					
MM81	Earthworks	EIAR Chapter 8	*Proposed Wind Farm*		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Placement of turbines and associated infrastructure in areas with suitable ground conditions (based on detailed site investigation data); › At the identified spoil management areas, the vegetative top-soil layer will be removed to allow for spoil to be placed and upon reaching the recommended height, the vegetative topsoil layer will be reinstated; › The identified spoil management areas will be developed in a phased approach, with the topsoil removed and temporarily stockpiled within the defined area while the spoil it being placed. The stockpiled topsoil will then be reinstated over the placed spoil, and the exercise will continue within the same spoil management area until the area is full; › The placement of spoil will be restricted to a maximum height of 1.0m, subject to confirmation by the Geotechnical Engineer; › Where practical, the surface of the placed spoil is shaped to allow efficient run-off of surface water. Where possible, shaping of the surface of the spoil will be carried out as placement of spoil within the area progresses. This will reduce the likelihood of debris run-off and ensure stability of the placed spoil; › Finished/shaped side slopes of the placed spoil will be not greater than 1 (v): 2 (h) in the dedicated spoil management zones and not greater than 1 (v): 1 (h) alongside access tracks; › Inspections of the spoil management areas will be made by a Geotechnical Engineer through regular monitoring of the works. The appointed contractor will review work practices at spoil management areas when periods of heavy rainfall are expected so as to prevent excessive dirty water runoff from being generated; › An interceptor drain will be installed upslope of the identified spoil management areas to divert any surface water away from these areas where necessary.; › Silt fences and double silt-fences will be emplaced down-gradient of spoil management areas and will remain in place throughout the entire construction phase, or until reseeding has been established to a sufficient level;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The surface of the deposited spoil will be profiled to a gradient to be agreed with the Geotechnical Engineer and vegetated or allowed to vegetate naturally as indicated by the Project Ecologist; › All the above-mentioned general guidelines and requirements will be confirmed by the Geotechnical Engineer prior to construction; › The material will be backfilled into the spoil management areas and will be spread evenly across the area; › It will be compacted to reduce air voids and reduce the migration paths for infiltration by precipitation. This will reduce the amount of potentially silt laden surface water run-off from these spoil management areas. Excavated soils/subsoils shall be excavated and stored separately to topsoil; this will prevent mixing of materials and facilitate reuse afterwards; › All materials which require management will be stockpiled at low angles (< 5-10°) to ensure their stability and secured using silt fencing where necessary. This will help to mitigate erosion and unnecessary additions of suspended solids to the drainage system; › Spoil management will take place within a minimal distance of each turbine to avoid excessive transport of materials within the Site. *Proposed Grid Connection* › Soils and subsoils excavated along the Proposed Grid Connection underground cabling route will be temporarily stored in covered stock piles along the edge of the road carriageway. › Once the emplacement of the 110kV cable has been completed, the stored soils and subsoils will be reinstated, with the minimal amount of compaction required to level the top surface. › Materials that are unsuitable for backfilling will be sent to a Materials Recovery Facility (MRF). › › The tarmacadam road surface will be replaced with the same design standard as the surrounding carriageway		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM82	Contamination of Soils	EIAR Chapter 8	› Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. › On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site. › Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area on-site when not in use. All refuelling will be carried out outside designated watercourse buffer zones. › Only designated trained and competent operatives will be authorised to refuel plant on-site. › Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage		
MM83	Geotechnical Risk	EIAR Chapter 8	› The following measures which will be implemented during the construction phase of the Proposed Project will assist in the management of the geotechnical risks for this site. › Appointment of experienced and competent contractors; › The site will be supervised by experienced and qualified engineering/geotechnical personnel; › Allocate sufficient time for the project; › Prevent undercutting of slopes and unsupported excavations; › Maintain a managed suitable drainage system; › Ensure construction method statements are followed or where agreed modified/ developed; and, › Revise and amend the Geotechnical Risk Register as construction progresses.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM84	Designated Sites	EIAR Chapter 8	The mitigation measures outlined in terms of the land, soils and geology in relation to designated sites are essentially the same as those outlined in Section 9.4.2.2 of Chapter 9, which deals with suspended sediment entrainment from the excavation works. As the designated sites are distal to the Proposed Wind Farm site, there can be no direct effects on the land soils and geology of the designated sites. There is 1 no. SAC near the Proposed Grid Connection underground cabling route, where the route crosses over an existing bridge over the River Clare. Indirect effects are considered and mitigated by: › Avoiding physical damage to watercourses, and associated release of sediment; › Avoiding excavations within close proximity to surface water courses; › Avoiding the entry of suspended sediment from earthworks into watercourses; and, › Avoiding the entry of suspended sediment from the construction phase drainage system into watercourses, achieved in part by ending drain discharge outside the buffer zone and allowing percolation across the vegetation of the buffer zone. The design measures to achieve these mitigation measures are included in detail within Section 9.4.2.2 of Chapter 9 of this EIAR, but briefly include the use of: › Source controls such as interceptor drains, sandbags and the covering of stockpiles; › Silt bags and silt fences; and, › Pre-emptive site drainage management such as the use of general weather forecasts and rainfall radar images to plan and coordinate site works.		
MM85	Human Health	EIAR Chapter 8	Potential health effects arise mainly through the potential for soil and ground contamination. A wind farm is not a recognized source of pollution and so the potential for effects during the operational phase are negligible. Hydrocarbons will be used onsite during construction however the volumes will be small in the context of the scale of the Proposed Project and will be handled and stored in accordance with best practice mitigation measures. The potential		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			residual effects associated with soil or ground contamination and subsequent health effects are imperceptible.		
			Operational Phase		
MM86	Soils and Geology	EIAR Chapter 8	Mitigation measures for soils and geology during the operational stage include; › The use of aggregate from 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/soil/subsoils and groundwater or surface water quality. › The substation transformer will be situated in a concrete bunded 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.		
			Decommissioning Phase		
MM87	Decomissioning Phase	EIAR Chapter 8	The potential effects associated with decommissioning of the Proposed Project will be similar to those associated with construction but of reduced magnitude (i.e., soil/subsoil/bedrock excavation; Contamination by Leakage/Spillages). Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant (i.e., mitigation outlined at Sections 8.5.2.2 and 8.5.2.3). Some of the effects will be avoided by leaving elements of the Proposed Project in place where appropriate i.e. the 110 kV substation and underground cabling. 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.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 9 Hydrology and Hydrogeology					
Pre-Construction Phase					
MM88	Hydrology and Hydrogeology	EIAR Chapter 9	**Mitigation by Avoidance:** A key mitigation measure adopted during the design phase is the avoidance of infrastructure close to surface water features across the Proposed Wind Farm site. The Proposed Wind Farm site is significantly distal from any surface water course, the nearest being the Ballinduff stream located 2.1km west of the site. The Proposed Grid Connection underground cabling route crosses over 4 no. watercourses. Additional control measures, which are outlined further on in this section, will be undertaken at these locations. The large setback distance from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures to be properly installed and operate effectively. The proposed buffer zone will: › Avoid physical damage to watercourses, and associated release of sediment; › Avoid excavations within close proximity to surface watercourses (again, absent from the Proposed Wind Farm site); › Avoid the entry of suspended sediment from earthworks into watercourses; and, › Avoid the entry of suspended sediment from the construction phase drainage system into watercourses, by allowing all surface water/recent rainfall to infiltrate to ground at the Proposed Wind Farm site (refer to Appendix 4-6, Drainage Design drawings).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Construction Phase		
MM89	Earthworks	EIAR Chapter 9	**Proposed Wind Farm site** The key mitigation measures typically employed during the construction phase of Wind Farms is the avoidance of sensitive aquatic areas where possible, by application of suitable buffer zones (i.e. 50m to main watercourses, and 10m to main drains). At the Proposed Wind Farm site, the nearest surface watercourse is situated 2.6km away. Therefore, self-imposed buffer zones are not required at the site. Spoil management areas for excess soil/subsoil will be localised to 4 no. spoil management areas and will be designed and constructed with the minimal amount of surface area exposed. In these spoil management areas, the vegetative top-soil layer will be removed and re-instated or reseeded directly after construction, allowing for re-vegetation which will mitigate against erosion. **Grid Connection underground cabling route.** › More than 95% of the underground electrical cabling connection route is >50m from any nearby watercourse, sections within 50m of the route are confined to existing watercourse crossings at bridges. It is proposed to limit any works in any areas located within 50m of any watercourse/waterbody including the stockpiling of excavated soils and subsoils. › No in-stream works are required at any of these crossings, however due to the proximity of the streams to the construction work at the crossing locations, there is a potential for surface water quality impacts during trench excavation work. Mitigation measures are outlined below. › A constraint/buffer zone will be maintained for all crossing locations where possible. In addition, measures which are outlined below will be implemented to ensure that silt laden		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			or contaminated surface water runoff from the excavation work does not discharge directly to the watercourse. › The large setback distance from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures (discussed below) to be properly installed and operate effectively. The proposed buffer zone will: › Avoid physical damage to watercourses, and associated release of sediment; › Avoid excavations within close proximity to surface watercourses; and, › Avoid the entry of suspended sediment from earthworks into watercourses.		
MM90	Drainage Design	EIAR Chapter 9	**Mitigation by Design:** › Source controls: ○ Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sand bags, oyster bags filled with gravel, filter fabrics, and other similar/equivalent or appropriate systems. ○ Small working areas, covering stockpiles, weathering off stockpiles, cessation of works in certain areas or other similar/equivalent or appropriate measures. › In-Line controls: ○ Interceptor drains, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps/attenuation lagoons, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems. › Treatment systems:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			○ Silt-buster system or equivalent. **Silt Fences** Silt fencing will be emplaced downgradient of turbines, to prevent any runoff of sediment laden water. Silt fences are effective at removing heavy settleable solids. Inspection and maintenance of these structures will be carried out during construction phase. They will remain in place throughout the entire construction phase. Silt fences will also be emplaced where the Proposed Grid Connection is near sensitive areas (*i.e.* watercourse crossing over River Clare). **Silt Bags** Silt bags will be used where small to medium volumes of water need to be pumped from excavations. As water is pumped through the bag, most of the sediment is retained by the geotextile fabric allowing filtered water to pass through. The discharge from the silt bags will be directed to the settlement ponds, where the water will be allowed to naturally infiltrate to ground. **Pre-emptive Site Drainage Management** The works programme for the initial construction stage of the Proposed Wind Farm site will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast. The following forecasting systems are available and will be used on a daily basis at the Site to direct proposed construction activities:		

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

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Provide temporary or emergency drainage to prevent back-up of surface runoff; and, › Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded. **Management of Runoff from Spoil Management Areas** It is proposed that excavated subsoil will be used for landscaping throughout the Site and any excess will be accommodated at 4 no. spoil management areas across the Proposed Wind Farm site. Proposed surface water quality protection measures regarding the spoil storage areas are as follows: › During the initial emplacement of spoil at the storage area, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the enclosure. › Drainage from the storage areas will be directed to settlement ponds as required or will overflow through controlled overflow pipes. › Discharge from the storage areas will be intermittent and will depend on preceding rainfall amounts. › Once the storage areas have been seeded and vegetation is established the risk to downstream surface water is significantly reduced. Therefore, at each stage of the spoil storage area development the above mitigation measures will be deployed to ensure protection of downstream water quality. **Timing of Site Construction Works** Construction of the drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff. Construction of the drainage system during this period will also ensure		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			that attenuation features associated with the drainage system will be in place and operational for all subsequent construction works.		
MM91	Groundwater	EIAR Chapter 9	**Mitigation by Avoidance - Groundwater Flows:** **Proposed Wind Farm site** The construction of the turbines, met mast, access roads and other ancillary features of the Proposed Project could impact groundwater flows within the Proposed Wind Farm site, if a particular pathway *e.g.* karst conduit, existed near the development, however based on all the available site investigation data no reasonable pathways have been identified. The identification and avoidance of any potential karst features has been a key aim of the intrusive and extrusive site investigations, through iterative geophysical surveys, drilling and trial pit excavations and is considered to be the most rational method of mitigating against effecting flow paths, by avoiding any potential karst areas. The Site data outlined within Section Chapter 9 of this EIAR and outlined in more detail within Chapter 8 provides sufficient scientific data to say, with a high degree of certainty, that the construction of the turbine foundations, met mast, site access roads, substation and other relatively near surface constructs, will not interact with or alter the existing groundwater recharge, and underlying groundwater flow, regimes. **Proposed Grid Connection** The Proposed Grid Connection underground cabling route will be routed along an existing road carriageway. The trench will be excavated to a depth of c.1.3m and reinstated.. As such there will be no significant change in the permeability of the lands occupied by the Proposed Grid Connection underground cabling route. **Mitigation by Design - Groundwater Levels:**		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The critical driver of groundwater levels and the potential to affect them is through groundwater recharge. The drainage design of the Proposed Wind Farm site has been designed to mimic the existing hydrological regime within the Site, whereby surface water runoff pathways are generally short and rainfall readily percolates to ground and level spreaders to allow water to infiltrate to ground. The net effect of the drainage design will be that all rainfall falling within the Proposed Wind Farm site will remain on the Site and infiltrate to ground and will not exit the Site as runoff to surface watercourses.		
MM92	Surface Water	EIAR Chapter 9	**Mitigation by Avoidance:** The primary mitigating factor in relation to downgradient surface water bodies is the distinct lack of surface water courses across the Proposed Wind Farm site and the surrounding area. The rainfall falling on the Proposed Wind Farm site recharges to the underlying groundwater aquifer. The closest mapped watercourse, the Ballinduff stream is situated 2.1 km west of the Proposed Wind Farm site. Along the Proposed Grid Connection underground cabling route, the cabling will be emplaced within existing road carriageways and existing bridges. The utilisation of the existing roadways and bridges avoids any in-stream works. **Mitigation by Design:** Proposed Wind Farm- To ensure the continuation of the existing hydrological regime, whereby rainfall percolates to ground and does not discharge as surface water runoff, the drainage design has incorporated natural attenuation of flows and allows for collected rainwater to be recharged back into the underlying aquifer rather than leaving the Site through man-made drains. The drainage design also includes mitigation measures to ensure that any collected		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			surface water is treated prior to discharge/recharge back into the ground, and therefore will not contain suspended sediment. The drainage design which was developed for the Proposed Wind Farm site is included in Appendix 9-7 and summarised in Chapter 9 of this EIAR. Proposed Grid Connection – The mitigation measures outlined in Section 9 of Chapter 9 of this EIAR will ensure that surface water leaving the site will be of a high quality and control measures such as double silt fencing at watercourse crossings will protect downgradient surface water bodies.		
MM93	Potential Release of Hydrocarbons	EIAR Chapter 9 CEMP Section 3	› Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. › On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the Site. › Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Site as required on a scheduled and organised basis. › Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area on-site when not in use. All refuelling will be carried out outside designated watercourse buffer zones. › Only designated trained and competent operatives will be authorised to refuel plant on-site. › Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage		
MM94	Wastewater Disposal	EIAR Chapter 9	**Proposed Mitigation by Avoidance:** › A self-contained port-a-loo system with an integrated wastewater holding tank will be used at the Site compound, maintained by the providing contractor, and removed from site on completion of the construction works;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Water supply for the Site office and other sanitation will be brought to site and removed after use from the Site to be discharged at a suitable off-site treatment location; and, › No water for sanitation purposes will be sourced on the Site or discharged to the Site.		
MM95	Release of Cement Based Products	EIAR Chapter 9	**Proposed Mitigation by Avoidance:** The following mitigation measures are proposed for the Proposed Wind Farm site and the Proposed Grid Connection underground cabling route: › No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and emplacement of pre-cast elements, will take place; › Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds; › Weather forecasting will be used to plan dry days for pouring concrete; › The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event; and, › Sand blinding, DPM and concrete blinding are to be provided at turbine formation level to create a vertical cut-off barrier and to mitigate the risk of concrete leakage into the ground below the turbine foundations. **Proposed Mitigation by Design:** The following mitigation measures are proposed: › No in-stream excavation works are proposed and therefore there will be no impact on the stream at the proposed crossing locations; › Where the proposed underground cabling route crosses a natural surface watercourse, the cable will pass over or below the existing culvert within the access road;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Any guidance/mitigation measures proposed by the OPW or the Inland Fisheries Ireland will be 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 this pathway to surface watercourses (any deviation from this will be done in discussion with the IFI); and › 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.		
MM96	Turloughs	EIAR Chapter 9	The following mitigation measures are proposed: › Proposed Wind Farm site drainage management will be put in place (as outlined in Chapter 9 of this EIAR) in order to prevent any surface water runoff from leaving the Site and ensuring that all surface waters infiltrate to ground following short flowpaths (10's of metres) and, › Mitigation measures relating to hydrocarbons, cementitious materials and wastewater disposal, as outlined in Chapter 9 of this EIAR will provide adequate protection to groundwater and surface water quality and ensure that groundwater quality will not be impacted, thus protecting the groundwater quality of any hydraulically downgradient turloughs.		
MM97	Surface Water Dependant SACs, SPAs, pNHAs	EIAR Chapter 9	**Mitigation by Design:** *Proposed Wind Farm site*		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			There will be no net change in runoff from the Proposed Wind Farm site due to the drainage design. All water will recharge to ground. Any "dirty" surface water generated on site will be collected within a downstream collector drain, be attenuated with the collector drain and allowed to infiltrate to the ground along the collector drain and within an end of drain infiltration area. *Proposed Grid Connection* The mitigation measures outlined relating to earthworks along the Proposed Grid Connection underground cabling route will ensure that surface water quality within the River Clare (part of the Lough Corrib SAC) remains unchanged.		
MM98	Public Water supplies	EIAR Chapter 9	*Proposed Wind Farm site* The Source Protection Areas (SPA's) to the nearby GWS wells have been mapped. There are no areas of the Biggeramore GWS, Caherlea GWS, Claretuam Belclare GWS, Balrobuckbeg, Kilcoona Caherlistrane or Anbally GWS SPA's situated within the Site. There are small areas of the Cahermorris Glenreevagh and Cluide Cahermorris GWS SPA's situated within the Proposed Wind Farm site. The area of the Proposed Wind Farm site which includes the Cluide Cahermorris GWS SPA includes a short section of proposed access track (190m). The access track consists of the emplacement of new access track and the upgrade/widening of the existing farm roadway. Surface water mitigation measures will be put in place as outlined in Chapter 9 which will ensure that any surface water in this area during the construction process will be attenuated and will be of a high quality before being allowed to recharge to ground within a short distance (10's of metres). The quantity and quality of recharge to the groundwater system will be maintained. The area of the Proposed Wind Farm site which includes the Cahermorris Glenreevagh GWS includes the proposed turbine T1 and a 270m section of proposed access road. The access		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			track consists of the emplacement of new roadway to turbine T1. Surface water mitigation measures will be put in place as outlined in Chapter 9 which will ensure that any surface water in this area during the construction process of the roadway will be attenuated and will be of a high quality before being allowed to recharge to ground within a short distance (10's of metres). The quantity and quality of recharge to the groundwater system will be maintained. The primary risk to the GWS SPA is therefore considered to be surface waters arising during the construction phase, before recharging to ground. During the construction phase, mitigation measures outlined in Chapter 9 such as interceptor drains, silt fences, swales and settlement ponds will ensure that the recharge to the underlying groundwater aquifer remains at a high standard. *Proposed Grid Connection* In terms of the Proposed Grid Connection underground cabling route, a small area of the Rusheens GWS Source Protection Area, overlaps with the underground cabling route, within a 0.07km^2 area, which contains ~320m of roadway. Excavation work can lead to sediment laden runoff from the excavation, following rainfall events. Typically, surface water effects are the primary concern during the Proposed Grid Connection underground cabling route works, rather than groundwater effects. However, as there are few nearby surface watercourses to drain towards, all surface water is expected to infiltrate to ground and to the underlying aquifer. The management of sediment from runoff along the construction areas is detailed in Chapter 9 which will be implemented along the Proposed Grid Connection underground cabling route. Hydrocarbon controls and controls on cement-based products will also be implemented to ensure any surface water along the Proposed Grid Connection underground cabling route is of a high quality, before it recharges to ground.		
MM99	Domestic Water Supplies	EIAR Chapter 9	› Surface water mitigation measures will be put in place as outlined in Chapter 9 of this EIAR which will ensure that any surface water arising at the Site during the construction process of the Proposed Project will be attenuated and will be of a high quality before being allowed to recharge to ground within a short distance (10's of metres). The quantity		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			and quality of recharge to the groundwater system will be maintained. Measures to protect the water environment from cement based products and hydrocarbons will ensure that the water recharging to ground is of a high quality. › The Limestone bedrock underlying the proposed turbine locations is competent Limestone without any signs of karstification. The primary risk to unmapped domestic wells is therefore considered to be surface waters arising during the construction phase, before recharging to ground. During the construction phase, mitigation measures outlined such as interceptor drains, silt fences, swales and settlement ponds along with mitigation measures to protect against effects from hydrocarbons and cement based products will ensure that the recharge to the underlying groundwater aquifer remains at a high standard. › Based on the separation distances involved, the detailed site investigation data detailing competent (not karstified) Limestone underlying the turbines at the Proposed Wind Farm site, the proposed mitigation measures in relation to suspended sediment, hydrocarbons and cement based products, as well as the information gathered on the hydrogeological regimen including groundwater flow directions and groundwater levels, the residual effect on unmapped domestic wells is considered to be – Indirect, negative, imperceptible, medium term, very unlikely impact on groundwater quality and quantity.		
MM100	WFD Status	EIAR Chapter 9	› The mitigation measures outlined in Chapter 9 of this EIAR including avoidance of surface watercourses, along with source controls (interceptor drains, sandbags, silt fences), amongst others, will ensure that any surface water generated at the Proposed Wind Farm, will be of a high quality in terms of suspended sediments, while it is noted that runoff from the Proposed Wind Farm will not occur as surface water will infiltrate to ground. › In terms of cement-based materials, the mitigation measures outlined in Chapter 9 of this EIAR relating to cement products will be implemented and will break the pathway between the source and receptor. › Mitigation measures in relation to the use of hydrocarbons including off-site refuelling, hydrocarbon interceptors and an emergency plan to deal with accidental spillages are outlined in Chapter 9 of this EIAR.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Operational Phase					
MM101	Surface Water Runoff	EIAR Chapter 4, 9	The drainage design for the Proposed Wind Farm includes for the release of any surface water captured within the interceptor drains to recharge back to ground, with a very nominal spatial diversion of the water (10's of metres). In doing so, all rainfall which falls on the Site will still infiltrate to ground. There will be no net increase in runoff from the Proposed Wind Farm site or along the Proposed Grid Connection underground cabling route. **Proposed Mitigation by Design:** *Proposed Wind Farm site* The operational phase drainage system of the Proposed Wind Farm site will be installed and constructed in conjunction with the road and hardstanding construction work as described below: › Interceptor drains will be installed up-gradient of proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it can be slowly re-distributed over the ground surface and infiltrate through the soil and subsoils; › Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the Proposed Wind Farm site, likely to have entrained suspended sediment, and channel it to infiltration areas for sediment settling; and, › Check dams will be used along sections of access road drains to attenuate flows and intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock. *Proposed Grid Connection*		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The trench associated with the Proposed Grid Connection underground cabling route will be backfilled and reinstated following the laying of the cable. As such, the permeability of the ground will remain unchanged.		
MM102	Turloughs	EIAR Chapter 9	During the operational phase of the Proposed Project, the only plant which will be required on site will be maintenance/inspection vehicles (Light Goods vehicles). These will be refuelled off site, thus reducing the potential for effects due to hydrocarbon spills. There will be no discharge of wastewater during the operational phase. Mitigation measures relating to hydrocarbons, cementitious materials and wastewater disposal, will continue to provide adequate protection to groundwater and surface water quality during the operational phase and ensure that groundwater quality will not be impacted, thus protecting the groundwater quality of any hydraulically downgradient turloughs.		
MM103	Designated Sites	EIAR Chapter 9	Mitigation measures to protect designated sites during the operational phase of the Proposed Project include: › Regular maintenance of the on-site drainage system. The maintenance schedule will be reduced once natural vegetation is re-established, which will provide consistent filtration through the soil/subsoil; › The use of fuel storage bunds for any hydrocarbons (fuel/oils) and the ongoing maintenance of the bund structures; and, › Any maintenance works which may involve soil movement (such as the removal of sediment from the settlement ponds) will take place during the dry months of the year (May - September).		
MM104	WFD Status	EIAR Chapter 9	The operational phase drainage system of the Proposed Wind Farm site will be installed and constructed in conjunction with the road and hardstanding construction work as described below:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it can be re-distributed over the ground by means of a level spreader; › Swales/road-side drains will be used to collect runoff from access roads and turbine hardstanding areas of the Proposed Wind Farm site, likely to have entrained suspended sediment, and channel it to infiltration areas for sediment settling and recharge to ground; › Check dams will be used along sections of access road drains to intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock; and, › Infiltration areas, emplaced downstream of road swale sections and at end of the downstream collector drains, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall and allow the rainfall to recharge to ground effectively. › The mitigation measures to protect against poor quality runoff during the operational phase of the Proposed Project are the same as those outlined in the Construction Stage. › Mitigation measures for oils and fuels during the operational phase of the Proposed Project are the same as those outlined in the Construction Stage.		
Decomissioning Phase					
MM105	Decomissioning Phase	EIAR Chapter 9 Appendix 4-5	› Potential effects will be similar to the construction phase but to a lesser degree. There may be increased trafficking and an increased risk of disturbance to underlying soils at the Proposed Wind Farm site, during the decommissioning phase. Any such potential effects will be less than during the construction stage as the drainage system will be fully mature and will provide additional filtration of runoff. Any diesel or fuel oils stored on site will be bunded.		
EIAR Chapter 10 Air					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase					
MM106	Exhaust Emissions: Construction	EIAR Chapter 10 Appendix 4-5	› Proposed Project Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager produce and follow a site inspection and machinery checklist which will be followed and updated if/when required. › All plant and materials vehicles shall be stored in dedicated areas (on-site). Machinery will be switched off when not in use. › Turbines and construction materials will be transported to the Site on specified routes only, unless otherwise agreed with the Planning Authority. Please see Chapter 15 Material Assets for details. › Aggregate materials for the construction of site access tracks and all associated infrastructure will all be locally sourced, where possible, which will further reduce potential emissions. › Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. › The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). ›		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM107	Exhaust Emissions: Transport	EIAR Chapter 10 Appendix 4-5	› Aggregate materials for the construction of site access tracks and all associated infrastructure will all be locally sourced, where possible, which will further reduce potential emissions. › Turbines and construction materials will be transported to the site on specified haul routes only. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the amount of emissions associated with vehicle movements. › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5).		
MM108	Dust Emissions: Construction	EIAR Chapter 10 Appendix 4-5	› Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. › Turbines and construction traffic will be transported to the site on specified haul routes only. › The agreed haul route road adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the site entrances will be checked weekly or damage/potholes and repaired as necessary. › If necessary, excavated material will be dampened prior to transport to the spoil management areas.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). The CEMP includes dust suppression measures		
MM109	Dust Emissions: Transport	EIAR Chapter 10 Appendix 4-5	› Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas within the Site. › Turbines and construction vehicles will be transported to the site on specified haul routes only. › Proposed Grid Connection infrastructure will be transported to the site on specified haul routes only. › Construction materials for the Proposed Grid Connection and a small volume for the Proposed Wind Farm will be sourced locally from licenced quarries. › The agreed haul route roads adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. › The roads adjacent to the site entrances will be checked weekly for damage/potholes and repaired as necessary. › The transport of construction materials around the Site from the nearby quarry facilities will be covered by tarpaulin where necessary. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the amount of emissions associated with vehicle movements › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5).		
Operational Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM110	Exhaust Emissions	EIAR Chapter 10	› Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise. › When stationary, delivery and on-site vehicles will be required to turn off engines. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.		
MM111	Dust Emissions	EIAR Chapter 10	› Maintenance vehicles brought onsite during the operational phase will be maintained in good operational order, thereby minimising any dust emissions that arise. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.		
Decomissioning Phase					
MM112	Decomissioning Phase	EIAR Chapter 10 Appendix 4-7	Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, be it of less effect. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential effects.		
EIAR Chapter 11 Climate					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Construction Phase		
MM113	Greenhouse Gas Emissions	EIAR Chapter 11 Appendix 4-5	› Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager produce and follow a site inspection and machinery checklist which will be followed and updated if/when required. › All plant and materials vehicles shall be stored in dedicated areas (onsite). Machinery will be switched off when not in use. › Turbines and construction materials will be transported to the site on specified routes only, unless otherwise agreed with the Planning Authority. Please see Chapter 15 Material Assets for details. › Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. › The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. ○ This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. ○ The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. › A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). › Aggregate materials for the construction of the Proposed Project will be obtained from nearby licensed quarries. This will reduce journey distances of the delivery vehicles accessing the Site, thereby reducing the amount of emissions associated with vehicle movements.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Where applicable, low carbon intensive construction materials will be sourced and utilised onsite.		
			Operational Phase		
MM114	Greenhouse Gas Emissions	EIAR Chapter 11	› Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise. › When stationary, delivery and on-site vehicles will be required to turn off engines. › Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. › Operational personnel will be instructed at induction that under no circumstances can waste be disposed of on-site. It will also be made clear that the burning of waste material on-site is forbidden. › As detailed in Appendix 6-4 a Biodiversity Management and Enhancement Plan for the Proposed Wind Farm has identified enhancement activities such as the planting of native woodland and hedgerows and improvement of grassland habitats.		
			Decomissioning Phase		
MM115	Decomissioning Phase		Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, be it of less impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential impacts.		
			EIAR Chapter 12 Noise		
			Construction Phase		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM116	Construction Noise	EIAR Chapter 12	Due to the potential for significant construction noise impact effects at receptors within 25m of the existing road upgrades and Proposed Grid Connection underground cabling route, specific mitigation measures are provided in Section **Error! Reference source not found.** and **Error! Reference source not found.**. For all other elements of the construction phase the assessment of potential impacts has demonstrated that the Proposed Project is expected to comply with the criteria and therefore no specific mitigation measures are required. Although there was no specific mitigation measures required, the following best practice mitigation measures from BS5528-1 standard will be implemented for the duration of the construction phase: › limiting the hours during which site activities likely to create high levels of noise or vibration are permitted; › establishing channels of communication between the contractor/developer, Local Authority and residents; › appointing a site representative responsible for matters relating to noise and vibration; › monitoring typical levels of noise and vibration during critical periods and at sensitive locations; › keeping site access roads even to mitigate the potential for vibration from lorries. Furthermore, a variety of practicable noise control measures will be employed. These include: › selection of plant with low inherent potential for generation of noise and/ or vibration; › placing of noise generating / vibratory plant as far away from sensitive receptors as possible within the site constraints, and; › regular maintenance and servicing of plant items. The contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			recommendations of British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise.* The following list of measures will be implemented on site, to ensure compliance with the relevant construction noise criteria: › No plant used on site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract. › Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. › Any plant, such as generators or pumps, which is required to operate close to NSL's outside of general construction hours will be surrounded by an acoustic enclosure or portable screen. › During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Section **Error! Reference source not found.** u sing methods outlined in British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise.* › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs Monday to Saturday. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e. concrete pours, rotor/tower deliveries) it will be necessary on occasion to work outside of these hours. Where rock breaking is employed, the following are examples of measures that will be considered, where necessary, to mitigate noise emissions from these activities:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Fit suitably designed muffler or sound reduction equipment to the rock breaking tool to reduce noise without impairing machine efficiency. › Ensure all leaks in air lines are sealed. › Erect acoustic screen between compressor or generator and noise sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured. › Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation. If blasting is undertaken as part of the Proposed Project, a detailed assessment will be undertaken by a specialist blast design engineer to determine the blast design parameters; all mitigation measures specified by the blast design engineer to keep vibration values within the criteria in Section **Error! Reference source not found.** will be implemented. Air overpressure from a blast is difficult to control, however, because of its variability much can be done to reduce the effect. A reduction in the amount of primer cord used, together with the adequate burial of any that is above the ground, can give dramatic reduction to air overpressure intensities especially in the audible frequency range. Should complaints arise, they are likely to be received from an area downwind of the blast site, and therefore, blasting will be postponed during unfavourable weather conditions. Furthermore, as air blast intensity is a function of total charge weight, then a reduction in the total amount of explosives used can also reduce the air overpressure value. Further guidance will be obtained from the recommendations contained within BS 5228: Part 1 and the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988 in relation to blasting operations. The methods used to minimise complaints could consist of some or all of the following:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Restriction of hours within which blasting can be conducted (e.g. 09:00 – 18:00hrs). › Notification to nearby residents before blasting starts (e.g. 24-hour written notification). › The firing of blasts at similar times to reduce the 'startle' effect. › On-going circulars informing people of the progress of the works. › The implementation of an onsite documented complaints procedure. › The use of independent monitoring by external bodies for verification of results. › Trial blasts in less sensitive areas to assist in blast designs and identify potential zones of influence. To ameliorate any potential noise impacts that may be present during the construction phase, a schedule of noise control measures has been formulated in accordance with best practice guidance. These are outlined in the Construction and Environmental Management Plan (CEMP) that has been prepared for the Proposed Project. The contract documents will specify that the Contractor undertaking the construction works will be obliged to take specific noise abatement measures and comply with the recommendations of British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise. To ameliorate any potential noise impacts that may be present during the construction phase, a schedule of noise control measures has been formulated in accordance with best practice guidance. These are outlined in the Construction and Environmental Management Plan (CEMP) that has been prepared for the Proposed Project. › 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:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› 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; › No plant used on site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract. › Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down during periods when not in use. › Any plant, such as generators or pumps, which is required to operate close to NSL's outside of general construction hours will be surrounded by an acoustic enclosure or portable screen. › During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Section 12.3.2.1 using methods outlined in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise. › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs Monday to Saturday. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e. concrete pours, rotor/tower deliveries) it will be necessary on occasion to work outside of these hours. **Grid Connection underground cabling route** Similarly, in respect of the construction of the underground cabling route, part of which is shared with the existing road upgrade, the contractor will utilise screening in order to reduce noise impacts on nearby sensitive receptors when the works take place proximate to residences		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			along the proposed route. Mitigation measures in respect of the existing road upgrades will also be applied in respect of the underground cabling route.		
Operational Phase					
MM117	Operational Noise	EIAR Chapter 12	In the event that a complaint which indicates potential Amplitude Modulation (AM) associated with turbine operation, the operator will employ a qualified acoustic consultant to assess the level of AM in accordance with the methods outlined in the Institute of Acoustics IOA Noise Working Group (Wind Turbine Noise) Amplitude Modulation Working Group Final Report: A Method for Rating Amplitude Modulation in Wind Turbine Noise (9 August 2016) or subsequent revisions. These mitigation measures, if required, will consist of the implementation of operational controls for the relevant turbine type, which will include turbine curtailment and/or stopping turbines under specific operational conditions as advised by the acoustic consultant.		
MM118	Operational Noise	EIAR Chapter 12	An operational noise survey will be undertaken to ensure compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of the Proposed Wind Farm being commissioned. If an exceedance of the noise criteria is identified as part of the commissioning assessment, the guidance outlined in the IOA GPG, specifically Supplementary Guidance Note 5: *Post Completion Measurements* (July 2014) will be followed, and relevant corrective actions taken. For example, implementation of noise reduced operational modes resulting in curtailment of turbine operation can be implemented for specific turbines in specific wind conditions to ensure predicted noise levels are within the relevant noise criterion curves/planning conditions limits. Such curtailment can be applied using the wind farm SCADA system without undue effect on the wind turbine performance. Following implementation of these measures, noise surveys will be repeated to confirm compliance with the noise criteria.		
Decomissioning Phase					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM119	Decomissioning Phase		No specific mitigation measures are required for decommissioning. To ameliorate any potential noise impacts that may present during the decommissioning phase, a schedule of noise control measures has been formulated in accordance with best practice guidance. These are outlined in the Construction and Environmental Management Plan (CEMP) that has been prepared for the Proposed Project.		
EIAR Chapter 13 Cultural Heritage					
Pre-Construction Phase					
MM120	Sub-Surface Archaeological Potential	EIAR Chapter 13	› Pre-development archaeological testing of the proposed infrastructure in previously undisturbed greenfield areas of the Site will be carried out under licence from the National Monuments Service. This is in order to identify any archaeological features at the earliest stage possible in the project to allow time to deal with any requirements such as preservation in situ (redesign / avoidance) or preservation by record (archaeological excavation). › A report on the testing will be compiled on completion of the work and submitted to the NMS and the Planning Authority. › Further mitigation such as preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the testing.		
Construction Phase					
MM121	Recorded Monuments	EIAR Chapter 13	**Proposed Grid Connection** Thirteen recorded monuments are located within 100m of the proposed underground electrical cabling route, while none are located in the immediate vicinity of the proposed onsite 110kV substation or associated temporary construction compound.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The Proposed Grid Connection underground electrical cabling route will extend along the east side of the public road, where possible, as it extends past ringfort GA043-088— in order to avoid potential direct impacts to sub-surface archaeological elements of the monument or associated features which may exist in this area. › Archaeological monitoring will be carried out under licence from the National Monuments Service (NMS) along the relevant sections of the Proposed Grid Connection underground cabling route where the latter extends through the ZoN for monuments GA043-088—, GA057-134— and GA057-102—. › A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority. › Further mitigation such as preservation in situ (avoidance), preservation by record (excavation) may be required depending on the results of the monitoring.		
MM122	Sub-Surface Archaeological potential	EIAR Chapter 13	› Archaeological monitoring of all groundworks during the construction stage of the Proposed Project by a licensed archaeologist. › A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority. › Further mitigation such as preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the monitoring.		
MM123	Newly Recorded Monuments	EIAR Chapter 13	One potential archaeological monument was noted within the Proposed Wind Farm during the walk-over survey. Mitigation measures are recommended in order to prevent any accidental damage occurring during the construction stage of the Proposed Wind Farm. › A 30m buffer zone will be established around the newly recorded possible enclosure. During the Construction phase, the physical buffer will comprise durable temporary fencing with 'keep out' signage. The requirement for the buffer zone and associated signage should be included in the CEMP.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› No ground works or storage of materials or tracking of machinery will take place within the buffer zone.		
			Decomissioning Phase		
MM124	Decomissioning Phase	EIAR Chapter 13	Any potential direct impacts effects will already have been resolved through mitigation measures during the construction phase.		
			EIAR Chapter 14 Landscape and Visual		
			Pre-Construction Phase		
MM125			**Mitigation by Design** Through the iterative project design process, informed by early-stage impact assessment work, landscape modelling, ZTV mapping and photomontage preparation, every effort has been made to bring forward the optimum design for the Proposed Project with respect to landscape and visual factors. The Proposed Wind Farm layout that is the subject of this LVIA, already incorporates the following landscape and visual design considerations for good wind farm design, with a particular focus on site selection: › Siting of proposed turbines adheres to the minimum 500 metre set back distance in the Guidelines and also the 4 times tip height set-back distance explicitly set out for residential visual amenity prescribed by the Draft Guidelines. › The proposed turbines are strategically sited within a modified working landscape where there is limited visibility (or large set back distances) from large population centres and designated landscape. › The proposed turbines are located within a 'Low' Landscape Sensitivity area as designated within the GCDP 2022-28.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Siting of the proposed turbines in a landscape setting (The LVIA Study Area to 20km) which has a very limited number of designated sensitive landscape and visual receptors in local planning policy (There are no landscape or visual impacts on the three designated scenic views within the LVIA Study Area). › The turbines have been located within a landscape defined by agricultural fields bordered by mature hedgerows and treelines which provide screening effects, particularly when the turbines are viewed from locations in medium to long distance from the proposed turbines. Impacts on the landscape and visual receptors are thus localised. › The proposed turbines are located in a relatively flat landscape with the proposed turbines at a similar base elevation relative to receptors which reduces their visual prominence over the wider landscape. › The substation is the only overground element of the Proposed Grid connection, and it is contained within the site. The proposed 30m meteorological mast is also a tall vertical structure; therefore, it is included in the photomontage booklet and is fully considered throughout the LVIA chapter. However, it will be substantially less visible than any turbine given its shorter and slender lattice form. Other components of the Proposed Project are not deemed to be as visually prominent as the proposed turbines, however, they have the potential to give rise to localised landscape and visual effects. Although not the primary focus of the LVIA, these elements are given full consideration throughout this chapter. › The internal site road layout makes use of the existing roads/ tracks wherever possible, to minimise the requirement for new tracks within the Site and where possible retain the integrity of existent field boundary walls, hedgerows and trees. › To minimise cut and fill activities required to construct the proposed turbines, the proposed access roads, and other infrastructure such as hard stands have been designed to align with the existing terrain within the landscape of the Site.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› In all circumstances, excavation depths and volumes will be minimised, and excavated material will be re-used where possible. › During initial vegetation stripping, all topsoil material will be temporarily stored on Site and used for landscaping the edges of the development infrastructure during reinstatement/regrading. The stripped topsoil will contain a natural seed source of local provenance and result in the establishment of a species rich grassland. The following measures should be implemented to mitigate effects during the construction phase and operational phase of the Proposed Grid Connection underground electrical cabling route: › Where the cable trench is to be located in the road verge, subsoil should be piled on site and re-used after cabling works. Should any medium planting be removed, it should be replaced with the same or similar species whenever it is not possible to salvage and reinstate. New topsoil should be provided should the existing topsoil not be of sufficient standard (to comply with BS 3882:2015). › Any areas of bare soil remaining after the landscaping phase will be seeded as soon as possible with a grass seed mix to minimise sediment run-off.		
Construction Phase					
MM126	Landscape	EIAR Chapter 14	The following measures should be implemented to mitigate effects during the construction phase of the Proposed Grid Connection underground cabling route: › Where the cable trench is to be located in the road verge, subsoil should be piled on site and re-used after cabling works. Should any medium planting be removed, it should be replaced with the same or similar species whenever it is not possible to salvage and reinstate. New topsoil should be provided should the existing topsoil not be of sufficient standard (to comply with BS 3882:2015).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Any areas of bare soil remaining after the landscaping phase will be seeded as soon as possible with a grass seed mix to minimise sediment run-off. The construction works will be temporary/short-term in nature and completed as soon as practically possible. All construction activities will follow best practice methods to reduce impacts upon the environment and landscape of the Proposed Project. Further details are contained in the Construction and Environmental Management Plan (CEMP).		
Operational Phase					
MM127	Landscape	EIAR Chapter 14	The following measures have been included in the Proposed Project design in order to avoid or reduce direct effects on landscape receptors of the Proposed Wind Farm site: › The internal site road layout makes use of the existing roads/ tracks wherever possible, to minimise the requirement for new tracks within the Proposed Wind Farm site and where possible retain the integrity of existent field boundary walls, hedgerows and trees. › During initial vegetation stripping, all topsoil material will be temporarily stored on Proposed Wind Farm site and used for landscaping the edges of the development infrastructure during reinstatement/regrading. The stripped topsoil will contain a natural seed source of local provenance and result in the establishment of a species rich grassland.		
EIAR Chapter 15 Material Assets					
Material Assets - Traffic					
Pre-Construction Phase					
MM128	Traffic	EIAR Chapter 15	**Mitigation by Design** Mitigation by design measures include the following:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Selection of the most appropriate delivery route to transport the wind turbine components, requiring the minimum remedial works to accommodate the vehicles as set out in Chapter 15.		
Construction Phase					
MM129	Traffic	EIAR Chapter 15 Appendix 15–2	While the details of the traffic management measures will be developed in detail and submitted for agreement with Galway County Council prior to the construction of the Proposed Project, they will include the following measures, › An application to Galway County Council for the temporary reduction of the speed limit on the N83 from 100 km/h to 80 km/h during the construction phase of the Proposed Project, as discussed in principle with Galway County Council during pre-planning discussions. › Similar in relation to the section of the L-61461 between the N83 and the proposed site access junction approximately 280m to the west for a temporary reduction in the speed limit from 80 km/h to 60 km/h (the default speed limit for this road could already be reduced from 80kmh to 60kmh under proposed government guidelines). › Introduction of signage on northbound and southbound approached to the existing L-61461 and the temporary link of warning of approaching construction site (TMS Traffic Signs WK001). › Signage on the N83 northbound indicating the temporary construction access approaching on the left (TMS traffic Sign WK052) and similar on southbound lane indication the temporary link approaching on the right (TMS Traffic Signs WK053). › Signage on the N83 northbound and southbound approaches to temporary access of Flagmen (TMS traffic Sign WK061). › It is also proposed that temporary signage indicating the overtaking is not permitted during the construction phase (TMS traffic Sign RUS 014). These may be introduced with temporary bollards on the centreline of the N83.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› It is proposed that the temporary speed limit of 80 km/h is indicated on this section of the N83 using Variable Message Signs in order to maximise conspicuity. › Similarly, temporary signage will be introduced on the L-61461, including signage on eastbound and westbound approaches to the proposed temporary link (TMS Traffic Signs WK001), signage indicating the temporary construction access approaching on the L-61461 (TMS traffic Signs WK052 and WK053), signage on the L-61461 warning of the presence of Flagmen (TMS traffic Sign WK061). › A temporary 60 km/h speed limit signs will also be introduced on the L-61461 (if not already established as the default speed limit). A detailed **Traffic Management Plan (TMP)**, included as Appendix 15-3 of this EIAR, will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the roads authority and An Garda Síochána prior to construction works commencing. The detailed TMP will include the following: › **Traffic Management Coordinator –** a competent Traffic Management Co-ordinator will be appointed for the duration of the construction of the Proposed 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 Galway County Council and other relevant authorities in advance of deliveries of turbine components to the Proposed Wind Farm site. › **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. › **A Pre and Post Construction Condition Survey –** A pre-condition survey of roads associated with the Proposed Project will be carried out prior to construction commencement to record the condition of the road. A post construction survey will be		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			carried out after works are completed. Where required the timing of these surveys will be agreed with the local authority. › **Liaison with the relevant local authorities** - Liaison with the relevant local authorities including the roads sections of local authorities that the delivery routes traverse, and An Garda Siochana, during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. › **Implementation of temporary alterations to road network at critical junctions** – At locations where required highlighted in Section 15.1.9. › **Identification of delivery routes** – These routes will be agreed and adhered to by all contractors. › **Travel plan for construction workers to Site–** A travel plan for construction staff, which will include the identification of a routes to / from the site and identification of parking areas will be implemented by the main contractor. › **Temporary traffic signs** – As part of the traffic management measures temporary traffic signs will be put in place at all key junctions, including the temporary access linking the N83 and L-61461 and the access junction on the L-61461. All measures will be in accordance with the *"Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works"* (DoT now DoTT&S) and "Guidance for the Control and Management of Traffic at Roadworks" (DoTT&S). Construction staff (flagman) will be present at key junctions during peak delivery times. › **Delivery times of large turbine components** - The management plan will include the delivery of large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage. › **Diversion routes during the construction of the Proposed Grid Connection Cabling Route –** As set out in Section 15.1.7 of this EIAR. › **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 sweeping / cleaning of local roads as required. › **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Decomissioning Phase		
MM130	Decommissioning Phase	EIAR Chapter 15 Appendix 15-2	In the event that the Proposed Project is decommissioned after the 30 years of operation, a decommissioning plan, will be prepared for agreement with the local authority, as described in Chapter 4 and Appendix 4-7 Decommissioning Plan. This plan will include a material recycling / disposal and traffic management plan will be prepared for agreement with the local authority prior to decommissioning, in accordance with Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013).		
			Material Assets - Other		
			Pre-Constructions Phase		
MM131	Public Services and Water Supply	EIAR Chapter 3, 15	› Proposed Wind Farm and Proposed Grid Connection infrastructure have been designed to avoid identified services and utilities. Prior to commencement of construction of the Proposed Project the surveys will be repeated and updated, to ensure any new services and utilities will not be impacted by the Proposed Project.		
			Construction Phase		
MM132	Public Services and Water Supply	EIAR Chapter 15	To ensure that the construction of the Proposed Project will not have effect on underground electrical cables and built services at the Site. The mitigation measures include the following: › Any area where excavations are planned will be surveyed and all existing services will be identified prior to commencement of any works. › Liaison will be had with the relevant sections of the Local Authority including all the relevant area engineers to ensure all services are identified. › Excavation permits will be completed, and all plant operators and general operatives will be inducted and informed as to the location of any services.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› The contractor must comply with and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks.		
MM133	Telecommunications	EIAR Chapter 3, 15	In the event of interference occurring to telecommunications, the Guidelines acknowledge that '*electromagnetic interference can be overcome*' by the use of divertor relay links out of line with the wind farm.		
MM134	Aviation	EIAR Chapter 15	The scoping responses received from both IAA and the Department of Defence set out lighting requirements and obstacle avoidance strategies as set out above. These requirements will be complied with for the Proposed Project and any further details will be agreed in advance of construction with the IAA, i.e. crane erection. The coordinates and elevations for the as-built turbines will be supplied to the IAA, as is standard practice for wind farm developments.		
MM135	Gas Networks	EIAR Chapter 3, 15	› The Gas Networks Ireland underground gas pipline travels from north to south through the Proposed Wind Farm site. It was confirmed in a scoping response from Bord Gais Networks that a minimum setback distance relating to deep intrusive groundworks of 2 no. turbine hub heights should be achieved. › A designated 207m setback distance relating to deep intrusive groundworks has been applied to this underground pipeline. The Applicant has been able to achieve a 284m setback from the closest turbines (T5) which exceeds the requirements requested by the operator. There are no turbines located within this designated setback distance. › In addition, telecom lines were laid alongside the gas line to avoid the need for additional trenching works. The Applicant achieved setback distance also alows for avoidance during construction.		
MM136	Waste Management	EIAR Chapter 15	All waste generated on Site will be contained in waste skip at a waste storage area on Site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein. The expected waste volumes generated on Site are unlikely to be large enough to warrant source segregation at the Site. Therefore, all waste streams generated on site will be deposited into a single waste skip. The waste material will be transferred to a		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		Appendix 4-5	Materials Recovery Facility (MRF) by a fully licenced waste contractor where the waste will be sorted into individual waste stream for recycling, recovery or disposal. Site personnel will be instructed at induction that under no circumstances can waste be brought on to Site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on Site is forbidden.		
Operational Phase					
MM137	Telecommunications	EIAR Chapter 15	› An Operator required buffer has been incorporated into the design for the link that passes through the Site, therefore no further mitigation measures during the operational phase are required. › A signed protocol agreement between 2rn and the Developer can be found in Appendix 15-4. The protocol document ensures that in the event of any interference occurring to television or radio reception due to operation of the wind farm, the required measures, as set out in the document, will be carried out by the Developer to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of unanticipated broadcast interference arising to television or radio reception as a result of the Proposed Wind Farm.		
MM138	Aviation	EIAR Chapter 15	The scoping responses received from both IAA and the Department of Defence set out lighting requirements and obstacle avoidance strategies as set out above. These requirements will be complied with for the Proposed Project and any further details will be agreed in advance of construction with the IAA, i.e. crane erection. The coordinates and elevations for the as-built turbines will be supplied to the IAA, as is standard practice for wind farm developments.		
Decomissioning Phase					
MM139			The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential impacts.		

18.2 EIAR Monitoring Measures

Table 18-2 Schedule of Monitoring

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	Drainage Maintenance	EIAR Chapter 4 CEMP Section 4	› An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. › Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. › Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. › Daily inspection and recording of surface water management system by on-site clerk of works and immediate remedial measures to be carried out as required and works temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the Site.	On going	Monthly	Project Hydrologist
MX2	Water Quality and Monitoring	EIAR Chapter 9	› Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of construction at the site.	Once	As Required	Project Hydrologist

		CEMP Section 4	› Analysis will be for a range of parameters with relevant regulatory limits along with Environmental Quality Standards (EQSs) and sampling will be undertaken at designated locations as outlined in Figure 9-5 of the EIAR. › Baseline sampling will be completed on at least two occasions, and these should ideally coincide with low flow and high flow stream conditions. The high flow sampling event will be undertaken after a period of sustained rainfall, and the low flow event will be undertaken after a dry spell.			
MX3	Flora and Fauna	EIAR chapter 6	All setts within 50m of the Proposed Wind Farm infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. All badger survey work will be undertaken in line with current best practice guidance.	Once	As Required	Project Ecologist
MX4	Ornithology	EIAR Chapter 7 Appendix 7-7	› It is proposed that construction works will commence outside the bird breeding season (1st of March to 31st of August inclusive). Pre-commencement surveys will be undertaken prior to the initiation of works at the wind farm. Any requirement for construction works to run into the subsequent breeding seasons following commencement will be subject to further bird surveys, once per month (April to July), to confirm the absence of breeding birds of conservation concern. › Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase survey no works shall be undertaken	Once	As Required	Project Ornithologist

			within a species-specific buffer (as per Forestry Commission Scotland, 2006; Ruddock and Whitfield, 2007; Goodship and Furness, 2022) in line with best practice. No works within the buffer zone shall be permitted until it can be demonstrated that that birds of conservation concern are no longer reliant on the roost/nest site.			
MX5	Sub-Surface Archaeology	EIAR Chapter 13 CEMP Section 4	› Pre-development archaeological testing of the proposed infrastructure in previously undisturbed greenfield areas of the Site will be carried out under licence from the National Monuments Service. This is in order to identify any archaeological features at the earliest stage possible in the project to allow time to deal with any requirements such as preservation in situ (redesign / avoidance) or preservation by record (archaeological excavation). › A report on the testing will be compiled on completion of the work and submitted to the NMS and the Planning Authority.	Once	As Required	Project Archaeologist
Construction Phase						
MX6	Spoil Management	EIAR Chapter 4 CEMP Section 4	› Inspections of the spoil management areas will be made by a Geotechnical Engineer through regular monitoring of the works. The appointed contractor will review work practices at spoil management areas when periods of heavy rainfall are expected so as to prevent excessive dirty water runoff from being generated.	As Required	As Required	Geotechnical Engineer
MX7	Drainage Design	EIAR Chapter 4 CEMP Section 4	› Daily inspection and recording of surface water management system by on-site clerk of works and immediate remedial measures to be carried out as required and works temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the Site.	Daily As Required	As Required As Required	ECoW

			› Check dams are designed to reduce velocity and control erosion and are not specifically designed or intended to trap sediment, although sediment is likely to build up. If necessary, any excess sediment build up behind the dams will be removed. For this reason, check dams will be inspected and maintained regularly to insure adequate performance. Maintenance checks will also ensure the centre elevation of the dam remains lower than the sides of the dam. › Piped drains will be inspected weekly and following rainfall events. Inlet and outlets will be checked for sediment accumulation and blockage.	Weekly	As Required	
MX8	Dust Suppression	EIAR Chapter 4 Appendix 4-5	› In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. If necessary, water will be taken from stilling/settlement ponds in the Proposed Wind Farm site's drainage system and will be pumped into a bowser or water spreader to dampen down haul roads and temporary construction compounds to prevent the generation of dust. Silty or oily water will not be used for dust suppression, because this would transfer the pollutants to the haul roads and generate polluted runoff or more dust. Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.	As Required	As Required	PSCS
MX9	Health and Safety	EIAR Chapter 5 CEMP Section 5	› The PSCS shall monitor the compliance of contractors and others and take corrective action where necessary; and › Notify the Authority and the client of non-compliance with any written directions issued.	Daily	Daily	PSCS
MX10	Biodiversity	EIAR Chapter 6	The responsibilities and duties of the Project Ecologist/Ornithologist will include the following:	As Required	As Required	Project Ecologist

		CEMP Section 4	› Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided. › Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Site. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological 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.			
MX11	Ornithology	EIAR Chapter 7 Appendix 7-7	› Any requirement for construction works to run into the subsequent breeding seasons following commencement will be subject to further bird surveys, once per month (April to July), to confirm the absence of breeding birds of conservation concern. › Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase survey no works shall be undertaken within a species-specific buffer (as per Forestry Commission Scotland, 2006; Ruddock and Whitfield, 2007; Goodship and Furness, 2022) in line with best practice. No works within the buffer zone shall be permitted until it can be demonstrated that that birds of conservation concern are no longer reliant on the roost/nest site.	Once	As Required	Project Ornithologist

MX12	Groundworks	EIAR Chapter 8 CEMP Section 4	Ongoing inspection and monitoring of the development, particularly in temporary stockpile areas, through all phases of construction (including pre, during and post construction) and ensure construction is carried out as specified in the EIAR, NIS and in relevant planning conditions.	Monthly	As Required	Project Geotechnical Engineer
MX13	Drainage Inspections	EIAR Chapter 9 CEMP Section 4	An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs should be undertaken for each primary watercourse and specifically following heavy rainfall events (i.e. weekly, monthly and event based). Inspection sheets and photographic records will be kept on site. Inspection points will include the in-situ field monitoring point locations and the laboratory analysis sampling points. Inspection points will depend on works being completed within the catchment upstream of the identified monitoring locations. Visual inspections will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period and data including photographs will be collected by visual inspections and	Daily	Daily	Project Hydrologist

			independently assessed by the Project Hydrologist who will monitor and advise on the records being received.			
MX14	Water Quality Monitoring	EIAR Chapter 9 CEMP Section 4	The following periodic inspection regime will be implemented: › Daily general visual inspections of site operations and inspections of all watercourses drainage infrastructure within the Site and in the surrounding area by the ECoW or a suitably qualified and competent person as delegated by the ECoW; › Inspections to include all elements of drainage infrastructure to ensure the system is operating correctly and to identify and maintenance that is required. Any changes, such as discolouration, odour, oily sheen or litter will be noted and corrective action will be implemented. High risk locations such as settlement ponds will be inspected daily. Daily inspections checks will be completed on plant and equipment, and whether materials such as straw bales or oil absorbent materials need replacement; › Event based inspections by the ECoW as follows: ○ >10 mm/hr (i.e. high intensity localised rainfall event); ○ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, ○ Rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week). › Monthly site inspections by the Project Hydrologist/ ECoW during construction phase; › Quarterly site inspections by the Project Hydrologist/ ECoW after construction for a period of one year following the construction phase; and, › A written record will be maintained or available on-site within this Construction Environmental Management Plan (CEMP) which will be maintained on-site during the construction phase.	Daily/As Required	Daily/As Required	Project Hydrologist

MX15	Turbidity Monitoring	EIAR Chapter 9 CEMP Section 4	Turbidity monitors or sondes can be installed where required at locations surrounding the Site. The sondes will provide continuous readings for turbidity levels in the watercourse. This equipment will be supplemented by daily visual monitoring at identified locations.	Daily	Daily	ECoW
MX16	Water Quality Monitoring	EIAR Chapter 9 CEMP Section 4	› During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs should be undertaken for each primary watercourse, and specifically following heavy rainfall events (i.e. weekly, monthly and event based). › Field chemistry measurements of unstable parameters, (pH, conductivity, temperature) will be taken at the surface water monitoring locations, as per water monitoring programme for the Proposed Project and each primary watercourse along the Proposed Grid Connection underground cabling route. These analyses will be carried out by either the ECoW or the Project Hydrologist. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.	As Required	As Required	ECoW
MX17	Pre-Emptive Site Drainage Management	EIAR Chapter 9 CEMP Section 4	The works programme for the initial construction stage of the Proposed Wind Farm site will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast. The following forecasting systems are available and will be used on a daily basis at the Site to direct proposed construction activities:	Daily	As Required	Project Hydrologist

			› General Forecasts: Available on a national, regional and county level from the Met Eireann website (www.met.ie/forecasts). These provide general information on weather patterns including rainfall, wind speed and direction but do not provide any quantitative rainfall estimates; › MeteoAlarm: Alerts to the possible occurrence of severe weather for the next 2 days. Less useful than general forecasts as only available on a provincial scale; › 3-hour Rainfall Maps: Forecast quantitative rainfall amounts for the next 3 hours but does not account for possible heavy localised events; › Rainfall Radar Images: Images covering the entire country are freely available from the Met Eireann website (www.met.ie/latest/rainfall_radar.asp). The images are a composite of radar data from Shannon and Dublin airports and give a picture of current rainfall extent and intensity. Images show a quantitative measure of recent rainfall. A 3-hour record is given and is updated every 15 minutes. Radar images are not predictive; and, › Consultancy Service: Met Eireann provide a 24-hour telephone consultancy service. The forecaster will provide interpretation of weather data and give the best available forecast for the area of interest. Using the safe threshold rainfall values will allow work to be safely controlled (from a water quality perspective) in the event of forecasting of an impending high rainfall intensity event. Works should be suspended if forecasting suggests either of the following is likely to occur: › >10 mm/hr (i.e. high intensity local rainfall events);			

			› >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, › >half monthly average rainfall in any 7 days. Prior to works being suspended the following control measures should be completed: › Secure all open excavations; › Provide temporary or emergency drainage to prevent back-up of surface runoff; and, › Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.			
MX18	Reactive Site Drainage Management	CEMP Section 3	› In line with the requirements of the EIAR, the final drainage design prepared for the Proposed Project prior to commencement of construction will provide for reactive management of drainage measures. 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 or supervising hydrologist on-site. The contractor is solely responsible for the implementation of the detailed drainage design on site. The ECoW is responsible for monitoring the effectiveness of the drainage design as it is implemented on-site. The ECoW or supervising hydrologist will respond to changing weather, ground or drainage conditions on the ground as the Proposed Project proceeds, to ensure the effectiveness of the drainage design is maintained in so far as is possible. This may require the installation of additional check dams, interceptor drains or swales as deemed necessary on-site. The drainage design may have to be modified on the ground as necessary, and the modifications will draw on the various features outlined	As Required	As Required	ECoW

			above in whatever combinations are deemed to be most appropriate to situation on the ground as a particular time. › In the event that works are giving rise to siltation of watercourses, the ECoW or supervising hydrologist will stop all works in the immediate area around where the siltation is evident. The source of the siltation will be identified and additional drainage measures such as those outlined above will be installed in advance of works recommencing.			
MX19	Rainfall Monitoring	CEMP Section 3	› Accurate forecasting and monitoring of rainfall is critical to the successful pre-emptive and reactive site drainage management as outlined in the subsections above. › Rainfall forecasts will be obtained for the nearest forecast reference point available via the www.yr.no weather forecasting website. The reference location will be that of Belclare, Co. Galway. › Construction personnel will be required to check the forecasted rainfall for the days ahead and plan for or suspend planned works accordingly. The forecasted rainfall should be recorded for reference and comparison with the rainfall levels to be recorded on-site. › Actual rainfall will be monitored on site, ideally via an automated rain gauge with regular recording intervals recommended by the Project Hydrologist and a means of alerting the construction personnel of rainfall trigger levels. The recorded rainfall data should be available on site at all times for review by the ECoW, Project Hydrologist or any regulatory authorities. The appointed contractor will be required to outline their proposed means of recording rainfall on site to the satisfaction of the ECoW and the Project Hydrologist prior to commencement of work.	Daily	Daily	PSCS

MX20	Drainage	EIAR Chapter 9 CEMP Section 4	› Regular inspections of all existing and installed drainage measures should be undertaken by the Project Contractor, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water within the system. The contractor will devise a system of recording the findings of these inspections. Any excess build-up of silt levels at check dams, the settlement ponds, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. For this reason, the drainage measures installed on-site should be inspected at least weekly by the contractor and maintained as required during the construction phase of the Proposed Project to ensure good performance. › The ECoW will monitor the effectiveness of the on-site drainage during changing weather, ground or drainage conditions encountered on site, through their regular visual inspections of on-site watercourses and water monitoring programme. Where it appears that additional drainage measures will be required to ensure the drainage system remains effective, the ECoW will notify the contractor, the developer and project design team including the Project Hydrologist. The ECoW's role in this regard does not replace the need for the weekly (at least) inspections of the drainage system's measures by the Project Contractor.	Monthly	Monthly	ECoW
MX21	Plant and Equipment Inspections	EIAR Chapter 9 CEMP Section 4	› The plant used will be regularly inspected for leaks and fitness for purpose.	As Required	Monthly	ECoW
MX22	Noise and Vibration	EIAR Chapter 12	Due to the potential for significant construction noise impact effects at sensitive receptors within 25m of the existing road upgrades and			

			Proposed Grid Connection underground cabling route, specific monitoring measures are provided. This included the implementation of monitoring typical levels of noise and vibration during critical periods and at sensitive locations.			
MX23	Traffic and Transport	CEMP Section 3	› The designated public roads outside the Site and along the main transport routes to the Site will be regularly inspected by the ECoW for cleanliness, and cleaned as necessary	Daily	Monthly	ECoW
MX24	Archaeology	EIAR Chapter 13 CEMP Section 4	› Archaeological monitoring will be carried out under licence from the National Monuments Service (NMS) along the relevant sections of the Proposed Grid Connection underground cabling route where the latter extends through the ZoN for monuments GA043-088—, GA057-134— and GA057-102—. › A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority. › Further mitigation such as preservation in situ (avoidance), preservation by record (excavation) may be required depending on the results of the monitoring. › Any archaeological sites/features, if detected, during archaeological monitoring will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same.	As Required	As Required	Project Archaeologist
Operational Phase						
MX25	Drainage Inspections	CEMP Section 3	The Project Hydrologist will inspect and review the drainage system after construction has been completed to provide guidance on the requirements of an operational phase drainage system. This operational phase drainage system will have been installed during the construction phase in conjunction with the road and hardstanding construction work as described in Section 4.6 of the EIAR.	Monthly	Monthly	Project Hydrologist

			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.			
MX26	Water Monitoring	EIAR Chapter 4 CEMP Section 4	› Monthly water sampling and laboratory analysis will be undertaken for the first six months following completion of construction works. › Quarterly site inspections by the Project Hydrologist/ ECoW for a period of one year during the operational phase.	Monthly for month 1-6	Monthly for month 1-6	Project Hydrologist
MX27	Bats	EIAR Chapter 6 Appendix 6-2	In accordance with NatureScot and NIEA Guidance, a minimum 50m buffer to all habitat features used by bats (e.g., hedgerows, tree lines etc.) should be applied to the siting of all wind turbines. However, Eurobats No. 6 guidance and NIEA recommends increased buffers of 100m and 200m around woodland/forestry areas, however, there is no scientific evidence to support these increased buffer distances in the UK. NatureScot recommends that a distance of 50m between turbine blade tip and nearest woodland (or other key habitat features) is adequate mitigation. This 50m buffer will be implemented from the outset and monitored as per the post-construction monitoring. The success of the buffer mitigation will be assessed as part of post construction monitoring and updated where necessary. The formula provided in Section 6.1.3 of the Bat Report (Appendix 6-2) is presented to provide appropriate mitigation in relation to bats, and the relevant input required from turbine parameters, is the combination of the blade length and hub height. The turbine model to be installed on the Site will have an overall ground-to-blade tip height of 185m, rotor diameter of 163m, and hub height of 103.5m. The minimum bat buffer required for the Site is therefore 87.12m from the centre of the turbine.	1 year Post Construction	After 1 year of Post construction Monitoring	Project Ecologist

MX28	Bats	EIAR Chapter 6 Appendix 6-2	› To assess the effects of the Proposed Wind Farm on bat activity, at least 3 years of post-construction monitoring is proposed. Post-construction monitoring will include static detector surveys, walked survey transects and corpse searching to record any bat fatalities resulting from collision. › The results of post-construction monitoring shall be utilised to assess any potential changes in bat activity patterns and to monitor the implementation of the mitigation strategy. At the end of Year 1, and if a curtailment requirement is identified (i.e. significant bat fatalities encountered), a curtailment programme, in line with relevant guidelines, will be devised around key activity periods and weather parameters, as well as a potential increase in buffers. › At the end of each year, the efficacy of the mitigation and monitoring plan will be reviewed, and any identified efficiencies incorporated into the programme. This approach allows for an evidence-based review of the potential for bat fatalities at the Site, post construction, to ensure that the necessary measures, based on a new baseline post-construction, are implemented for the protection of bat species locally. The effectiveness of any mitigation/curtailment needs to be monitored in order to determine (a) whether it is working effectively (i.e. the level of bat mortality is incidental), and (b) whether the curtailment regime can be refined such that turbine down-time can be minimised whilst ensuring that it remains effective at preventing casualties. › Section 6.2.1 of the Bat Report (Appendix 2) provides detail with regard to the monitoring to be carried out in years 1,2 and 3 and includes bat activity surveys and carcass searches.	Years 1,2,3	Annually	Project Ecologist

			Lighting › With regard to the potential for lighting to increase collision risk, it is noted that there will be limited illumination of the turbines in the form of aviation lighting. Post construction monitoring will be carried out to assess any potential changes in bat activity patterns and collision risk. Significant effects as a result of lighting are not anticipated; however, if in the course of this monitoring, any potential for significant effects on bats is identified, the site-specific mitigation measures will be reviewed and any changes necessary will be implemented to avoid any such impacts.			
MX29	Biodiversity	EIAR Chapter 6 Appendix 6-4	› A site-specific monitoring and evaluation programme is necessary to ensure that the success of the habitat creation remains long-term. It may also assist in situations where the grassland creation has not been successful by providing evidence of shortcomings, allowing a revised management plan to be formulated. › Monitoring will be carried out once per year during Year 1, Year 2 and Year 3 of implementation of this Plan, which will include the species-rich grassland establishment phase set out in Appendix 6-4. › Monitoring will be carried out on a yearly basis until the grassland has been sufficiently established and has given consistent results for 3 consecutive years after the establishment phase. Once the grassland has been successfully established, monitoring can be carried out every other year (years 5, 7 and 10 post-establishment). During this time the Project Ecologist will ascertain whether the establishment methodology needs to be adapted, for example through additional green hay transfer or seed harvesting.	Year 1, 2, 3, 5, 7, 10	Annually	Project Ecologist

			› The enhancement plan will be regularly updated and amended where necessary to improve the efficacy of the enhancement work. The number of monitoring plots may change depending on the results of the initial surveys.			
MX30	Ornithology	EIAR Chapter 7 Appendix 7-	Operational monitoring will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm, following SNH (2009) guidance. The surveys that will be undertaken are: › Flight activity surveys: vantage point surveys › Breeding bird surveys: Adapted Brown & Shepherd › Targeted bird collision surveys (corpse searches) will be undertaken by a trained dog and handler. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust. **Vantage Point Surveys** Vantage point surveys will be undertaken monthly during operational years 1, 2, 3, 5, 10 and 15 of the lifetime of the Proposed Wind Farm. The methodology for vantage point watches will follow guidelines issued by the NatureScot (SNH, 2009) and NatureScot (SNH, 2017). The proposed vantage point watches will adhere to a minimum of 36 hours/VP per season as per guidelines issued by NatureScot. During monitoring years, monthly visits will be undertaken for twelve months commencing at the beginning of breeding or non-breeding season: depending on which comes first. During each visit, six-hour vantage point watches (with a 30-minute break after the first three hours) will be undertaken from each fixed vantage point location that offers an uninterrupted view of the study area. Vantage points will be undertaken from the same locations as	Years 1, 2, 3, 5, 10 and 15	Years 1, 2, 3, 5, 10 and 15	Project Ornithologist

			pre-planning surveys which informed the EIAR (i.e., VPs 1 and 2). The adequacy of the vantage point viewsheds will be monitored throughout the lifetime of the wind farm. Vantage point surveys will be timed to provide a spread over the full daylight period including dawn and dusk watches to coincide with the highest period of bird activity. Behavioural categories for the observation of bird interactions with operational wind farms will be in line with the terminology outlined by Meredith *et al.*, (2002). **Distribution and Abundance Surveys** › Breeding Walkover Survey During monitoring years, post-construction breeding walkover surveys will follow the adapted Brown & Shepard survey methods. The survey methodology will be similar to methods employed for baseline EIAR surveys which will allow a comparison of data to be made for each monitoring year. The timing of visits will follow the recommendations of Calladine *et al.* (2009). Transects should ensure all areas of suitable breeding/ foraging habitat are approached to within 100m. Target species will include waders, raptors, waterbirds, gulls and other birds of conservation concern. Along with target species, all additional species observed will be recorded to inform the evaluation of supporting habitat. These surveys will follow the same routes that were followed during pre-planning surveys. A total of four site visits will be undertaken during the breeding season for each monitoring year and timed to coincide with the core breeding period of April - July. Notes will be recorded on nesting and territorial behaviour and breeding signs using standard BTO			

			codes. Non-breeding behaviour such as birds flying over the site will also be recorded. › Collision Monitoring Carcass searches for bird casualties as a result of collision with turbines will follow survey methods broadly based on guidelines issued by the NatureScot (SNH, 2009) and search methods adopted by Duffy and Steward (2008). The Proposed Wind Farm will be visited once per month during operational Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm. It is proposed to undertake a minimum of one visit per month during each survey year by a trained dog and handler. During each visit, searches will be undertaken at each operating turbine location by a trained dog and handler. Edkins (2014) “Impacts of Wind Energy Developments on Birds and Bats: Looking into The Problem”, recommends the "search width should be equal to the maximum rotor tip height”. Given a turbine rotor tip height of 185 meters the search area surrounding the base of the turbine would be taken as a diameter of 185 meters centred on the turbine base. This area will be the subject of target searches for bird casualties. Searches will incorporate the use of transects spaced at 10m intervals apart with the observer covering 5m on either side for each transect. Locations and coordinates of transect routes will be confirmed using a portable GPS recording device. Recording sheets will be used to document bird carcasses encountered in the field. If a bird carcass is found, the following details will be recorded: GPS location of each bird carcass, photographic record, carcass condition (intact - carcass that is completely intact or not badly composed); scavenged (evidence that the carcass was fed upon by a scavenger/predator); or feather spot (ten or more feathers indicating predation or scavenging or two or more primary feathers must be			

			present to consider the carcass a casualty), distance from the turbine, date, time, etc.. Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog team to find bird carcasses and the likelihood of scavenging of corpses by animals. This is done to ensure a more accurate estimation of the total number of collision victims. During carcass removal trials, a carcass is placed in a study area periodically and is monitored for a set number of days or until scavengers remove the carcass (this can be done with the use of a trail camera). A determination on carcass removal is made when no body parts containing flesh or bone or >10 disarticulated feathers can be found. During searcher efficiency trials, a number of carcasses are placed in a study area by one worker, then searched for by another worker with the dog. These may be conducted on the same day as surveys are carried out to avoid flooding the area with carcasses and increasing scavenger activity. The result of these trials provides a correction factor that can be applied to the results of the carcass searches.			
MX31	Noise and Vibration	EIAR Chapter 12 CEMP Section 4	An operational noise survey will be undertaken to ensure compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of the Proposed Wind Farm being commissioned. If an exceedance of the noise criteria is identified as part of the commissioning assessment, the guidance outlined in the IOA GPG, specifically Supplementary Guidance Note 5: *Post Completion Measurements* (July 2014) will be followed, and relevant corrective actions taken. For example, implementation of noise reduced operational modes resulting in curtailment of turbine operation can be implemented for specific turbines in specific wind conditions to ensure predicted noise levels	Once within six months	As Required	Noise Consultant

			are within the relevant noise criterion curves/planning conditions limits. Such curtailment can be applied using the wind farm SCADA system without undue effect on the wind turbine performance. Following implementation of these measures, noise surveys will be repeated to confirm compliance with the noise criteria.			
Decommissioning Phase						
MX32	Decommissioning	DP Section 1	As noted in the Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013) reinstatement proposals for a wind farm are made approximately 30 years in advance, so within the lifespan of the wind farm, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore: *"best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm".* In this regard, the Decommissioning Plan (DP) will be reviewed and updated prior to commencement of decommissioning works to take account of the relevant conditions of the planning permission and current health and safety standards at the time of decommissioning. The DP will be agreed in writing with the Planning Authority prior to the commencement of the decommissioning phase.	End of Operational Life	As Required	Developer Appointed/ Contractor
MX33	Decommissioning	DP Section 3	The ECoW will maintain responsibility for monitoring the decommissioning works and Contractors/Sub-contractors from an environmental perspective. The ECoW will act as the regulatory interface on environmental matters. The Site Manager will be	End of Operational Life	As Required	Site Manager/ ECoW

			responsible for reporting to and liaising with Galway County Council and other statutory bodies as required.			
MX34	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.	End of Operational Life	As Required	Site Manager/ ECoW
MX35	Decommissioning	DP Section 3	The Site Manager will take steps to ensure the sourcing of suitably clean soil material and verify the quality of the material by having it inspected prior to bringing it to site by a suitably qualified ecologist. Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the Site to identify invasive species where any minor excavation will be required. If present in these areas, the ecologist will propose suitable management measures.	End of Operational Life	As Required	Project Ecologist
MX36	Health and Safety	DP Section 4	› Report on Site activities to include but not limited to information on accidents and incidents, disciplinary action taken and PPE compliance; › Monitor the compliance of contractors and others and take corrective action where necessary; and › Notify the Authority and the client of non-compliance with any written directions issued.	End of Operational Life	As Required	PSCS
MX37	Birds	EIAR Chapter 7	Decommissioning surveys will be undertaken prior to the initiation of decommissioning works at the Proposed Wind Farm site. The survey will aim to identify sensitive sites (e.g. nests or roosts). Any requirement for decommissioning works to run into the subsequent breeding season following commencement will be subject to a repeat of the pre-commencement bird surveys to confirm the absence of breeding birds of conservation concern once per month during the breeding season (April to July). The survey will aim to identify sensitive sites e.g., nests or roosts depending on the season in	End of Operational Life	As Required	Project Ornithologist

			question. Any requirement for decommissioning works to run into subsequent winter seasons following the commencement of works will be subject to a repeat of the decommissioning bird surveys. Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas. If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase no works shall be undertaken, works will cease within a species-specific buffer of this location (Forestry Commission Scotland, 2006; Goodship and Furness, 2022; Ruddock and Whitfield, 2007) in line with best practice. No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.			