APPENDIX 18.1

MITIGATION MEASURES

Introduction

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

All mitigation which will be implemented during the various phases of the Project are presented in **Table 18.1a** below. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

- Land Use
- Tourism
- Flora and Fauna
- Spoil Management
- Pollution Prevention
- Site Drainage
- Telecoms and other service interference
- Health and Safety
- Shadow Flicker
- Noise
- Waste
- Cultural Heritage
- Traffic

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the Project. The proposal for site inspections and environmental audits are set out in the Construction and Environmental Management Plan (CEMP) which is included as **Appendix 2.1** of this EIAR. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

All monitoring measures which will be implemented during the pre-commencement, construction, operational and decommissioning phases of the Project are outlined in **Table 18.1b**. All monitoring measures were set out in the relevant chapters of this EIAR. The monitoring proposals are presented in terms of the monitoring requirement, frequency of

monitoring and the mechanism for reporting results where applicable. By presenting the monitoring proposals in the below format, it is intended to provide a monitoring schedule that can be reviewed and tracked during all phases of the Project to ensure all required monitoring is completed as required.

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

Table 18.1a: Summary of Mitigation Measures

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
Pre-Construction Phase						
MM1	Health and Safety	**Chapter 5: Population and Human Health**	5.5.7 Accidents/Disasters (incorporating Health & Safety)	The construction, operation and Decommissioning of the Project shall be managed in accordance with the Safety, Health and Welfare at Work Act 2005 (as amended), the Safety, Health and Welfare at Work (General Application) Regulations 2007 (as amended), and the Safety Health and Welfare at Work (Construction) Regulations 2013 (as amended). As required under the Safety, Health and Welfare at Work (Construction) Regulations 2013, the Developer shall appoint a Project Supervisor for the Design Process (PSDP) and a Project Supervisor for the Construction Stage (PSCS). The PSDP shall compile a Preliminary Safety and Health Plan (PSHP), which details general information about the Project and envisaged health and safety risks. The PSHP shall be made available to the PSCS. The PSCS shall develop a Construction Stage Health and Safety Plan (CSHSP) which incorporates the information contained in the PSHP and details how safety and health will be managed during the construction of the Project. The PSCS may also develop the following documents during the pre-construction phase of the Project, for implementation during the construction phase: • Construction and Environmental Management Plan (updated from the outline CEMP in **Appendix 2.1**) • Emergency Response Plan • Detailed Traffic Management Plan		
MM2	Health and Safety	**Chapter 5: Population and Human Health**	5.5.7 Accidents/Disasters (incorporating Health & Safety)	The PSDP shall see that the General Principles of Prevention, outlined under the safety design advice provided by the Health and Safety Authority (HSA), are taken into account for all designs relating to the project.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM3	Flora and Fauna	**Chapter 7: Ornithology**	7.1.16 Mitigation for Avifauna	A Project Ecologist/Ecological Clerk of Works (ECoW) with appropriate experience and expertise (in implementing ecological mitigation measures for wind farm developments) will be employed for the duration of the construction phase to ensure that all the mitigation measures outlined in relation to the environment are implemented. The Project Ecologist/ECoW will be awarded the authority to stop construction activity if there is potential for significant adverse ecological effects to occur.		
MM4	Flora and Fauna	**Chapter 7: Ornithology**	7.1.16 Mitigation for Avifauna.	Subject to other environmental concerns (e.g., run-off), the removal of vegetation and scrub as well as trimming of trees along the TDR and general wind farm area will be undertaken outside of the bird breeding season (March 1st to August 31st inclusive). This will help protect nesting birds. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt, A. L. and Langston, R. H., 2006).		
MM5	Telecoms and other service interference	**Chapter 12: Material Assets and Other Issues**	12.4 Electricity Networks Mitigation Measures	Mitigation by design and avoidance will minimise impacts on existing electricity networks. • Confirmatory drawings for all existing services will be sought upon consultation with ESB Networks. • Immediately prior to construction taking place, the area where excavation is planned will be surveyed by CAT scan (sub-surface survey technique to locate any below-ground utilities) and all existing services will be verified. Temporary warning signs will be erected. • The as-built location of the installed ducts will be surveyed and recorded using a total station/GPS before the trench is		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				backfilled to record the exact location of the ducts. The co-ordinates will be plotted on as-built record drawings for the grid connection cable operational phase. • Clear and visible temporary safety signage will be erected all around the perimeter of the live work area to visibly warn members of the public of the hazards of ongoing construction works.		
MM6	Telecoms and other service interference	**Chapter 12: Material Assets and Other Issues**	12.6 Air Navigation Mitigation Measures	Although no potential effects were identified, the following mitigation measures proposed by the Irish Aviation Authority (IAA) and Department of Defence will be implemented: • An aeronautical lighting scheme for the Proposed Development will be agreed with the IAA and will be installed. • As-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location will be provided to the IAA. • The IAA will be notified of intention to commence crane operations with at least 30 days prior notification of their erection. • Single turbine, structures or turbines delineating the windfarm will be illuminated by Type C, Medium Intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and will be operational H24/7days a week. Obstacle lighting will be incandescent or of a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity will be of similar value to that emitted in the visible spectrum of light.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM7	Land Use	**Chapter 12: Material Assets and Other Issues**	12.7 Quarries Mitigation Measures	• Existing tracks have been used where possible and the layout was designed to minimise the length of new track required in order to reduce the requirement for such stone material. • Local quarries have been identified to reduce impact on transportation (Please see **Chapter 14: Traffic and Transportation)**. • The source quarry will be chosen based on stone which is chemically similar to that occurring at the Proposed Development. This will reduce hydrogeochemical impacts. (Please see **Chapter 8: Soils and Geology**)		
MM8	Waste	**Chapter 12: Material Assets and Other Issues**	12.8 Utilities Mitigation Measures	**Staff Facilities** Provision for separation of waste streams will be provided so that e.g., paper, and cardboard waste and bottles may be recycled. **Sewage** It is proposed to install a rainwater harvesting system as the source of water for toilet facilities for the operational phase. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank. All wastewaters will be tankered off-site (subject to agreement with Uisce Éieann) by a licensed waste collector to the nearest wastewater treatment plant namely, the Balllingeary Water Treatment Plant, which is located approximately 7.3 km north of the Proposed Development. There will be no on-site treatment of wastewater and effects will be not significant. ***Concrete*** During the construction phase: • Precast concrete will be used wherever possible i.e., formed offsite. Elements of the Proposed Development where precast		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				concrete will be used have been identified and are indicated in the CEMP. Elements of the Proposed Development where the use of precast concrete will be used include structural elements of watercourse crossings (single span / closed culverts) as well as Cable Joint Bays. Elements of the Proposed Development where the use of precast concrete is not possible include the turbine foundations and joint bay pit excavations. Where the use of precast concrete is not possible the below mitigation measures will apply. • The acquisition, transport and use of any cement or concrete onsite will be planned fully in advance and supervised at all times. • Vehicles transporting such material will be relatively clean upon arrival onsite, that is; vehicle wheels will be washed/rinsed, removing cementitious material leaving the source location of the material. There will be no excess cementitious material on vehicles which could be deposited on trackways or anywhere else onsite. To this end, vehicles will undergo a visual inspection prior to being permitted to drive onto the proposed site or progress beyond the contractor's yard. Vehicles will also be in good working order. • Any shuttering installed to contain the concrete during pouring will be installed to a high standard with minimal potential for leaks. Additional measures will be taken to ensure this, for example the use of plastic sheeting or other sealing products at joints. • Concrete will be poured during meteorological dry periods/seasons. This will reduce the potential for surface water run off being significantly affected by freshly poured concrete. This will require limiting these works to dry meteorological conditions i.e. avoid foreseen sustained rainfall (any foreseen rainfall event longer than 4-hour duration) and/or any foreseen		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				intense rainfall event (>3 mm/hour, yellow on Met Eireann rain forecast maps). Work should not proceed during any yellow (or worse) rainfall warning issued by Met Eireann. This also will avoid such conditions while concrete is curing, in so far as practical. • Ground crew will have a spill kit readily available, and any spillages or deposits will be cleaned/removed as soon as possible and disposed of appropriately. • Pouring of concrete into standing water within excavations will be avoided. Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place. • Temporary storage of cement bound sand (if required) will be on hardstand areas only where there is no direct drainage to surface waters and where the area has been bunded e.g., using sand-bags and geotextile sheeting or silt fencing to contain any solids in run-off. • No surplus concrete will be stored or deposited anywhere onsite. Such material will be returned to the source location or disposed of off-site appropriately. A concrete washings area will be located at the egress from the Site. Upon implementation of the above mitigation measures, the effects of the construction of the Proposed Development are considered to be not significant.		
MM9	Cultural Heritage	**Chapter 13: Cultural Heritage**	Section 13.5.1 Construction Phase	A pre-construction programme of archaeological test trenching of the locations of turbines, Turbine Handstands, Site Access Tracks, Onsite Electrical Substation and Control Building, Temporary Construction Compound, borrow pit and Met Mast within the Proposed Development will be carried out by a suitably qualified		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				archaeologist under a licence issued by the National Monuments Service. Due to the presence of a high number of known archaeological sites within the environs of the Project the appointed archaeologist will also carry out archaeological monitoring of construction phase ground works within all areas of the Proposed Development as well as along the GCR and at TDR Location 7, which is within the environs of a the recorded location of a wedge tomb (CO093-052002-) in Inchincurka townland. In the event that any sub-surface archaeological features are identified during these site investigations they will be recorded by the appointed archaeologist and then securely cordoned off in situ while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation in situ (by avoidance) or preservation by record (archaeological excavation). Any archaeological features identified by the appointed archaeologist that will be preserved by avoidance will be securely cordoned off for the duration of the construction phase and clearly signed as a 'No Entry Area'. The appointed archaeologist will also supervise the establishment of fenced off buffer zones extending 20 m from the outer edges of the known archaeological sites within the Proposed Development in advance of the commencement of the construction phase. Where sections of the existing trackway within the Proposed Development extend within 20 m of recorded archaeological sites then the edge of the construction areas will be fenced off at these locations under the supervision of the appointed archaeologist. All fenced off areas within the environs of known archaeological sites will be clearly signed as 'No Entry Areas' for the duration of the construction phase and their locations will be identified to onsite personnel during site inductions. No ground reduction works or other ancillary		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				development works including, but not limited to, drainage/services, spoil storage, traffic/parking, compounds, or landscaping/planting, will occur within the archaeological exclusion areas.		
Construction Phase						
MM10	Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourse during Watercourse Crossings	The Proposed Development has been designed to ensure that an adequate buffer zone is provided for between this infrastructure and watercourses. In addition, the design has sought to minimise the requirement for new watercourse crossings. This has been achieved by restricting the need for watercourse crossing to a total of one bridge crossing of a headwater of the Shehy Beg Stream within the Site, and two new culvert crossings of headwaters of the Gortloughra and Shehy Beg Streams. The buffer zone implemented between all large-scale infrastructure associated with the Site, such as turbines, Turbine Hardstands, and access tracks are located at distances of over 50 m from any watercourses, except for where the access track crosses watercourses the minor stream headwaters. In addition, the best practice construction measures that are described above are designed to avoid impacts on areas that are outside the site including watercourses. A Surface Water Management Plan (SWMP) has been prepared for the Proposed Development and this plan ensures the implementation of a suite of measures that will avoid negative impacts to water quality and the hydrological regime of the Gortloughra, Shanacrane East and Shehy Beg Streams and the higher order Bandon River and Owvane River downstream.		
MM11	Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourse during Watercourse Crossings	At the Site, three no. new watercourse crossing will be constructed. The required crossing will be a crossing of the small stream headwater of an Un-named Stream, one crossing of the second order Shehy Beg Stream and one crossing of a first order tributary		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				of the Shehy Beg. The following measures provide for the planning and consideration of this watercourse as part of the overall approach to watercourse crossing to ensure potential impacts are adequately mitigated. • The proposed crossing location will be situated relatively near the headwaters of the Shehy Beg Stream and two no. minor first order tributaries. As a result, bridge/culvert specification and construction are envisaged to be of relatively low significance in terms of expected flow and culvert diameter. The following design measures have been implemented for the watercourse crossing to ensure any potential impacts of the proposed watercourse crossing are minimised: • The design of the proposed crossing and a method statement for the proposed construction will be agreed in advance with Inland Fisheries Ireland (IFI) • Crossings have been designed to minimise, in so far as practical, the disturbance or alteration of water flow, erosion and sedimentation patterns and rates • Vehicles and plant used in the construction of the proposed crossing will only be refuelled at the Site's bunded and designated refuelling area, no refuelling will be permitted within 50 m of any watercourse at the Site • To mitigate against the potential risk of accidental leaks or spillages from plant and equipment the following measures will be implemented: Multiple spill kits will be maintained on the Site at all times within the cabs of vehicles and placed strategically at environmentally sensitive locations across the Site. Spill kits will be routinely inspected to ensure that they are fully stocked with oil absorbent booms and pads at all times. Oil absorbent booms will be installed downstream of channel crossing work areas within 25 m of the works location prior to the commencement of works.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM12	Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses during Horizontal directional drilling	The following mitigation measures to reduce potential impacts associated with horizontal directional drilling (HDD) will be implemented: • Clearbore, which is not toxic to aquatic organisms and is biodegradable will be the drilling fluid used. • Mud mixing will be monitored to suit the ground conditions encountered. • The drilling fluids will be constantly monitored, any changes required to the mix will be performed on site by a specialised HDD Contractor upon consultation with the drilling fluid supplier and Environmental Clerk of Works. • Mud testing equipment will be available at all times during drilling operations to monitor key mud parameters. • All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages. • Spill kits, including an appropriate hydrocarbon boom will be available on the site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use. • All plant, materials and wastes will be removed from site following the HDD works. • The launch pit will be reinstated to the original land surface condition and the normal duct trench will continue from this point. • Should any dewatering be required, it will be carried out in accordance with the CEMP provided in **Appendix 2.1**. • Test pits and boreholes will not be located directly on, or extend through, the proposed alignment, as these weak points may serve as conduits where inadvertent fluid returns or frac outs could occur. At least a 3m offset will be provided between the boreholes and pipe alignment.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM13	Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses during Horizontal directional drilling	The following measures will be implemented at launch and receptor pits to ensure that the excavation, preparation and works undertaken at these pits do not pose a risk to the water quality of the Caha River and other watercourses to be crossed via horizontal directional drilling: • All launch pits and reception pits for horizontal directional drilling under watercourses will be buffered back from watercourses at a minimum distance of 20 m. The launch pit for the proposed electrical cable route crossing under the section of the Caha River within the Bandon River SAC, will be located to the west of the existing local road and Bridge crossing in the townland of Neaskin. The reception pit will be positioned along the road to the east of the river in the townland of Ardcahan. The launch pit will be buffered from the Caha River by a minimum distance of 20 m. The reception pit will be buffered from the river bank by a minimum distance of 20 m. The location of the launch and receptor pits on level ground a minimum distance of 20 m from the Caha River will provide sufficient buffering between the reception pit and the river to ensure that there is no potential for the discharge of silt-laden or otherwise contaminated materials from the reception pit to the river. All spoil arisings from all launch pits and reception pits at the proposed Grid Connection Route Option A watercourse crossings will be stored in bunded areas to prevent the runoff of silt-laden runoff from the spoil to watercourses. All spoil material will be reused to reinstate the launch pits and reception pits. Pumps will be available at the launch and receptor pits. The pumps will be powered by diesel fuel and will be stored in a secure bunded area. The pumps will be used to pump any standing water from the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				pits during works. A lay flat hose will be positioned within the pit and pooling surface water will be pumped from the pit via the lay flat over adjacent vegetated surfaces. Under no circumstances will the lay flat outfall be directed to an existing drainage ditch or the watercourse being crossed via horizontal directional drilling. The discharge of the surface water to vegetated ground will allow for discharge to ground and will retard overland flows in the direction of the watercourse being crossed. Continuous monitoring of drilling fluid/mud pressure will be undertaken by the drill technician during all drilling. The drill technician in turn will be supervised by the drill supervisor and all horizontal directional drilling will be monitored by the project Ecological Clerk of Works (ECoW). The continuous monitoring will ensure that in the event of a change in pressure due to a blockage, the technician will be immediately alerted to this change and will cease drilling operations. This will prevent drill fluid/mud from breaking out through an alternative path of least resistance and will prevent such materials from breaking out to the river. The avoidance of a breakout depends primarily on the experience of the drilling personnel and reliable, accurate drilling records interpreted in relation to the geotechnical information available. The drilling personnel will be suitably qualified and experienced to complete the works. Boreholes will be completed at all HDD locations as part of the Site Investigations works to be completed during the detailed design phase. Trends during the pilot drilling will be monitored and tracked so as to maximise the chances of accurately establishing a point where the formation is causing drilling fluid losses. The volume of drilling mud entering and returning from the bore will be constantly monitored by the drill operating staff. Staff will be especially vigilant for any loss of volume of drill mud returns, which would indicate the escape of drilling mud from the bore.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				At the location a number of measures can be implemented as follows: • Pump drilling fluid with a higher density into the formation. • Circulate and pump organic lost circulation materials (LCM) into the loss zone to physically seal the fracture. Lost circulation occurs when drilling fluid, flows into one or more geological formations instead of returning to the launch area. • Grout the loss zone; and/or • Launch a packer before the loss zone. A packer is a mechanical device sent down the hole to the area of concern. It is designed for blocking the system for sealing grout to set. All of the above options will be prepared and made available for application during the HDD works.		
MM14	Health and Safety	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses during Horizontal directional drilling	All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages. In order to minimise any risk of pollution in the first instance. Spill kits, including an appropriate hydrocarbon boom will be available on the site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use. It is noted that, given the separation distances between the launch pit and reception pit for the crossing under the Caha River that the potential for the release of hydrocarbons to the Caha River will be extremely unlikely. In addition to the supervision of drilling the project ECoW will be required to supervise the set-up and reinstatement of all launch pits and reception pits at all watercourse crossings to ensure that all		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				measures required to protect water quality and instream habitats are properly implemented. In addition to the horizontal directional drilling method provided under separate cover, a detailed method statement for the crossing of watercourses will be prepared in advance of all crossings and will be submitted to the NPWS and IFI for agreement prior to the commencement of works. All drilling fluids and spent drill mud will be prepared and returned within a closed drilling train. All spent mud will be discharged from the closed drilling train to an impermeable bunded container and will be removed from site for disposal at an appropriately licenced facility. All fuels, lubricants and hydraulic fluids for equipment used during horizontal directional drilling will be stored in securely bunded containers and will not be carried to within 10 m of any watercourse. All measures detailed in the SWMP and CEMP prepared for the project to protect water quality will be implemented during horizontal directional drilling works. An Emergency Response Plan has been prepared as part of the project's CEMP and all measures detailed therein will be implemented in the event of an emergency.		
MM15	Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Important Habitats	The Proposed Development will result in the loss of c. 0.3 Ha of Annex I quality wet heath habitat as well as other areas of overgrazed wet heath, heath mosaic and a discrete area of fragmented spur blanket bog. Areas of habitat loss amounts for the latter are set out in **Table 6.14** above. It is essential that the direct		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				loss of wet heath and other heath mosaic and spur blanket bog habitat is fully minimised and so mitigation by avoidance is essential to limit such losses within the footprint of the Proposed Development, and its zone of influence. Mitigation in this respect is: • The full extent of the infrastructure footprint will be marked out prior to the commencement of works, with an appropriately robust and visible fencing / marker system. Where this meets Annex I habitats, this will also be the full extent of the works corridor, with no machinery access (access will only be allowed on foot and only for the purposes of silt / pollution control if required), storage or other works allowed outside this area. • The efficacy and coherence of the marker system (and required remediation) will form an essential part of the Site operations. • A pre-construction Invasive Species Survey will be conducted during the optimal growing season (May to August immediately prior to works occurring at this site for the Proposed Development) and shall include data on all locations, extents and potential construction impacts in relation to scheduled and non-scheduled Alien Invasive Species (IAS). This survey will be completed along with reporting on the best course of action to be implemented to avoid the spread of such IAS on the Site or further afield. The management of IAS identified as occurring within the Site will be undertaken in accordance with best practice management guidelines as set out in the TII guidelines "The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads" (2010).		
MM16	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Important Mammal Species	The Ecological Clerk of Works for the construction phase will complete a pre-construction survey of the construction footprint to confirm the continued absence of mammal breeding and resting places within the construction footprint and within 50 m of the construction footprint or identify the presence of newly established		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				breeding/resting places. Based upon the results of these surveys, the ECoW will establish whether or not there is a need at that stage for the implementation of further mitigation measures and the requirement for protected species licences. An example of where such a need could arise is where a badger sett becomes established along or in the immediate vicinity of a hedgerow that will be intersected by the proposed access track.		
MM17	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Bats	The existing bridge crossing of the headwater of the Shehy Beg Stream to the southwest of T06 will be upgraded with a new bridge crossing. This existing bridge structure was surveyed for its potential to support roosting bats and found to have limited potential with no evidence indicating its use as a roost site by bats. Notwithstanding the result of the baseline surveys, this bridge structure will be surveyed in advance of works to confirm the findings of the baseline surveys and the continued limited potential for this structure to function as a roost site for bats.		
MM18	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Kerry Slug	In order to avoid the potential for mortality to Kerry Slug the ECoW will complete checks for the presence of Kerry Slug in areas of suitable habitat occurring within the construction footprint of the wind farm. In the event that slugs found to be present, they will be transferred to suitable habitat in landholding away from the construction footprint. Such on-going monitoring of suitable habitat within the construction footprint will continue throughout the construction phase. Such monitoring will be undertaken during periods of wet weather when slugs are most active and feeding on the surface and therefore at greater risk of impacts by movement of machinery. The transfer of Kerry Slugs will be subject to a derogation licence from the NPWS.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM19	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Herpetofauna	The Ecological Clerk of Works for the construction phase will complete a survey of the construction footprint during spring (late February / March / early April) ahead of the proposed works in order to identify any key amphibian breeding areas. This will allow wildlife barriers to be installed where necessary to minimise impacts upon such features where these are likely to be indirectly affected by the works.		
MM20	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses, Fisheries & Freshwater Pearl Mussel	An Ecological Clerk of Works ("ECoW") will be employed from the commencement to completion of construction works, including access tracks, On-site Substation and Control Building, Temporary Construction Compound, Turbine Hardstands and Turbine Foundations and Wind Farm Internal Cabling works at a minimum. Primary roles for the ECoW will include the setting out and monitoring of the working corridor and review of pollution control measures and working practices during the active construction period as well as ad hoc input into site remediation. For the construction of culverts, all activities must adhere to IFI, (2016) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters. Section 9 Planning, Design and Construction Issues details on Best Practice guidance for the installation of culverts on watercourses. All measures outlined in the accompanying SWMP will be fully implemented by the contractor and will be agreed to with the planning authority in advance of construction activities. The objective of the SWMP is to prevent pollution to watercourses and adverse impacts to sensitive fauna. The SWMP has provided sufficient detail so that all activities that could potentially lead to negative impacts on water quality have been identified. The SWMP is based upon a detailed understanding of the hydrology, hydrogeology and geology within and surrounding the Proposed Development.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				All watercourses draining the Site will be examined on a repeated scheduled timeframe (i.e. daily/weekly/fortnightly etc.) as deemed appropriate by the Contractor, Planning Authority, NPWS and Inland Fisheries Ireland. A log will be kept of these examinations and a water sampling protocol to monitor key water quality parameters will be established in agreement with the NPWS and Inland Fisheries Ireland. The monitoring protocol will be devised so that sediment release (should it occur) from the Site is detected at an early stage. Sediment release to the above watercourses from the site will be restricted to <25mg/l as per the Salmonid Water Regulations. Method statements outlining the approach to all surface watercourse crossing will be approved in advance with Inland Fisheries Ireland. Disturbance to natural drainage features will be avoided during the construction phase of the Proposed Development. The design of the Proposed Development has allowed for the establishment of a 50 m wide watercourse buffer zone during the construction phase. Uncontaminated surface runoff will be diverted away from construction areas through the installation of interceptor drains up-gradient of construction areas. Drainage waters originating in construction areas will be collected in a closed system and treated prior to controlled, diffuse release. Drainage waters from construction areas will be managed through a series of treatment stages that include swales, check dams and settlement/attenuation ponds along with other pollution control measures such as silt fences and silt mats. A three-stage treatment train will be employed to capture, retain and treat discharges during the construction phase. This treatment train is also proposed for discharges from hard surfaces that will be installed as a result of the Proposed Development. Settlement/attenuation ponds will be used to attenuate and treat runoff. A detailed pre-construction peat stability assessment has		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				considered the appropriate location of settlement/attenuation ponds so that these facilities will not increase the risk of slope failure. These will have permanent open water to minimise the risk of sediment washout. Settlement/attenuation pond side slopes will be constructed at shallow grades such as 1 in 3 side slope. Settlement/attenuation ponds will be designed so that outflows are spread diffusely over a wider area so that increases in run-off can be mitigated. Erosion control and detention ponds will be regularly maintained during the construction phase. Standing water from excavations will not be pumped directly into watercourses. Where dewatering of excavations is required, water will be pumped to the head of a treatment train in order to receive full treatment prior to discharge. Roadside drains will be shallow with moderate gradients to prevent scouring. In steep areas check dams (possibly in conjunction with settlement ponds and / or cross drains) may be necessary to reduce flow rate. Oil fuel will be stored within containment areas and emergency response measures for oil spillage on site will be prepared. Refuelling of plant during construction will be carried out at a designated area, a minimum of 50 m from watercourses. Drip trays and spill kits will be available on site. Maintenance of all plant and machinery will be undertaken off-site. Only emergency break-down maintenance will be carried out on site. Cement will be mixed within containment areas and if Readymix vehicles are used these will be washed in the same area and the water cycled. All vehicles transporting materials to and from the Site will store materials in a contained load so that the potential for emissions or spillage is reduced during journeys and bridge crossing over watercourses. The measures outlined in the UK's Planning Policy Guidance No. 26: Dealing with Spillages on Highways (a Good		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Practice Guidance notes proposed of the UK EA/SEPA/EHS) will be adhered to in the event of a spillage or accident during the transportation of materials. All construction personnel will be trained in pollution incident control response. An emergency response plan has been prepared as part of the CEMP for the Proposed Development and information outlining response procedures and contingency plans to contain pollution, as set out in the CEMP, will be made available on site. Access tracks and turning areas will be confined to areas of shallow peat where possible and will be constructed on a geotextile layer. These areas will also be kept as level as possible to avoid fast run-off. This can be achieved by following contours where possible. At the proposed temporary storage area, impermeable berms will be put in place surrounding the spoil storage receptor area . The berms will be established in advance of the deposition of spoil material. The berms will be designed to account for a bulking factor of 10% of the spoil material to be disposed in these areas.		
MM21	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Prevention of Spread of Invasive Alien Species	The presence of the non-native invasive species *Rhododendron ponticum* and *Prunus laurocerasus* along the TDR and proposed Grid Connection Route Options provides the potential for the spread of this species by the proposed works. These species are invasive and out-compete native flora to form mono-specific stands. Their presence along watercourses is particularly significant, as contaminated soil or vegetative material washed from an infected area can result in the spread of this species downstream. Appropriate mitigation measures including management and control measures are required at all sites within the proposed works area where this species is encountered for the prevention of spread of these species. The mitigation measures for the control of invasive species will follow the TII guideline document *The Management of Invasive Alien Plan Species on National Roads – Technical*		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Guidance (TII, 2020). A summary of the physical and chemical control measures for *Fallopia japonica* are as follows: • Where feasible, preference should be given to treating Japanese knotweed in its original location to limit the risk of further spread of the plant. • Physical methods of IAPS control include cutting, digging or excavating, hoeing and pulling by hand. • Where cut, pulled or mown IAPS material arises, its disposal shall not lead to a risk of further spread • Particular care shall be taken near watercourses as water is an effective conduit for the dispersal of plant fragments and seeds. • particular care is required in relation to the disposal of Japanese and other knotweed species. Where burial is being used to dispose of these species, a non-persistent herbicide shall be applied to the infestation prior to excavation. The material shall then be excavated and subsequently buried to a minimum depth of 5 m. The waste shall be covered with a proprietary root barrier membrane layer and infilled with a minimum 5 m depth of uncontaminated soil. • Any geotextile membranes used for burial must be undamaged, sealed securely, have a manufacturer's guarantee that it will remain intact for at least 50 years, and be UV resistant. Where burial to a depth of 5m is not possible, the infestation shall be treated with a non-persistent herbicide prior to excavation, excavated and then completely encapsulated in a proprietary root barrier membrane cell. The upper surface of the cell shall be buried to a depth of at least 2 m with uncontaminated soil.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required

				• Treat with glyphosate. Glyphosate is a broad-spectrum herbicide and, as such, is potentially damaging to non-target plants.
				• Great care is, therefore, necessary when applying this herbicide
				• effective control of Japanese knotweed may be achieved by biannual (summer and autumn) foliar glyphosate applications or by annual application of glyphosate in autumn (after the flowering period but prior to senescence) using stem injection (at high concentrations) or foliar spray (Jones, et al., 2018).
				• The use of herbicides containing the active ingredients aminopyralid and fluroxypyr are not to be used for stands of Fallopia japonica occurring in close proximity to watercourses and wetland habitats.
				• The application of herbicides and pesticides shall not be undertaken in the following conditions:
				  • Windy weather where there is a risk of spray drift occurring
				  • During or preceding rainfall which can result in the chemical being washed off
				  • During periods of particularly cold weather which can reduce the plant's ability to uptake the chemical
				A summary of the physical and chemical control measures for *Prunus laurocerasus* are as follows:
				• Cutting – anytime of the year. This approach can be very labour intensive and does not kill the plant. Regular follow up is required to deal with re-growth.
				• Uprooting - anytime of the year. Small plants can be pulled by hand while large stems can be cut and the roots grubbed out by winch or machine.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Mulch matting - anytime of the year. This approach can be labour intensive and regular follow up is required to deal with re-growth. • Bud-rubbing – spring to autumn. This approach can be labour intensive and regular follow up is required to deal with re-growth. • Glyphosate – during the active growth in late spring or summer. Spot treatment of stands of *Prunus laurocerasus* on site. • Triclopyr - during the active growth in late spring or summer. Spot treatment of stands of *Prunus laurocerasus* on site. Due to the legislative requirements to control the spread of noxious weeds and non-native invasive plant species, it is important that any activities associated with the planning, construction and operation of wind farm developments comply with the requirements of the Wildlife Acts, 1976-2012. Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) include legislative measures to deal with the dispersal and introduction of Invasive Alien Species (IAS), which are listed in the Third Schedule of the regulations. Regulation 49 deals with the Prohibition on introduction and dispersal of certain species while Regulation 50 relates to Prohibition on dealing in and keeping certain species. The introduction and/or spread of invasive species such as Himalayan Balsam, Giant Rhubarb or Rhododendron for example, could result in the establishment of invasive alien species and this may have negative effects on the surrounding environs. Appropriate spread prevention measures have been incorporated into the design of the project. The following measures address potential effects associated with the construction phase of the project: • Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				species (e.g. Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site. • All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species • All washing will be undertaken in areas with no potential to result in the spread of invasive species. This process will be detailed in the contractor's method statement. • Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. • All planting and landscaping associated with the Development shall avoid the use on invasive shrubs such as Rhododendron.		
MM22	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Prevention of Spread of Invasive Alien Species	Due to the legislative requirements to control the spread of noxious weeds and non-native invasive plant species, it is important that any activities associated with the planning, construction and operation of wind farm developments comply with the requirements of the Wildlife Acts, 1976-2012. Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) include legislative measures to deal with the dispersal and introduction of Invasive Alien Species (IAS), which are listed in the Third Schedule of the regulations. Regulation 49 deals with the Prohibition on introduction and dispersal of certain species while Regulation 50 relates to Prohibition on dealing in and keeping certain species. The introduction and/or spread of invasive species such as Himalayan Balsam, Giant Rhubarb or Rhododendron for example, could result in the establishment of invasive alien species and this may have negative effects on the surrounding environs. Appropriate spread prevention measures have been incorporated into the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				design of the project. The following measures address potential effects associated with the construction phase of the project: • Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site. • All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species • All washing will be undertaken in areas with no potential to result in the spread of invasive species. This process will be detailed in the contractor's method statement. • Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. • All planting and landscaping associated with the Development shall avoid the use on invasive shrubs such as Rhododendron.		
MM23	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of important habitats	A site-specific CEMP will be implemented to ensure that potential adverse impacts to upland watercourses flowing through the site are avoided. Minimum buffer zones will be implemented between areas associated with the construction of Turbine Foundations and streams/eroding gullies, except where stream crossings are required. Within the wind farm site operatives, plant and machinery will be restricted to the footprint of the Proposed Development construction boundary and will not be permitted to encroach upon adjacent lands. This will reduce the potential for damage and disturbance to heath, acid grassland and mosaic habitats.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM24	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses	All elements of the SWMP and the mitigation measures outlined in Chapter 9 to reduce the amount of silt-laden water generated within the construction footprint will be implemented. These measures will include the provision of clean water catch drains upslope of construction areas and the minimisation of excavation footprints and the time excavations and surfaces are left exposed and denuded.		
MM25	Flora and Fauna	**Chapter 7: Ornithology**	7.1.17 Mitigation for Avifauna	Construction operations will take place during the hours of daylight to minimise disturbances to roosting birds, or active nocturnal bird species. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt and Langston, 2006). Limited operations such as concrete pours, turbine erection and installation of the grid connection may require night-time operating hours; these works will be supervised by the project ecologist/ECoW.		
MM26	Flora and Fauna	**Chapter 7: Ornithology**	7.1.17 Mitigation for Avifauna.	Toolbox talks will be undertaken with construction staff on disturbance to key species during construction. This will help minimise disturbance. This is in line with best practice recommendations for mitigation measures with regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt and Langston, 2006). Where/if removed or altered, re-instated hedgerows will be planted with locally sourced native species. This will result in habitat enhancement for local species of conservation importance such as Meadow Pipit. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Royal Society for the Protection of Birds (Drewitt and Langston, 2006). A re-confirmatory survey (March/April) will be conducted of the proposed turbine locations to assess any evidence of target species activity or occupation of new territories (e.g. in the case of breeding Snipe or Red Grouse). Should any nesting locations be recorded, works at these locations will be restricted to outside the breeding season (March 1st to August 31st inclusive) or until chicks are deemed to have fledged (following monitoring).		
MM27	Flora and Fauna	**Chapter 7: Ornithology**	7.1.17 Mitigation for Avifauna.	The use of "white lights" on the turbines will not occur as these can attract night flying birds such as migrants, and insects, which in turn can attract bats. Certain turbines will be illuminated with medium intensity fixed red obstacle lights of 2000 candelas where required by the IAA Lighting will be fitted with baffles to ensure that the light is directed skywards and will not be discernible from the ground.		
MM28	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Subsoil and bedrock removal will occur throughout the construction of the wind farm and is unavoidable. However, the impacts associated with this removal will be minimised using the following practices. Areas of deep peat and shallow bedrock have been avoided during construction by careful design of the wind farm.		
MM29	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Best practice as described in the IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation. All works will be managed and carried out in accordance with the **Construction Environmental Management Plan** (CEMP) located in **Appendix**		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				2.1, which will be updated by the civil engineering contractor and agreed prior to any works commencing on Site.		
MM30	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	The disturbance of soil, subsoil and bedrock is an unavoidable effect of the Proposed Development, but careful design of the Wind Farm layout has been undertaken to ensure that the amount of earth materials excavated is kept to a minimum in order to limit the effect on the geological aspects of the Site (by avoiding areas of deep peat and shallow bedrock where possible and reducing the length of site tracks). The management of geological materials is an important component of controlling dust and sediment and erosion control.		
MM31	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Bedrock will be re-used for construction of Site access tracks wherever possible. The bedrock will comprise predominantly sandstone and siltstone which, when crushed and graded, will provide a good sub-base for Site access track construction. In addition, where excavated, glacial till and gravel will also be re-used for construction of access tracks. Peat, overburden, and rock will be reused wherever possible on Site to reinstate excavated areas. Where possible, the upper vegetative layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the landscaped peat. These measures will prevent the erosion of peat in the short and long term.		
MM32	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	On completion of the construction stage, any areas not required for operation will be reinstated. This will include the Temporary Construction Compound, turning areas and any materials storage areas. Granular material will be removed as required and reinstated with peat or other soils in keeping with the adjacent soils. Drainage		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				will be reinstated, if required, to minimise future erosion of the soils and restore the pre-development state of the environment.		
MM33	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Vehicular movements will be restricted to the footprint of the Proposed Development, particularly with respect to the newly constructed Site access tracks. This ensures that machinery must be kept on tracks and will not move onto areas that are not permitted for the Proposed Development. Vehicular traffic on Site will be reduced through the re-use of excavated material on Site which will reduce the need to source material from external quarries.		
MM34	Spoil Management	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Careful design of the wind farm has reduced the amount of construction required in areas of deep peat, high slopes and other areas of potential ground instability. Additionally, the following mitigation measures will also be applied as recommended in the PSRA (included as Appendix 8.1): • Avoidance of stockpiling on the peat; • Avoidance of peat berms in areas of potential instability (highlighted by low safety ratios); • Additional drainage will be provided in areas of construction; • Avoidance of drains discharging onto areas of weak or deep peat or areas of low safety ratios; and, • Avoidance of blasting. As noted in the PSRA, vehicular access to any areas of deep peat (>1m) during construction will be restricted to low ground pressure vehicles, with all construction vehicles travelling on existing access tracks whenever possible.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM35	Health and Safety	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	The CEMP **(Appendix 2.1**) includes an emergency response to be applied in the event of a landslide or ground instability. In particular, catch fences and other physical barriers (i.e. concrete blocks) will be on Site and available in sufficient quantities to be used in the event of ground instability.		
MM36	Pollution prevention	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	The CEMP (**Appendix 2.1**) includes provision for the checking of assets (plant, vehicles, fuel bowsers) on a regular basis during the construction phase of the Development. The purpose of this management control is to ensure that the measures in place are operating effectively, prevent accidental leakages, and identify potential breaches in the protective retention and attenuation network during earthworks operations.		
MM37	Pollution prevention	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	A fuel management plan is included in the **CEMP** (**Appendix 2.1**) and includes the following elements: • Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water; • Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores; • Ancillary equipment such as hoses, pipes will be contained within the bund; • Taps, nozzles or valves will be fitted with a lock system; • Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage; and, • Only designated trained operators will be authorised to refuel plant on Site.		
MM38	Pollution prevention	**Chapter 8: Soils and Geology**	8.5.2 Mitigation Measures and Residual Impacts	Procedures and contingency plans are proposed to deal with any emergency accidents or spills. In particular an emergency spill kit with oil boom and absorbers will be kept on Site in the event of an		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				accidental spill. All Site operatives will be trained in its use. In addition, all vehicles will also contain emergency spill kits.		
MM39	Spoil Management	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	Mitigation measures to reduce the potential for adverse impacts arising from earthworks and management of spoil include the following: • Management of excavated material will adhere to the measures related to the management of temporary stockpiles outlined in **Chapter 8: Soils and Geology**; • A materials management plan will be established and will form part of the **Construction Environmental Management Plan** with the objective of establishing material balance during the construction phase. This will minimise the potential for excavated materials to be exposed for long durations and becoming vulnerable to entrainment by surface water runoff; • No permanent or semi-permanent stockpiles will remain on the Site during the construction or operational phase of the Proposed Development; • Suitable locations for temporary stockpiles will be identified on an individual basis. The suitability of any particular location will consider Site specific characteristics, including; o The location of drainage networks in the vicinity; o The slope incline and topography of the downgradient area; and, o Any other relevant characteristics which are likely to facilitate or increase the potential for entrainment by surface water runoff. • Construction activities will not be carried out during periods of sustained significant rainfall events, or directly after such events. This will allow sufficient time for work areas to drain excessive surface water loading and discharge rates to be reduced;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Following heavy rainfall events, and before construction works recommence, the Site will be inspected and any required corrective measures implemented; • An emergency response plan will be developed for the construction phase of the Project. The plan, at a minimum, will involve 24-hour advanced meteorological forecasting linked to a trigger-response system. When a pre-determined rainfall trigger level is exceeded such as a very heavy rainfall at >25mm/hr, planned responses will be undertaken. These responses will include cessation of construction until the storm event, including storm runoff has ceased; • Sediment fencing will be erected along proximal and paralleling areas of watercourses, channels and drains spanned by the works to reduce the potential for sediment laden runoff to reach sensitive receptors; • No direct flow paths between stockpiles and watercourses will be permitted at the Site; • Excavated material will be backfilled to the borrow pit as soon as reasonably practicable to prevent long duration storage at the Site which increases the risk of adverse effects on aquatic environments; and, • All mitigation measures related to surface water quality as described throughout this Chapter will be implemented before excavation works commence.		
MM40	Site Drainage	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	Mitigation measures to reduce the potential for adverse impacts arising from dewatering activities include the following: • Management of excavations will adhere to the measures outlined in **Chapter 8: Soils and Geology**. Areas of peat and subsoils to be excavated will be drained if required ahead of excavation works. This will reduce the volumes of water encountered during excavation works and will therefore reduce the volume of water that is required to be dewatered whilst excavations are being carried out;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Engineered drainage and attenuation features outlined in the **Surface Water Management Plan** attached as **Appendix 2.1** will be established ahead of excavation works; • Dewatering pumping rates will be controlled by an inline gate valve or similar infrastructure which will facilitate a reduction of loading on the receiving environment, thus enhancing the attenuation and settlement of suspended solids; • The direct discharge of dewatered loads to surface waters will not be permitted under any circumstances; • All dewatering will follow a strict procedure of pumping to a settlement tank and then to a dewatering bag, or settlement ponds prior to discharging to the receiving environment for overland flow; • Geofabric lined settlement ponds will buffer the runoff discharging from the drainage system which will reduce the hydraulic loading to watercourses. Settlement ponds will be designed to reduce flow velocity to 0.3 m/s at which velocity silt settlement generally occurs. In areas of the Site where the placement of settlement ponds is not feasible, other mitigation measures described below will be implemented; • Check dams will be constructed across drains and will reduce the velocity of runoff which will in turn promote settlement of solids upstream of potential surface water receivers. An additional benefit of check dams is that they will reduce the potential for erosion of drains. Rock filter bunds may be used for check dams, wood or hay bales can also be used if properly anchored. It is recommended that multiple check dams are installed, particularly in areas immediately down gradient of construction areas; • Overland flow paths of the final dewatered discharge will be maximised to the greatest practical extent to avoid prematurely draining to drainage channels or surface		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				waters. This approach will allow for enhanced settling out of suspended solids entrained in the runoff; • All pumps, tanks, settlement ponds, dewatering bags and check dams used in the dewatering process will be regularly inspected and maintained as necessary to ensure surface water runoff is appropriately treated; • Sediment fencing will be installed up gradient of water courses which may receive the final overland flow; • The final treated dewatered discharge will be directed towards heavily vegetated areas to allow for further natural filtration of suspended solids; • A programme of water quality monitoring will be implemented during the construction phase which is outlined in detail in **Section** Error! Reference source not found.; • No extracted or pumped water will be discharge directly to the surface water network associated with the Site (this in accordance with the *Local Government (Water Pollution) Act 1977* as amended); and, • Any discharges of sediment treated water should meet the requirements of the *Surface Water Regulations 2009*, as amended.		
MM41	Site Drainage & Pollution prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The following mitigation measures to reduce potential impacts from the release of suspended solids to the surface waters will be implemented: • Collector drains and soil berms will be implemented to direct and divert surface water runoff from construction areas such as temporary stockpiles into established settling ponds, buffered discharge points and other surface water runoff control infrastructure. The planning and placement of these control measures will be of fundamental importance, especially for the areas where works within the 50m buffer zone will be unavoidable which is discussed in **Section** Error! Reference source not found.;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Sediment control fences will be implemented significantly upgradient of potential receiving waters and as part of the drainage network. Sediment control fences will also be established upgradient of the Sites pre-existing natural and artificial drains in addition to degraded areas of peat that are likely to receive surface water runoff. This practice will reduce the potential for elevated suspended solids entrained in surface water runoff to discharge to surface waters; • Multiple silt fences will be used in drains discharging to the surface water network. This will be especially important for the areas where works within the 50m buffer zone will be unavoidable which is discussed in **Section 9.5.1.2**; • The drainage, attenuation and other surface water runoff management systems will be installed prior to the commencement of construction activities. Whenever possible, drainage and attenuation control measures will be installed during seasonally dry conditions to limit the potential for sediment laden runoff to discharge to surface waters during the installation of these measures; • Surface water runoff will be discharged to land via buffered drainage outfalls that will contain hard core material of similar composition to the geology of the bedrock at the Site. This mitigation measure will promote the capture and retention of suspended sediment; • Buffered drainage outfalls also promote sediment percolation through vegetation in the buffer zone, reducing sediment loading to adjacent watercourses and avoiding direct discharge to the watercourse; • Buffered drainage outfalls will be placed outside of the 50m buffer zone and will not be positioned in areas with extensive erosion and degradation; • A relatively high number of discharge points will be established to decrease the loading on any one particular outfall;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Discharging at regular intervals mimics the natural hydrology by encouraging percolation and by decreasing individual hydraulic loadings from discharge points; • A site-specific CEMP appended to the EIAR in **Appendix 2.1** has been developed which mandates regular inspections and maintenance of pollution control measures. Contingency measures outlining urgent protocols to repair or backup any breaches of designed mitigation measures are incorporated into the site-specific CEMP; • In the event that mitigation measures are failing to reduce suspended solids to acceptable levels, construction works will cease until remediation works are completed; • If fine solids or colloidal particles are very slow to settle out of waters, coagulant or flocculant will be used to promote the settlement of finer solids prior to discharging to surface water networks. Flocculant gel blocks can be placed in drainage channels, these are passive systems that are self-dosing, self-limiting and are environmentally friendly. Flocculant gel blocks bind elevated levels of silt and associated contaminants into masses that are easily separated, captured and then removed from the water; and, • Surface water runoff controls will be checked and maintained on a regular basis and as soon as any signs of deterioration become visible. Surface water runoff controls, check dams and settlement ponds will be maintained and emptied on a regular basis and as soon as any signs of deterioration become visible.		
MM42	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The following mitigation measures to reduce potential impacts associated with horizontal directional drilling will be implemented: • Clearbore, which is not toxic to aquatic organisms and is biodegradable will be the drilling fluid used; • Mud mixing will be monitored to suit the ground conditions encountered and will initially be based on a mud		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				programme developed by the specialised HDD Contractor, the drilling fluid supplier and an Environmental Clerk of Works; • The drilling fluids will be constantly monitored, any changes required to the mix will be performed on site by a specialised HDD Contractor upon consultation with the drilling fluid supplier and Environmental Clerk of Works; • Mud testing equipment will be available at all times during drilling operations to monitor key mud parameters; • All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages; • Spill kits, including an appropriate hydrocarbon boom, will be available on the site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use; • All plant, materials and wastes will be removed from site following the HDD works; • The launch pit will be reinstated to the original land surface condition and the normal duct trench will continue from this point; • Should any dewatering be required, it will be carried out in accordance with the site-specific CEMP; and, • Test pits and boreholes will not be located directly on, or extend through, the proposed alignment, as these weak points may serve as conduits where inadvertent fluid returns or frac outs occur. At least a 3m offset will be provided between the boreholes and pipe alignment.		
MM43	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The following mitigation measures to reduce potential impacts from the environmental release of hydrocarbons and other harmful chemicals to the surface waters will be implemented: Refuelling of vehicles will be carried out off-site to the greatest practical extent. This refuelling policy will mitigate the potential for		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				impacts by avoidance. Due to the remote location nature of the Site, it is unlikely that implementation of this refuelling policy will be practical in all circumstance. In instances where refuelling of vehicles on Site is unavoidable, a designated and controlled refuelling area will be established at the Site. The designated refuelling area will enable low risk refuelling and storage practices to be carried out during the works. The designated refuelling area will contain the following attributes and mitigation measures as a minimum requirement: The designated refuelling area will be located a minimum distance of 50m from any surface waters or Site drainage features; • The designated refuelling area will be bunded to 110% volume capacity of fuels stored at the Site; • The bunded area will be drained by an oil interceptor that will be controlled by a pent stock valve that will be opened to discharge storm water from the bund; • Management and maintenance of the oil interceptor and associated drainage will be carried out by a suitably licensed contractor on a regular basis; • Any oil contaminated water will be disposed of at an appropriate oil recovery plant or licensed tip site; • Any minor spillage during this process will be cleaned up immediately; • Vehicles will not be left unattended whilst refuelling; • All machinery will be checked regularly for any leaks or signs of wear and tear; and, • Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place with all staff properly briefed. Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner. Notwithstanding the management of refuelling and fuel storage at the designated refuelling area, the potential risk of hydrocarbon		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				spills from plant and equipment or other general chemical spills at other areas of the Site remains. To mitigated against potential spills at other areas of the Site, the following mitigation measures will be implemented: • Oil absorbent booms and spill kits will be available adjacent to all surface water features associated with the Development. The controls will be positioned downstream of each construction area and at principal surface water drainage features. Oil booms deployed will have sufficient absorbency relative to the potential hazard; • Spill kits will also be available at construction areas such as at turbine erection locations, the Temporary Construction Compound, Onsite Substation and Control Buildings and Met Mast location etc.; • Spill kits will contain a minimum of oil absorbent pads, oil absorbent booms, oil absorbent granules, and heavy-duty refuse bags for collection and appropriate disposal of contaminated matter; • Should an accidental spill occur during the construction or operational phase of the Proposed Development, such incidents will be addressed immediately, this will include the cessation of works in the area of the spillage until the issue has been resolved; • Spill kits will be kept in each vehicle at the Site and will be readily available to all operators; • No materials, contaminated or otherwise will be left on the Site; • Suitable receptacles for hydrocarbon contaminated materials will also be available at the Site; and, • A detailed spill response plan will be prepared as part of the site-specific CEMP. Implementation of the above mitigation measures will significantly reduce the risk of hydrocarbon contamination being released to the surface water network. Nevertheless, the potential risk cannot be		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				entirely eradicated. Therefore, precautionary measures and emergency response protocols will be established and outlined in the site-specific CEMP appended to the EIAR in **Appendix 2.1**.		
MM44	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The following mitigation measures to reduce potential impacts posed by the use of concrete and the associated effects on surface water in the receiving environment are recommended: • The procurement, transport and use of any cement or concrete will be planned fully in advance and supervised by appropriately qualified personnel at all times; • Vehicles transporting cement or concrete to the Site will be visually inspected for signs of excess cementitious material prior to being granted access to the Site. This will prevent the likelihood of cementitious material being accidentally deposited on the Site access tracks or elsewhere at the Site. • Drivers of such vehicles will be instructed to ensure that all vehicles are washed down in a controlled environment prior to the departure of the source Site, such as at concrete batching plants; • Precast concrete will be used wherever possible, although the use of pre-cast concrete is not a viable option for large structures such as turbine foundations and so concrete will be delivered to the Site; • Concrete will not be poured during periods of rainfall or if any kind of precipitation is forecast. This policy will limit the potential for freshly poured concrete to adversely impact on surface water runoff; • Raw or uncured waste concrete will be disposed of by removal from the Site; • Washout of concrete trucks shall be strictly confined to the batching facility and shall not be located within the vicinity of watercourses or drainage channels. Only the chutes will be cleaned prior to departure from Site, and		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				this will take place at a designated area at the Temporary Construction Compound; • Spill kits will be readily available to Site personnel, and any spillages or deposits will be cleaned up immediately and disposed of appropriately; • Pouring of concrete into standing water within excavations will be avoided; • Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place; • Any surplus concrete will not be stored or deposited anywhere on Site and will be returned to the source location or disposed of appropriately at a suitably licensed facility; and, • Any required shuttering installed to contain the concrete during pouring will be fully secured around its perimeter to minimise any potential for leaks.		
MM45	Site Drainage	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	A detailed design stage assessment in terms of culvert design will be carried out that will have cognisance to crossing locations including the characteristics of water flow at these locations. The following mitigation measures are recommended as minimum requirements to ensure that any potential impacts of the proposed watercourse crossings are minimised: • The design of the proposed crossings and a method statement for the proposed construction will be agreed in advance with Inland Fisheries Ireland (IFI); • The design of all crossings will adhere to relevant available guidance and will be reviewed through consultation with the OPW which will mitigate against any significant impact on surface water flow and in turn the risk of localised or downstream flooding; • Crossings will be designed to minimise in so far as practical and to the extent deemed acceptable by the competent		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				authority, the disturbance or alteration of water flow, erosion and sedimentation patterns and rates; • A **Construction Environmental Management Plan** has been prepared and is appended to the EIAR in **Appendix 2.1**. Adherence to this plan, which will be mandatory throughout the construction of the watercourse crossings, details of the culvert design and construction methodology, including the environmental risk/s involved which have been identified and assessed in this EIAR will be included in the CEMP at the detailed design phase. Detailed site-specific mitigation measures and best practice techniques will be contained in the construction management plan and Risk Assessment Method Statement (RAMS) for any proposed crossings of small unmapped drainage channels; • Vehicles used in the construction of small drain crossings will only be refuelled at the Site's bunded and designated refuelling area. No refuelling will be permitted within 50m of any watercourse at the Site; and, • To mitigate against the potential risk of accidental leaks or spillages from plant and equipment, an emergency response plan for such incidents is contained in the CEMP appended to the EIAR in **Appendix 2.1**. Multiple spill kits will be maintained on the Site at all times within the cabs of vehicles and placed strategically at environmentally sensitive locations across the Site. Spill kits will be routinely inspected to ensure that they are fully stocked with oil absorbent booms and pads at all times. Oil absorbent booms will be installed downstream of channel crossing work areas within 25m of the works location, prior to the commencement of works. Section 50 of the *European Communities (Assessment and Management of Flood risks) Regulation SI 122 of 2010* states; *"No Person, including a body corporate, shall construct any new bridge or alter, reconstruct, or restore any existing bridge over any watercourse without the Consent of the Commissioners or*		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				otherwise than in accordance with plans previously approved of by the Commissioners". The same regulations also state that the word "*bridge*" includes a culvert or other like structure. The OPW is the agency in Ireland responsible for the implementation of the regulations and consent to construct all crossings will firstly be sought from the OPW via their application process. This OPW application and consent process will mitigate against the potential for the design of the crossings to result in significant adverse impacts on the surface water network at the Site. Relevant guidance documents will also be consulted, and applicable mitigation measures incorporated at the detailed design stage of the proposed crossings with a view to mitigating and reducing any potential impact on the receiving watercourse. The following is a non-exhaustive list of relevant guidance documents: • OPW (2013) Construction, Replacement, or Alteration of Bridges and Culverts, A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945; • OPW (2019), Environmental Guidance: Drainage Maintenance and Construction; • Inland Fisheries Ireland (IFI) (2016) Guidelines on the Protection of Fisheries During Construction Works in and Adjacent to Waters; • National Roads Authority (NRA) (2008) Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes; and, • Scottish Environment Protection Agency (SEPA) (2010) Engineering in the water environment: good practice guide – River Crossings.		
MM46	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	In order to mitigate against potential groundwater contamination by hydrocarbons, implementation of the following mitigation measures is recommended:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• In the first instance, no fuel storage should occur at the Site whenever feasible and refuelling of plant and equipment should occur off-site at a controlled fuelling station; • In instances where on-site refuelling is unavoidable, then the bunded on-site designated refuelling area must be used. The designated refuelling area must be bunded to 110% volume capacity of fuels stored at the Site; • The bunded area will be drained by an oil interceptor that will be controlled by a pent stock valve that will be opened to discharge storm water from the bund; • Management and maintenance of the oil interceptor and associated drainage will be carried out by a suitably licensed contractor on a regular basis; • Any oil contaminated water will be disposed of at an appropriate oil recovery plant or licensed tip Site; • Any minor spillage during this process will be cleaned up immediately; • Vehicles will not be left unattended whilst refuelling; • A site-specific CEMP appended to the EIAR in **Appendix 2.1** will be enforced to ensure that equipment, materials, and chemical storage areas are inspected and maintained as required on a regular basis; and, • The mitigation measures outlined for the protection of surface waters as set out in **Section** Error! Reference s ource not found. will be also implemented which will inadvertently serve to protect groundwater from potential hydrocarbon contamination. The following mitigation measures are recommended in relation to non-hydrocarbon potential contamination of groundwater: • All other liquid-based chemicals such as paints, thinners, primers and cleaning products etc. will be stored in locked and labelled bunded chemical storage units; • Temporary sanitation facilities such as portaloos used during the construction phase will be self-contained and		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				supplied with water by tank trucks. Portaloos will contain water storage tanks and separate wastewater storage tanks which will be routinely emptied by vacuum removal for offsite disposal via a tank truck. All temporary sanitation facilities will be removed from the Site following the completion of the construction phase; • The controlled attenuation of suspended solids in settlement ponds and check dams etc. will result in inorganic nutrients (if present in elevated concentrations) such as phosphorus and nitrogen being absorbed and retained by the solids in the water column. This will allow for a reduction of peak inorganic discharges in a controlled and stable runoff rate. It is noted that the presence of elevated contaminants were not detected during any of the surface water quality monitoring rounds which are discussed in **Section** Error! Reference source not found.; • It is considered that there is a low risk of mobilising trace metals that may naturally be present in low concentrations in the Baseline environment. The potential for mobilising trace metals is most likely to result from enhanced water percolation associated with excavated bedrock substrate. To mitigate against this potential impact, water quality should be monitored for trace metal concentrations prior to, during and after the construction phase; • The potential for livestock such as sheep which have been observed grazing at the Site to cause bacteriological contamination of groundwater will be controlled through the implementation of strict grazing control zones, site perimeter fencing and exclusion zones around all open excavations; and, • The mitigation measures outlined for the protection of surface waters as set out in **Section** Error! Reference s ource not found. will be also implemented which will inadvertently serve to protect groundwater from potential non-hydrocarbon contamination.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM47	Site Drainage	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The following Site monitoring recommendations should be implemented to mitigate against potential impacts on the surface water and groundwater receiving environment: • A programme of water quality monitoring outlining the selected parameters and monitoring frequency should be agreed with Inland Fisheries Ireland and Cork County Council prior to the commencement of construction; • In order to assist in the detection of any deviations from the Baseline hydrochemistry conditions at the Site, regular periodic monitoring of the surface waters on Site should be carried out prior to and during construction; • It is proposed that a programme of operational phase water quality monitoring is also implemented at a monitoring frequency agreed with the competent authority in order to aid the detection of any potential operational phase impacts on surface water quality; • As a minimum requirement, field-measured parameters such as pH, conductivity, total dissolved solids (TDS), temperature, dissolved oxygen (DO) and turbidity will be included in the water quality monitoring programme. The results should be compared to the applicable EQS to determine if adverse impacts on water quality are occurring; • It is also recommended that laboratory analyses for parameters such as total suspended solids, nitrogen, phosphorous, biochemical oxygen demand and trace metals etc. is implemented during and after the construction phase; • Water quality monitoring locations will include both upstream and downstream points relative to the works locations. The locations of the water quality monitoring points will be flexible and will be moved as the construction phase progresses so that monitoring points remain representative of the most likely construction impact receptor points; • The downstream monitoring locations will be positioned as close as possible downstream of the works location and		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				another positioned further downstream. This approach will allow for an assessment of the dilution of potential contaminations (if present) as the distance from the point of diffuse source location increases; • Watercourses which do not have year-round flows such as artificial drains, ditches or ephemeral streams will be avoided as water quality monitoring locations; • During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps, buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed; • During the construction phase of the Proposed Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots; • Following the completion of the construction phase, silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the operational phase water quality monitoring will also be carried out; • Any proposed crossings of small unmapped drains discussed in **Section** Error! Reference source not found. w ill be monitored daily during construction and during each Site visit during the operational phase. These small culvert crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity to identify any signs of erosion or potential for sediment release; • It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated before each use by a qualified Environmental Clerk of Works; and,		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Any discharges of sediment treated water should meet the requirements of the *Surface Water Regulations 2009*, as amended.		
MM48	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	Mitigation measures outlined in the previous sections of this chapter will significantly reduce the potential for contamination of surface water or groundwater associated with the Site. Nevertheless, as is the case with all construction projects, a risk of accidental chemical spillages, sediment overloading of control measures or leaks of contaminants from plant or equipment remains a possibility. Emergency response procedures to potential contamination incidents are contained in the site-specific CEMP appended to the EIAR in **Appendix 2.1** and will be implemented at the Site prior to the commencement of the construction phase. The following is a non-exhaustive list of potential emergencies and respective emergency responses: • Spill or leak of hazardous substances (less than 20 litres); ○ All spill incidents will be dealt with immediately as they arise; ○ Spill kits will be prepared and available in vehicles associated with the construction phase of the Development; ○ Spill kits will also be prepared and made available at primary work areas such as at proposed Turbine, Hardstand, Onsite Substation and Control Buildings, Met Mast, borrow pit and Temporary Construction Compound locations; ○ Disposal receptacles for hydrocarbon contaminated materials will also be available at the Site; • Major spill of hazardous or toxic substance off-site or to environmentally sensitive areas; ○ Immediate escalation measures will be implemented for all major spill events;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				○ Escalation measures may include installation of temporary sumps or drains to control the flow or migration of hydrocarbons or other chemicals; ○ Attempts to be made to limit or contain the spill using sandbags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill; ○ Excavation and disposal of contaminated material should be immediately carried out following any such incidents; ○ Evacuation procedures will be implemented to remove non-essential personnel from the area; ○ Data gathering and an investigation should commence immediately after the emergency is contained; ○ If a significant hydrocarbon spillage does occur, the contractor on behalf of the developer must have an approved and certified clean-up consultancy available on 24-hour notice to contain and clean-up the spill; and, ○ All major spills of this nature will be reported to the competent authority immediately following such instances. • Flooding of low-lying areas of the Site; ○ Immediately remove all chemicals, fuels and other hazardous substances from low-lying areas of the Site; ○ Immediately remove plant and equipment from low-lying areas; ○ Recover materials washed from Site including sediment and other waste; ○ Review and address the potential for excess water entering the Site; and, ○ Review and maintain erosion and sedimentation controls. • Spills of cementitious material;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				○ Cement / concrete contamination incidents will be cleaned up immediately as they arise; ○ Spill kits will also be established at key construction areas, and they will also be readily available in the cabs of plant and equipment; and, ○ Suitable receptacles for cementitious materials will also be available at the Site. Emergency responses, including methodologies and all relevant contact details are specified in the site-specific CEMP appended to the EIAR in **Appendix 2.1**.		
MM49	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	The residual impact on the surface water receiving environment resulting from the construction phase of the Proposed Development is anticipated to be a limited temporary decrease in water quality. A limited temporary decrease in water quality may arise due to a release of suspended solids and sediments to surface waters during excavations. The potential for release of elevated suspended solids is likely to be exacerbated following heavy rainfall events which occur after sustained dry periods. Any localised reduction in water quality is likely to be mitigated against by the extensive control measures outlined in this chapter and by natural dilution as distance from the point or diffuse source of contamination increases with distance from the Site. Mitigation by avoidance and the implemented of physical control measures will ensure that contaminant concentrations, particularly elevated suspended solids entrained in runoff are reduced to below the relevant legislative screening criteria and adopted EQS. The overall impact is anticipated to be a direct, negative, imperceptible, imperceptible weighted significance and temporary		
MM50	Noise	**Chapter 10: Noise**	10.5 Mitigation Measures and Residual Effects	General guidance for controlling construction noise through the use of good practice given in BS 5228 will be followed. Construction and Decommissioning of the Proposed Development shall be limited to		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				working times given and any controls incorporated in any planning permission.		
MM51	Cultural Heritage	**Chapter 13: Cultural Heritage**	Section 13.5.1 Construction Phase	The construction phase will entail the introduction of an area of fill on the south side of a section of an existing trackway to be used as a Site Access Track in order to reduce the gradient of an area of steeply sloping ground adjacent to the existing trackway. The south end of the fill area is located within the environs of Enclosure CO093-078003- and hut sites CO093-078001-, CO093-078002- and CO093-078004-. A securely set protective barrier will be established at the south end of the fill area within the environs of these sites under the supervision of the appointed archaeologist who will also monitor this work. The protective barrier will be set on the existing ground surface and will not require any excavation works within the environs of the enclosure and hut sites. The appointed archaeologist will also carry out ongoing inspections of the recorded archaeological sites within the boundary of the Proposed Development for the duration of the construction phase in order to confirm that no destabilisation of extant remains is occurring due to any potential vibration effects. In the event that any such effects are noted, works in the environs of the archaeological site will be halted while the National Monuments Service are consulted in order to determine appropriate additional mitigation measures. A small sheep paddock feature of negligible cultural heritage value was noted adjacent to the T7 hardstand during the field survey of the Proposed Development (**Table 13.11**). The appointed archaeologist will compile a written and photographic record of this feature in advance of construction works at this location.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				The Project is partially located within the Múscraí Gaeltacht area and any signage erected within Gaeltacht areas of the public realm during the construction phase will include Irish and English text.		
MM52	Traffic	**Chapter 14: Traffic and Transportation**	14.4 Mitigation Measures	Although no long-term significant effects have been predicted, the proposed mitigation measures have been incorporated into the design to maintain the highest standard of road safety, minimise delay and disruption to all public road users, and to comply with statutory regulations: • Prior to delivery of abnormal loads i.e. turbine components, the Applicant or their representatives, will consult with An Garda Síochána, TII, PPP operators and all relevant Local Authorities to obtain all necessary abnormal load permits and discuss the requirement for a Garda escort. The Applicant will also outline the intended timescale for deliveries and efforts can be made to avoid peak times such as school drop off times, church services, peak traffic times where it is considered this may lead to unnecessary disruption, and abnormal loads may travel at night and outside the normal construction times as may be required by An Garda Síochána. Local residents at sensitive locations along the affected route will be notified of the timescale for abnormal load deliveries. • Prior to delivery of abnormal loads, the Applicant or their representatives, will consult with TII, PPP operators and all Local Authorities through which the abnormal loads will pass and agree the specification for any enabling works to be carried out on the Turbine Delivery Route. • Prior to the delivery of turbine components, a survey of the Turbine Delivery Route will be undertaken to identify if any overhead lines or height restrictions at toll booths will need to be lifted along the route to allow abnormal loads such as tower sections and nacelles to be delivered.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Prior to the delivery of turbine components, a trial run shall be carried out between the Port of Cork and the Proposed Development entrance using an abnormal load vehicle with a retractable load gauge to determine that abnormal load vehicles can transverse the route without undue delay and disruption to public road users. • During the construction and Decommissioning phases, road works signs in accordance with the requirements of Chapter 8 of the Traffic Signs Manual will be erected at all the Proposed Development entrance and at all locations on the Grid Connection route and Turbine Delivery Route which are being modified to facilitate turbine delivery. Details of signage are given in the Traffic management plan in Appendix 14.2. • Wheel cleaning equipment will be used at all site entrance with the public road to prevent any mud and/or stones being transferred from Site to the public road network. All drivers will be required to see that their vehicle is free from dirt and stones prior to departure from the Site. • To reduce dust emissions, vehicle containers/loads will be covered during both entrance and egress to the Site where required. • All dust generating activities will be minimised where practical during windy conditions, and drivers will adopt driving practices to minimise the creation of dust. Where conditions exist for dust to become friable, techniques such as damping down of the potentially affected areas may be employed. • Access to the construction site will be controlled by on Site personnel and all visitors will be asked to sign in and out of the Site by security/Site personnel on entering and exiting the site. • All Site visitors will undergo a Site induction covering Health and Safety issues at the Contractor's temporary compound		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				and will be required to wear appropriate Personal Protective Equipment (PPE) while onsite. • A condition survey of the road network in the vicinity of the site entrances will be carried out and agreed with Cork County Council prior to any works being carried out on site. • All works on the public road network will be carried out using an approved road opening licence and traffic management plan. • All wind farm vehicles shall have roof mounted flashing beacons when working on the public road network or will use their hazard lights within the Site. • A speed limit of 25 km/h shall apply to all vehicles within the Site.		
MM53	Spoil Management	**Natura Impact Statement (NIS)**	7.1 Mitigation Measures – Wind Farm Site Works	Mitigation measures to avoid the potential for adverse impacts arising from earthworks and management of spoil will comprise: • Management of excavated material will adhere to the measures related to the management of temporary stockpiles as set out in Section 6.2 below. • No permanent or semi-permanent stockpiles will remain on the Site during the construction, decommissioning or operational phase of the Development. Any surplus spoil remaining at the end of the construction phase will be taken off site and disposed of at a licence waste facility. • Construction activities will not be carried out during periods of sustained heavy rainfall events[1], or directly after such events. This will allow sufficient time for work areas to drain excessive surface water loading and discharge rates to be reduced.		

[1] As per the Met Office National Meteorological Library and Archive Fact Sheet 3 – Water in the atmosphere (Met Office, 2012) a heavy rainfall event for: rain (other than in showers) is assigned to an event where rates of accumulation are greater than 4mm/hour; and for rain showers is assigned to an event where rates of accumulation are >10mm/hour.

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Following heavy rainfall events, and before construction works recommence, the Site will be inspected to confirm that conditions are suitable for construction activities to recommence. • An emergency response plan (ERP) has been prepared as part of the CEMP and SWMP for the project, both of which are provided under separate cover as part of the planning application documentation associated with the EIAR. All measures outlined in the ERP will be implemented throughout the construction phase of the project. This plan includes for 24-hour advance meteorological forecasting linked to a trigger-response system. When a pre-determined rainfall trigger level is exceeded such as a very heavy rainfall at >25mm/hr, planned responses will be undertaken. These responses will include cessation of construction until the storm event, including storm runoff has ceased. • Sediment fencing will be erected along proximal and paralleling areas of watercourses, occurring within the proposed wind farm site, channels and drains spanned by the works to reduce the potential for sediment laden run-off to reach sensitive receptors. • No direct flow paths between stockpiles and watercourses will be permitted at the Site. • Excavated material will be backfilled and transported to the spoil storage area as soon as is reasonably practicable to prevent long duration storage at the Site which increases the risk of adverse effects on aquatic environments. • All mitigation measures related to surface water quality will be implemented before excavation works commence.		
MM54	Site Drainage	**Natura Impact Statement (NIS)**	7.4 Mitigation Measures – Excavated Dewatering	The following mitigation measures will be implemented during excavations for the proposed grid connection route:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
			Requirements for the Wind Farm Site	• The timing of grid connection cable laying will be carried out during metrologically dry seasons/periods. • An Ecological Clerk of Works (ECoW) will be onsite in order to lessen environmental disruption and ensure site integrity is maintained. The ECoW will also be responsible for routine environmental monitoring and report writing. • excavated material will be temporarily stockpiled adjacent to the section of trench, with appropriate material used as backfill. • Excess/unsuitable material will be immediately removed and disposed of at a licenced waste disposal facility. • Appropriate siltation measures, as per the measures set out in the subsequent sections below will be put in place prior to excavations. • Stockpiles will be temporarily stored a minimum of 25m back from rivers/streams on level ground with a silt barrier installed at the base. • For all grid connection trenching along the local road, any unsuitable backfill material excavated will be immediately taken away from the works area in trucks and disposed of under license to an authorised waste disposal facility. This will prevent any contaminated run-off to roadside drains during heavy rainfall.		
MM55	Site Drainage	**Natura Impact Statement (NIS)**	7.4 Mitigation Measures – Excavation Dewatering Requirements for the Wind Farm Site	The following mitigation measures will be implemented for dewatering activities at the wind farm site: • Areas of subsoils to be excavated will be drained ahead of excavation works. This will reduce the volumes of water encountered during excavation works and will therefore reduce the volume of water that is required to be dewatered whilst excavations are being carried out.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Engineered drainage and attenuation features outlined in the Surface Water Management Plan attached in Appendix 1 will be established ahead of excavation works. • Dewatering pumping rates will be controlled by an inline gate valve or similar infrastructure which will facilitate a reduction of loading on the receiving environment, thus enhancing the attenuation and settlement of suspended solids. • The direct discharge of dewatered loads to surface waters will not be permitted under any circumstances. • All dewatering will follow a strict procedure of pumping to a settlement tank and then to a dewatering bag, or settlement ponds prior to discharging to receiving environment for overland flow. • Geofabric lined settlement ponds will buffer the run-off discharging from the drainage system which will reduce the hydraulic loading to watercourses. Settlement ponds will be designed to reduce flow velocity to 0.3 m/s at which velocity silt settlement generally occurs. In areas of the Site where the placement of settlement ponds is not feasible, other mitigation measures described below will be implemented • Check Dams will be constructed across drains and will reduce the velocity of run-off which will, in turn, promote settlement of solids upstream of potential surface water receivers. An additional benefit of check dams is that they will reduce the potential for erosion of drains. Rock filter bunds may be used for check dams, wood or hay bales can also be used if properly anchored. It is recommended that multiple check dams are installed, particularly in areas immediately down gradient of construction areas. • Overland flow paths of the final dewatered discharge will be maximised to the greatest practical extent to avoid prematurely draining to drainage channels or surface waters. This approach		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				will allow for enhanced settling out of suspended solids entrained in the run-off. • All pumps, tanks, settlement ponds, dewatering bags and check dams used in the dewatering process will be regularly inspected and maintained as necessary to ensure surface water run-off is appropriately treated. • Sediment fencing will be installed up gradient of water courses which may receive the final overland flow. • The final treated dewatered discharge will be directed towards heavily vegetated areas to allow for further natural filtration of suspended solids. • A programme of water quality monitoring will be implemented during the construction phase which is outlined in detail in CEMP presented as Appendix 1 of this Natura Impact Statement. • No extracted or pumped water will be discharged directly to the surface water network associated with the Site (this is in accordance with Local Government (Water Pollution) Act 1977 as amended). • Any discharges of sediment treated water will meet the requirements of the Surface Water Regulations 2009, as amended.		
MM56	Site Drainage	**Natura Impact Statement (NIS)**	7.5 Mitigation Measures – Watercourse crossing	The proposed crossing location will be situated relatively near the headwaters of the Shehy Beg Stream and two no. minor first order tributaries. As a result, bridge/culvert specification and construction are envisaged to be of relatively low significance in terms of expected flow and culvert diameter. The following design measures have been implemented for the watercourse crossing to ensure any potential impacts of the proposed watercourse crossing are minimised:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• The design of the proposed crossing and a method statement for the proposed construction will be agreed in advance with Inland Fisheries Ireland (IFI) • Crossings have been designed to minimise, in so far as practical, the disturbance or alteration of water flow, erosion and sedimentation patterns and rates • Vehicles and plant used in the construction of the proposed crossing will only be refuelled at the Site's bunded and designated refuelling area, no refuelling will be permitted within 50m of any watercourse at the Site • To mitigate against the potential risk of accidental leaks or spillages from plant and equipment the following measures will be implemented: Multiple spill kits will be maintained on the Site at all times within the cabs of vehicles and placed strategically at environmentally sensitive locations across the Site. Spill kits will be routinely inspected to ensure that they are fully stocked with oil absorbent booms and pads at all times. Oil absorbent booms will be installed downstream of channel crossing work areas within 25m of the works location prior to the commencement of works.		
MM57	Pollution Prevention	**Natura Impact Statement (NIS)**	7.6 Mitigation Measures – Horizonal Directional Drilling	The following mitigation measures to reduce potential impacts associated with horizontal directional drilling (HDD) will be implemented: • Clearbore, which is not toxic to aquatic organisms and is biodegradable will be the drilling fluid used. • Mud mixing will be monitored to suit the ground conditions encountered. • The drilling fluids will be constantly monitored, any changes required to the mix will be performed on site by a specialised HDD Contractor upon consultation with the drilling fluid supplier and Environmental Clerk of Works.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Mud testing equipment will be available at all times during drilling operations to monitor key mud parameters. • All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages. • Spill kits, including an appropriate hydrocarbon boom will be available on the site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use. • All plant, materials and wastes will be removed from site following the HDD works. • The launch pit will be reinstated to the original land surface condition and the normal duct trench will continue from this point. • Should any dewatering be required, it will be carried out in accordance with the CEMP provided in Appendix 1. • Test pits and boreholes will not be located directly on, or extend through, the proposed alignment, as these weak points may serve as conduits where inadvertent fluid returns or frac outs could occur. At least a 3m offset will be provided between the boreholes and pipe alignment. The following measures will be implemented at launch and receptor pits to ensure that the excavation, preparation and works undertaken at these pits do not pose a risk to the water quality of the Caha River and other watercourses to be crossed via horizontal directional drilling: • All launch pits and reception pits for horizontal directional drilling under watercourses will be buffered back from watercourses at a minimum distance of 20 m.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM58	Site Drainage	**Natura Impact Statement (NIS)**	7.6 Mitigation Measures – Horizonal Directional Drilling	Continuous monitoring of drilling fluid/mud pressure will be undertaken by the drill technician during all drilling. The drill technician in turn will be supervised by the drill supervisor and all horizontal directional drilling will be monitored by the project Ecological Clerk of Works (ECoW). The continuous monitoring will ensure that in the event of a change in pressure due to a blockage the technician will be immediately alerted to this change and will cease drilling operations. This will prevent drill fluid/mud from breaking out through an alternative path of least resistance and will prevent such materials from breaking out to the river. The avoidance of a breakout depends primarily on the experience of the drilling personnel and reliable, accurate drilling records interpreted in relation to the geotechnical information available. The drilling personnel will be suitably qualified and experienced to complete the works. Boreholes will be completed at all HDD locations as part of the Site Investigations works to be completed during the detailed design phase. Trends during the pilot drilling will be monitored and tracked so as to maximise the chances of accurately establishing a point where the formation is causing drilling fluid losses. The volume of drilling mud entering and returning from the bore will be constantly monitored by the drill operating staff. Staff will be especially vigilant for any loss of volume of drill mud returns, which would indicate the escape of drilling mud from the bore. At the location a number of measures can be implemented as follows: • Pump drilling fluid with a higher density into the formation. • Circulate and pump organic lost circulation materials (LCM) into the loss zone to physically seal the fracture. Lost circulation occurs when drilling fluid, flows into one or more geological formations instead of returning to the launch area. • Grout the loss zone; and/or		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Launch a packer before the loss zone. A packer is a mechanical device sent down the hole to the area of concern. It is designed for blocking the system for sealing grout to set.		
MM59	Site Drainage	**Natura Impact Statement (NIS)**	7.6 Mitigation Measures – Release & Transport of Suspended Solids	The following mitigation measures will be implemented at the wind farm site during the construction and decommissioning phase to prevent the release and transport of silt-laden surface water runoff: • Collector drains and soil berms will be implemented to direct and divert surface water runoff from construction areas such as temporary stockpiles into established settlement ponds, buffered discharge points and other surface water runoff control infrastructure. This planning and placement of these control measures will be of fundamental importance, especially for the areas where works within the 50m buffer zone of surface waters and significant drainage features. • Sediment control fences will be implemented significantly upgradient of potential receiving waters and as part of the drainage network. Sediment control fences will also be established upgradient of the Site's pre-existing natural and artificial drains in addition to degraded areas of peat that are likely to receive surface water runoff. This practice will reduce the potential for elevated suspended solids entrained in surface water runoff to discharge to surface waters. • Multiple silt fences will be used in drains discharging to the surface water network. This will be especially important for the areas where works occur within the 50m buffer zone of surface waters and significant drainage features. • A dedicated silt fence will be established along all sections of the wind farm access track that are within the 50m buffer zone of watercourses. • The drainage, attenuation and other surface water runoff management systems will be installed prior to the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				commencement of construction activities. Whenever possible, drainage and attenuation control measures will be installed during seasonally dry conditions to limit the potential for sediment laden run-off to discharge to surface waters during the installation of these measures. • Surface water runoff will be discharged to land via buffered drainage outfalls that will contain hardcore material of similar composition to the geology of the bedrock at the Site. This mitigation measure will promote the capture and retention of suspended sediment. • Buffered drainage outfalls also promote sediment percolation through vegetation in the buffer zone, reducing sediment loading to adjacent watercourses and avoiding direct discharge to the watercourse. • Buffered drainage outfalls will be placed outside of the 50m buffer zone and will not be positioned in areas with extensive erosion and degradation. • A high number of discharge points will be established to decrease the loading on any one particular outfall. Discharging at regular intervals mimics the natural hydrology by encouraging percolation and by decreasing individual hydraulic loadings from discharge points. • A CEMP has been developed which will mandate regular inspections and maintenance of pollution control measures. Contingency measures outlining urgent protocols to repair or backup any breaches of designed mitigation measures are also incorporated into the CEMP (**EIAR Appendix 2.1**). • In the event that mitigation measures are failing to reduce suspended solids to acceptable levels, construction works will cease until remediation works are completed. • Fine solids or colloidal particles are very slow to settle out of waters. Therefore, coagulant or flocculant will be used as		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				appropriate to promote the settlement of finer solids prior to discharging to surface water networks. Flocculant gel blocks can be placed in drainage channels. These are passive systems that are self-dosing, self-limiting and are environmentally friendly. Flocculant gel blocks bind elevated levels of silt and associated contaminants into masses that are easily separated, captured and then removed from the water. • Surface water runoff controls will be checked and maintained on a daily basis. Check dams and settlement ponds will be maintained and emptied prior to the build-up of excessive sediment. The frequency of maintenance and emptying will be dictated by levels of sediment accumulation.		
MM60	Pollution Prevention	**Natura Impact Statement (NIS)**	7.8 Mitigation Measures – Release of Hydrocarbons	The following mitigation measures will be implemented during all construction and decommissioning phase works for the proposed development to prevent the release and transport of hydrocarbons to receiving surface waters: • Refuelling of vehicles will be carried out off site to the greatest practical extent. This refuelling policy will mitigate the potential for impacts by avoidance. Due to the remote location nature of the Site, it is unlikely that implementation of this refuelling policy will be practical in all circumstances. In instances where refuelling of vehicles on Site is unavoidable, a designated and controlled refuelling area will be established at the Site. The designated refuelling area will enable low risk refuelling and storage practices to be carried out during the works. The designated refuelling area will contain the following attributes and mitigation measures as a minimum requirement: ○ The designated refuelling area will be located a minimum distance of 50m from any surface waters or Site drainage features.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				○ The designated refuelling area will be bunded to 110% volume capacity of fuels stored at the Site. ○ The bunded area will be drained by an oil interceptor that will be controlled by a pent stock valve that will be opened to discharge storm water from the bund. ○ Management and maintenance of the oil interceptor and associated drainage will be carried out by a suitably licensed contractor on a regular basis. ○ Any oil contaminated water will be disposed of at an appropriate oil recovery plant or licensed tip site. ○ Any minor spillage during this process will be cleaned up immediately. ○ Vehicles will not be left unattended whilst refuelling. ○ All machinery will be checked regularly for any leaks or signs of wear and tear. ○ Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place with all staff properly briefed. Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner. Notwithstanding the management of refuelling and fuel storage at the designated refuelling area, the potential risk of hydrocarbon spills from plant and equipment or other general chemical spills at other areas of the Site remains. To mitigate against potential spills at other areas of the Site, the following mitigation measures will be implemented: • Oil absorbent booms and spill kits will be available adjacent to all surface water features associated with the Development. The controls will be positioned downstream of each construction area and at principal surface water drainage features. Oil		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				booms deployed will have sufficient absorbency relative to the potential hazard. • Spill kits will also be available at construction areas such as at turbine erection locations, the temporary site compound, on-site substation, spoils storage areas and met mast location etc. • Spill kits will contain a minimum of oil absorbent pads, oil absorbent booms, oil absorbent granules, and heavy-duty refuse bags for collection and appropriate disposal of contaminated matter. • Should an accidental spill occur during the construction or operational phase of the Development, such incidents will be addressed immediately. This will include the cessation of works in the area of the spillage until the issue has been resolved. • Spill kits will be kept in each vehicle at the Site and will be readily available to all operators. • No materials, contaminated or otherwise will be left on the Site. • Suitable receptacles for hydrocarbon contaminated materials will also be available at the Site. • A detailed spill response plan is provided as part of the CEMP. Implementation of the above mitigation measures will significantly reduce the risk of hydrocarbon contamination being released to the surface water network. Nevertheless, the potential risk cannot be entirely eradicated. Therefore, precautionary measures and emergency response protocols have been prepared and are provided as part of the CEMP.		
MM61	Pollution Prevention	**Natura Impact Statement (NIS)**	7.9 Mitigation Measures – Release of Cementitious Materials	The following mitigation measures will be implemented during all construction and decommissioning phase works for the proposed development to prevent the release and transport of cementitious material to receiving surface waters:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• The procurement, transport and use of any cement or concrete will be planned fully in advance and supervised by appropriately qualified personnel at all times. • Vehicles transporting cement or concrete to the Site will be visually inspected for signs of excess cementitious material prior to being granted access to the Site. This will prevent the likelihood of cementitious material being accidentally deposited on the Site Access Tracks or elsewhere at the Site. • Drivers of such vehicles will be instructed to ensure that all vehicles are washed down in a controlled environment prior to the departure of the source site, such as at concrete batching plants. • Precast concrete will be used wherever possible. However, the use of pre-cast concrete is not viable option for large structures such as Turbine foundations and so concrete will be delivered to the Site. • Concrete will not be poured during periods of rainfall or if any kind of precipitation is forecast. This policy will limit the potential for freshly poured concrete to adversely impact on surface water runoff. • Raw or uncured waste concrete will be disposed of by removal from the Site. • Washout of concrete trucks shall be strictly confined to the batching facility and shall not be located within the vicinity of watercourses or drainage channels. Only the chutes will be cleaned prior to departure from Site and this will take place at a designated area at the Temporary Site Compound. • Spill kits will be readily available to Site personnel, and any spillages or deposits will be cleaned up as soon as possible and disposed of appropriately. • Pouring of concrete into standing water within excavations will be avoided.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place. • Any surplus concrete will not be stored or deposited anywhere on Site and will be returned to the source location or disposed of appropriately at a suitably licensed facility. • Any required shuttering installed to contain the concrete during pouring will be fully secured around its perimeter to minimise any potential for leaks.		
MM62	Pollution Prevention	**Natura Impact Statement (NIS)**	7.9 Mitigation Measures – Water Quality Monitoring	The following water quality monitoring will be implemented to mitigate against potential impacts on the surface water receiving environment: • A programme of water quality monitoring outlining the selected parameters and monitoring frequency will be agreed with Inland Fisheries Ireland and Cork County Council prior to the commencement of construction. • In order to assist in the detection of any deviations from the baseline hydrochemistry conditions at the Site, regular periodic monitoring of the Site's surface waters will be carried out prior to and during construction. • It is proposed that a programme of operational phase water quality monitoring is also implemented at a monitoring frequency agreed with Cork County Council in order to aid the detection of any potential operational phase impacts on surface water quality. • As a minimum requirement, field measured parameters such as pH, conductivity, total dissolved solids (TDS), temperature, dissolved oxygen (DO) and turbidity will be included in the water quality monitoring programme. The results will be compared to the applicable EQS to determine if adverse impacts on water quality are occurring.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Water quality will be monitored for trace metal concentrations prior to, during and after the construction phase. • Water quality monitoring locations will include both upstream and downstream points relative to the works locations. The locations of the water quality monitoring points will be flexible and will be moved as the construction phase progresses so that monitoring points remain representative of the most likely construction impact receptor points. • The watercourses within and adjacent to the proposed spoil storage area will be included within the water quality monitoring programme. • The downstream monitoring locations will be positioned as close as possible downstream of the works location and another positioned further downstream. This approach will allow for an assessment of the dilution of potential contaminations (if present) as the distance from the point of diffuse source location increases. • Watercourses which do not have year-round flows such as artificial drains, ditches or ephemeral streams will be avoided as water quality monitoring locations. • During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps, buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed. • During the construction phase of the Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Following the completion of the construction phase, inspection of silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the operational phase water quality monitoring will also be carried out. • The proposed watercourse crossings discussed in **Section 3.4.11** will be monitored daily during construction and during each Site visit during the operational phase. The water course crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity to identify any signs of erosion or potential for sediment release. • It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated frequently. • A detailed inspection and monitoring regime to be agreed with Inland Fisheries Ireland and Cork County Council will be included in the CEMP. • Any discharges of sediment treated water will meet the requirements of the Surface Water Regulations 2009, as amended.		
MM63	Pollution Prevention	**Natura Impact Statement (NIS)**	7.11 Mitigation Measures – Emergency Response	Mitigation measures outlined in the previous sections of this chapter will significantly reduce the potential for contamination of surface water or groundwater associated with the Development. Nevertheless, as is the case with all construction projects, a risk of accidental chemical spillages, sediment overloading of control measures or leaks of contaminants from plant or equipment remains a possibility. Emergency response procedures to potential contamination incidents have been prepared as part of the CEMP and will be implemented at the Site prior to the commencement of		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required

				the construction phase. The following is a non-exhaustive list of potential emergencies and respective emergency responses:
				• Spill or leak of hazardous substances (less than 20 litres);
				  ○ All spill incidents will be dealt with immediately as they arise
				  ○ Spill kits will be prepared and available in vehicles associated with the construction phase of the Development
				  ○ Spill kits will also be prepared and made available at primary work areas such as at proposed turbine, hardstand, substation, met mast and construction compound locations
				  ○ Disposal receptacles for hydrocarbon contaminated materials will also be available at the Site
				• Major spill of hazardous or toxic substance off Site or to environmentally sensitive areas:
				  ○ Immediate escalation measures will be implemented for all major spill events
				  ○ Escalation measures may include installation of temporary sumps or drains to control the flow or migration of hydrocarbons or other chemicals
				  ○ Attempts to be made to limit or contain the spill using sandbags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill
				  ○ Excavation and disposal of contaminated material will be immediately carried out following any such incidents
				  ○ Evacuation procedures will be implemented to remove non-essential personnel from the area
				  ○ Data gathering and an investigation will commence immediately after the emergency is contained		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				○ If a significant hydrocarbon spillage does occur, the contractor on behalf of the developer will have an approved and certified clean-up consultancy available on 24-hour notice to contain and clean-up the spill ○ All major spills of this nature will be reported to Cork County Council immediately following such instances. • Flooding of low-lying areas of the Site: ○ Immediately remove all chemicals, fuels and other hazardous substances from low lying areas of the Site ○ Immediately remove plant and equipment from low lying areas ○ Recover materials washed from Site including sediment and other waste ○ Review and address the potential for excess water entering the Site ○ Review and maintain erosion and sedimentation controls. • Spills of cementitious material: ○ Cement / concrete contamination incidents will be cleaned up immediately as they arise ○ Spill kits will also be established at key construction areas and they will also be readily available in the cabs of plant and equipment ○ Suitable receptacles for cementitious materials will also be available at the Site.		
MM64	Pollution Prevention & Flora and Fauna	**Natura Impact Statement (NIS)**	7.11 Mitigation Measures – Site Hygiene	Prior to use on site, the Contractor's vehicles and equipment must be thoroughly cleaned. High-pressure steam cleaning, with water > 40 degrees C, is recommended for vehicles and equipment where reasonably feasible. Many roadside garages provide these facilities. If it is not possible to steam clean the equipment, a normal power hose must be used. After cleaning, a visual inspection of the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				equipment will be carried out to ensure that all adherent material and debris has been removed. Cleaning should not be undertaken on the site or near watercourses. Each field vehicle must carry a 'disinfection box'. This should contain Virkon Aquatic or another proprietary disinfectant, a spraying mechanism, cloths or sponges, a scrubbing brush and protective gloves. Protective gloves must be worn when using any disinfectant solution. It is recommended to apply disinfectant to the undercarriage and wheels of any vehicles used after cleaning, if the vehicles have been used in streams or rivers (this does not apply to vehicle or machinery use in wetlands or peatland areas). Disinfectants must be used strictly in accordance with the manufacturer's instructions. They must be disposed of safely, and never close to open waters such as drains etc. Footwear should be dipped in or scrubbed with a disinfectant solution (e.g. 1% solution of Virkon Aquatic or another proprietary disinfection product) and thoroughly dried afterwards if used in streams or rivers. This does not apply to footwear for use in wetlands or peatland areas. Please note that it is not intended that any vehicles will enter water courses in the course of the construction or operation of the Project. Accordingly, this measure is precautionary only. Disinfectants must be used strictly in accordance with the manufacturer's instructions. They must be disposed of safely and never close to open waters such as drains etc. **Cleaning and Decontaminating Vehicles and Equipment Onsite Pre cleaning Methods**		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Brushing (Physical Removal) Used in conjunction with another physical removal method such as vacuuming, or when in the field, this method is moderately effective in removing the majority of plant material from equipment and gear. Brushing will remove most surface soil, plant material, and foreign matter. If there is a nap to fabric, such as upholstery or carpeting, brush with the nap rather than against it. Brushing against the nap could further embed small seeds into the material. A combination of soft and stiff bristles of varying length is recommended for use on carpeting or components made of rubber, nylon, or plastic. Bristles of medium length and stiffness are desired for removal of soil and other matter from fabrics and upholstery. Stiff bristles are recommended for the tread of wheels that become encrusted with soil and mud. Metal bristles may also be used to remove soil or concrete in treads, but heavier wear and tear to the equipment will result. High-pressure compressed air blasting may be used to assist soil removal. Follow up with vacuuming, high-pressure air blasting, or high-pressure wash is recommended, as applicable. **Vacuuming (Physical Removal)** Vacuuming equipment with a brush attachment is suggested to remove most loose particle matter, but care should be taken because small seeds may become further embedded in materials. To prevent contained plant and soil matter from being re-deposited or re-dispersed following the cleaning process, collected matter should be double bagged and disposed of in a sanitary landfill. Follow up with water washing, high-pressure air blasting, or high-pressure wash is recommended as applicable.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Water Washing with High-Pressure Wash and With or Without Thermal Treatment General water washing with high-pressure wash or thermal treatment is the most effective method for removing residual foreign materials, although small and embedded seeds are capable of persisting. Where known invasive materials are present, wastewater can be treated or filtered, and the waste materials double bagged and disposed of in a sanitary landfill. **High-Pressure Wash** Improvement in the design of high-pressure washing makes it the most effective means of cleaning heavily soiled and contaminated items. Not all items are capable of withstanding the pressure of this treatment, and it should only be used where applicable. There are many models of high-pressure washers, from simple hand-held nozzles to laser guided, robotic control systems. In some cases, containment and operation sheds are portable. The water systems can be fresh or recycled and use hot or cold water. **Selecting a Wash down Location** To avoid re accumulation of soil on cleaned vehicles, a paved area for washing, off-loading, and staging vehicle cleaning operations, with paved roads between should be used. This type of facility will often not be a viable option for activities in remote areas. Elevating the washing area enables cleaning personnel to access the underside of vehicles and equipment, where contaminants are otherwise difficult to reach. Water runoff, potentially carrying soil, seeds, animals and petroleum contaminants, must be managed with the use of berms or other containment. Silt fence installed along perimeters of work areas can		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				also aid in preventing spread of contaminated materials outside of the washdown location. The area must be large enough to safely accommodate all vehicles and personnel before, during, and after cleaning operations. **Best Management Practice** Do not locate the cleaning site adjacent to storm water drains that allow untreated effluent to enter surface water bodies. **General Considerations:** • Set up the best staging area possible for cleaning operations. A paved area with accommodations to elevate vehicles or otherwise allow easy access to the undersides of vehicles and equipment is the best setting. Otherwise, using geotextile access and exit areas, bermed water recovery areas, and portable vehicle lifts are the next best option. • Equipment of all types should be cleaned at the location of last use. If this is not possible, arrange for cleaning at a facility that is specially designed for equipment cleaning. • Preclean equipment that contains heavy accumulations by hand to reduce water demand. • Make pressurized water available with pressure and nozzles capable of removing all soil and debris. • Recapture invasive materials by using fine-mesh filters and dispose of invasives in a manner that ensures no spread. Do not allow wash waters to flow into storm drains because these drains often directly flow untreated into surface water bodies.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• At remote sites, install silt fence or otherwise contain materials left behind. Monitor sites closely and eradicate exotic species. • Clean vehicles and equipment thoroughly and ensure that they remain clean when leaving the site. Follow up cleaning operations with final inspections. • Clean, drain, and dry all equipment. **Plant Inspection** All plant leaving site will be inspected to ensure it is clean. A record of all inspections will be maintained by the main contractor's Site Agent. Inspections will focus on identifying the presence or otherwise of fragment in the following locations of plant equipment. **Rubber Tyred Vehicles** • Crevices in upper surface and panels • Tyres, rims • Spare tyre mounting area. • Bumpers • Front and rear quarter panels • Around and behind grills • Bottom of radiator vent openings • Brake mechanisms • Transmission • Stabiliser bar • Shock absorbers • Front and rear axles • Beds • Suspension units • Exhaust systems • Light casings and mirrors		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Tracked Vehicles • Crevices in upper surface and panels • Top of axles and tensioners • Support rollers • Between rubber or gridded areas • Beneath bumpers • Hatches • Under casings • Grills • Beneath seats • Beneath floor mats • Upholstery • Beneath foot pedals • Inside folds of gear shift cover		
Operational Phase						
MM66	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Watercourses	The following measures are required in order to ensure the ongoing protection of watercourses: • Re-seeding / re-vegetation of all areas of bare ground or the placement of Geo-jute (or similar) matting will take place as practically possible at the start of the operational phase to prevent run-off. • Silt traps erected during the construction phase within roadside and artificial drainage will be replaced with stone check dams for the lifetime of the project. These stone check dams will only be placed within artificial drainage systems such as roadside drains and not natural streams or ditches. • A full review of construction stage temporary drainage will be undertaken by the Developer (in conjunction with the Project Hydrologist/ Site Engineer and the Project Ecologist) following the completion of construction, and drainage removed or		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				appropriately blocked where this will not interfere with infrastructure. • The Temporary Construction Compound / office must house all chemicals within a secure bunded COSSH store for the operational phase of the project.		
MM67	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Bats	Turbines will operate in a manner which restricts the rotation of the blades as far as is practicably possible below the manufacturer's specified cut-in speed (SNH 2021). This is usually achieved by feathering the blades during low wind speeds; the angle of the blades is rotated to present the slimmest profile possible towards the wind, ensuring they do not rotate or 'idle' when not generating power. Turbine blades spinning in low wind can kill bats, however bats cannot be killed by feathered blades which are not spinning (Horn et al., 2008). The feathering of turbine blades combined with increased cut-in speeds have been shown to reduce bat fatalities by up to 50% (SNH 2021). As such, the feathering of blades to prevent 'idling' during low wind speeds is proposed for all turbines.		
MM68	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Protection of Bats	*Cut-In Speeds/Curtailment* *Increasing the cut-in speed above that set by the manufacturer can reduce the potential for bat/turbine collisions. A study by Arnett et al. (2011) showed a 50% decrease in bat fatality can be achieved by increasing the cut-in speed by 1.5 m/s.* *Species with elevated risk of collision (Leisler's bat, soprano and common pipistrelle) in particular would benefit from increasing the cut-in speed of turbines, as dictated on a case-by case basis depending on the activity levels recorded at each turbine.* *Cut-in speeds should be increased during the bat activity season (April-October) or where temperatures are optimal for bat activity to*		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				5.5 m/s from 30 minutes prior to sunset and to 30 minutes after sunrise at turbines where surveillance shows high bat activity levels for High and Medium-Risk species and/or if bat carcasses are recorded. *The duration required depends on the level of mitigation required for each individual turbine i.e. a full bat activity season or only spring and autumn (duration will be determined by the first year of surveillance).* *Cut-in speeds restrictions will be operated according to specific weather conditions:* • *When the air temperature is greater than 7°C (as bat activity does not usually occur below this temperature).* • *Generally, bat activity peaks at low wind speeds (<5.5m/s). As such, it has been shown that curtailing the operations of wind turbines at low wind speeds can reduce bat mortality dramatically, particularly during late summer and the early autumn months.* *Due to the considerable unnecessary down time resulting from the proposed "blanket curtailment" (above) and the advances in smart curtailment a focused curtailment regime is further proposed from the year two of operation.* *This will focus on times and dates, corresponding with periods when the highest level of bat activity occur within the Site. This includes the use of the SCADA (Supervisory Control and Data Acquisitions) operating system (or equivalent) to only pause/feather the blades below a specified wind speed and above a specified temperature within specified time periods.* *Post-constructions surveys will be undertaken for the first three years of operation to confirm if blanket curtailment restrictions can be amended in line with post-construction activity levels. The post construction surveys will be used to update the current curtailment*		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				regime (blanket curtailment) designed around the values for the key weather parameters and other factors that are known to influence collision risk. This will include all of the following: • *Wind speed in m/s (measured at nacelle height)* • *Time after sunset* • *Month of the year* • *Temperature (ºC)* • *Precipitation (mm/hr)*		
MM69	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7 Construction Phase Mitigation: Restoration of Important Habitats	Restoration of habitats will require ongoing positive management input as well as monitoring of success and necessary remedial measures. This is set out in the Habitat Management Plan in **Appendix 6.4**.		
MM70	Flora and Fauna	**Chapter 7: Ornithology**	7.1.18 Mitigation for Avifauna.	A post construction monitoring programme is to be implemented at Gortloughra in order to confirm the efficacy of the mitigation measures; the results of this will be submitted annually to the competent authority and NPWS. Published guidance on assessing the impacts of wind farms on birds from English Nature and the Royal Society for the protection of birds recommends the implementation of an agreed post development monitoring programme as a best practice mitigation measure (Drewitt and Langston, 2006). In addition, published recommendations on swans and wind farms (Rees, 2012) suggests that systematic post construction monitoring; adapted to quantify collision, barrier, and displacement, be conducted over a period of sufficient duration to allow for annual variation or in combination effects. The following individual components are proposed:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				1) Fatality Monitoring (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction)- A comprehensive fatality monitoring programme is to be undertaken following published best practice (Shawn et al., 2010; Fijn et al., 2012 and Grunkorn, 2011); the primary components are as follows: a. Initial carcass removal trials to establish levels of predator removal of possible fatalities. This is to be done following best recommended practice and with due cognisance to published effects such as predator swamping, whereby excessive placement of carcasses increases predator presence and consequently skews results (Shawn et al., 2010). b. Turbine searches for fatalities are to be undertaken following best practice (Fijn et al., 2012 and Grunkorn, 2011) in terms of search area (minimum radius hub height) and at intervals selected to effectively sample fatality rates based on carcass removal rates (e.g. 1 per month). To be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring to be agreed with NPWS. c. A standardised approach with a possible control group and/or variation in search techniques such as straight line transects/ randomly selected spiral transects/ dog searches will be undertaken. This will provide a means of robustly estimating the post construction collision fatality impact (if any). d. Recorded fatalities to be calibrated against known predator removal rates to provide an estimate of overall fatality rates.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Reports will be submitted to the competent authority and NPWS following each round of surveys. 2) Flight Activity Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction) - A flight activity survey is to be undertaken during the summer and winter months to include both vantage point and hinterland surveys as Per SNH (2017) guidance: a. Record any barrier effect i.e. the degree of avoidance exhibited by species approaching or within the wind farm (Drewitt and Langston, 2006). Target species to be all raptors and owls, all wild goose and duck species, all swan species, and all wader species. b. Record changes in flight heights of key receptors post construction. Reports will be submitted to the competent authority and NPWS following each round of surveys. This survey is to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS. 3) Monthly Wildfowl Census (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A monthly wildfowl census, following the methods utilised for the Baseline survey, is to be repeated on a monthly basis during the winter period. This aims to: a. Assess displacement levels (if any) of wildfowl such as swans post construction b. Assess overall habitat usage changes within the vicinity of the Gortloughra Wind Farm Development post construction.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				This survey is to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS. Reports will be submitted to the competent authority and NPWS following each round of surveys. 4) Breeding Bird Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey (moorland breeding bird and Common Bird Census), following methods used in the Baseline survey to be repeated yearly between early April to early July. This aims to: a. Assess any displacement effects such as those recorded on breeding birds. Overall density of breeding birds to be annually recorded. 5) Breeding Wader Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey, following methods used in the Baseline survey to be repeated yearly April-May-June. 6) Red grouse survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). following methods used in the Baseline survey Both of the above surveys are to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS.		
MM71	Flora and Fauna	**Chapter 7: Ornithology**	7.1.18 Residual Effects for Avifauna	To minimise effects on those species which the literature suggests can be negatively impacted, a re-confirmatory preconstruction survey (March/April) will be conducted of the proposed turbine locations to assess any evidence of target species activity or the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				occupation of new territories. Should any new nests be recorded, works at these locations will be restricted to outside the breeding season (April-July) or until chicks are deemed to have fledged (following monitoring). A comprehensive monitoring program will also be implemented following construction of the proposed wind farm; this will monitor the degree of barrier effect, if any, on existing species as a result of the development, in addition to comprehensively monitoring any bird fatalities. It is considered that with the implementation of mitigation, the proposed wind farm development will have an *Imperceptible to Slight Reversible Residual Effect and in the local context* on birds. It will result in a *Moderate Reversible Residual Effect* to Kestrel and *Slight Reversible Residual Effect* to Red Grouse due to disturbance/displacement during the operational phase. In relation to barrier effect a *Long-term Slight to Moderate effect in the local context* on Kestrel and Golden Plover is predicted. However, habituation over the lifetime of the wind farm is likely to reduce these effects.		
MM72	Noise	**Chapter 10: Noise**	10.5 Mitigation Measures and Residual Effects	The Proposed Development has been designed to comply with the 2006 Guidelines and noise limits attached as conditions to the recent 2023 An Bord Pleanála decision outlined in 10.2.3.2. The operational noise emissions are predicted to be compliant and well within these guidelines with no special mitigation required apart from fitting rotors with STE which is now considered best practice. In addition, all turbines will have STE fitted as standard to reduce noise emission levels. Mitigation is not considered necessary.	MM33	

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM73	Shadow Flicker	**Chapter 16: Shadow Flicker**	16.2.9 Shadow Flicker Mitigation Measures	Shadow flicker control systems, consisting of light sensors and specialised software, will be installed on each of the wind turbines. The control system will calculate, in real-time: • Whether shadow flicker has the potential to affect nearby sensitive receptors, based on pre-programmed co-ordinates for the sensitive receptors and turbines; • Wind speed (can affect how fast the turbine will turn and how quickly the flicker will occur); • Wind direction; and • The intensity of the sunlight.		
Decommissioning Phase						
MM74	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	6.7.3 Decommissioning Phase Mitigation	No new impacts on the surface water and groundwater receiving environment are anticipated during the Decommissioning phase of the Project. The Decommissioning phase of the Project will result in the removal of Site infrastructure such as wind turbines and the Met Mast etc. No new additional mitigation measures to those proposed for the construction which will also be implemented during Decommissioning are required for the Decommissioning phase of the Proposed Development. The Decommissioning phase and associated removal of major infrastructure components is anticipated to result in similar potential risks to surface water and groundwater as those that will be encountered during the construction phase of the Proposed Development. The excavation of greenfield land is not expected to be required during the Decommissioning phase. In addition, the movement of plant, vehicles and equipment is not expected to be required during the Decommissioning phase since all of the project's hardstand areas will be pre-existing by the time the Decommissioning phase is being carried out. As a result, the risk of elevated suspended solids		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				being discharged in surface water run-off to the downstream receiving environmental is expected to be low. However, the potential risk remains for spills of fuels hazardous chemicals which is a common risk to all developments. The mitigation measures outlined in this chapter will be implemented during the decommissioning phase to reduce the potential for such impacts.		
MM75	Spoil Management & Site Drainage	**Chapter 8: Soils and Geology**	8.5.3 Mitigation Measures and Residual Impacts	On completion of reinstatement works, it is expected that the wind farm will be returned as close to its present condition as possible. In particular, areas of peat and current drainage regimes will be reinstated. It is expected that the long-term residual impacts associated with the wind farm development will therefore be negligible.		
MM76	Pollution Prevention	**Chapter 9: Hydrology and Hydrogeology**	9.5 Mitigation Measures and Residual Effects	Reinstatement of redundant access tracks and hardstand areas during the Decommissioning phase has the potential to result in soil creep, associated erosion and potential entrainment of elevated suspended solids in surface water runoff. This in turn has the potential to impact on the receiving surface water environment. The potential for such impacts are likely to be increased at areas of the Site where steep slopes are present. As a result, additional care and attention to detail is required for the following: • Mitigation measures described in this chapter to reduce the potential for runoff of elevated suspended solids will be implemented; • Sediment fences will be implemented along the perimeter of all access tracks and hardstand areas during the reinstatement works; • Additional precautions such as the implementation of check dams, secured straw bales, sandbags, or settlement ponds will be implemented at areas where surface water runoff is likely to be intercepted by both natural and artificial drainage features;		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				• Any drains or outfalls which have the potential to draw water from reinstatement areas, or promote preferential surface water runoff flow paths through reinstatement areas will be removed, blocked or decommissioned as required; • The mitigation measures for the preparation of the hardstand area surfaces prior to material being deposited is discussed in **Chapter 8: Soils and Geology** will be implemented; and, • Monitoring and maintenance of the reinstated areas will be conducted regularly following the initial stages of establishment to ensure that the potential for excessive surface water runoff eroding deposited material along preferential pathways is minimised.		
MM77	Noise	**Chapter 10: Noise**	10.5.1 Construction and Decommissioning Noise Mitigation	During the Decommissioning phase of the Proposed Development, noise levels are likely be no more than predicted in **Table 10.11,** however, it is envisaged that decommissioning will be of shorter duration. Any legislation, guidance or best practice relevant at the time of decommissioning will be complied with. Construction and decommissioning is a temporary day time activity.		

Table 18.1b: Summary of Monitoring Measures

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	Drainage Maintenance	Appendix 2.1 CEMP Management Plan 3 Surface Water Management Plan	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be necessary, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the site ECoW or the Project Hydrologist.	On going	Monthly	Project Hydrologist
MX2	Drainage Inspection	EIAR Chapter 9: Hydrology and Hydrogeology Appendix 2.1 CEMP Management Plan 3 Surface Water Management Plan	Prior to commencement of works in sub-catchments across the site main drain inspections will be competed to ensure ditches and streams are free from debris and blockages that may impede drainage.	As Required	Monthly	Project Hydrologist
MX3	Birds	EIAR Chapter 7: Ornithology	A re-confirmatory survey (March/April) will be conducted of the proposed turbine locations to assess any evidence of target species activity or occupation of new territories (e.g. in the case of breeding Snipe or Red Grouse). Should any nesting locations be recorded, works at these locations will be restricted to outside the breeding season (March 1st to August 31st inclusive) or until chicks are deemed to have fledged (following monitoring).	On going	Monthly	Ornithologist
Construction Phase						

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
MX4			An Ecological Clerk of Works (ECoW) and Environmental Manager will be on site as required during the construction phase. As required, a consultant ecologist with expertise in peatland habitats will assist the ECoW and Environmental Manager. The consultant ecologist will be employed by the developer and will be independent of the Contractor.	As required	Monthly	ECoW/EM
MX5			In order to verify the efficacy of pollution prevention and mitigation works during construction, Water Quality Monitoring will be undertaken prior to, during and post completion of construction works in accordance with the parameters and schedules as set out in the Water Quality Management Plan. Monitoring will be undertaken in all watercourses within the catchment of the construction area. Monitoring will be overseen by a qualified and experienced Environmental Manager or Ecological Clerk of Works. The specific monitoring requirements including frequency and parameters, are detailed in the **Chapter 9: Hydrogeology and Hydrology** and in the Water Quality Management Plan. Baseline monitoring undertaken at the Site as part of this study will be repeated periodically i.e., before, during and after construction phase, to measure any deviations from baseline hydrochemistry that occur at the Site, including discharge rates. The construction and post construction monitoring programme for the Gortloughra site will include the following: • During the construction phase daily inspection of silt traps, settlement ponds, buffered outfalls and drainage channels will be undertaken. Routine measurement of total suspended solids, electrical conductivity, pH and water temperature at selected water monitoring locations at the Site will be carried out. Monitoring of locations where excavations are being dewatered (likely high in solids) will be done in real time.			Hydrologist/ECoW/EM

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			• During the construction phase of the project, the development areas will be monitored daily for evidence of groundwater seepage, water ponding and wetting of previously dry spots, and visual monitoring of the effectiveness of the constructed drainage and attenuation system so that it does not become blocked, eroded or damaged during the construction process.			
MX6	Pollution Prevention & Flora and Fauna	**Chapter 6: Biodiversity**	An ECoW will be appointed prior to the commencement of construction. The ECoW will be an ecologist with experience of baseline ecological surveys, pre-construction surveys and construction phase supervision. The ECoW will be responsible for completing pre-construction surveys and supervising construction works and advising on the implementation of biodiversity enhancement measures that will be commenced during the construction phase. Pre-construction confirmatory surveys required in advance of the construction phase will include as a minimum: • Otter surveys along the Gortloughra, Shanacrane and Shehy Beg Streams. Surveys to be completed will pay particular attention to identifying the presence/absence of otter holts/couches within 150m of the proposed wind farm infrastructure. In the event that otter holts or couches identified within 150m of the proposed development the status of the breeding/resting place will be confirmed. Where the holt/couch is identified as a breeding site, then, in the absence of a derogation licence, no works will be permitted to proceed within a 150m radius of the breeding place, whilst it is still actively used as a breeding site. In the event that a non-breeding active holt or couch is identified within 50m of the			ECoW

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			proposed development, then, in the absence of a derogation licence, no works will be permitted to proceed within a 50m radius of the non-breeding but active holt or couch. • Non-native invasive plant species surveys: An up-to-date confirmatory non-native invasive plant species survey of the Site and adjacent areas will be completed during the growing season immediately prior to the commencement of construction works. • Confirmatory surveys for the presence of plant species of conservation interest. These surveys shall be completed during the growing season immediately prior to the commencement of the construction phase. The surveys shall be completed to identify the presence of any new stands of rare or threatened species as listed in Section 6.4.3 above. In the event that new stands of these species are identified as occurring within the footprint of the proposed wind farm, stands of these plants will be required to be translocated to a suitable receptor area either within the proposed development site or an alternative suitable location. Such translocations will only be permitted to proceed upon receipt of a derogation licence. • The ECoW will ensure that best practice construction methods and mitigation measures detailed in this EIAR and accompanying planning documentation including the CEMP and NIS are implemented in full. • The ECoW will be responsible for ensuring that the construction phase contractor is aware of key biodiversity receptors. The ECoW will inspect the construction works throughout the construction phase and will pay particular attention to the implementation of all biodiversity related mitigation measures.			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			• The ECoW will provide monitoring inspection reports during the construction phase and will also provide a close-out report following the completion of the contract construction works. • Where necessary the ECoW will liaise with relevant authorities such as Cork County Council, the IFI and the NPWS with respect to construction phase activities that relate to biodiversity. • As part of the ECoW terms of appointment, the ECoW will be vested with the authority to stop works where activities have been identified on site that are not in accordance with the mitigation measures outlined in this EIAR, the NIS and/or the CEMP prepared for the planning application for the proposed development.			
MX 7			The following Site monitoring recommendations should be implemented to mitigate against potential impacts on the surface water and groundwater receiving environment: • A programme of water quality monitoring outlining the selected parameters and monitoring frequency should be agreed with Inland Fisheries Ireland and Cork County Council prior to the commencement of construction; • In order to assist in the detection of any deviations from the Baseline hydrochemistry conditions at the Site, regular periodic monitoring of the surface waters on Site should be carried out prior to and during construction; • It is proposed that a programme of operational phase water quality monitoring is also implemented at a monitoring frequency agreed with the competent authority in order to aid the detection of any potential operational phase impacts on surface water quality; • As a minimum requirement, field-measured parameters such as pH, conductivity, total dissolved solids (TDS), temperature, dissolved oxygen (DO) and turbidity will be included in the water quality monitoring programme. The results should be			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			compared to the applicable EQS to determine if adverse impacts on water quality are occurring; • It is also recommended that laboratory analyses for parameters such as total suspended solids, nitrogen, phosphorous, biochemical oxygen demand and trace metals etc. is implemented during and after the construction phase; • Water quality monitoring locations will include both upstream and downstream points relative to the works locations. The locations of the water quality monitoring points will be flexible and will be moved as the construction phase progresses so that monitoring points remain representative of the most likely construction impact receptor points; • The downstream monitoring locations will be positioned as close as possible downstream of the works location and another positioned further downstream. This approach will allow for an assessment of the dilution of potential contaminations (if present) as the distance from the point of diffuse source location increases; • Watercourses which do not have year-round flows such as artificial drains, ditches or ephemeral streams will be avoided as water quality monitoring locations; • During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps, buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed; • During the construction phase of the Proposed Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots; • Following the completion of the construction phase, silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			operational phase water quality monitoring will also be carried out; • Any proposed crossings of small unmapped drains discussed in **Section** Error! Reference source not found. will be monitored daily during construction and during each Site visit during the operational phase. These small culvert crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity to identify any signs of erosion or potential for sediment release; • It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated before each use by a qualified Environmental Clerk of Works; and, • Any discharges of sediment treated water should meet the requirements of the *Surface Water Regulations 2009*, as amended.			
MX8	Pollution Prevention & Site Drainage	**Chapter 9: Hydrology & Hydrogeology**	Monitoring of peat, subsoils, bedrock and material management during the construction phase of the Proposed Development will be fundamentally important in ensuring that potential suspended solid entrainment in surface waters is minimised. With comprehensive planning and preparation, and implementation of relevant mitigation measures contained in the CEMP, the potential for elevated suspended solids to be released to surface waters via runoff is likely to be minimal. Monitoring of surface water quality is discussed in greater detail in **Section** Error! Reference source not found. of **Chapter 9: Soils and Geology**.			
MX10	Pollution Prevention & Site Drainage	**Chapter 8: Soils & Geology**	A Geotechnical Clerk of Works will be employed during the construction phase in order to continuously monitor areas of peat, in particular areas of deep peat and the areas of potential instability highlighted in the PSRA. Ongoing physical stability checks and calculations will be undertaken in order to verify that safety standards are being met. In particular, construction areas will be			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			checked for signs of cracking, movement, bulking or subsidence which may give rise to subsequent instability. Any areas identified will require a detailed peat stability risk assessment and ongoing monitoring which will include sighting poles and lines to be set-up across slopes in addition to ground surveying to check for any signs of ground movement.			
MX9	Pollution Prevention & Site Drainage	**Chapter 9: Hydrology & Hydrogeology**	The following Site monitoring recommendations should be implemented to mitigate against potential impacts on the surface water and groundwater receiving environment: • A programme of water quality monitoring outlining the selected parameters and monitoring frequency should be agreed with Inland Fisheries Ireland and Cork County Council prior to the commencement of construction; • In order to assist in the detection of any deviations from the Baseline hydrochemistry conditions at the Site, regular periodic monitoring of the surface waters on Site should be carried out prior to and during construction; • It is proposed that a programme of operational phase water quality monitoring is also implemented at a monitoring frequency agreed with the competent authority in order to aid the detection of any potential operational phase impacts on surface water quality; • As a minimum requirement, field-measured parameters such as pH, conductivity, total dissolved solids (TDS), temperature, dissolved oxygen (DO) and turbidity will be included in the water quality monitoring programme. The results should be compared to the applicable EQS to determine if adverse impacts on water quality are occurring; • It is also recommended that laboratory analyses for parameters such as total suspended solids, nitrogen, phosphorous, biochemical oxygen demand and trace metals etc. is implemented during and after the construction phase; • Water quality monitoring locations will include both upstream and downstream points relative to the works locations. The			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			locations of the water quality monitoring points will be flexible and will be moved as the construction phase progresses so that monitoring points remain representative of the most likely construction impact receptor points; • The downstream monitoring locations will be positioned as close as possible downstream of the works location and another positioned further downstream. This approach will allow for an assessment of the dilution of potential contaminations (if present) as the distance from the point of diffuse source location increases; • Watercourses which do not have year-round flows such as artificial drains, ditches or ephemeral streams will be avoided as water quality monitoring locations; • During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps, buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed; • During the construction phase of the Proposed Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots; • Following the completion of the construction phase, silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the operational phase water quality monitoring will also be carried out; • Any proposed crossings of small unmapped drains discussed in **Section** Error! Reference source not found. will be monitored daily during construction and during each Site visit during the operational phase. These small culvert crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			to identify any signs of erosion or potential for sediment release; • It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated before each use by a qualified Environmental Clerk of Works; and, • Any discharges of sediment treated water should meet the requirements of the *Surface Water Regulations 2009*, as amended.			
Operational Phase						
MX10	Pollution Prevention & Flora and Fauna	**Chapter 7: Ornithology**	A post construction monitoring programme is to be implemented at Gortloughra in order to confirm the efficacy of the mitigation measures; the results of this will be submitted annually to the competent authority and NPWS. Published guidance on assessing the impacts of wind farms on birds from English Nature and the Royal Society for the protection of birds recommends the implementation of an agreed post development monitoring programme as a best practice mitigation measure (Drewitt and Langston, 2006). In addition, published recommendations on swans and wind farms (Rees, 2012) suggests that systematic post construction monitoring; adapted to quantify collision, barrier, and displacement, be conducted over a period of sufficient duration to allow for annual variation or in combination effects. The following individual components are proposed: Fatality Monitoring (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction)- A comprehensive fatality monitoring programme is to be undertaken following published best practice (Shawn et al., 2010; Fijn et al., 2012 and Grunkorn, 2011); the primary components are as follows: a. Initial carcass removal trials to establish levels of predator removal of possible fatalities.			Ornithologist

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			This is to be done following best recommended practice and with due cognisance to published effects such as predator swamping, whereby excessive placement of carcasses increases predator presence and consequently skews results (Shawn et al., 2010). b. Turbine searches for fatalities are to be undertaken following best practice (Fijn et al., 2012 and Grunkorn, 2011) in terms of search area (minimum radius hub height) and at intervals selected to effectively sample fatality rates based on carcass removal rates (e.g. 1 per month). To be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring to be agreed with NPWS. c. A standardised approach with a possible control group and/or variation in search techniques such as straight line transects/ randomly selected spiral transects/ dog searches will be undertaken. This will provide a means of robustly estimating the post construction collision fatality impact (if any). d. Recorded fatalities to be calibrated against known predator removal rates to provide an estimate of overall fatality rates. Reports will be submitted to the competent authority and NPWS following each round of surveys. Flight Activity Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction) - A flight activity survey is to be undertaken during the summer and winter months to include both vantage point and hinterland surveys as Per SNH (2017) guidance: e. Record any barrier effect i.e. the degree of avoidance exhibited by species approaching or within the wind farm (Drewitt and Langston, 2006). Target species to be all raptors and owls, all wild goose and duck species, all swan species, and all wader species. f. Record changes in flight heights of key receptors post construction.			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			Reports will be submitted to the competent authority and NPWS following each round of surveys. This survey is to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS. Monthly Wildfowl Census (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A monthly wildfowl census, following the methods utilised for the Baseline survey, is to be repeated on a monthly basis during the winter period. This aims to: g. Assess displacement levels (if any) of wildfowl such as swans post construction h. Assess overall habitat usage changes within the vicinity of the Gortloughra Wind Farm Development post construction. This survey is to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS. Reports will be submitted to the competent authority and NPWS following each round of surveys. Breeding Bird Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey (moorland breeding bird and Common Bird Census), following methods used in the Baseline survey to be repeated yearly between early April to early July. This aims to: i. Assess any displacement effects such as those recorded on breeding birds. Overall density of breeding birds to be annually recorded. Breeding Wader Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey, following methods used in the Baseline survey to be repeated yearly April-May-June.			

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Frequency	Reporting Period	Responsibility
			Red grouse survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). following methods used in the Baseline survey Both of the above surveys are to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS.			
Decommissioning Phase						
MX11			Similar monitoring measures will be implemented prior and during the decommissioning phase as to those implemented during pre-construction and construction phase.			