19. SCHEDULE OF MITIGATION MEASURES

19.1 INTRODUCTION

This chapter of the EIAR provides a summary of the findings of this EIAR, based on the design and mitigation measures identified within the technical assessments of this report. The schedule below details the measures upon which the findings of this EIAR have been based.

19.2 SCHEDULE OF MITIGATION MEASURES

The following Table 19-1 provides a summary of the mitigation measures committed to within this EIAR. In addition, any monitoring proposals committed to have also been included in Table 19-1.

Table 19-1: Table of Mitigation Measures

Ref No.	Related to	Location	Mitigation Measure	Monitoring
Pre-construction Phase				
Description of Proposed Project				
MM1	Environmental Management – Construction Environmental Management Plan (CEMP)	EIAR Chapter 2	A CEMP has been prepared for the proposed project and is included in Appendix 2-4 of the EIAR. The CEMP will be updated prior to commencement of any site works to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned. The appointed Contractor will update the CEMP and submit to the planning authority for approval.	As required through the Contractor's CEMP.
MM2	Health and Safety	EIAR Chapter 2	A Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Safety, Health and Welfare at Work (Construction) Regulations.	As required through the Contractor's CEMP and the Health and Safety Plan.
MM3	Traffic Management	EIAR Chapter 2 and Chapter 16	A Traffic Management Plan (TMP) has been prepared for the proposed project and is included as EIAR Appendix 16-1. This is a living document and will be updated ahead of construction to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned by An Coimisiún Pleanála, in the event planning permission/approval is granted.	As required through the Contractor's CEMP and TMP.
Biodiversity				
MM4	Ecological Clerk of Works (ECoW)	Chapter 5	An ECoW will be appointed for the pre-construction works. The ECoW will be responsible for pre-construction surveying and monitoring compliance with the EIAR and Natura Impact Statement (NIS) mitigation measures and pre-construction	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			phase monitoring requirements relating to ecology/biodiversity.	
MM5	European Otter	EIAR Chapter 5 /NIS	A pre-construction confirmatory European otter survey will be undertaken no more than 10—12 months in advance of the construction works, following best practice guidelines as listed in *Guidelines for the Treatment of European otters prior to the Construction of National Roads Schemes* (NRA, 2008b). Surveys will be carried out during the winter months when vegetation is less dense making identification of European otter holts and couches easier (NRA, 2008b). Surveys will take place in suitable habitat along the river banks for 150m inclusive of Aquatic Site 14, 15, 17, 19 and 21 (see Appendix 5-6) where there is evidence of European otter activity.	As required through the Contractor's CEMP.
MM6	Badger	EIAR Chapter 5 /NIS	A pre-construction confirmatory badger survey will be carried out by a suitably qualified ecologist prior to site clearance or works commencing and no more then 10-12 months in advance of construction, following best practice guidance (NRA, 2006b). Surveys will be conducted in suitable habitat within 150m of the footprint of the proposed wind farm site infrastructure and along the GCR and accommodation areas along the TDR.	As required through the Contractor's CEMP.
MM7	Common Frog	EIAR Chapter 5 /NIS	Pre-construction confirmatory surveys for common frog will be conducted during the spring season (1st March – 31st June, inclusive). in advance of any works at drainage ditches, slow flowing streams and pools where there is potential for the common frog to spawn. Suitable breeding habitat such as drainage ditches within the Proposed Project were noted during the baseline surveys and will inform where the pre-construction confirmatory surveys are to be carried out.	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
MM8	Flora Protection Order (FPO) Species	EIAR Chapter 5	Pre-construction confirmatory surveys for FPO species will be carried out in suitable habitat, a maximum of 12-18 months in advance of the construction works. A suitably qualified ecologist will be employed to conduct the pre-construction confirmatory surveys for small-white orchid. If either bristle-leaf or small-white orchid is identified within the footprint of the Proposed Wind Farm Site, consultation with NPWS will be initiated to inform the most appropriate measures to be undertaken, such as avoidance through changes in project design.	As required through the Contractor's CEMP.
MM9	Hedgerows (WL1) Treelines (WL2) (Mixed) broadleaved woodland (WD1) Riparian woodland (WN5) Scrub (WS1)	EIAR Chapter 5	Vegetation clearance will take place outside of bird nesting season (March 01st – August 31st), in accordance with the Wildlife Act, 1976 (as amended)	As required through the Contractor's CEMP.
Ornithology				
MM10	Construction Disturbance Mitigation	EIAR Chapter 6	Clearance of uncultivated vegetation, i.e. trees and hedgerows, will be undertaken outside the main breeding bird season, from March to August inclusive where possible. If other site clearance and construction activities are required to take place during the main breeding bird season, confirmatory pre-commencement survey work will be undertaken so that nest destruction and disturbance to sensitive species (e.g., breeding raptors) are avoided. Where applicable, construction will not take place within specified disturbance-free buffer zones for certain sensitive species whilst those species are actively nesting. • Hen harrier: 1,000 m and 750 m;	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Common snipe: 500 m; and • Eurasian woodcock: 200 m. A 750 m disturbance-free buffer for breeding hen harrier is the default, but where activities have a high potential for visual and auditory disturbance (e.g. forestry operations), a larger buffer zone of up to 1,000 m may be necessary. As felling of forestry will be required to accommodate turbines during construction, this larger buffer for hen harrier will be implemented for the proposed project during felling operations only, with the 750 m buffer to be used for all other activities. A suitably qualified Project Ecologist will be employed for the duration of the construction and decommissioning period. The role of the Project Ecologist will include: • Prior to the start of construction and/or the breeding bird season, contractors will be made aware of the ornithological sensitivities within the proposed wind farm site (particularly to the potential presence of sensitive breeding species); and • Undertake confirmatory pre-construction surveys for nesting birds throughout the construction period that is within the nesting season. Where active nests are found, appropriate exclusion zones as set out in this section, will be established and monitored until the nesting attempt has reached a natural conclusion (i.e. fledging). The same measures will also apply to the GCR and TDR accommodation areas regarding the timing of works, confirmatory pre-construction checks and the use of disturbance-free buffers around any identified nests. All vegetation clearance or ground disturbing activities will follow the same avoidance first approach implemented across the proposed wind farm site.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
Material Assets				
MM11	Underground Services	EIAR Chapter 15	Standard measures / practices to avoid or otherwise minimise impacts to existing utility assets and/or services provision will be undertaken, including: • Prior to the commencement of the construction phase the Applicant will engage with all utility asset owners / service providers; • A confirmatory survey of all existing services (electrical/ESB, water/Uisce Éireann, gas/Gas Networks Ireland (GNI), telecoms cables etc.) will be carried out prior to construction to verify the assumptions in this report and identify the precise locations of any services. Where assets / services are identified, the Applicant will liaise with the service provider; • Utility assets / services (underground and overhead) will be identified and clearly marked prior to any pre-construction (site clearance) / construction / demolition activity occurring; • No excavations will take place without prior consultation with relevant utility asset owners / service providers; • Digging around existing services, if present, will be carried out as per best practice/guidance1 by hand to minimise the potential for accidental damage; • Prior to any mechanical excavation taking place ESBN will be consulted with and the exact locations of all underground electricity cables established and verified; • All works undertaken in the vicinity of underground assets will be carried out in accordance with current HSA guidance, namely the HSA 'Code of Practice for Avoiding Danger from Underground Services';	As required through the Contractor's CEMP.

[1] https://www.gasnetworks.ie/home/safety/dial-before-you-dig/
Transmission Policies and Standards (eirgridgroup.com)/ Publications (esbnetworks.ie)

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• All works will be undertaken with in accordance with the exclusion and safe operating distances around electricity infrastructure as set out in the ESB Code of Practice, as well as HSA guidance including the 'Code of Practice for Avoiding Danger from Overhead Electricity Lines'; • Any proposed works will require a minimum clearance distance of 1 m either side of electrical cables; and • Liaison with asset owners / service providers will continue as required throughout the construction phase.	
Archaeological, Architectural & Cultural Heritage				
MM12	Archaeological test-trenching	EIAR Chapter 14	Prior to the commencement of construction, a programme of archaeological test trenching will be carried out at the greenfield locations across the proposed wind farm site. Areas of the proposed wind farm site suitable for test trenching are limited to infrastructure associated with T07, T09 and the greenfield section of the TDR in Cherrybrook/Cashelaveela, with the remainder of the site dominated by forestry or bogland. This work will be carried out under licence to the National Monuments Service (NMS). Dependent on the results of the testing assessment, further mitigation will be implemented as required and agreed with the NMS.	As required through the Contractor's CEMP.
MM13	Archaeological test-trenching	EIAR Chapter 14	A large portion of the proposed wind farm site is dominated by forestry, which is not suitable for archaeological test trenching. Archaeological monitoring of topsoil stripping will be carried out at these locations of the proposed wind farm site, including areas adjacent to watercourses. Additionally, the section of the proposed GCR that passes through greenfield will be subject to archaeological monitoring. This work will be carried out under licence to the NMS. If	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			archaeological remains are identified during the course of these works, further mitigation will be implemented as required and agreed with the NMS. The location of T03, which has a higher potential for sub-surface archaeological remains to be present due to its proximity to AH01, is not suitable for archaeological test trenching and topsoil stripping will be subject to archaeological monitoring.	
Construction Phase				
Description of Proposed Project				
MM14	Construction Hours	EIAR Chapter 2	The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will be restricted to between 7:00hrs and 19:00hrs Monday to Friday (excluding public holidays) and between 07:00hrs and 14:00hrs on Saturdays. However, during the following critical periods longer hours will be required: • Concrete pours for turbine foundations; • During turbine installation when the weather is suitable (i.e. light winds); • Delivery of oversized loads; • In the unlikely event of an emergency (this is unlikely - see Chapter 17 - Major Accidents and Natural Disasters). Any such out of hours working will be agreed in advance with Leitrim County Council apart from in the case of an emergency and in line with the Schedule of Mitigation requirements. Construction activities (including human presence) along the GCR inclusive of the following WFD river waterbodies	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			Bonet_030, Bonet_040, and Bonet_050.and Shanvaus_010, specifically at Aquatic Site 15, 17, and 19, will not begin until one hour after dawn and will cease an hour before dusk. As European otter is a crepuscular species, this restriction will limit disturbance effects on European otter.	
MM15	Surface Water Drainage / Silt Control	EIAR Chapter 2 and 8	A Surface Water Management Plan (SWMP) has been prepared (Appendix 2-7 of the EIAR). The purpose of this plan is to ensure that all works are conducted in an environmentally responsible manner so as to minimise any potential adverse impacts from the proposed project on surface water quality. The plan incorporates the following specific objectives: • Provide overall surface water management principles and guidelines for all phases of the proposed project; • Address erosion, sedimentation and other water quality issues; and • Present measures and management practices for the prevention and/or mitigation of potential downstream impacts.	As required through the Contractor's CEMP and SWMP.
Biodiversity				
Habitats				
MM16	Cutover bog (PB4) corresponding to the non-priority Annex I habitat type 7130 Blanket bog (inactive) in unfavourable condition	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Defined works corridor; • Use of Bog mats; • Re-instate excavated areas.	As required through the Contractor's CEMP.
MM17	Drainage ditches (FW4)	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including:	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Embedded water quality mitigation measures (Section 5.5); • Dust mitigation measures (Section 5.6.2.3.4.4).	
MM18	Dry siliceous heath (HH1)/Dry humid acid grassland (GS3) corresponding to Annex I habitat type 4030 European dry heaths in unfavourable condition	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Defined works corridor; • Use of Bog mats; • Re-instate excavated areas.	As required through the Contractor's CEMP.
MM19		EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Defined works corridor; • Fencing to exclude livestock at T3.	As required through the Contractor's CEMP.
MM20		EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • No clearance of shrubs within the bird breeding season; • Follow best practice guidance retention trees (NRA, 2006a)	As required through the Contractor's CEMP.
MM21	Upland blanket bog (PB2) corresponding to the priority Annex I habitat type 7130* Blanket bog (active) in favourable condition	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Dust mitigation measures • Re-instate excavations	As required through the Contractor's CEMP.
MM22	Upland blanket bog (PB2) corresponding to the non-priority Annex I habitat type 7130 Blanket bog (inactive) in	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Defined works corridor; • Use of bog mats; • Fencing to exclude livestock at T3.	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
	unfavourable condition			
Flora Protection Order Species				
MM23	Bristle-leaf	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Avoidance of FPO species and habitat; • Consultation with NPWS; • Exclusion zones; • Dust mitigation measures; • Re-instate excavations.	As required through the Contractor's CEMP.
MM24	Small white orchid	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Avoidance of FPO species and habitat; • Consultation with NPWS; • Exclusion zones; • Dust mitigation measures.	As required through the Contractor's CEMP.
Invasive Non-Native Species				
MM25	Himalayan balsam	EIAR Chapter 5	Where likely significant effects on IEFs have been identified, the Invasive Species Management Plan and appropriate mitigation will be implemented, including: • Early detection and biosecurity; • Manual control.	As required through the Contractor's CEMP.
MM26	Japanese Knotweed	EIAR Chapter 5	Where likely significant effects on IEFs have been identified, the Invasive Species Management Plan and appropriate mitigation will be implemented, including: • Early detection and biosecurity; • Foliar herbicide treatment	As required through the Contractor's CEMP.
MM27	Rhododendron	EIAR Chapter 5	Where likely significant effects on IEFs have been identified, the Invasive Species Management Plan and appropriate mitigation will be implemented, including: • Manual control; • Herbicide application	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
Terrestrial Mammals				
MM28	Badger	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Avoidance of active breeding/resting places during the breeding season. • In non-breeding season, if necessary, exclusion under supervision from ECoW.(Section 5.6.2.8.3)	As required through the Contractor's CEMP.
MM29	European Otter	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Temporary speed limit; • Exclusion zones; • Avoidance of breeding holts; • Avoidance of works along GCR at dusk/dawn; • Embedded water quality mitigation measures (Section 5.5)	As required through the Contractor's CEMP.
Bats				
MM30	All Species	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Turbine cut-in speeds 5.5m/s 30mins dusk/dawn; • Feathering of blades; • 100m Bat buffers; • Removal of building 3.	As required through the Contractor's CEMP.
Invertebrates				
MM31	Marsh Fritillary	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Exclusion zones; • Translocation of larval webs, • Use of solid screens and dust mitigation measures.	As required through the Contractor's CEMP.
Aquatic Species				
MM32	Atlantic Salmon Brown Trout Lamprey species European eel	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Embedded water quality mitigation measures (Section 5.5)	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
	White-clawed crayfish			
MM33	Water Quality Protection	EIAR Chapter 5 and Chapter 8	The Inland Fisheries Ireland (IFI) 2016 guidelines 'Guidelines on Protection of Fisheries During Construction Works and in Adjacent to Waters' will also be adhered to. For example, at the bridge crossing locations, the foundations of the clear span bridges will be positioned at least 2.5 m from a watercourse. All temporary crossings of watercourses will ensure the passage of water, fish and macroinvertebrates and will ensure erosion and sedimentation do not occur. Any discharged water during the construction phase will be in the rage of pH 6-9 and will not alter the pH of receiving waters by+/- 0.5 units. Furthermore, suspended solids in any discharged waters will not exceed 25 mg/l. Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Embedded water quality mitigation measures (Section 5.5); • Additional mitigation measures for the protection of groundwater quality (Section 5.6.2.1.4.2); • Additional mitigation measures consisting of management of sedimentation and pollution (Section 5.6.2.1.4).	As required through the Contractor's CEMP.
Ornithology				
MM34	Construction Disturbance Mitigation	EIAR Chapter 6	The same mitigation measures as for the pre-construction phase will be implemented.	As required by the Contractor's CEMP.
Land, Soils and Geology				
MM35	Land Use	EIAR Chapter 7	• Vegetation clearance will be kept to a minimum. • Construction vehicles will be restricted to designated areas and access roads in order to avoid effecting	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			adjacent habitats and to ensure that soil compaction is restricted to these areas. • All disturbed ground outside of the permanent footprint will be fully reinstated following the completion of the works.	
MM36	Soil protection	EIAR Chapter 7	• CEMP (Appendix 2-4) and Peat and Spoil Management Plan (Appendix 2-6) will be fully implemented to ensure proper handling, storage, and reuse of soils. • Hazardous substances (fuel, oils, chemicals) will be stored in bunded areas (110% capacity) with impermeable bases. • Spill response protocols include secondary containment, drip trays, supervised refuelling, and impermeable refuelling zones will be implemented.	As required by the Contractor's CEMP.
MM37	Geohazard/Peat and Soil Stability	EIAR Chapter 7	Mitigation measures include stepping or battering back of excavations to a safe angle to support the peat and soft clays during construction. To ensure slope stability, excavations will be battered back (sloped) to between 1:1.5 and 1:2 depending on the depth and type of material. Permanent slopes will generally be less than 1:3. The works programme for the construction stage of the proposed project will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. Works will be suspended if the forecast suggests any of the following is likely to occur: • >10 mm/hr rainfall (i.e., high intensity local rainfall events); • >25 mm rainfall in a 24-hour period (heavy frontal rainfall lasting most of the day); or • >Half the monthly average rainfall in any 7 days. • Prior to works being suspended the following control measures will be completed: • All open excavations to be secured;	The installation of movement monitoring posts is recommended for areas where works are taking place on or adjacent to identified peat depths greater than 2m. Movement monitoring posts shall be installed upslope and downslope of the works areas and shall be as outlined: • Posts shall be 1m to 1.5m in length, installed at 5m intervals with no less than seven posts in each line of sight (~30m). • A string line shall be attached to the first and last post with all intermediate posts in contact with one side of the string line, • A numbering system shall be designed for the monitoring posts and a record shall be kept of this numbering system. Movement monitoring posts shall be observed at least once a day with more frequent inspections when adjacent works are ongoing. Should movements be recorded the frequency of these inspections will be

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Temporary or emergency drainage to be provided to prevent back-up of surface runoff; and • Work during heavy rainfall and for up to 24 hours after heavy rainfall events to be suspended to ensure that drainage systems are not overloaded. The management of peat stability will be ongoing throughout the construction and operational stages of the project and will be managed through the use of a geotechnical risk register. A physical barrier will be implemented between the excavations and the potentially unstable material at unstable conditions, in the form of sheet piles. The long-term stability of the area around the wind turbine foundations will be achieved by filling the area back up to existing ground level following installation of the foundation. A suitably qualified and experienced geotechnical engineer or engineering geologist will monitor excavation works. The earthworks will not be carried out during severe weather conditions.	increased. Records shall be kept of all monitoring post inspections with reference to date, time and any relative movement between posts, if any. Any movement identified in the posts shall be recorded with reference to the post numbering system. The contactor shall also develop a routine inspection of all areas surrounding work in peat, not just exclusively on the monitoring posts. These inspections shall include an assessment of ground stability and drainage conditions. These inspections should identify any cracking or deformation on the peat surface, excessive settlement on structures, drain blockages or springs etc. A suitably qualified and experienced geotechnical engineer or engineering geologist will monitor excavation works. The earthworks will not be carried out during severe weather conditions. **Movement or Instability Observed in Monitoring Areas** Where excessive movement has been observed in the installed monitoring, the following measures will be taken; • All construction activities will be suspended in the area, • The Contractors Geotechnical Engineer shall carry out an assessment of the peat instability including drainage. The Contractors Geotechnical Engineer shall compile a report outlining the surveys undertaken, the potential cause of the instability, assessment of any increased risk caused by the instability, and the further measures required to manage this risk,

Ref No.	Related to	Location	Mitigation Measure	Monitoring
				• An increased monitoring regime shall be specified including increase in number of monitoring post lines, decrease on monitoring post spacing and an increase in the frequency of monitoring post observations, • Should no further movement be detected, construction activities will be recommenced while maintaining the increased monitoring regime, • Should further excessive movement be detected, the Contractors design and project geotechnical engineer will need to be informed and the design of further reinstatement works will be required such as excavation of the disturbed material, installation of a granular berms or similar. **Check Barrages** Check barrages are permeable granular structures constructed within the path of a landslide to prevent the further downhill or downstream movement of the disturbed material. Typically, these will be constructed of locally generated stone material, often of large sizing. The large material sizing will allow water to pass through the check barrage material, avoiding a build-up in hydrostatic pressure while containing the debris within the slide. Check barrage will typically be a dam structure between 1 and 1.5 m high, with slopes between 1(V):1.5(H) or 2(H), and constructed across the full section of topographic valley and/or water course. The check barrage is an emergency preventative measure only to restrict or reduce the movement of displaced material downslope and away from a watercourse. Further assessment and reinstatement

Ref No.	Related to	Location	Mitigation Measure	Monitoring
				works will likely be required should a landslide occur, and engagement and reporting of the incident will be required by all parties involved in the project. Should the check barrage no longer be required it may be removed and the area reinstated. The use of check barrages is only proposed for use in the unlikely event of a large landslide event. The proposed mitigation measure of check barrages are only indicative, targeting potential topographic channels but will vary depending on the location and nature of the slide event. The Contractors will need to include an assessment of potential check barrage locations and method for their construction within the emergency procedures in their associated Method Statement documentation. **Catch Ditches** Similarly, ditches may also slow or halt runout, although it is preferable that they are cut in non-peat material. Simple earthwork ditches can form a useful low-cost defence. Paired ditches and barrages have been observed to slow peat landslide runout at failure sites.
MM438	Proposed grid connection and works areas of the proposed TDR	EIAR Chapter 7	Construction method statements and templates will be implemented to ensure that the proposed GCR infrastructure is installed in accordance with the correct requirements, materials, and specifications of ESBN and EirGrid. The ducts will be installed and the trenches will be reinstated in accordance with ESBN/EirGrid, private third-party landowners and County Council specifications.	As required by the Contractor's CEMP.
			For concrete and asphalt/bitmac road sections, it is proposed to carry out immediate permanent reinstatement in	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with the local authority. Surplus excavated bitmac material will be brought to a recycling facility for processing in accordance with the circular economy approach.	
			For offroad i.e. access tracks/grass sections, the cable section will be laid within an existing access track. Silt fences will be utilised along the offroad sections. Short sections (<50m) will be excavated and reinstated on a phased basis with suitable excavated material to ground level and finish in a gravel track as per the EirGrid/ESBN specification. By limiting the excavated sections, the potential for compaction or erosion is limited.	
Hydrology and Hydrogeology				
MM39	Alteration of Surface Water Quality	EIAR Chapter 8	The SWMP will be implemented by the appointed contractor and will be regularly audited throughout the construction phase. The Environmental Manager will be required to stop works on site if he/she is of the opinion that a mitigation measure or corrective action is not being appropriately or effectively implemented.	Local surface water features at the proposed wind farm site boundary are monitored pre-construction and during construction to take account of any variations in the quality of the local surface water environment as a result of activities related to the proposed project. A surface water management plan (SWMP) is included in Appendix 2-8. The main water parameters in terms of their potential to cause damage to aquatic life, ecosystems, human health, and water quality in the receiving waters are outlined in the proposed surface water monitoring schedule. Inspections of silt traps are critical after prolonged or intense rainfall while maintenance will ensure maximum effectiveness of the proposed measures. Stockpiles will be evaluated and monitored and kept stable for safety and to minimise erosion. Turbidity monitors/alarms will be strategically placed on the Lattone_010 River and Owenmore (Manorhamilton)_020 River to assess the effects, if any,
			All near-stream construction activities will be conducted in compliance with Inland Fisheries Ireland's (IFI) guidance document "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites" (2016).	
MM40	Alteration of Groundwater Quality	EIAR Chapter 8	During the construction phase, all works associated with the construction of the wind farm will be undertaken in accordance with the guidance contained within CIRIA Document C741 'Environmental Good Practice on Site' (CIRIA, 2015). A karst protocol will be employed during construction and involves a series of steps and methodologies in karst areas. The karst feature inspection protocol is documented by Madden & O'Hara (2016) . Ground stabilisation measures to	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			be employed include compaction, grouting/stabilisation, geotextile or utilising raft foundations. Where weathered limestone or karst is encountered at formation level, the feature will be mapped in detail. Each feature and associated mitigation measure will be documented and included in the safety file for the Proposed Project. The stabilisation measures will be approved by a geotechnical engineer. Where infilling or grouting is required, works will be supervised by a suitably qualified hydrogeologist to ensure there is no effect on groundwater.	of the main construction works including bridge crossings and turbine base construction. Elevated turbidity could result from a number of on-site construction activities or from off-site sources i.e. erosion, forestry or agricultural activities. Where elevated turbidity is noted both upstream and downstream, visual checks will be undertaken. All monitoring equipment will be calibrated regularly to ensure that results are accurately measured. Corrective actions will include: • Investigate whether channels used to convey water are protected with vegetation, erosion control blankets, or a similar erosion control measure. If not, implement appropriate erosion control measures. • Check all outlets and locations of turbidity monitors. • Stop dewatering if the downgradient area shows elevated turbidity or erosion. • Check outlet protection or any velocity dissipation device to ensure that erosion does not take place. • Ensure a stable, erosion-resistant surface (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlay) is maintained at outlets. • Check for leaking pumps, hoses, and pipe connections and fix same if identified. • A programme of inspection and maintenance will be designed, and dedicated construction personnel assigned to manage this programme. A checklist of the inspection and maintenance control measures will be developed, and records kept.
MM41	Alteration of Groundwater Flow	EIAR Chapter 8	Groundwater encountered will be managed and treated in accordance with CIRIA C750, 'Groundwater control: design and practice' (CIRIA, 2016).	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
				During the construction phase, field testing, sampling and laboratory analysis of a range of parameters will be undertaken at adjacent watercourses, specifically following heavy rainfall events (i.e., weekly, monthly and event-based as appropriate). **Groundwater Monitoring** The dewatering operations will be inspected once each day when dewatering is taking place to ensure that dewatering treatment controls are working correctly and to evaluate whether there are observable indicators of sediment discharges. Where any issues are encountered, action will be undertaken to correct any problems at the proposed project or with the dewatering controls that may have contributed to the discharges. Regular monitoring of groundwater (levels and quality) will take place using existing monitoring boreholes (See Figure 8-12 of Chapter 8) during the construction phase. The existing groundwater monitoring wells on site will be monitored on site during construction and for a period following cessation of construction activities (to be agreed with the relevant authorities).
MM42	Fuels & Chemicals	EIAR Chapter 8	With regards to on-site storage and handling of potentially pollutant materials: • All on-site refuelling will be carried out by a trained competent operative. • Mobile measures such as drip trays and fuel absorbent mats will be kept with all plant and bowsers and will be used as required during all refuelling operations; • A spill kit will be stored with the bowser and the person operating the bowser will be trained in its use;	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• All equipment and machinery will have regular checking for leakages and quality of performance and will carry spill kits; • Any servicing of vehicles will be confined to designated and suitably protected areas such as construction compounds; and • Additional drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.	
Material Assets				
MM43	Telecommunications	EIAR Chapter 15	In the unlikely event that a communication underground cable or link is damaged or interfered with during construction, the operator will be contacted to agree a repair which will be carried out as soon as possible at the developers cost. In addition, the developer has signed an agreement with 2RN and commits to restoring service to any end users that may have their service disrupted as a result of the proposed project. This is standard industry practice and will eliminate any potential effects in this regard.	As agreed with 2RN.
MM44	Aviation	EIAR Chapter 15	The following standard practices will be undertaken: • An aeronautical warning light scheme will be agreed with the IAA and Irish Air Corps; • The final as-constructed coordinates and dimensions of each turbine be mapped and provided to Leitrim County Council and other stakeholders, including the IAA and Irish Air Corps prior to erection of turbines to ensure that maps and databases are up-to-date for flight navigation; • 30 days' notice will be given to the IAA prior to any crane operations commencing during the construction phase.	As required by the Contractor's CEMP.
MM45			Appropriate waste management practices will be employed. Segregation of waste will be carried out to maximise the	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
	Waste Management (including wastewater)	EIAR Chapter 15	potential for waste recycling and minimise potential effect on waste services. Suitably permitted commercial waste collectors will be employed to remove any waste arisings generated from construction to the nearest appropriately licensed waste management facilities	
			Wastewater from the staff welfare facilities will be managed by means of a sealed storage tank, with all wastewater being tankered off-site occasionally (as required) by a permitted waste collector to a wastewater treatment plant. The permitted waste collector will also be responsible for ensuring clean water storage tanks are topped up. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. It is proposed to use low volume flush toilets (such as those in commonly used port-a loos) and low volume sink faucets to significantly reduce the volume of waste water produced. Waste management measures are set out within the CEMP Appendix 2-4 of this EIAR.	
Noise & Vibration				
MM46	Noise and Vibration Best Practice	EIAR Chapter 9	The contract documents will specify that the Contractor undertaking the construction works will be obliged to adopt best practice noise abatement measures contained in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration. To ameliorate any potential noise impacts that may present during the construction phase, a schedule of noise control measures has been formulated in accordance with best	**Monitoring** Prior to the commissioning of the wind farm, the developer will submit a Noise Compliance Monitoring Programme (NCMP) to the planning authority for written agreement. The NCMP will include a detailed methodology for noise measurement procedures for recording results and a protocol for managing complaints. Compliance noise surveys will be undertaken to verify compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of a wind farm being commissioned. The guidance outlined in the IOA GPG

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			practice guidance, and the contract documents will require the Contractor to implement these measures. These are outlined in the Construction and Environmental Management Plan (CEMP) that has been prepared for the proposed project (see Appendix 2-4).	and Supplementary Guidance Note 5: Post Completion Measurements (July 2014) will be taken into account. In the unlikely event that an exceedance of the noise criteria is identified as part of the commissioning assessment, relevant corrective actions will be taken. For example, implementation of noise reduced operational modes resulting in curtailment of turbine operation can be implemented for specific turbines in specific wind conditions to ensure turbine noise levels are within the relevant noise criterion or conditions turbine noise limits. Such curtailment can be applied using the wind farm SCADA system with a marginal reduction of the wind turbine performance.
Air Quality and Climate				
MM47	Air Quality – Communications	EIAR Chapter 11	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the head or regional office contact information. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in the IAQM Guidance. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections.	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being

Ref No.	Related to	Location	Mitigation Measure	Monitoring
				carried out and during prolonged dry or windy conditions. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
MM48	Site Management	EIAR Chapter 11	• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. • Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	As required by the Contractor's CEMP.
MM49	Preparing and Maintaining the Site	EIAR Chapter 11	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is actives	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			for an extensive period. Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. • Cover, seed or fence stockpiles to prevent wind whipping.	
MM50	Operating vehicle/machinery and sustainable travel	EIAR Chapter 11	• Ensure all vehicles switch off engines when stationary – no idling vehicles. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. • Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. • Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	As required by the Contractor's CEMP.
MM51	Operations	EIAR Chapter 11	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skip.	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	
MM52	Waste Management	EIAR Chapter 11	Avoid bonfires and burning of waste materials.	As required by the Contractor's CEMP.
MM53	Measures Specific to Earthworks	EIAR Chapter 11	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable. Only remove the cover in small areas during work and not all at once.	As required by the Contractor's CEMP.
MM54	Measures Specific to Construction	EIAR Chapter 11	• Avoid scabbling (roughening of concrete surfaces) if possible. • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. • For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.	As required by the Contractor's CEMP.
MM55	Measures Specific to Trackout	EIAR Chapter 11	• Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			tracked out of the site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site logbook. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. • Access gates to be located at least 10m from receptors where possible.	
Cultural Heritage				
MM56	Topsoil / Excavations	EIAR Chapter 14	A suitably qualified archaeologist will be appointed to monitor all stripping of topsoil across the proposed project. All stripping of topsoil across the proposed project will be monitored by a suitably qualified archaeologist. Should any features of archaeological potential be discovered during the course of the works further mitigation will be implemented as required and agreed with the National Monuments Service.	As required by the Contractor's CEMP.
MM57	Embedded	EIAR Chapter 14	Direct effects have been identified to townland boundary TB06, as part of the construction of the proposed project. Works will be subject to archaeological monitoring and a detailed photographic and written record will be made of the	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			section of the townland boundary that is removed. This work will be carried out by a suitably qualified archaeologist under licence to the NMS. The upstanding remains of a hut site (CH02) are located within the proposed T03 hardstand will be demolished during construction of the proposed project. The remains will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist. The upstanding, ruinous remains of a building (CH12) are located within the proposed T06 hardstand and turbine base and will be demolished during construction of the proposed project. The remains will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist. The upstanding remains of a short length of drystone wall (CH22) are located within the extent of a proposed borrow pit and will be demolished during construction of the proposed project. The remains will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist. A short section of a drystone wall field boundary (CH50) is located within the route of the proposed TDR haul road, and will be demolished during construction of the proposed project. The remains will be subject to a detailed photographic and written record prior to the construction of	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			the proposed project, carried out by a suitably qualified archaeologist. A c. 20m length of the stone wall of the Leminea Bridge (CH74) is required to be temporarily lowered to accommodate turbine oversail. The remains will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist. Following the delivery of the turbine components the wall will be reinstated. A c. 30m length of a drystone wall along the southern side of the N56 (CH76) is required to be temporarily removed to accommodate turbine oversail. The remains will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist. Following the delivery of the turbine components the wall will be reinstated.	
Traffic and Transportation				
MM58	Traffic Management Plan (TMP)	EIAR Chapter 16	The TMP is a comprehensive set of mitigation measures that will be put in place by the Contractor before and during the construction phase of the project to minimise likely significant effects of construction traffic. It is available as Appendix 16-1. The following mitigation has been incorporated into the TMP: • Traffic movements will be limited to 07:00 – 19:00 Monday to Friday and 07:00 – 14:00 Saturday, unless otherwise agreed in writing with Leitrim County Council.	As required through the TMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• HGV movements will be restricted during peak road network hours from 08:00 – 09:00 and 17:00 – 18:00 Monday to Friday, unless otherwise agreed in writing with Leitrim County Council. • HV movements for the proposed development shall be directed away from sensitive areas (i.e., schools, urban centres), where possible. • A temporary over-run area will be provided with a suitably bound surface treatment to prevent migration of loose material onto the carriageway and to maintain safe conditions for all road users in liaison with Leitrim County Council. Temporary street lighting will be implemented to always ensure adequate and uniform lighting levels in liaison with Leitrim County Council to provide suitable temporary lighting during the works. • Temporary protection for drainage kerbs will be provided, in liaison with Leitrim County Council, to maintain drainage function during the works. • Temporary barriers will be provided, in liaison with Leitrim County Council, to prevent inadvertent use of temporary over-run areas and to maintain safe conditions for all road users. • Overhead cables will be managed in liaison with the utility provider to ensure safe clearance is always maintained. • Affected sections of footpath will be physically closed and a suitable diversion route provided for the duration of the AILs deliveries. This will be implemented in liaison with the Leitrim County Council to ensure pedestrian safety. • Utility poles and associated cables will be properly secured in liaison with the utility provider to maintain safety during the works. • During the delivery of the AILs, no parking will be permitted along the access route for unloading or	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			activities that result in blockages of access routes. Such vehicles will be immediately requested to move to avoid impeding the works and traffic on the road network. • Measures to remove queuing of construction traffic on the adjoining road network, including turning space and queuing of convoy HVs will be provided within the sites. • Wheel wash equipment will be used on site to prevent mud and stones from being transferred from the site to the public road network. • Activities generating dust will be minimised where practical during windy conditions. Loads will be covered on arrival and departure from the site, where required. • Clear construction warning signs will be placed on the public road network to provide advance warning to road users of the presence of the construction site and slower moving vehicles making turning manoeuvres. • Access to the construction site will be controlled by onsite personnel and all visitors will be asked to sign in and out of the site by security/site personnel, and site visitors will all receive a suitable Health and Safety site induction. • Security gates will be sufficiently set back from the public road, so that vehicles entering the site will stop well clear of the public road. • The final TMP will also include provisions by the appointed Contractor, for details of the intended construction practice for the development, including: Traffic Management Co-ordinator – a competent traffic management coordinator will be appointed for the duration of the proposed development, and this person will be the main point of contact for all matters relating to traffic management. Delivery Programme – a programme of deliveries will be submitted to Leitrim County Council in advance of the delivery of the turbine components to the site.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Information to locals – residents in the area will be informed of any upcoming traffic related matters, e.g., temporary lane/road closures (if required) or any night deliveries of turbine components, via posters in public places. Information will include the contact details of the Developer's representative, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. • Pre and Post Construction Condition Survey – A pre-construction survey of roads on the approach to the site will be undertaken prior to the commencement of construction to record existing conditions. A post-construction survey will be carried out following completion of the works to identify any remedial measures required to restore the road to at least its pre-construction condition, at the Applicant's expense. The timing of these surveys will be agreed with Leitrim County Council. • Liaison with Local Authorities – liaison with Leitrim County Council, including the roads and transport section, through which the delivery route traverses, and An Garda Siochána, during the delivery phase of the AILs, wherein an escort for all convoys may be required. • Temporary Alterations – implementation of temporary alterations to road network at critical junctions. • Travel plan for construction workers – a travel plan for construction staff and subcontractor construction staff. • Temporary traffic signs – As part of the traffic management measures, temporary traffic signs will be put in place. • Traffic Management Operatives (TMOs) will be present at site access point during peak delivery times.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Traffic Management Operatives (TMOs) will be present for road closures or other works along the grid connection route, as required. • Delivery Times of Large Turbine Components – The management plan will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.	
MM59	Junction Visibility	EIAR Chapter 16	Maintenance of hedgerows within the visibility splays will be undertaken, where necessary, to ensure that the required sightlines are maintained and to prevent overgrown vegetation from restricting visibility at the access and crossing points during construction activities (see Drawings No. 10955-2070 to 10955-2079. Such works will be carried out outside the bird breeding season.	As required through the TMP.
MM60	Haul Routes	EIAR Chapter 16	Only essential deliveries will be scheduled to occur on the same days as the concrete pours.	As required by the Contractor's CEMP.
			Maintenance of hedgerows within the visibility splays will be undertaken, where necessary, to ensure that the required sightlines are maintained and to prevent overgrown vegetation from restricting visibility at the access and crossing points during construction activities (see Drawings No. 10955-2070 to 10955-2079. Such works will be carried out outside the bird breeding season.	As required by the Contractor's CEMP.
			Mitigation measures on the haul roads and cable route includes: • Selection of viable routes with the lowest effect on the road network. • Avoidance of sensitive receptors and urban settings: ○ The access route encourages the use of the existing infrastructure in the area while	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			avoiding the local road and potential sensitive receptors. ○ The TDR is along national roads with largest capacity to accommodate the vehicles. ○ The typical construction materials are obtained from borrow pits onsite and from local quarries in the proximity of site. ○ Restricting HV movements during peak sensitive times on the road networks (i.e., at school times). • To mitigate the effects of the AIL delivery on the road network, advanced works will be undertaken (i.e., road edge strengthening, making signs demountable, utility diversions etc). The hardstanding works areas will be temporary in nature and removed once the final turbine is delivered to site.	
MM61	Trench Reinstatement	EIAR Chapter 16	To mitigate the effects of the GCR works on the road network, at the time of the construction work and in advance of the required road closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a road closure. To mitigate the effects of the cable laid within the public road, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the "Purple Book" best guidance and practices. The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities in advance of the works. The Contractor will be responsible for arranging for the required road opening licences.	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
MM62	Project Delays	EIAR Chapter 16	All required road opening licences, agreements with the Local Authorities (Leitrim, Sligo, and Donegal), and An Garda Síochána to facilitate the movement of AILs will be sought by the appointed Contractor in a timely manner to avoid delays to the project.	As required by the Contractor's CEMP.
Operational Phase				
Description of Proposed Project				
MM63	Operational Health and Safety	EIAR Chapter 2	Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits.	As required through the project Operational Management Plan / Health and Safety Plan.
			Signs will be erected at suitable locations across the site as required for the ease and safety of operation of the wind farm. Further details are provided in the CEMP (Appendix 2-4 of the EIAR).	As required through the project Operational Management Plan / Health and Safety Plan.
			The components of a wind turbine are anticipated to have a useful lifespan of 35 years or more and are equipped with a number of safety devices to ensure safe operation during their lifetime. During the operation of the wind farm regular maintenance of the turbines will be carried out by the turbine manufacturer or appointed service company. A project or task specific Health and Safety Plan will be developed for these works in accordance with the site's health and safety requirements.	As required through the project Operational Management Plan / Health and Safety Plan.
Population and Human Health				
MM64	Health and Safety	EIAR Chapter 4	All activities carried out during the operational phase will be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 as amended and Regulations made under this Act.	As required through the project Operational Management Plan.
Biodiversity				
MM65	Biodiversity	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including:	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• Embedded water quality mitigation measures (Section 5.5); • No clearance of shrubs within the bird breeding season. Follow best practice guidance retention trees (NRA, 2006a); • Monitoring and treatment for the prevention of spread of INNS. The following will be implemented for the protection of bat species: • Turbine cut-in speeds 5.5m/s 30mins dusk/dawn; • Feathering of blades; • Ongoing maintenance of 100m Bat buffers; and • Removal of building 3.	
Ornithology				
MM66	Collision Risk Mitigation – Common Kestrel	EIAR Chapter 6	Prey availability for common kestrel in bat mitigation felling buffers will be reduced via the following habitat management measures implemented throughout the operational phase: creation of uniformly short vegetation heights via infrequent mowing or trimming of vegetation; removal of timber / brash from felling and chipping of tree stumps to ground level; spread and compaction of chipped wood and spoil to create a flat surface to prevent rapid colonisation of new vegetation; and piping / filling over of open field / forestry drains.	Throughout operational phase.
MM67	Collision Risk Mitigation – White-Tailed Eagle	EIAR Chapter 6	Any livestock carcasses or other large animal remains (including fallen stock) within the operational proposed project site and along site access routes will be removed as soon as practicable (and in any case within 24 hours of discovery) and disposed of in accordance with relevant animal by-product requirements, to avoid attracting scavenging raptors into the turbine envelope. Carcass removal is recognised as a practical measure to reduce eagle	Throughout operational phase.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			exposure to anthropogenic mortality risks by reducing attraction to hazardous areas	
Land, Soils and Geology				
MM68	Geohazard/ Peat and Soil Stability	EIAR Chapter 7	Communication of the baseline peat risk environment to appropriate site operatives; Ongoing monitoring of residual risks and maintenance is required.	Monitoring will consist of regular inspection of drains to prevent blockages and inspections of specific areas after a significant rainfall events as well as communication of residual peat risk to appropriate site operatives. There will be ongoing monitoring of residual risks and maintenance if required.
MM69	Geological Heritage Sites	EIAR Chapter 7	The following measures are proposed for the Dough Mountain GHS during operation: • Continued liaison with the Geological Survey Ireland (GSI) on any relevant operational updates or findings; • Provision of any relevant geological or geotechnical monitoring data to the GSI, if applicable; • Maintenance of site access to known geological features, where safe and practicable; • Notification to the GSI of any geological features that may become visible through natural processes (e.g., erosion or vegetation clearance).	As required by the project Operational Management Plan.
Shadow Flicker				
MM70	Turbine Shutdown	EIAR Chapter 10	A Turbine Shutdown Scheme will be the primary mitigation measures for the shadow flicker effect and will be implemented for the proposed project based on the predicted shadow flicker at each shadow flicker receptor. The Turbine Shutdown Scheme will be employed to ensure that shadow flicker does not occur at the affected property(s). A process will be established by the proposed wind farm operator whereby local residents can highlight any concerns or complaints about the operation of the scheme. All concerns raised will be investigated by the proposed wind farm operator and the turbine shutdown software adjusted accordingly, to ensure that the turbines	As required through the Turbine Shutdown Scheme.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			shut down at the appropriate time. After adjustments are made to the software, the flicker occurrence will be monitored where the residents still report flicker occurrence. This will determine any further adjustments that might be required to shut down times for any given turbine.	
Material Assets				
MM71	Aviation	EIAR Chapter 15	No significant effects on aviation are anticipated during the proposed operational phase Therefore no specific mitigation measures are proposed in terms of aviation. However, the following standard practices will be undertaken: • The turbines will be required to be included in the IAA Electronic Air Navigation Obstacle Dataset; • Lighting of the proposed wind turbines in the interest of aviation safe-guarding (i.e., an aeronautical warning light scheme), as the proposed project would be considered as an en-route obstacle, will be required, will be agreed with the IAA, and Irish Air Corps; • As-constructed coordinates of the turbines will be provided to the IAA; • 30 days' notice will be given to the IAA prior to any crane operations commencing during the operational phase. • As mentioned, the details regarding lighting will be agreed with the IAA and will be applied to the appropriate turbines and met mast. This will ensure the required visibility of the proposed project to any local aircraft during the operational phase. The final locations and dimensions of each turbine will have been mapped and provided to Leitrim County Council and other stakeholders (including the IAA) prior to erection of turbines to ensure that maps and databases are up-to-date for flight navigation.	To be agreed with the relevant stakeholders.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
MM72	Telecommunications	EIAR Chapter 15	In the event that planning consent is granted, it will be imperative that all mitigation solutions related to 2RN's VHF radio link from Truskmore to Monaghan are thoroughly discussed and agreed upon with 2RN. Consultation with 2RN to date has indicated that they have no objection to the proposed wind farm proceeding, provided that any necessary mitigation measures are implemented at the expense of the Applicant. 2RN has outlined their preferred mitigation solutions in order of priority: 1. Re-routing the radio link via an alternative transmitter site. 2. Utilising fibre circuits at existing Points of Presence (POP) sites. 3. Replacing the current link with an alternative point-to-point (PTP) radio link. Following further consultation and implementation of one of the above mitigation strategies there will be no significant effects to this link. If any issue arises in relation to the Adelphi Net1 radio link, the potential mitigation solutions as agreed with the service provider are as follows: 1. Increasing the installation height of the radio antenna at Dough Mountain. 2. Relaying the link via a relay mast situated within the proposed wind farm site.	To be agreed with the relevant stakeholders.
Noise and Vibration				
MM73	Noise and Vibration	EIAR Chapter 9		Prior to the commissioning of the wind farm, the developer will submit a Noise Compliance Monitoring Programme (NCMP) to the planning authority for written agreement. The NCMP will include a detailed methodology for noise measurement procedures for
MM74	Fixed Plant	EIAR Chapter 9	At the detailed design stage the following measures will be employed to ensure the noise levels at NSL are within the proposed criterion and any potential for noise disturbance is minimised:	

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			• All mechanical plant items e.g. fans, pumps etc. shall be regularly maintained to ensure that excessive noise generated by any worn or rattling components is minimised. • There are no tonal or impulsive characteristics from the plant operation audible at any NSL during night time periods.	recording results and a protocol for managing complaints. The NCMP will include both commissioning noise surveys to test compliance with the noise levels in the planning condition, and also a Complaint Management Protocol with a clear path to address any noise complaint. Under the NCMP, compliance noise surveys will be undertaken to verify compliance with any noise conditions applied to the development. It is common practice. Surveys will commence to commence surveys within six months of a wind farm being commissioned. The guidance outlined in the IOA GPG and Supplementary Guidance Note 5: Post Completion Measurements (July 2014) will be taken into account. .
Air Quality and Climate				
Traffic and Transportation				
MM75	Operational Traffic	EIAR Chapter 16	In the event that a turbine requires replacing in the future, the proposed TDR at the construction phase will be considered, and the swept path analysis will take into account any road improvements and changes to the network.	As required by the project Operational Management Plan.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			Decommissioning Phase	
Population and Human Health				
MM76	Decommissioning Activities	EIAR Chapter 4	All activities carried out by the appointed Contractor during the decommissioning phase will be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 as amended and Regulations made under this Act.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Biodiversity				
MM77	Decommissioning activities	EIAR Chapter 5	Where likely significant effects on IEFs have been identified appropriate mitigation will be implemented, including: • Embedded water quality mitigation measures (Section 5.5); • Additional mitigation measures consisting of management of sedimentation and pollution (Section 5.6.2.1.4). • Manual control & herbicide treatment to prevent the spread of invasive species.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Ornithology				
MM78	Decommissioning Disturbance Mitigation	EIAR Chapter 6	The same mitigation measures as for the pre-construction and construction phases will be implemented.	As required through the Contractor's CEMP.
Land, Soils and Geology				
MM79	Decommissioning activities	EIAR Chapter 7	A fuel management plan to avoid contamination by fuel leakage during decommissioning works will be implemented.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Hydrology and Hydrogeology				
MM80	Decommissioning activities	EIAR Chapter 8	The hydrocarbon interceptor will be in place at the proposed substation site with regular inspection and maintenance, to ensure optimal performance. Given the requirement for sanitary facilities during decommissioning works, wastewater effluent will continue to be directed to the on-site holding tank, from where it will be	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			tankered off-site to a suitably licensed wastewater treatment plant.	
Noise and Vibration				
MM81	Noise and Vibration	EIAR Chapter 9	In relation to the decommissioning phase, similar overall noise levels as those calculated for the construction phase would be expected, as similar tools and equipment will be used. The noise and vibration impacts associated with any decommissioning of the proposed project can be considered comparable to those outlined in relation to the construction phase albeit less works will be required as only above ground structures will be removed. The Contractor undertaking the construction and decommissioning works will be obliged to adopt best practice noise abatement measures contained in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Air Quality and Climate				
MM82	Air Quality: Decommissioning activities	EIAR Chapter 11	The same mitigation measures implemented during the construction phase will be applied during the decommissioning works for the management of dust.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Material Assets				
MM83	Waste management	EIAR Chapter 15	Appropriately permitted waste collectors will be employed to remove any municipal waste, wastewater, or demolition waste generated within the wind farm site. The majority of wastes from decommissioned infrastructure will be recyclable, and the large items (turbines, met mast) will be collected and processed by appropriately licensed	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.

Ref No.	Related to	Location	Mitigation Measure	Monitoring
			specialist companies with the capability to process these items correctly.	
			Appropriately permitted waste collectors will be employed to remove any municipal waste, wastewater, or demolition waste generated within the wind farm site. The majority of wastes from decommissioned infrastructure will be recyclable, and the large items (turbines, met mast) will be collected and processed by appropriately licensed specialist companies with the capability to process these items correctly.	
MM84	Material assets	EIAR Chapter 15	Any additional mitigation measures proposed for the decommissioning phase will be proposed at the time of decommissioning and will be similar than those identified for the construction phase.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Traffic and Transportation				
MM85	Decommissioning Activities and Traffic	EIAR Chapter 16	A detailed TMP will be undertaken and will consider any road improvements and changes to the network. The plan will also consider the future baseline traffic in order to minimise the decommissioning phase effects in the vicinity.	As required by the agreed decommissioning plan and TMP / mitigation measures agreed at the time of decommissioning.