

Ballyfeeny Green Energy Project



Environmental Impact Assessment Report Volume II Chapter 18 - Schedule of Mitigation and Monitoring September 2025

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Acronyms

Term	Meaning
GCR	Grid Connection Route
TDR	Turbine Delivery Route
EIAR	Environmental Impact Assessment Report
EIA	Environmental Impact Assessment
CEMP	Construction Environmental Management Plan
KERs	Key Ecological Receptors
ECoW	Environmental Clerk of Works
CM	Construction Manager
SHMP	Species and Habitat Management Plan
Ha	hectares
T01	Turbine 1
T02	Turbine 2
T03	Turbine 3
T04	Turbine 4
T05	Turbine 5
T06	Turbine 6
EcoECoW	Ecological Clerk of Works
SWMP	Surface Water Management Plan
WMP	Waste Management Plan
EU	European Union
IWEA	Irish Wind Energy Association
EPA	Environmental Management Plan
ERP	Emergency Response Plan
HDD	Horizontal Directional Drilling
CO₂	Carbon dioxide
PSDP	Project Supervisor Design Process
PSCS	Project Supervisor Construction Stage
SPA	Swept Path Analysis
ESB	Electrical Supply Board
RLB	Redline Boundary
NMS	National Monument Service
ZoN	Zone of Notification
RMP	Records of Monuments and Places
AIA	Archaeological Impact Assessment
ESBN	Electrical Supply Board Networks
HSA	Health and Safety Authority
LOS	Line-of -Sight
IAA	Irish Aviation Authority
IAC	Irish Aeronautical Clearance
DoD	Department of Defence
NCN	Non-Conformances
SWN	Stop Work Notice
WEI	Wind Energy Ireland
NGO	Non-governmental Organisations

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18 Schedule of Mitigation and Monitoring

18.1 Introduction

This Chapter assesses the likely significant direct and indirect effects on mitigation and monitoring during construction, operational and decommissioning phases of the proposed Project.

The proposed Project includes six no. turbines and all associated infrastructure including Turbine Foundations, Turbine Hardstands, Site Access Tracks, Wind Farm Internal Cabling, Grid Connection Route (GCR), Relay Tower, Onsite Substation and works required along the public road network for the two Turbine Delivery Route (TDR) options to facilitate the delivery of turbine components. A full description of the proposed Project is provided in **Chapter 2 – Project Description**.

The Applicant is in receipt of a notification of opinion by the Local Authority on design flexibility. The notification is provided in **Appendix 1.6 DFR-25-1 Notification of Opinion by LA**. This opinion from the Local Authority confirmed that it was *‘appropriate that the proposed application be made and decided before the prospective applicant has confirmed certain details of the application’*.

Chapter 1 – Introduction, Section 1.6 Approach to Design Flexibility, outlines with respect to the notification of opinion by the Local Authority, the Applicant in this EIAR, assesses three distinct Technology Options within the range outlined by the Local Authority and in accordance with the design flexibility parameters sought. **Chapter 1 – Introduction Table 1-3**, outlines the options and associated parameters that are used in the EIAR, comprising three potential turbines classified as Technology Option 1, 2 and 3.

A full description of the proposed Project and the three Technology Options is provided in **Chapter 2 - Project Description**.

18.2 Purpose of the Summary

The purpose of EIA is to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts.

This chapter of the EIAR document sets out a summary, for ease of reference, of the range of methods described within the individual chapters of this EIAR document which are proposed as mitigation and for monitoring during the construction and operational phases of the proposed development.

It is intended that this chapter of the EIAR document will provide a useful and convenient summary to the competent/consent authority of the range of mitigation and monitoring measures proposed. EIA related conditions are normally imposed by the competent/consent authority as part of conditions of planning consent and form a key part of the Impact Anticipation and Avoidance strategy.

Conditions are principally used to ensure that undertakings to mitigate are secured by explicitly stating the location, quality, character, duration and timing of the measures to be implemented.

A secondary role of EIA related conditions is to ensure that resources will be available and properly directed for mitigation, monitoring or remedial action, in the event that the impacts exceed the predicted levels.

Monitoring of the effectiveness of mitigation measures put forward in the EIAR document, both by the competent authorities and the developer, is also an integral part of the process.

Monitoring of environmental aspects against baseline conditions and the anticipated construction and operational levels is essential to ensure that the proposed development behaves in the manner predicted through the environmental assessment process and that the mitigation proposed is sufficient, efficient and manages any risk of impacts effectively.

The 2018 EIA Guidelines published by the Department of Housing, Planning and Local Government state:

“While not a mandatory requirement an EIAR can very usefully include a summary table of features and/or measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects of the proposed development, and a timescale for the implementation of proposed mitigation measures.”

The final key element of the implementation of the mitigation and monitoring is to ensure that what is proposed within the EIAR process is identified and implemented onsite. By summarising the required mitigation and monitoring within this chapter, it provides a summary and checklist of requirements which are in turn carried over to the development and execution of the Construction Environmental Management Plan (and associated plans) as shown in **Appendix 2.1 - CEMP**, and the operational environmental management plan and environmental management system for the projects operation.

18.3 Mitigation strategies

There are three established strategies for impact mitigation which have been employed through the EIAR process - avoidance, reduction and remedy. The efficacy of each is directly dependent on the stage in the design process at which environmental considerations are taken

into account (i.e. impact avoidance can only be considered at the earliest stage, while remedy may be the only option available to fully designed projects). All these strategies have been applied as appropriate to potential impacts identified in the EIAR, and the detail as well as the selection of the appropriate mitigation approach, strategy and measure is explained in each chapter,

18.3.1 Mitigation by Avoidance

Avoidance is generally the fastest, cheapest and most effective form of impact mitigation. Environmental effects and consideration of alternatives have been taken into account at the earliest stage in the project design processes. The consideration of alternatives with respect to the location and nature of the development has been described in **Chapter 3 - Consideration of Reasonable Alternatives**

18.3.2 Mitigation by Reduction

This is a common strategy for dealing with effects which cannot be avoided. It concentrates on the emissions and effects and seeks to limit the exposure of the receptor. It is generally regarded as the "end of pipe" approach because it does not seek to affect the source of the problems (as do avoidance strategies above) but to reduce the volume, frequency or intensity. The most obvious examples are the measures proposed to reduce the volume of traffic and HGV required for the project development as outlined in **Chapter 12 - Traffic and Transport**. As such this is regarded as a less sustainable, though still highly effective, approach.

18.3.3 Reducing the Effect

This strategy seeks to intercept emissions, effects and wastes before they enter the environment. It monitors and controls them so that acceptable standards are not exceeded. Examples include surface water management, shadow flicker elimination and noise attenuation measures.

18.3.4 Reducing Exposure to the Impact

This strategy is used for impacts which occur over an extensive and undefined area. Such impacts may include noise, visual impacts or exposure to noise. The mitigation is affected by installing barriers between the location(s) of likely receptors and source of the impact (e.g. berms, hedgerows, or security fences).

18.3.5 Mitigation by Remedy

This is a strategy used for dealing with residual impacts which cannot be prevented from entering the environment and causing adverse effects. Remedy serves to improve adverse

conditions which exist by carrying out further works which seek to restore the environment to an approximation of its previous condition or a new equilibrium, for example the planting landscaping and restoration plans.

18.4 Mitigation and Monitoring Summary Tables

The following provides a tabular summary for ease of reference, of the mitigation and monitoring measures identified in each chapter of the EIAR. All mitigation measures that will be implemented throughout the various phases of the proposed Project are set out in **Table 18.1**. These measures have been grouped according to both the relevant chapters of the EIAR and the specific project phases, as outlined below:

Project Phases:

- **Construction Phase**
- **Operational Phase**
- **Decommissioning Phase**

EIAR Chapters:

- **Chapter 5 – Population and Human Health**
- **Chapter 6 – Biodiversity**
- **Chapter 7 – Land, Soil and Geology**
- **Chapter 8 – Water, Hydrology (Flood Risk Assessment) & Hydrogeology**
- **Chapter 9 – Air Quality and Climate**
- **Chapter 10 – Noise and Vibration**
- **Chapter 11 – Landscape and Visual**
- **Chapter 12 – Traffic and Transport**
- **Chapter 13 – Archaeology, Architectural and Cultural Heritage**
- **Chapter 14 – Material Assets**
- **Chapter 15 – Shadow Flicker**

Table 18.1 provides a clear list of all the mitigation measures. This format makes it easy to check and track measures throughout the project. It will also help with future reporting and inspections.

In addition to mitigation, **Table 18.2** sets out all the monitoring measures that will be carried out during each phase of the project. These measures were outlined in the relevant EIAR chapters and are shown by:

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Table 18-1 List of Mitigation Measures

Ref No	EIAR Chapter	Section	Mitigation Measures
	Chapter 5 – Population & Human Health		Construction, operational and decommissioning phase mitigation measures in relation to elements under which human health could be impacted by have been outlined in the appropriate Chapters throughout this EIAR and are also presented in Appendix 2.1 - CEMP. The relevant chapters are: • Chapter 6 – Biodiversity • Chapter 7 - Land, Soils and Geology • Chapter 8 - Hydrology (Flood Risk Assessment) and Hydrogeology • Chapter 9 - Air Quality and Climate • Chapter 10 - Noise and Vibration • Chapter 11 - Landscape and Visual Impact Assessment • Chapter 12 - Traffic and Transport • Chapter 15 - Shadow Flicker Monitoring of surface water will be conducted in regards of quantitative and qualitative parameters during the construction phase. As a minimum, the following parameters will be recorded in surface waters: pH, conductivity, chemical oxygen demand, suspended solids and total dissolved solids. If monitored levels exceed the threshold levels outlined in S.I. No 77/2019 European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2009 to 2019, mitigation measures to protect surface water will be reviewed by the Environmental Manager acting on behalf of the Appointed Contractor.
Construction Phase			

MM1	Chapter 6 – Biodiversity		Best practice construction measures will be adopted to avoid worst-case potential construction and decommissioning impacts on Key Ecological Receptors. These are detailed within the CEMP (Appendix 2.1) and include measures to minimise working areas to avoid unnecessary habitat removal/alteration and disturbance, and measures to avoid/minimise the generation of additional noise, dust, light spill and vibration.
		Timing of works	These measures are employed to avoid damage, destruction and disturbance to sensitive species and their (nesting) habitats. These measures are achieved through timing of construction works throughout the nesting period; such timing of works is outlined as follows: To minimise the potential for impacts on nesting birds, removal or alteration of suitable nesting habitat (e.g., dense vegetation, trees, rough grassland), wherever possible, be undertaken outside of the peak breeding season (i.e., outside of the period mid-February to early September inclusive). Similarly, works with the potential to cause significant disturbance of sensitive breeding birds (e.g., through the generation of noise, dust, vibration and/or light spill, or through increased human activity) will also be undertaken outside of the peak breeding season where possible. It should be recognised that whilst undertaking works in late September to early February inclusive minimises the likelihood of effects on breeding birds, certain species may still nest during this period;

			Restricting activities in sensitive areas as far as practicable in the early part of the breeding season until the location and breeding status of nesting birds has been established; and clearance of uncultivated vegetation, i.e. trees and hedgerows, will be undertaken outside the main breeding bird season, from March to August inclusive. If other site clearance and construction activities are required to take place during the main breeding bird season, works to the habitat will be preceded by a nesting bird check, during which a suitably experienced ornithologist would check the affected habitat for any active nests. This check will be undertaken within 48 hours prior to the commencement of the works. If an active nest is encountered, an exclusion zone will be established within which works would be suspended until the nest is no longer active (to be confirmed by a suitably experienced ornithologist through ongoing monitoring of the nest). The size of the exclusion zone would be dependent on the species affected, the likely level of disturbance caused by the works relative to baseline disturbance levels on site, and the extent to which the nest site is screened from disturbance (e.g., by adjacent dense vegetation). Exclusion zones may range from 5m (e.g., for breeding passerines) to several hundred metres (e.g., for breeding raptors) in accordance with accepted disturbance distance sensitivities guidance provided by Nature Scot (Goodship and Furness, 2022). Kestrel nest will be assigned a 250m buffer zone. The Peregrine nest will be assigned a 750m buffer zone.
			To minimise the potential for impacts on sensitive species, works with the potential for harm and/or disturbance of such species will be undertaken

		Other Sensitive Receptors	at the appropriate time of year to avoid/minimise effects (in accordance with relevant best practice guidance). Where this is not possible, works will be preceded and/or accompanied by appropriate ecological monitoring and/or supervision.
		Roles and Responsibilities	<u>Environmental Clerk of Works</u> A suitably qualified Environmental Clerk of Works (ECoW) will be appointed by the Employer and will have overall responsibility for overseeing Environmental compliance on the Project and will report to the Construction Manager (CM). The ECoW will monitor the site works and ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment. The duties and responsibilities of the ECoW will include: • Monitor the implementation of the CEMP, carry out site inspections and audits to ensure the works are carried out in compliance with the CEMP; • Keep site records to demonstrate compliance with the CEMP, the Planning Permission and other statutory requirements; • Attend design team meetings, site meetings and other stakeholder meetings as required to ensure environmental compliance; • Advise site management and contractors on items such as: ○ Prevention of environmental pollution;

		○ Implementation of planning conditions linked to environmental and ecological sensitives and implementation of statutory requirements linked to environmental controls; ○ Suitability and use of plant, equipment and materials to prevent pollution; and ○ Environmentally sound methods and systems of working to prevent environmental hazards. • Ensure agreed mitigation measures are initiated, implemented and maintained throughout the construction phase and where required during the operational phase; • Liaise with Ecological Clerk of Works / Project Ecologist , Project Archaeologist, Hydrologist and Geotechnical Engineer and ensure their regular site visits and audits / inspections are completed; • Ensure adequate emergency response procedures are put in place for potential environmental hazards; • Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities; • Investigate incidents of significance and ensure corrective actions are carried out; • Identify environmental training requirements and arrange relevant training for all levels of site-based personnel.; and • Put communication protocols in place to ensure that all personnel on site are made aware that they are responsible for ensuring
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			good construction and environmental practice and that they are encouraged to provide feedback and suggestions for improvements. <u>Project Ecologist</u> The Project Ecologist will report to the ECoW and is responsible for the protection of sensitive habitats and species encountered during the construction phase of the development. The Project Ecologist will carry out periodic site inspections during construction. The responsibilities and duties of the Project Ecologist will include the following: • Review and input into any revisions of the CEMP in respect of ecological matters; • Carry out site visits to carry out environmental audits and reviews and report any issues noted; • In liaison with ECoW, oversee and provide advice on all relevant ecology mitigation measures set out in the EIAR and as may be required for compliance with the planning conditions; and • Carry out ecological monitoring and survey work as may be required during the construction phase and any survey work as may be required for compliance with the planning conditions from the Local Authority.
		Statutory Sites	Although no likely significant adverse effects are anticipated on Statutory Sites from the proposed Project, best practice construction methods

		outlined in Section 7.5.2 of Chapter 7 - Land, Soils & Geology and Section 8.9.2 of Chapter 8 – Water, Hydrology (Flood Risk Assessment) and Hydrogeology, have been prepared to mitigate impacts on the Land, Soils Geology, water, hydrology & hydrogeology environments. These include for Land, Soils and Geology environment, soil compaction and sealing, subsoil and bedrock removal, storage and stockpile management measures. For hydrology & hydrogeology environment, surface water management, fine sediment pollution, hydromorphology, accidental, spills and leaks and groundwater mitigation measures. These mitigation measures have been developed with the source-pathway-receptor links outlined in Section 6.6.2 in Chapter 6 of the EIAR in mind and are designed to break this link either by removing the source or disrupting the downstream pathway for pollution to the Statutory Sites. Otter is predominantly crepuscular in nature and construction activity will mostly be confined to daytime hours, thus minimizing potential disturbance related impacts to the species (Reid <i>et al.</i>, 2013).
	Habitats	The total maximum proposed habitat loss within the wind farm Site boundary, including GCR and TDR' during construction is 19.13ha and 1,659m of linear habitat. Measures that will be implemented during the construction, operation and decommissioning phases of the Project described within the CEMP include: No removal of habitats or movement of construction machinery will occur outside of the development works areas during the

		construction phase, clearly marking out the works footprint for site staff; • There is potential for retained trees and hedgerows to become damaged by construction activity whereby damage to roots would occur if they remained unprotected during construction activities. Measures to protect trees that will be implemented in full include the installation of tree protection barriers around the root protection zones of retained trees and hedgerows. Where essential works are required within root protection zones, ground protection (such as cellweb membrane) will be installed, following consultation with a qualified arboriculturist, to minimise risks of damage to roots; • Existing hedgerows and trees being retained within and in the vicinity of the wind farm Site will be protected in line with current guidance and on the advice of an appointed arboriculturist (NRA, 2006); • All edible and putrescible waste will be stored and disposed of at licensed waste facilities; • Construction materials will be stored and stockpiled according to strategies set out within Chapter 7 - Land, Soils & Geology and the CEMP; • A Species and Habitat Management Plan (SHMP) has been prepared for the proposed Project (Appendix - 6.10 SHMP) and will be implemented onsite via the Ecological Clerk of Works and the Project Ecologist. . The SHMP details that 3km of
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			hedgerow/treeline will be planted and 381m of existing hedgerow and treeline will be enhanced which will offset and provide net gain for biodiversity from any loss from the construction works and provide native tree and hedgerow to be utilised by fauna within the wind farm Site boundary. This will provide mitigation for the loss of 1,659m of linear habitat as a result of the proposed wind farm construction (and associated bat buffers) (Figure 6-13 in Chapter 6 of the EIAR). • The loss of oak-ash-hazel woodland (0.39ha)– and other woodland habitats totals 10.22ha to 10.66ha depending on the technology option. 9.32ha – 9.72ha of this, accounts for conifer plantation woodland lost. Newly planted broadleaf trees will be planted totalling 3km as part of compensation and shelter belts along site boundaries. This will provide mitigation for the loss of high value woodland habitats as a result of the proposed wind farm construction (and associated bat buffers) (Figure 6-13 in Chapter 6 of the EIAR). • Further mitigation is provided within the SHMP which has been prepared to incorporate the above mitigation and will be followed during the construction and operation phases (Appendix - 6.10).
		Birds – Habitat Loss and Fragmentation	The habitats within the wind farm Site are not suitable for nesting Peregrine, which mostly nest on cliffs and crags. The Site, however, may form part of the foraging range for the identified nesting Peregrine located adjacent to the wind farm Site boundary. Whilst Peregrine may suffer some loss of available habitat for foraging, as outlined in Section 6.6.2

			and 6.6.3 in Chapter 6 of the EIAR, effects are not likely to be significant given the species' foraging range (2-18km, SNH, 2016), its infrequent use of the site (based on activity survey data obtained to date) and the wide availability of alternative foraging habitat within the surrounding area. Kestrel was not recorded breeding or nesting within the Project; however, significant levels of foraging activity were recorded within the wind farm Site boundary, particularly over the footprints of T03, T04 and T05. There is suitable foraging habitat within the Site boundary for Kestrel, so no significant effects are likely for breeding Kestrel in respect of habitat loss. Mitigation to limit Kestrel foraging activity around turbines will be implemented. This will include the following measures to reduce prey availability within the hardstand areas associated with each turbine: • Removal of timber/brash from felling and chipping of tree stumps to ground level; • Piping/filling over of open field/forestry drains; • Spread and compaction of chipped wood and spoil to create a flat surface to prevent rapid colonisation of new vegetation; and • Ryegrass planting and the creation of uniformly short vegetation heights via infrequent mowing or trimming of vegetation around areas not proposed for other measures (e.g., replanting, enhancement).
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			Habitat loss for Hen Harrier, other raptors and passerines are not considered significant, due to the extent of suitable alternative foraging habitat within the surrounding area.
		Birds – Disturbance & Displacement	Potential effects are likely to be greatest during the breeding season (March and August inclusive), depending on the species under consideration, in this context, only Peregrine, Woodcock and Barn Owl are considered for disturbance/displacement effects. - As outlined in Chapter 10 - Noise & Vibration, best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working for the duration of the contract; 750m construction phase disturbance buffer for nesting Peregrine is advised (Ruddock & Whitfield, 2007). The nest site is located 686m west of T06. Survey data indicated that this nest site was used for two consecutive breeding seasons (2023 and 2024). There is no other suitable nesting habitat for Peregrine within closer proximity to the Project. The implementation of good practice measures would serve to minimize the risk of short-term disturbance, by avoiding construction activity around the active nest sites (by up to 750m depending on topography, which is

		considered the worst-case scenario) (Figure 6-14 in Chapter 6 of the EIAR); • 100-200m construction phase disturbance buffer for breeding Woodcock; • 150-175m construction phase disturbance buffer for Barn Owl (Shawyer, 2011); and • If an active nest is encountered, a disturbance buffer exclusion zone, in accordance with best practice guidelines, will be established within which works would be suspended until the nest is no longer active (to be confirmed by a suitably experienced ornithologist through ongoing monitoring of the nest). The size of the exclusion zone would be dependent on the species affected, the likely level of disturbance caused by the works relative to baseline disturbance levels on site, and the extent to which the nest site is screened from disturbance (e.g., by adjacent dense vegetation). Exclusion zones may range from 5m (e.g., for breeding passerines) to several hundred meters (e.g., for breeding raptors). If the 750m disturbance buffer for nesting Peregrine cannot be achieved, the presence of a permanent ECoW (experienced Project Ecologist with Stop Works Authority) is required to confirm: • If nest site is occupied during the breeding season overlapping with construction period via continuous monitoring;
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			If nest is occupied watching brief to be put in place to confirm successful breeding attempt; and; Watching brief to continue until chick(s) have fledged.
MM2		Bats	To comply with best practice guidance (SNH, 2021), a total of 1.011km/1.006km of hedgerow and treeline habitat will be lost as a result of the recommended buffers applied for bats at T01, T03 and T04, T06 (see Appendix - 6.10 SHMP for further details). There are an extensive network of linear landscape habitat features in the wider area that will be fully retained. In order to offset the loss of linear habitat during construction of the proposed Project and to provide additional new opportunities for commuting and foraging bats, it is proposed to; - Plant ~3km of new hedgerow and treeline habitat as discussed in Appendix - 6.10 SHMP. - The locations in which the proposed planting will take place has been identified in agreement with the involved Landowners in the Project. Areas for planting are shown in Appendix - 6.10 SHMP, Annex A of the SHMP. - Planting will be of species indigenous to the local area. As a result of the proposed replanting, there will be no likely significant effects with regard to loss of commuting and foraging habitat. Overall, the proposed replanting will result in a net gain of approximately 1.807km in linear landscape features within the site from the

			existing baseline predicted to be lost as a result of the construction works
		Mammal & Other Receptors	The proposed Project has the potential to result in habitat loss, fragmentation and disturbance impacts on faunal species that were recorded on the site but were not included as KERs. Given the extensive area of suitable habitat that will remain undisturbed within the Project and the avoidance of the most significant areas of faunal habitat notably mixed broadleaved woodland, scrub/ wet willow-alder-ash woodland, dry meadows and grassy verges and wet grassland (<0.01), no likely significant effects on KER and non-KER faunal biodiversity are anticipated as a result of the proposed Project. However, in accordance with best practice methodologies, a pre-construction mammal survey will be carried out immediately before the commencement of vegetation clearance to ensure that there is no evidence of resting/breeding sites of protected mammal species in or directly adjacent to the construction corridor despite the baseline pre-construction surveys confirming there are no known mammal resting or breeding sites which will be directly impacted by the proposed Project. This it to ensure no establishment of resting/breeding sites in the interim period. In the event that resting places of any protected mammal species become established in the interim period the EcoCoW (or the Project Ecologist) will advise on the appropriate course of action. The Project Ecologist will have 'Stop Work' authority and works will only proceed in the vicinity of

		the identified constraint in accordance with the advice of the ecologist and the relevant environmental legislation. Vehicle speeds onsite and within 150m of watercourse crossings will be limited to 25km/hr. Any incident of roadkill will be reported to the EcoCoW / Project Ecologist onsite and additional measures will be introduced where necessary. Where possible, excavations will be covered at night to prevent mammals getting trapped. If this is not possible, a method of egress will be provided to allow mammals to escape. The effect arising from the Project on Otter relates to the potential for pollutants arising from works associated with the construction of the Project to result in the run-off of silt, nutrients and other pollutants such as hydrocarbons and cementitious material into watercourses where Otter may be foraging. Best practice mitigation measures outlined in Section 7.5.2 of Chapter 7 - Land, Soils & Geology and Section 8.9.2 of Chapter 8 – Water, Hydrology (Flood Risk Assessment) and Hydrogeology, will be implemented to avoid the potential from pollutants arising from works associated with the Project. Otters are predominantly crepuscular in nature and construction operations shall generally be restricted to between 07:00hrs and 19:00hrs on weekdays and between 07:00hrs and 14:00hrs on Saturdays, thus minimizing potential disturbance related impacts to the species (Reid <i>et al.</i>, 2013).
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Operational Phase			
		Statutory Sites	During the operational phase, the operator of the wind farm will put the mitigation measures outlined in Section 8.9.2 of Chapter 8 – Water, Hydrology (Flood Risk Assessment) and Hydrogeology – Accidental Spills and Leaks in place during maintenance works. The revegetation of drainage works and other exposed surfaces, combined with the non-intrusive nature of operations, minimises the risk of sediment release into watercourses during the operational phase. To ensure controlled, inspected, and managed drainage discharges throughout the operational phase, attenuation/settlement ponds will be installed at discharge points. As per Appendix 2.1.1 - SWMP, following construction, the amount of on-site traffic will be negligible and there will be no particular risk of sediment runoff. Runoff from Site Access Tracks, Turbine Hardstands, and other works areas will continue to be directed to settlement ponds, which will be left in place. Check dams within the drainage channels will remain in place. The retention of this part of the drainage infrastructure will ensure that runoff continues to be attenuated and dispersed across existing vegetation before discharge into the ground. Details of settlement ponds and check dams are contained in Planning Drawings 23604-400 and 23604-401, respectively. In the operational phase of the wind farm, the reliance on the drainage system will be reduced as areas naturally revegetate. Once areas revegetate, this will result in a resumption of the

			natural drainage management that will have existed prior to any construction. Site Audits will be completed by the wind farm operator to ensure control measures set out during the construction phase will be followed through the operation phase. These audits will include; • Confirmation that fuels are stored appropriately; • The Appendix 2.1.2 - Waste Management Plan is adhered to; • Surface Water and run off control measures are in-place and functioning. All environmental records, including completed audits, will be retained in the project folder.
		Habitats	The best practice measures described in Section 6.7.2 in Chapter 6 of the EIAR in relation to construction methods will also be adopted during operational maintenance, as described within Appendix 2.1 - CEMP. Specifically, operational maintenance will minimize the level of removal of suitable habitat (e.g., grassland, hedgerows, scrub). Newly created or enhanced, habitats will be subject to condition assessment by an appropriately qualified ecologist as outlined in Appendix 6.10 - SHMP and Section 6.12 in Chapter 6 in the EIAR. The assessment will follow, the Hedgerow Appraisal System (Foulkes et al., 2013) each year after planting for the first five years (the establishment

			phase), and then every five years until (and including) year 20 (the operations phase). This will help identify ongoing management actions, such as weed control, gapping up and where fence maintenance is required. By Year 5 after planting, hedgerows should meet the criteria for 'Favourable' under the Hedgerow Appraisal System (which will be adapted for non-hedgerow "woody" habitats for woodland planting). In addition to the condition assessment, the diversity of the tree/shrub/climber component (otherwise described in the Hedgerow Appraisal System as 'canopy' forming species) should be the same, or greater than, that at planting (e.g. >10 native species per 30m length).
		Ornithology – Habitat Loss & Fragmentation	As mentioned above, habitat loss effects are not anticipated during the operational phase, therefore no bird receptors will be impacted by habitat loss or fragmentation during the operational phase of the Project.
		Ornithology – Disturbance & Displacement	As outlined in Section 6.6.3 in Chapter 6 of the EIAR, disturbance and displacement effects are not considered to be significant during the operational phase, therefore it is not anticipated that bird receptors will be impacted by disturbance and displacement during the operational phase of the Project.
		Ornithology – Collision Risk Management	Collision risk with turbines is highest (albeit Not Significant) for buzzard, kestrel, based on Collision Risk Modelling taking into account the respective conservation status of each species. For kestrel and buzzard,

		mitigation to limit foraging activity outlined in Section 7.7.2 in Chapter 7 of the EIAR around turbines will be implemented. This will include measures to reduce prey availability within the hardstand areas associated with each turbine. For Peregrine, the risk of collision is more likely associated with birds flying through the site when leaving or arriving at the breeding location rather than birds hunting around the turbines. As adult peregrines would normally be highly effective in avoiding man-made structures such as antennae, masts and turbines, the risk of collision is likely to be highest when inexperienced young birds are initially fledged and engaging in flight practice. As the young birds will often follow the adults in their initial practice flights, the turbines which pose the highest risk would be determined by the route used most regularly by the adults when exiting the breeding location. Mitigation to minimise risk of collision will be by real time monitoring of the breeding location through the breeding season or for as long as the breeding attempt is in progress. It is noted that in some years the breeding site may not be occupied, or breeding may be abandoned at any stage for various reasons, which is often inclement weather. In the early stage of the breeding cycle, focus will be on determining the routes taken by the adults when leaving the site (or arriving back at same). This may indicate the turbines which pose the highest potential risk of collision. Through June, emphasis will be on assessing the progress of the young and when the birds are fledged (the average date of fledging in
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		Britain/Ireland is 20th June). At this stage the birds are highly vocal and easily detected by an observer. From thence on, focus will be on the behaviour and movements of the young birds. For several weeks, the young will be fed by the parents whilst they practice hunting themselves. If there are two or more young, they will also engage in social activities and play 'hunting games' in the air. As the young grow stronger, they and the parents move increasingly further from the home cliff during the day, but the family may return there at night to roost. With time, the young will gain full independence and will roost away from the natal cliff (in this case the Ballyfeeny Rock quarry wall). From the above, it is considered that there is at least a 4-week period when the young birds are at the highest risk of collision with the turbines. In this period, it is proposed to curtail during daylight hours the turbine or turbines which are perceived (based on earlier observations) to pose the highest risk to fledgling collision. Alternatively, the approach might be to turn off the required turbines immediately when the young birds are becoming active in the morning (which will vary between days based on weather) and leave them off until they settle down later in the day (which could be for several hours). This will require daily on-site monitoring for the duration of the nesting season. As noted, the above mitigation would only be required in the years when the breeding territory is occupied and when young birds are reared successfully. As with most raptor species, breeding failure rate in
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		peregrine can be quite high, as shown by a 47% failure of occupied territories in the 2002 national breeding survey (Madden et al. 2009). <u>Monitoring</u> As described in Appendix - 6.10 SHMP and Section 6.12 in Chapter 6 in the EIAR, detailed monitoring (including collision fatality monitoring outlined above) will be undertaken to ensure the mitigation and enhancement measures specified in this chapter are satisfying their aims and inform any additional management measures and/or changes in management practices. In particular, monitoring will focus on the success of bird populations within and adjacent to the Project (notably in any identified mitigation and enhancement areas), and on monitoring turbine collisions through frequent carcass searches using, where available, trained detection dogs following SNH (2021) best practice guidance. Carcass monitoring will be conducted in concert with efficiency trials and carcass removal trials to inform the percentage of carcasses found to numbers likely missed due to scavenger activity and searcher efficiency. If monitoring identifies the requirement for any additional scope for mitigation and/or enhancements during operational period, these will be implemented into an updated SHMP in consultation with the Roscommon County Council. The SHMP will remain a live document and will be updated to incorporate any conditions of planning and/or recommendations from the ECoW for additional mitigation or enhancements. Full details of monitoring in relation to KERs are provided in the SHMP (Appendix 6.10).
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		Bats	As outlined above, newly created or enhanced, habitats will be subject to condition assessment by an appropriately qualified ecologist as outlined in Appendix 6.10 - SHMP and Section 6.12 in Chapter 6 in the EIAR. The assessment will follow, the Hedgerow Appraisal System (Foulkes et al., 2013) each year after planting for the first five years (the establishment phase), and then every five years until (and including) year 20 (the operations phase). This will ensure the new created linear habitats such as hedgerow and treelines will serve as commuting corridors for bats (and other wildlife). The planting aims to provide substantially improved bat foraging and commuting habitats through the wind farm Site, influencing bats to utilise these areas rather than fly towards the turbines. During the operational phase of the Project, ongoing monitoring of bat activity will be undertaken for the Project as per best practice guidance (SNH, 2021) (Section 6.12.3 in Chapter 6 of the EIAR and Appendix 6.10 - SHMP). Mitigation measures implemented during the construction phase to minimise the risk of collisions and barotrauma will be put in place, notably by clearing linear Hedgerow/Treeline features and forestry features within 76.32 - 108.12m of turbine blade tips to make this area unfavourable for bats and thus discourage them from flying through/near turbines, will be maintained during the operational phase. The current recommended guidance (SNH, 2021) for this mitigation is dependent upon the turbine size and for the sake of this assessment, under a worst-case scenario
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			using the turbine requiring the largest area cleared for bat buffers (Technology Option 1). Monitoring will provide data and information on the actual recorded impact of the wind turbines on the local bat populations. Full details of the proposed monitoring programme are provided in Section 6.12 in Chapter 6 of the EIAR. The results of post construction monitoring shall be utilised to assess changes in bat activity patterns post construction and to monitor the implementation of the mitigation strategy.
		Bat – Lighting	The following best practice and site-specific mitigation measures will be employed to avoid and reduce the potential for significant displacement/ disturbance effects on local Bat populations: - As outlined in Chapter 10 - Noise & Vibration, best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working for the duration of the contract; - Directional lighting will be used to prevent overspill on to woodland/forestry edges. Exterior lighting, during construction (and post construction), shall be designed to minimize light spillage, reducing the effect on areas outside the Project. Lighting will be directed away from mature trees/treelines around the periphery of the Site boundary to minimize disturbance to bats.

			Directional accessories can be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands; - Lights are to be used with the following guidance from Dark Sky Ireland during the construction and operation phases of the Project; every light needs to be justifiable, limit the use of light to when it is needed, direct the light to where it is needed, reduce the light intensity to the minimum needed, use light spectra adapted to the environment, when using white light, use sources with a “warm” colour temperature (less than 3000K); and - With regard to the potential for lighting to increase collision risk, it is noted that there will be some illumination of the turbines in the form of aviation lighting. Barriers to ensure the lights are only visible from above, not from ground level, will offset the likelihood for lighting to increase collision risk (Chapter 14 - Material Assets). Whilst this lighting is unlikely to result in any significant increase in collision risk, a comprehensive and site-specific mitigation and monitoring programme, described in Section 6.12 in Chapter 6 of the EIAR, is proposed for in line with NatureScot guidance on bat mitigation and post-construction monitoring.
		Mammals & Other Receptors	As outlined in Section 6.6.3 in Chapter 6 of the EIAR, it is not anticipated that the operation of the Project will have any effect on Otter or Pine Marten or their supporting habitat during the operation phase. There will

			be no requirements for in stream works or significant tree felling, thus no loss of riverine habitat or foraging habitat during operational of the Project is anticipated. No maintenance works associated with the operation of the Project are proposed in close proximity to watercourses. Standard vehicle speed restrictions of 25km/h will be in place for any maintenance works required for the operational phase. As such, following these mitigation measures stated.
		Aquatic Species	Mitigation measures for aquatic habitats and species during the operational phase will follow the proposed mitigation measures outlined for Statutory Sites above. No further mitigation measures are identified for Aquatic Species during the operational phase.
Decommissioning Phase			
			All embedded mitigation measures and all supporting mitigation measures provided for the construction phase will be implemented as relevant for the decommissioning works Section 6.7.2 in Chapter 6 of the EIAR. In accordance with the Scottish National Heritage Decommissioning and Restoration Plan for wind farms (SNH, 2016), all pre-commencement surveys will be conducted to appropriately identify any additional measures required based on any changes in the future ecological baseline. The DMP (EIAR Appendix 2.1.4) will be updated 3 – 5 years prior to the commencement of decommissioning and shall incorporate findings from the habitat and species monitoring requirements outlined in Section 6.12 in Chapter 6 of the EIAR.

		Birds	The operational monitoring surveys as prescribed in Section 6.7.3 and Section 6.12 in Chapter 6 of the EIAR will be used to inform any amendments to assessment of magnitude or significance for any KERs that may differ from the existing ecological baseline pre-construction. Good practice mitigation measures outlined for the construction phase (Section 6.7.2 in Chapter 6 of the EIAR) would be implemented during the decommissioning phase. These measures would include pre-commencement surveys to provide an updated assessment of potential breeding birds.
Construction Phase			
MM3	Chapter 7 – Land, Soil and Geology	Design	The following will be implemented for wind farm, GCR and TDR construction: - Any excavation or construction related works will be subject to a design risk assessment at detailed design stage to determine risk levels for the construction, operation and maintenance and decommissioning of the works. Identified impacts will be minimised by the application of principles of avoidance, prevention and protection. Information on residual effects will be recorded and relayed to appropriate parties; - A detailed method statement for each element of the works will be prepared by the Appointed Contractor prior to any element of the work being carried out;

			- Given that the works comprise a sizeable proportion of excavation and earthworks, suitably qualified and experienced geotechnical personnel will be required on site to supervise the works; - Appointment of an Environmental Manager; - Appointment of an Environmental Clerk of Works (EcoW) to oversee and ensuring the project adheres to the application of all environmental mitigation measures and undertaking of monitoring to minimise adverse impacts on the surrounding natural environment; - The EcoW will also be responsible for ensuring that all waste soils taken off-site are classified to the appropriated EU Waste Code, tested and certified to the correct Waste Acceptance Criteria; and - The Appointed Contractor will programme works such that earthworks are not scheduled during severe weather conditions or at times of prolonged high rainfall.
		A Construction Environmental Management Plan (CEMP)	A CEMP (Appendix 2.1) and SWMP (Appendix 2.1.1) have been prepared for the proposed Project and will be implemented by the Appointed Contractor for the construction phase. The CEMP sets out a framework associated, to ensure that appropriate controls are in place, to manage environmental effects associated with the construction phase. The CEMP is a live document will be updated prior to the construction phase commencing, by the Appointed Contractor, to address the

			requirements of any relevant planning conditions, including any additional mitigation measures that are conditioned. A copy of the CEMP shall be submitted to the Local Authority prior to the commencement of the construction phase. All mitigation measures outlined hereunder have been incorporated into the CEMP (Appendix 2.1) and SWMP (Appendix 2.1.1).
		Pollution Prevention	Prior to commencement of construction works at structures in the proximity of sensitive waterbodies and Site Access Track crossing watercourses, pollution prevention arrangements will be put in place to prevent contaminated surface water run-off from construction activities entering these watercourses, other water bodies. Protection measures will include: Plant and equipment will be stored on dedicated hard standing within the construction compound. This will minimise the risk of pollution caused by leakages occurring out of hours. Drip trays will be used where appropriate; All plant and equipment will use biodegradable hydraulic oil; Spill kits will be readily available to all personnel. The spill kits will be of an appropriate size and type for the materials held on site; Diesel fuel will be stored in a bunded diesel bowser which will be located within a fenced off area in the construction compound; Refuelling and maintenance of vehicles and plant will take place in designated areas of hardstanding; All other chemicals will be stored at the site compound within an appropriate storage facility along with an accompanying MDS

			Datasheet; Wastewater from the temporary staff toilets and washing facilities will be discharged to sealed containment systems and disposed via licensed contractors; and Early seeding of lands near watercourses will be undertaken to reduce the potential for sediment runoff. All staff on site will be made aware of the pollution prevention measures being implemented throughout the construction, operational and decommissioning phases using appropriate toolbox talks and the site induction. Refer to Chapter 8 – Water, Hydrology (Flood Risk Assessment) & Hydrogeology for further details. In the event of a pollution event, the Emergency Response Plan, as detailed in the Appendix 2.1 - CEMP will put into action immediately in order to both contain and remove any contaminated soils.
		Soil Compaction and Sealing	The proposed Project will be constructed in a phased manner in order to reduce, minimise and eradicate where possible the potential effects on land, soils and geology. Phased construction reduces the amount of open, exposed excavations at any one time, lowering the risk of compaction and reducing soil exposure to degradation. To further mitigate against the compaction of soil at the Site, prior to the commencement of any earthworks, the work corridor will be demarcated, and machinery will stay within this corridor so that soils outside the work area are not damaged or suffer degradation.

			Excavations will then be carried out from Site Access Tracks as they are constructed in order to reduce the compaction of soft or otherwise sensitive ground. The amount of exposed ground and soil stockpiles will also be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally. Further mitigation with respect to stockpiles is contained in Chapters 9 - Air Quality and Climate.
		Subsoil and Bedrock Removal	Implementation of the proposed Project will result in the removal of soils in parts of the Site to facilitate excavation for the construction of Site Access Tracks and Turbine Hardstands for the turbines within a competent stratum suitable for the emplacement of Turbine Foundations. Ground conditions vary across the Site with mineral soils of varying depths and competence present. At the turbine bases the excavation depth required is anticipated to be a maximum of 5.50m to a suitable bearing stratum. For Site Access Tracks and Turbine Hardstands this is expected to be average 0.60m and consequently less significant. One of the primary mitigation measures employed at the preliminary design stage was the minimisation of volumes of excavated overburden deposits to be exported off site. In the case of the construction of the proposed Project, all excavated overburden will either be re-used, or retained on-site for reinstatement purposes. In the event where residual quantities of spoil cannot be re-used on site, it will be sent for further offsite processing at an appropriately licensed facility.

			This will include: • Use of suitable site-won material (mineral soils consisting predominantly of sands and gravels) as general fill in the construction of Site Access Tracks, Turbine Harbours and in reinstatement around Turbine Foundations. • Residual surplus overburden will also be stored at designated permanent spoil repositories. Refer to the Spoil Management Plan in Appendix 2.1 - CEMP for details. Surplus overburden deposits excavated during the course of the works will be stored, for the duration of the proposed Project, in designated spoil deposition areas until they can be employed for proposed Site reinstatement. Temporary stockpiles (not exceeding 2m in height) of separated soil material types will be placed adjacent to the excavation areas prior to reinstatement and landscaping. These stockpiles will be shaped and sealed to prevent the ingress of water from rainfall. Any surplus/waste soil or rock will be removed from the proposed Site and disposed of according to Appendix 2.1 - CEMP.
		Mitigation by Good Practices	• In order to reduce the potential for adverse impact to the soil resource the following mitigation will be employed: The construction zone will be physically demarcated by means of fencing prior to commencement construction activities; and

			Temporary stockpiles will be covered by appropriate weather-proof sheeting to guard against degradation from wind and rainfall. All topsoil will either be reused for landscaping purposes during the construction phase or stored on-site for reuse during the decommissioning phase of the works.
		Storage and Stockpiles	Spoil types will be treated separately. Mineral soils and topsoil / organic soils will be separated during excavation and these two types of spoil will be disposed of generally as follows: - Mineral soils will be deposited directly on top of other mineral soils. This will require the removal of topsoil or peat, where present, to facilitate the process; - Topsoils / Organic Soils will be stored separately according to their classification, protected from the environment to maintain their integrity and used to reinstate the minerals soil surfaces following completion of construction works. No topsoil will be disposed of as part of the proposed Project; - Mineral soil spoil deposition will take place at various locations within the Redline Boundary where low surface gradients combine with minimal peat depth and sufficient distance from sensitive receptors. These proposed spoil deposition arrangements are detailed in Appendix 2.1 - CEMP and Planning Drawings 23604-201 to 208 (Part 1);

			- It is intended that spoil movements will be minimised by disposing of the material within or immediately adjacent to the construction footprint of the structure from whence it was excavated; - Preparation of the spoil deposition sites will involve the removal of the topsoil which will be transferred to a specific location to be stockpiled and maintained for re-use during restoration operations; - Spoil will be deposited, in layers of 0.50m and will not exceed a total thickness of 2.00m, unless contained by suitably designed berms; - Spoil will only be deposited on slopes of <5 degrees to the horizontal and greater than 10m from the top of a cutting; - Spoil deposition sites used will have a regular weekly assessment, made by the construction manager or other suitably qualified individual, to ensure that stability and good condition is maintained; and Once spoil deposition is complete the deposition sites will be re-vegetated with the upper vegetated layer removed at the commencement of disposal operations. Upon commencement of the decommissioning / restoration phase guidance from a suitably qualified ecologist will be sought to provide a suitable methodology and programme of maintenance for the restored areas.
		Vehicular Movements	Vehicle movements are assessed in full in EIAR Chapter 12 - Traffic and Transport .

			Vehicular movements will be restricted to the footprint of the proposed Project, particularly with respect to the newly constructed Site Access Tracks. This ensures that machinery must be kept on Site Access Tracks and will not move onto areas that are not permitted. Vehicular traffic on the proposed Site will be minimised through the re-use of excavated material on-site which will reduce the need to source material from external quarries. As discussed previously, excavation volumes have been reduced during the design phase by avoiding areas of sensitive or soft soils and by avoiding excessive cut and fill during construction. This will result in reduced excavation volumes and therefore reduced site traffic. Best practice as described in the Irish Wind Energy Association (IWEA) (2012) “Best Practice Guidelines for the Irish Wind Energy Industry” and NatureScot (July 2024) “Good practice during wind farm construction”, will be applied during construction which will minimise double handling, again reducing the site traffic. All works will be managed and conducted in accordance with CEMP, which will be updated by the Appointed Contractor and issued to the Local Authority, prior to any site works commencing.
		Ground Stability	Details of the proposed methodology and mitigation measures are summarised below and are also outlined in CEMP.

			An Emergency Plan (as part of the CEMP) has been prepared and will be enacted should soil movement occur.
		Earthworks & Ground Stability – Prevention of Landslide	Application of the following procedures will have the effect of reducing the hazard with respect to Soil Instability: - Excavated spoil will not be deposited on the down slope or up slope edges of the adjacent topsoil. This spoil will instead be deposited on the two flanks either side of the excavation (where gradient is least) and spread in such a way as to limit the surcharge pressure on sensitive topsoils; - Excessive quantities of spoil loaded onto sensitive topsoil, organic soils or other sensitive soil covered sloping ground will greatly increase the risk of soil movement. (The gradient of the slope should be no more than 5 degrees to the horizontal). Topsoils and organic soils shall be removed prior to depositing spoil and retained for re-use as landscaping a material; - The angle of repose of the cut face of excavations must be adjusted to minimise to potential for slope failure. Battering back the sides of an excavation to approx. 60 degrees in clay soils and 30 degrees in granular or organic soils will help to reduce the potential for slippage, significantly reducing the potential for soil movement; - The Turbine Hardstanding areas will be designed in a manner such that crane loadings can be transferred directly onto the competent strata underlying any sensitive mineral soils. In order

		to facilitate these works it will be necessary to undertake limited excavations; • Ground movements can often occur during or following severe rainstorm events, particularly when following a prolonged dry spell. Extra vigilance will be maintained during/ or following such events; • All slopes will be regularly checked for development of tension cracks, which are indicative of ground movement; • Method statements will be followed at all times. Where modification is required this will first be agreed by the supervising engineer; • Slopes will not be undercut or excavations left unsupported for periods in excess of 24 hours. Excavations are to be backfilled as soon as practicable. Excavation and filling operations shall be coordinated to minimise the time an excavation remains opened; • Surface water flows will compromise most granular or cohesive soils at any slope angle and care shall be taken to stop the development of such flows during construction; • Pore water pressure within excavations should be kept low at all times by draining deliberate or intentional sumps at regular intervals. This is to prevent ponding of water within excavations which can in turn increase hydraulic heads locally and potentially lead to instability;
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			- The potential for ground movement will be monitored regularly during the construction works, by means of regular site visits and assessments, by the ECoW; and - Construction at less sensitive areas will be completed first to allow suitable construction practices to be established before works commence in the more difficult areas. Low ground bearing pressure machinery will be considered for transport of construction materials in sensitive areas.
		Soil Contamination Hydrocarbons and Cementitious Materials	The probability of contamination resulting via hydrocarbons and cementitious materials will be minimised through the application of good practice and adherence to the CEMP, which contain an Environmental Management Plan in respect to fuel, Oil and Chemical Management. To prevent contamination from fuel, oil, chemical and cementitious materials, the following measures will be adopted: During concrete pours: - Concrete pours shall not occur during forecasted heavy rainfall, and the pour area must be drained of any water. In case of spills, temporarily block dirty water drains in the immediate area, monitor and adjust the pH levels of water in settlement ponds using CO₂ entrainment if necessary, and clear any spillage immediately, depositing it in the chute wash down area; and - Delivery trucks, tools, and equipment will be cleaned at designated areas within a controlled site area, with the concrete

		truck chute cleaning area lined with impermeable material to protect groundwater from pollution (refer to Planning Drawing 23604-405) – Part 1; For fuel.oils and chemicals • Ensure all fuels, oils, and chemicals are stored in bunded areas at least 50 meters from watercourses or drainage areas, with a capacity of 110% of the total volume; • Construct bunded areas in accordance with AS 1940:2004 standards; • The refuelling of construction machinery and vehicles will be carried out in designated refuelling areas using a prescribed re-fuelling procedure; • Refuelling and maintenance activities will be prohibited near watercourses or drainage areas to minimise contamination risks; • Refuelling and maintenance activities will be undertaken on impervious surfaces or bunded trays to prevent spills from seeping into the ground; • Appropriate spill kits will be readily available and stocked. Spill kits will be maintained on the mobile fuel truck and at numerous locations on the Site;
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			- Only mechanically sound vehicles, equipment and machinery on Site will be used on site; and - In the event of a spill/leak the following steps will be followed; - Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. - If applicable, eliminate any sources of ignition in the immediate vicinity of the incident. - Contain the spill using the spill control materials, track mats or other material as required. - Do not spread or flush away the spill. If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats. - If possible, clean up as much as possible using the spill control materials. - Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. - Notify the ECoW immediately giving information on the location, type and extent of the spill so that they can take appropriate action. - The ECoW will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
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		○ The ECoW will notify the appropriate regulatory body such as Roscommon County Council and the Environmental Protection Agency (EPA), if deemed necessary. ○ A record of all environmental incidents will be kept on file by the ECoW and the Main Contractor. Importation of materials such as aggregates and other forms of construction materials will be monitored, documented, certified, sampled and tested as per the requirements of the CEMP. Importation of materials from off-site, such as aggregates and other construction materials, will be closely monitored to ensure that no contamination or invasive species, is brought onto the Site from external sources. Importation of materials such as aggregates and other forms of construction materials will be monitored, documented, certified, sampled and tested as per the requirements of the Appendix 2.1.2 – Waste Management Plan. Likewise, spoil materials removed from site will be closely monitored to ensure that no contamination or invasive species, is brought onto the Site from external sources. Similarly, but to a lesser degree, there is potential for adverse effect from wastewater percolation. The only source of wastewater production will be the welfare facilities at the Temporary Construction Compounds. The normal method for dealing with effluent in this case is to design a
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			percolation field and use this to disperse the low-level pollution throughout the groundwater body. However, to remove any potential effect on soils and geology from wastewater contamination, foul effluent will be retained within a “closed” system with all effluent being held within a bunded storage tank, drained on a regular basis and disposed of off-site at a suitable licensed facility. This will effectively break any potential pollution linkage to the wider environment.
		General Waste	All materials used on the proposed Site and wastes generated will be reduced by good Site practice and attention to Appendix 2.1 - CEMP. A policy of reduce, re-use and recycle will apply. All waste will be segregated and re-used where possible or removed from Site for recycling. Any waste which is not recyclable or compostable will be properly disposed to landfill. Whenever possible, excavated spoil materials will be re-used close to the area of excavation. The careful design which has been achieved will result in minimal excess soil and rock. Emergency Response

		An Emergency Response Plan (ERP) will be in place for the construction phase and includes a spill response and control procedure that will be followed in the event of a spill/leakage occurring during construction. All site operatives will be trained in the requirements of the ERP and all site vehicles will also contain emergency spill kits. The ERP will be updated prior to the construction phase commencing, by the Appointed Contractor. The ERP is detailed in Appendix 2.1 - CEMP. In the event of a spill/leak, the following steps will be followed: • Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers; • If applicable, eliminate any sources of ignition in the immediate vicinity of the incident; • Contain the spill using the spill control materials, track mats or other material as required; • Do not spread or flush away the spill. If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats; • If possible, clean up as much as possible using the spill control materials; • Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited;
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			• Notify the ECoW immediately giving information on the location, type and extent of the spill so that they can take appropriate action; • The ECoW will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring; • The ECoW will notify the appropriate regulatory body such as Roscommon County Council and the Environmental Protection Agency (EPA), if deemed necessary. A record of all environmental incidents will be kept on file by the ECoW and the Main Contractor.
Operational Phase			
		Soil Contamination	It is not envisaged that the operation of the proposed Project will result in significant effects on the soils and geology regime within the study area, as there will be no further disturbance of overburden post construction. The main potential impact during the operational phase would be the risk to groundwater from contamination from spills. A permanent fuel bowser will be used to store fuel within the control room in the Onsite Substation, for the refuelling of emergency generating equipment. Other maintenance oils and hydraulic fluids will be stored within service vehicles. All fuel tanks and bowzers will be self-contained and of double-walled construction with refuelling only undertaken at designated refuelling areas. Specific

		mitigation measures relating to the management of all hydrocarbons are as follows: • Fuels, lubricants and hydraulic fluids for equipment used on the Site will be carefully handled to avoid spillage; • Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the Site and properly disposed of; • Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for recycling by a licensed contractor; • Appropriate spill control equipment, such as oil soakage pads, will be kept within the refuelling areas and in each item of plant to deal with any accidental spillage; and • All wastes from the Onsite Substation, turbines and ancillary facilities will be removed by the licensed contractor. The operational team will carry out maintenance works (to Site Access Tracks, Onsite Substation, turbines and other ancillary facilities) and will put in place control measures to mitigate the risk of hydrocarbon or oil spills during the operational phase of the wind farm. Any vehicles utilised during the operational phase will be maintained on a weekly basis and checked daily to ensure any damage or leakages are corrected.
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			These potential effects are limited by the size of the fuel tanks employed and volume of oils and lubricant used for maintenance during the operational phase. In addition, the design of the Onsite Substation transformers and batteries incorporates bunding to protect soils against accidental leakages of oils and battery fluids. Welfare facilities during the operational phase will be located at the Onsite Substation and will be a “closed” system where no irrigation field is required. The facilities will be serviced regularly and waste removed on a regular basis for disposal at the appropriate off-site licensed facility.
Decommissioning Phase			
		Decommissioning of Infrastructure	Since the decommissioning phase works are similar to the construction phase works and also of a shorter duration, it is expected that the mitigation measures described for the construction phase will be implemented as part of the Appendix 2.1.4 - Decommissioning Management Plan to avoid and/or minimise any potential impacts.
Construction Phase			
	Chapter 8 – Water, Hydrology (Flood Risk Assessment) & Hydrogeology	Best Practice Construction Methods	A CEMP (Appendix 2.1) and SWMP (Appendix 2.1.1) have been prepared for the proposed Project and will be implemented by the Appointed Contractor for the construction phase.

			The CEMP sets out a framework associated, to ensure that appropriate controls are in place, to manage environmental effects associated with the construction phase. The CEMP is a live document will be updated prior to the construction phase commencing, by the Appointed Contractor, to address the requirements of any relevant planning conditions, including any additional mitigation measures that are conditioned. A copy of the CEMP shall be submitted to the Local Authority prior to the commencement of the construction phase. All mitigation measures outlined hereunder have been incorporated into the CEMP and SWMP.
		Site-Specific Surface Water Management	The Site Access Tracks will be built by excavating to a stable layer and filling with selected materials. Since these tracks often create a flow path for surface water and are usually lower than the surrounding ground, specific drainage designs will be used, including: • An upslope cut-off drain will be installed before the main earthworks to reduce overland runoff onto the track and working strip, except on gently sloping land or where there is limited upslope catchment; • Track edge drainage swales will be placed on one or both sides of the track hard standing, with permanent downslope edge drainage omitted where water can shed onto undisturbed vegetated ground;

		• Temporary drainage swales and settlement/filtration features will be added downslope if higher silt loading is observed or additional water control near watercourses is needed; • Drainage swales and track shoulders will be topsoiled and re-vegetated promptly to establish vegetation; • Outlets from track edge drainage will flow through temporary mini settlement ponds and/or silt fences to remove silt during construction; • Under-track culverts will be installed to allow clean surface runoff to the downgradient side, with culverts/pipes regularly dispersing clean runoff onto natural vegetated surfaces; • In-line erosion and velocity control measures, such as check dams, silt fences, and other control measures, will be implemented; • Temporary settlement ponds will be placed on the downgradient side of the excavated track section to collect dirty excavation runoff and keep it separate from clean surface water runoff; and • Temporary sumps, settlement ponds, sediment traps, and proprietary settlement systems like Siltbusters will be used to treat dirty construction water runoff before its controlled release onto natural vegetation surfaces. Any existing site drains over which new Site Access Tracks are to be constructed will be culverted or piped, ensuring a cross-sectional area that does not impede water flow, with a minimum diameter of 225mm for cleaning and maintenance. Additionally, the drainage design for both new
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		and upgraded access tracks will incorporate a cambered surface with a 2% cross fall, directing runoff into a 1.5-meter-wide drain to effectively manage surface water. Existing drainage paths will not be unnecessarily re-routed or altered to minimise impacts on local hydrology. Works adjacent to watercourses will be avoided during heavy rain to reduce pollution risks. Regular inspections of the surface water management systems and public road cleaning near drains will be undertaken by the Appointed Contractor. To ensure crane stability, the maximum crossfall on the crane hardstands will not exceed 1/100. The Appointed Contractor will provide perimeter drainage channels to collect surface runoff and direct it to a suitably sized settlement pond before discharging to existing vegetated ground. Tree felling operations will be conducted during suitable weather conditions and whenever possible, operations will be halted if rainfall occurs, to minimise the risk of sediment mobilisation and runoff. Tree felling operations will be planned to minimise surface water flow rates and volumes during heavy rains, preventing sediment and silt from entering watercourses. Silt traps will be installed along felling routes as needed, to capture sediment or tree material and prevent it from entering watercourses. As per the SWMP (Appendix 2.1.1), surface water drainage measures to be implemented include: • Clean Water Cut-off Drains will be installed upgradient of works areas to collect surface runoff and prevent it from reaching
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			excavations and construction areas of the Site, where it could pick up silt and sediment. These drains will divert upslope runoff around the work area, redistributing it as sheet flow to minimise the volume of potentially silty runoff within the construction area. • Dirty Water Cut-off Drains will be installed downgradient of works areas to collect surface flow runoff and to prevent it from entering existing watercourses. These drains will direct runoff from the work area to locations where it can be treated via settlement ponds or other sediment removal measures. • Buffered Outfalls will be constructed at the end of Cut-off Drains, Silt Ponds and other control measures to convert concentrated flows into diffused sheet flow on areas of vegetated ground. Buffered Outfalls will be located downgradient of any proposed works areas in locations where they are not likely to contribute further to water ingress to construction areas of the Site. • Level Spreaders will be used at permanent surface water drainage outfall points to convert concentrated flows into diffuse sheet flow over vegetated ground. This will ensure clean drainage water is distributed without re-concentrating into flow channels immediately below the discharge point. Excavations will be designed to minimise the volume of retained water requiring disposal. The following drainage management measures will apply: • Cut-off drains will be installed around working areas to intercept uncontaminated surface runoff and divert it away from
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			construction or excavation sites. Surface water runoff may also be diverted around the excavation using heavy timbers or similar materials laid on the ground; • Stockpiling of materials will be minimised, and essential stockpiles will be located as far from watercourses as possible; • The base of the excavation will be at the constructed level, with water gathered in a sump and pumped at a low flow rate into either the mini-settlement pond or track swale; • If pumping to a SuDS feature is not feasible or the flow rate is too high, flows will be collected and pumped to the downhill side of the excavation over flat vegetated land, well away from watercourses; • If the downhill slope is steep, a shallow trench will be dug parallel to contour lines to ensure water filters into the soil layers. This trench will be backfilled with excavated material after the Turbine base is completed; and • Foundation working areas will be re-vegetated as soon as possible after construction. Monitoring of surface water on quantitative and qualitative parameters during the construction phase will be carried out. As a minimum, the following parameters will be recorded in surface waters: pH, conductivity, chemical oxygen demand, suspended solids and total dissolved solids. If monitored levels exceed the threshold levels outlined in S.I. No 77/2019 European Union Environmental Objectives (Surface Waters)
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			(Amendment) Regulations 2019, mitigation measures to protect surface water will be reviewed by the Environmental Manager acting on behalf of the Appointed Contractor.
		Site-Specific Fine Sediment Pollution Management	Mitigation for the protection of surface water quality from runoff carrying fine sediments and urban pollutants involves silt control measures. These include proper planning of works, site compound construction, storage management and excavation plans, as follows: • Silt fencing and runoff control and measures will be implemented to prevent contaminant entering the stormwater by proper storage of hazardous materials and waste management practice; • Planning of works will be conscious of available weather forecasts and avoid working during heavy rain/storm events to minimise the risk of runoff that may be in excess of the capacity of the runoff control measures outlined in this EIAR. If working during precipitation events cannot be avoided, then runoff control measures will be actively monitored during the works to ensure their capacity is not compromised; • Appropriate silt control measures, including silt traps, silt fences, check dams, swales, and sedimentation ponds, shall be implemented, along with temporary settlement tanks in areas requiring water pumping; • Trackside swales will be trapezoidal in section, at least 300 mm wide at the bottom and 450 mm deep, with check dams provided

			at prescribed intervals on all drainage channels to decrease erosion potential and trap silts; • An Emergency Response Plan will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt run-off; and • Vegetation will not be stripped from existing drains unless absolutely necessary, as existing vegetation can act as a final filter during runoff conveyance to the watercourse, provided sufficient pre-treatment is in place.
		Site-Specific Hydromorphology Mitigations	To reduce the potential impacts from drilling works, the following mitigation measures are proposed: • Bentonite, an inert drilling fluid, will be used in the works; • The drilling rig and fluid handling units will be located on one side of the bridge and will be stored on double bunded 0.5mm PVC bunds which will contain any fluid spills and storm water run-off; • The drilling process should be continuously monitored to detect any possible leaking of drilling fluid. This can be gauged by monitoring pumping rates and pressures as well as observing for a bentonite plume; • In the event that drilling fluid does escape from the HDD through hydraulic fracturing (upward escape of bentonite to the riverbed), the Environmental Clerk of Works (ECoW) should be informed immediately, and corrective measures should be implemented

			(refer to Chapter 6 - Biodiversity and CEMP (Appendix 2.1); and Monitoring will be necessary to observe how quickly the riverbanks will naturally revegetate following the construction of the proposed Project.
		Accidental Spills and Leaks	To avoid and manage accidental spills and leaks, a series of measures listed below will be implemented. The Appointed Contractor will be responsible for ensuring their implementation. To prevent contamination from fuel, oil, chemical and cementitious materials, the following measures will be adopted: During concrete pours: - Concrete pours shall not occur during forecasted heavy rainfall, and the pour area must be drained of any water. In case of spills, temporarily block dirty water drains in the immediate area, monitor and adjust the pH levels of water in settlement ponds using CO₂ entrainment if necessary, and clear any spillage immediately, depositing it in the chute wash down area; - Delivery trucks, tools, and equipment will be cleaned at designated areas within a controlled site area, with the concrete truck chute cleaning area lined with impermeable material to protect groundwater from pollution (refer to Planning Drawing 23604-405) – Part 1; For fuel.oils and chemicals

		• Ensure all fuels, oils, and chemicals are stored in bunded areas at least 50 meters from watercourses or drainage areas, with a capacity of 110% of the total volume; • Construct bunded areas in accordance with AS 1940:2004 standards; • The refuelling of construction machinery and vehicles will be carried out in designated refuelling areas using a prescribed re-fuelling procedure; • Refuelling and maintenance activities will be prohibited near watercourses or drainage areas to minimise contamination risks; • Refuelling and maintenance activities will be undertaken on impervious surfaces or bunded trays to prevent spills from seeping into the ground; • Appropriate spill kits will be readily available and stocked. Spill kits will be maintained on the mobile fuel truck and at numerous locations on the Site; • Only mechanically sound vehicles, equipment and machinery on Site will be used on site; and • Wastewater and greywater from the temporary construction compound will be transferred offsite by a licensed facility for treatment and disposal. All monitoring records shall be maintained by the Appointed Contractor and submitted to the Applicant at agreed intervals. The monitoring details will include:
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			- Records of regular inspection, on bunds, vehicles, oil storage on Site according to the CEMP (Appendix 2.1); - Records of silt fencing conditions and placement; and - Records of any water ingress during excavation.
		Groundwater Mitigation	To prevent and manage fine sediment pollution and accidental spills from impacting the hydrogeology environment, occasional dewatering of surface water from excavated Turbine Foundations will be directed to a settlement pond for infiltration slightly downgradient. This ensures that recharge rates remain unchanged. - Designate specific areas for refuelling and maintenance in a controlled manner, located on impervious surfaces/bunded trays to prevent spills from seeping into the ground; - Avoid use of herbicides for vegetation control around Turbines and Site Access Tracks. Where herbicides are necessary, use environmentally friendly alternatives and apply them following strict guidelines to prevent infiltration into groundwater; - Conduct baseline groundwater quality testing before the wind farm becomes operational to establish existing conditions; and - Implement a regular groundwater monitoring program to detect any potential contamination early and take immediate corrective action. During the construction of turbine foundations, temporary drainage measures will be implemented to facilitate groundwater dewatering. Water

			entering the excavation may have a relatively high concentration of suspended solids, therefore, the settlement ponds receiving this water will be designed to accommodate this flow. Pumping water from Turbine Foundation excavations can lead to substantial flow rates into settlement ponds. Where possible drainage channels will be installed to de-water excavations via gravity flow. Where pumping is required to de-water deeper excavations, temporary storage will be provided within the excavations and dewatering will be carried out at a flow rate that matches the capacity of the settlement ponds. Additionally, the mitigation measures outlined in the above sections are to be implemented to prevent any likely significant adverse effects to groundwater.
Operational Phase			
			During the operational phase, the operator of the wind farm will put the mitigation measures outlined in Section 8.9.2 in Chapter 8 in the EIAR – Accidental Spills and Leaks in place during maintenance works. The revegetation of drainage works and other exposed surfaces, combined with the non-intrusive nature of operations, minimises the risk of sediment release into watercourses during the operational stage. To ensure controlled, inspected, and managed drainage discharges throughout the operational phase, attenuation/settlement ponds will be installed at discharge points.

			As per Appendix 2.1.1 - SWMP, following construction, the amount of on-site traffic will be negligible and there will be no particular risk of sediment runoff. Runoff from Site Access Tracks, Turbine Hardstands, and other works areas will continue to be directed to settlement ponds, which will be left in place. Check dams within the drainage channels will remain in place. The retention of this part of the drainage infrastructure will ensure that runoff continues to be attenuated and dispersed across existing vegetation before discharge into the ground. Details of settlement ponds and check dams are contained in Planning Drawings 23604-400 and 23604-401, respectively. In the operational phase of the wind farm, the reliance on the drainage system discussed above will be reduced as areas naturally revegetate. Once areas revegetate, this will result in a resumption of the natural drainage management that will have existed prior to any construction.
Decommissioning Phase			
			During decommissioning phase, silt protection controls similar to those used during the construction phase will be implemented. The drainage system will remain operational to treat any sediment-laden surface water runoff caused by soil disturbance. Turbine Foundations, Turbine Hardstands and other below ground works and will be left in place. Leaving below ground structures in place is seen as a more ecologically responsible choice since removing may cause environmental disturbances including noise, dust, and vibration. These will be reinstated with stored topsoil and re-vegetated, see Chapter 6 -

			Biodiversity and Appendix 2.1.4 - Decommissioning Management Plan for details on re-vegetation and planting. The revegetation process following the backfilling of Turbine Hardstanding areas will be monitored, and if necessary, erosion control matting will be used to aid in the re-establishment of vegetation.
Construction Phase			
	Chapter 9 – Air Quality and Climate (Part 1)	Air Quality	The pre mitigation assessment concludes that no likely significant effects will arise in respect of air quality as a result of the proposed Project. Nonetheless, the following management and control measures, derived from the IAQM Guidance and in line with best practice, will be implemented: • The Site Access Tracks and public roads in the vicinity will be regularly cleaned to remove mud and aggregate materials from their surface; • The Site Access Tracks will be well maintained; • Dampening of the Site Access Tracks using water bowsers during prolonged dry periods if necessary • Construction vehicles delivering or collecting material with potential for dust emissions shall be enclosed, covered or wetted at all times to restrict the escape of dust; • Construction vehicles delivering or collecting material with potential for dust emissions shall be checked before accessing

		the public road network, to confirm there is no potential for dust emissions; • Public roads directly outside the construction site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary; • Transport of materials to and from the construction site will take place in normal working hours and along routes agreed with Roscommon County Council; • Vehicle speeds will be restricted on the internal Site Access tracks • Dusty materials such as excavated materials will be stored and handled appropriately (e.g. covering where necessary and minimising the drop heights of materials). • Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods; • Suitable hoardings will be erected at construction site to prevent wind blow of materials; • Ensuring timely completion of all construction works; • Construction vehicles will be routinely maintained to minimise vehicular emissions; • Vehicles will be switched off when not in use; • Vehicles will not be left running unnecessarily and low emission fuels will be used where possible; • The appointed Contractor shall monitor performance and undertake regular site inspections, to ensure that the mitigation measures are implemented; and
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		A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. These measures are also captured in Appendix 2.1 - CEMP. The dust management measures within Appendix 2.1 - CEMP, will be reviewed by the appointed Contractor and Applicant at regular intervals during the construction phase to confirm the effectiveness of the measures in place. The appointed Contractor will brief construction site personnel on dust management measures during Toolbox Talks and Site Meetings. Geotechnical Investigations have confirmed that the Site is not suitable for borrow pits. However, the Project has identified a number of local aggregate and concrete suppliers in the immediate area, which will be utilised for the Project. Use of local suppliers reduces the need for extended transport and therefore reduces potential effects on air quality. The Site has been determined as suitable for reuse of soils and subsoils within the Site boundary, thus preventing the requirement for significant transportation and risk of dust nuisance
Operational Phase		
		Due to the very low volumes of traffic generated during the operational phase, no mitigation measures are proposed.
Decommissioning Phase		

		Air Quality	While no likely significant effects have been identified in respect of air quality from the proposed Project during the decommissioning phase, the mitigation measures described for the construction phase above will also be implemented for the decommissioning phase as part of the DMP to avoid and/or minimise any potential effects.
Construction Phase			
	Chapter 9 – Air Quality and Climate (Part 2)	Climate	The following climate mitigation measures will be implemented during the construction phase of the project, with the aim of reducing greenhouse gas emissions and supporting sustainable practices: • Management of vehicles including emissions and fuel usage; • In the event of a vehicle requiring repairs, maintenance will be promptly carried out, thereby minimising emissions arising from inefficient operation; • When onsite vehicles are stationary, they will be required to turn off their engines to reduce unnecessary idling emissions; Users of the site must ensure that all plant and vehicles are properly maintained to minimise emissions of engine-generated pollutants; • The majority of aggregate materials and concrete for the construction of the proposed Project will be obtained from local quarries, thereby reducing the emissions associated with vehicle movements; • Use of local quarries, materials suppliers and waste facilities will be used ;and

			Groundworks and excavation are minimised to required development areas. Soils and subsoils to be reused onsite to reduce transport requirements. These measures are also captured in Appendix 2.1 - CEMP. The appointed Contractor will brief construction site personnel on emission management measures during Toolbox Talks and Site Meetings.
Operational Phase			
		Climate	The operational phase of the proposed Project will have a favourable effect on the climate due to the removal use of fossil fuels, meaning no additional mitigation is required for this phase. In cases where turbine components are to be replaced, the same mitigation measures as those applied during the construction phase will be implemented.
Decommissioning Phase			
		Climate	During the decommissioning phase, it is expected that the mitigation measures described for the construction phase will be implemented as part of the Decommissioning Plan to avoid and/or minimise any potential impacts.
Construction Phase			

	Chapter 10 – Noise and Vibration	Best management practices	- Regarding construction activities, reference shall be made to <i>BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise</i>, which offers guidance on the control of noise and vibration from construction activities. Best management practices will be adopted during construction as required, including the following: - Prior to the commencement of construction an active community engagement exercise shall be undertaken by the community liaison officer. Letter drops shall take place in advance of the works. The nature of the information letters provided details of the Project, specifically: - Contractor name and contact details; - Project description; - Expected duration of works; and - A commitment to implement procedures and measures to minimise noise and vibration. - This community notification exercise should be repeated in the event of an expected intensification of works in any area and/or in advance of works that occur outside of the permitted construction operating hours (any such works will be subject to prior agreement with the Local Authority).
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			• A site representative responsible for matters relating to noise and vibration will be appointed; • The construction programme will be managed to ensure that plant with the highest levels of noise and vibration emissions are not operated simultaneously and for the minimum amount of time as practicable; and • The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall be restricted to between 07:00hrs and 19:00hrs weekdays and between 07:00hrs and 14:00hrs on Saturdays. However, to ensure that optimal use is made of good weather period or at critical periods within the programme (i.e., concrete pours) or to accommodate delivery of large turbine component along public routes it could be necessary on occasion to work outside of these hours. Any such out of hours working will be agreed in advance with the Local Authority.
		Noise control measures	The Appointed Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures when deemed necessary to comply with the recommendations of <i>BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction on open sites – Noise</i>. The following list of additional noise control measures will be implemented to ensure compliance with the relevant construction noise criteria:

		• Erection of site hoarding and temporary screening of the noisiest plant; • Selection of plant with low inherent potential for generation of noise and/or vibration; • Placing of noisy/vibratory plant as far away from sensitive receptors as permitted by site constraints; • The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations; • All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working for the duration of the contract; • Compressors will be attenuated models, fitted with properly lines and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers; • Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use; • Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen; and • Keeping the surface of the Site Access Tracks even to mitigate the potential for vibration from lorries.
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			These mitigation measures for the construction phase are captured in Chapter 2 – Project Description and the CEMP (Appendix 2.1) .
		Noise Monitoring	Noise and vibration monitoring in accordance with the guidance contained in BS 5228-1:2009 during the construction and decommissioning phases will be undertaken to ensure compliance with the criteria or if noise complaints are received.
Operational Phase			
			Compliance with the prescribed limits as set out in Section 10.6.3, Table 10-27 may be demonstrated by a suitable post-construction NCMP. The NCMP will adopt the guidance in <i>IOA SGN No.5 Post Completion Measurements</i>. • A detailed methodology shall be agreed in writing with the planning authority prior to the commissioning of the wind farm but the following are appropriate: • Monitoring to be conducted under downwind conditions (45 degree sector); • Wind turbines to operate in normal mode i.e. without any additional restrictions; • Monitoring to be conducted at one or more Noise Monitoring Location(s) (where pre-commissioning background noise levels are available) or at representative/nearest Noise Sensitive Location(s); and

		• Synchronised 10-minute wind speeds at standardised 10m height to be derived from upwind anemometer or from turbine power output curves. • It will usually be necessary to carry out noise monitoring for around 1 month to obtain the necessary range of wind speeds and wind directions to enable a conclusive evaluation of whether noise limits are being met for worst case downwind propagation conditions. However, extended periods of noise monitoring may be necessary to capture sufficient conditions and will be carried out as necessary. • Some periods of wind turbine shut-down may be required to facilitate the NCMP and will be carried out as necessary. • The instrumentation used will comply with <i>IOA SGN No. 1 Data Collection</i> and conducted by a professionally competent organisation. • Where the results of the measurements to demonstrate an exceedance of the permitted noise levels, a mitigation strategy will be formulated to reduce turbine noise levels to within the prescribed noise limits. The noise monitoring will then be repeated with such mitigation measures in place to demonstrate compliance with the conditions and for the operator to continue to run the site in this way unless circumstances change.
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			As outlined in Section 10.2.2 Special Audible characteristics (such as OAM), is not a factor that can be foreseen at planning stage, but its presence can be measured and rated, typically in the event of a complaint, post construction. The NCMP will include standard practice methodology for OAM to be investigated, only in the event of complaint, and, where the investigation verifies its presence, mitigation measures will be put in place to address the identified turbine OAM noise characteristics.
		Onsite Substation & Vibration	The impact assessment has demonstrated that there is no likely significant effect with respect to noise and vibration on the NSLs during the operational phase and therefore no mitigation is required. Occupational noise monitoring of the substation will occur as required for HSE purposes.
Decommissioning Phase			
			Activities and noise levels associated with the decommissioning phase are expected to be similar to the construction phase. The mitigation measures that will be implemented in relation to any decommissioning of the site are the same as those proposed for the construction phase of the Project.
Construction Phase			

	Chapter 11 – Landscape and Visual		Given the highly visible nature of commercial wind energy developments it is not generally feasible to screen them from view using on-site measures as would be the primary form of mitigation for many other types of development. Instead, landscape and visual mitigation for wind farms must be incorporated into the early-stage site selection and design phases. It should be noted that no mitigation measures other than the embedded mitigation used as part of the project design are proposed for the construction, operational and decommissioning phases. In this instance, the two main forms of landscape and visual mitigation employed were: • Mitigation by avoidance and design; and • Buffering of Residential Receptors
		Avoidance & Design	The main mitigation in this instance was the siting of the proposed Project in a relatively robust part of the surrounding landscape that is not heavily constrained by landscape and visual designations and is contained within a wind energy classification deemed 'Most Favoured' in relation to wind energy development. Indeed, the site of the proposed Project is located within a locally elevated, robust, working setting that comprises an array of working land uses, such as commercial forestry, mineral extraction, and extensive areas of pastoral farmland. In this regard, the addition of the proposed Project will not present as an incongruous built feature, which is further supported by the existing wind farm development located just over 5km to the south of the proposed wind farm Site.

			In addition to mitigation by avoidance measures, mitigation by design measures were included during the early stages of the Project prior to initial assessments of wireframe montages. Based on commentary provided by the LVIA consultant, the applicant micro sited turbines T01 & T02 to reduce the sense of turbines presenting as outliers to the array. Overall, this result in a much more visually cohesive final turbine layout.
		Buffering of Residential Receptors	For the proposed Project, the closest residential receptor (receptor no. 35) is located 599m from turbine (T02), which is in excess of the WEDG 2006 and Draft WEDG 2019 minimum set back of 500m and greater than the setback distance of 4 times the tip height of the turbines. In this instance and having due regard to the Draft WEDG 2019, the setback distance for visual amenity purposes is 640m from residential receptors on the basis of the 160m high turbines (this represents the greatest potential setback distance with regard to all potential turbines ranges and is in line with industry best practice). Variation in residential buffer distances within the nearest kilometre has a much more noticeable effect on perceived turbine scale than when it occurs in the context of more distant views. This is due to the principal of perspective¹ – that doubling the distance to an object halves its perceived height. The reduction factor is even more pronounced when considered in the context of the 'swept area' of turbine blades and not just their tip height.

¹ Goldstein, E. B. (2014). *Sensation and Perception* (9th ed.). Cengage Learning

			This exponential 'scale in relation to distance scenario is illustrated in Figure 11.7 in Chapter 11 in the EIAR.
Construction Phase			
	Chapter 12 – Traffic and Transport		Although no likely significant adverse effects have been predicted in Section 12.5 in Chapter 12 of the EIAR, this section outlined mitigation measures that will be incorporated into the design of the proposed Project to maintain the highest standards of road safety and minimise disruption to public road users and the local Ballyfeeny National School. The mitigation measures proposed are line with best practice and statutory regulations. A Traffic Management Plan (Appendix 2.1.3) has been prepared for the proposed Project and accompanies the Construction and Environmental Management Plan (CEMP) (Appendix 2.1).
		Deliveries & Delivery Programme	- Prior to the delivery of turbine components, the appointed haulage contractor with carry out a review of the full TDR between Galway Port and the SE1 , to verify the temporary accommodating works are in place and there are no potential impediments to the agreed route due to unrelated temporary roadworks/emergency works or revisions to the road network and will confirm it is all suitable for the vehicle configuration to transport the turbine components; - Prior to the transportation of turbine components on the national road network, the Developer will submit details of the turbine components to TII bridge management section to confirm no

		abnormal weight loads are being transported and to ensure that structures on the national road network are not adversely affected; • A programme of deliveries will be submitted to the Local Authority in advance of deliveries of materials to Site. For wind turbine component deliveries liaison with the relevant Local Authorities and TII will be carried out where required, regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the site; • It is envisaged that all large turbine components will be delivered to site within a period of 1 week per turbine. The following are the main points to note in relation to Abnormal Load delivery mitigation; • The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised; • The deliveries will be made in consultation with the Local Authority, TII and An Garda Síochána and other stakeholders; and • Each Abnormal Loads delivery will consist of; • The Abnormal Load Vehicle; • Two Garda escort vehicles that will stop traffic at the front and rear of the convoy of 5 vehicles; and
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			- Two escort vehicles provided by the haulage company. - Wheel cleaning equipment will be used at all site entrances 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; - A speed limit of 25 km/h shall apply to all vehicles within the Site; and - 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.
		Signage	The appointed contractor will undertake consultation with the Local Authority for the purpose of identifying and agreeing signage requirements. Such signage will be installed prior to works commencing on site.

			- Proposed signage will include warning signs to provide warning to road users of the work access / egress locations and the presence of construction traffic. All signage will be provided in accordance with Chapter 8 of the Traffic Signs Manual 2019 (or as updated). - The appointed contractor will ensure that; - All sign faces are to be retro-reflective material to Class Ref 2 of EN 12899. The colours, chromaticity and luminance factors will be as specified in Specification TS4; and - The appointed contractor will at least twice daily inspect signage to ensure that it is in place, secure and appropriately fitted with warning lights as required.
		Protection of works area	It may be necessary that excavated works areas on the public road are required to be left open overnight – for example; Joint Bays on the GCR may need to be left open to facilitate pulling cables through the electrical ducts and jointing the cables together. Work areas on the public road are to be individually risk assessed to determine what type of Traffic Management System and Works Area Protection will be required at each location. At the end of each workday and at unmanned work locations, safety barriers / fencing will be erected around works areas with either a priority yield or temporary traffic light system utilised to safely navigate vehicles around

		Construction Staff Traffic	Construction staff will park their vehicles at the main site compound within the Wind Farm and will be transported to the GCR by construction van. The construction van will then park at dedicated locations agreed with Roscommon County Council and local residents. In order to prevent traffic disruption and avoid creating a traffic hazard, there will be no grid works related parking permitted on the public road.
		Operator Training	The appointed contractor will provide training to operatives in the traffic control systems being used on site. The importance of transport management, the safety of motorists, pedestrians and site staff will be emphasised to all construction staff. There must always be a minimum of one competent person with a valid Signing, Lighting and Guarding Construction Skills Registration Card on site when work is being carried out on public roads.
		Consultation to Surrounding Businesses and Residential Receptors	Local People in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided.
		Pedestrian Safety	The appointed contractor will ensure that throughout the course of the works its operations do not put pedestrians at any risk;

			- Where the construction work necessitates the restriction or partial closure of a pedestrian walkway where they may exist, the appointed contractor will provide adequate safety barriers, signposts, lighting and temporary surfacing (if applicable) to ensure safe passage for pedestrians; - Where the construction work necessitates the closure of a pedestrian walkway, the appointed contractor will provide a safe and reasonable alternative. The appointed contractor will provide adequate safety barriers, signposts, and lighting (if applicable) to direct pedestrians and ensure their safe passage; and - With respect to pedestrians, the appointed contractor will refer to and observe the requirements of the updated version of the Traffic Signs Manual 2019 titled Temporary Traffic Measures and Signs for Roadworks.
		Access for Landowners	The appointed contractor will make provision for safe access at all times to private residences in proximity to the construction works. The appointed contractor will inform local residents of the programme of works in their area and local access will be catered for where possible.
		Emergency Vehicles	The works will planned and carried out in a manner that will allow Emergency Vehicles use the public road network unimpeded and access the development unimpeded. When turbine component delivery convoys are travelling to site – if it occurs that an emergency response vehicle must pass the convoy; the

			abnormal load vehicle will move to the edge of the road to allow the vehicle to pass. An emergency response plan has been prepared and is contained in the CEMP. This plan will be further developed prior to commencement of construction and included as part of the H&S Plan prepared by the Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS).
		Travel Plan for Construction Staff	While the assessment above has assumed the worst case in that construction workers will drive to the Site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking.
		Road Dirt and Dust Management	The nuisance of dirt on the local road network during wet weather and dust during dry weather is an area of identified concern during construction works. The primary mitigation measure for this impact will be in the form of a proprietary wheel wash facility to be installed at the exit of the wind farm Site. In addition to this a road sweeper will be used on the R371 and the L6018 in the vicinity of the entrance at regular intervals for the duration of the construction works. A water bowser will be employed to spray the road with water during dry periods when there is a risk of dust.

		Complaints Procedure	A complaints procedure will be put in place and will follow the same methodology as outlined in Appendix 2.1 -CEMP, EMP 14 - Complaints Management Plan of the Construction Environmental Management Plan.
		Reinstatement Works	All road surfaces and boundaries will be re-instated to predevelopment condition, as agreed with the Local Roads Authority.
		Pre and Post Works Survey of Roads	Where required by the Local Authority, pre-condition surveying of roads associated with the proposed Project can be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey can also be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The extent and timing of these surveys would be agreed with the Local Authority.
		Works to Public Roads	Works to the public road will be carried out as part of the wind farm construction, the TDR works and the GCR works. Traffic Management procedures to facilitate the road works will be carried out in accordance with the requirements of the Temporary Traffic Management Design Guidance, Third Edition 2019. Temporary traffic management and roadwork signs will be in accordance with Chapter 8 of the Traffic Signs Manual 2019 Prior to construction road opening licenses will also be sought from the Local Authority for works along the public road network and will be subject to the applicable statutory processes as implemented by the Local Roads Authority.

		Wind Farm Works to Public Roads There are 6 No. site entrances / exits proposed to service the proposed Project; 4 No. permanent entrances and 2 No. temporary entrance (see Figure 12-3 in Chapter 12 of the EIAR). The site entrance work will involve works to the road verge and boundary hedging and fencing in the vicinity of the entrances. As part of this work the following temporary traffic measures will be utilised; • Partial Lane and Verge Closures; and • Stop-Go Systems. TDR Works to Public Roads As discussed in Section 12.3.4 in Chapter 12 of the EIAR a Swept Path Analysis (SPA) has been prepared for the proposed Project and forms part of Appendix 2.1.3 - TMP. This assessment identified areas requiring temporary accommodating works along the routes. These accommodation works will involve localised temporary widening and stoning of public road verges and roundabouts on the TDR to facilitate abnormal load vehicle wheel over-run. Hedge and tree cutting will also be required as well as relocation of utility overhead lines, poles, lampposts, signage, and other street furniture. See Part 1 Planning Drawings 23604 – 1000 to 1008 for TDR Option 1a SPA and Planning Drawings 23604 – 2002 to 2011 for TDR 1b SPA.
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		On completion of delivery of wind turbine component abnormal loads, the temporary accommodating works will be reinstated to the requirements of TII and the Local Authority for the area. As part of this, hedges and trees will be re-planted and street furniture will be reinstated as necessary. As part of this work the following temporary traffic measures will be utilised; • Lane Closures; • Partial Lane and Verge Closures; • Stop-Go Systems; • Road Closures; and • Traffic Diversions. GCR Works to Public Roads It is proposed to connect the Project to the national grid via circa 5.8km long 38kV underground grid connection, circa 3.7km of connection will be constructed in the public road. The GCR cable ducting will, in-the-main, be installed in the road using “Open-Dig” techniques. A section of the route crosses the N5 National Road at the R371/N5 junction, Directional Drilling will be utilised for this road crossing. As part of this work the following temporary traffic measures will be utilised; • Lane Closures;
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		• Partial Lane and Verge Closures; • Stop-Go Systems; • Road Closures; and • Traffic Diversions. Traffic Management Procedures Lane Closures and Partial Lane/Verge Closures Lane Closures and Partial Lane / Verge Closures will be utilised where possible. On narrow roads the closures may also incorporate a Stop-Go System to limit traffic flow past the works area to one direction at a time. On the GCR works, it is envisaged that 100 - 200m of the cable route will be constructed each day with Partial Lane / Verge Closures moving along with the works. It is envisaged, pending confirmation at construction phase, that the following roads will have Lane Closures / Partial Lane closures during the works with approximate lengths shown; • L6018: 200m; • L60498: 200m; • R371: 1.9km north of the R371/N5 Junction; and • R371: 1.7km south of the R371/N5 Junction.
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		Where lane width restrictions are proposed, the appointed contractor will advise the Local Authority of the following details; • Reasons for lane width restrictions; • Details of restricted width of traffic lane; • Details of associated signage and warnings to motorists and pedestrians, including road markings; • Details of proposed system of public communications and community liaison; and • Temporary footpaths.
	Chapter 12 – Traffic and Transport	Traffic Diversions Where traffic diversions are necessary due to temporary road closures associated with the wind farm and GCR works, the appointed contractor will advise the Local Authority of the following details; • Location of proposed diversion; • Reasons for specific traffic diversion; • Duration of proposed diversion; • Plan of diversion routes; • Details for management and control of proposed method of diversion route traffic, including sign posting layouts and locations; • Details of proposed system of diversion route maintenance and repair, including existing carriageway and street furniture etc; and

		- Details of proposed system of public communications and public liaison. Alternative routes where traffic is to be diverted on will require an inspection prior to diverting traffic. These will need to be inspected again closer to the time of the works to ensure no hazards have occurred since the traffic management plan was developed. Diversions will be implemented to provide an alternative route for road closures during construction. Information and directional signage will be provided to inform the public of a Road Closure Diversion and to direct them along the diversion route. Local access will be maintained for residents where possible. It will be envisaged, pending confirmation at construction phase, that the following roads will provide a diversion for the proposed road closures where approximate diversion lengths are shown. Diversion roads used for L60498 Closure; - R371: 0.4km; and - L1411: 1.4km Road Crossings Where the GCR is planned to cross the public road, the appointed contractor will decide on the best method for controlling traffic. A Partial or Single Lane closure may be utilised, where works are carried out and controlled by a stop-go system.
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			As part of this, the ducting would cross the road in two phases. Phase one will construct the trench as far as the centre line of the carriageway and then have the road and trench temporarily reinstated. Once the work has been completed on the closed lane, the area is inspected, and traffic management procedures switch to the opposite lane for phase two. An “All Stop” system may be used to control traffic and to allow the works commence on the other lane. Once the work has been fully complete, the trench and road is temporally reinstated.
Operational Phase			
			The design of the permanent accesses to the Ballyfeeny wind farm has been completed by Mable Consulting Engineers, with the provision of exit and forward visibility sightlines and suitable width and alignment of the surfaced road and access for the maintenance vehicles that will access the sites (Planning Drawings 23604 – 350 to 353 (Part1)). The design includes appropriate setback/fencing and position of replacement planting to ensure no ongoing maintenance of roadside boundary treatments are required to maintain the appropriate sightlines over the operational life of the wind farm at the permanent wind farm accesses on the L6018 public road at the SE2 and SE3 accesses, and on the L60498 public road at the SE4 and SE5 accesses. Site information signage will be installed at the permanent site access points from the public road (Planning Drawings 23604-250 to 258 (Part

		1) for proposed locations), and for design/sizing of the Site Information sign (Planning Drawing 23604-541-P1 (Part 1)). It should be noted that no mitigation measures other than the Embedded Mitigation (Chapter 12 Section 12.4) used as part of the project design are proposed for the operational phase. It should be noted that no mitigation measures other than the Embedded Mitigation (Section 12.4 in Chapter 12 of the EIAR) used as part of the project design are proposed for the operational phase. <u>Wind Turbine Component Repair/Replacement</u> During the operational phase, in the unlikely event that a wind turbine component may need to be removed for repair or replacement. In the event that this component is an abnormal load size then, in consultation with Local Authorities and other Stakeholders, the temporary accommodating works along the routes will be temporarily re-established to accommodate the abnormal load or loads. As part of this work the following temporary traffic measures as outlined for the construction phase mitigation will be utilised; • Lane Closures; • Partial Lane and Verge Closures; • Stop-Go Systems; • Road Closures; and • Traffic Diversions.
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		<u>GCR Repair</u> During the operational phase, in the unlikely event that a fault may occur to the underground cable along the GCR works may be required for repair or replacement of the cable. As the GCR will form part of the national electricity grid and will fall under the safe operation rules of ESB Networks. Any works to the GCR during the operational phase will be undertaken by ESB Networks. Repairs will be organised in consultation with Local Authorities and other Stakeholders. The underground cable fault location will be determined by ESB Networks trained operatives. Once the fault is located a programme for repair will be implemented by ESB Networks. The underground cable will be exposed by “Open-Dig” techniques, including at Joint Bay locations if required. As part of this work the following temporary traffic measures will be utilised; • Lane Closures; • Partial Lane and Verge Closures; • Stop-Go Systems; • Road Closures; and • Traffic Diversions.
Decommissioning Phase		

		Prior to commencement a traffic management plan will be prepared for agreement with the Local Authority. This plan will include a material recycling / disposal plan and other similar mitigation measures to those implemented during the construction phase. During decommissioning structures will be dismantled in the opposite order of their construction. Wind turbine and other components located above ground will be dismantled and taken off-site for recycling. The Turbine Foundations and Turbine Hardstands portions will be left in place underneath and covered with soil to allow for natural revegetation or reseedling. Leaving the Wind Turbine foundations in place is seen as a more ecologically responsible choice since removing that amount of reinforced concrete might cause environmental disturbances including noise, dust, and vibration. Mitigation measure will be implemented as part of the Decommissioning Management Plan (Appendix 2.1.4). This plan is a 'live' document and will be updated to include details on mitigation measures to be implemented. These will be similar in nature to those implemented during the construction phase. In terms of traffic effects, the Decommissioning Phase will generally mirror the construction phase although the effects will be significantly reduced as the volumes of materials removed from the site will be less than delivered. There will be no hazardous waste generated or the need for complex environmental remediation.
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			Traffic Management Plan Prior to commencement of decommissioning the Traffic Management Plan (Appendix 2.1.3) will be updated for agreement with the Local Authority. The procedures agreed in the TMP will include details on mitigation measures to be implemented during the decommissioning phase. These will be similar in nature to those implemented during the construction phase but will take into account any changes in legislation or changes in construction and environmental best-practices during the operational life of the proposed Project. Updates may also be required to incorporate, new measures for compliance with any conditions of planning by the Local Authority.
Construction Phase			
	Chapter 13 – Archaeology, Architectural and Cultural Heritage	Archaeology	An archaeological test excavation, carried out under licence from the National Monuments Service NMS in consultation with Roscommon County Council, should all be undertaken prior to the commencement of the construction phase across all suitable lands within the Redline Boundary Site's RLB. It should be noted that specific areas within the RLB are not suitable for archaeological testing due to commercial forestry operations. The anomalies identified as part of the geophysical survey shall be assessed as part of any test excavation program. Areas within the RLB not suitable for archaeological testing due to commercial forestry, shall be subject to archaeological monitoring during the construction phase, carried out under licence from the NMS in consultation with Roscommon County Council.

		At a minimum, all areas of ground disturbance within the RLB shall be subject to archaeological monitoring during the construction phase, carried out under licence from the NMS in consultation with Roscommon County Council. Should previously unknown archaeological remains be discovered during the course of archaeological testing or monitoring, the Consultant Archaeologist will notify the NMS and Roscommon County Council to ensure that appropriate mitigation measures are put in place to protect and potentially preserve (preservation by record or preservation in-situ) any archaeological remains. In relation to the GCR route, it will consist of 5.8km of underground grid connection works within the boundaries of the public road infrastructure to the existing Sliabh Bawn 110kV Substation. There are no cultural assets located within 50m of the GCR. The nearest known cultural asset (RMP site) is located 138m to the west of the route. No mitigation measures are required for this route. In relation to the TDR route, proposed works (street furniture removal) are required at Node No. 2040 to the west of Galway City. These works are located within the ZoN of Recorded Monument GA082-043002 (Fulacht Fiadh). Although the proposed minor works will not directly affect the Cultural Asset, the Consultant Archaeologist shall liaise with the NMS prior to the commencement of works to determine if archaeological mitigation measures are deemed necessary.
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			Given the nature of wind energy developments, it is not generally feasible to screen them from view using on-site measures, as would be the primary form of mitigation for many other types of development. Instead, landscape and visual mitigation has been incorporated into the early-stage site selection and design phases of the Project. Relevant mitigation measures are described in Embedded Mitigation (Section 13.4 in Chapter 13 of the EIAR) and were adopted as part of the project design.
Operational Phase			
		Archaeology	The 11 cultural assets (RMP sites) are of 'Medium' value and are located at a distance of between 750-1,990m from the Site's RLB. The scale of the indirect visual impact is considered 'Low' due to the partial nature of the remains present, the distances between the assets and the Site and the intervening hedgerows and commercial forestry. The significance of effect is Long-term, Adverse and Slight. In EIA terms, the effect is considered as Not Significant. The Rathcroghan Complex is located 18.2km from the proposed Project and will be entirely screened. The significance of visual effect on this site is therefore Imperceptible, which is Not Significant in EIA terms. Relevant mitigation measures for the operational phase are described in Embedded Mitigation (Section 13.4 in Chapter 13 of the EIAR) and were adopted as part of the project design.
Decommissioning Phase			

			Prior to the decommissioning phase, an updated Archaeological Impact Assessment (AIA) shall be prepared incorporating potential changes to the legislative environment and associated baseline data used in the compilation of this EIAR Chapter. This mitigation measure will be implemented as part of the Decommissioning Management Plan (Appendix 2.1.4).
Construction Phase			
	Chapter 14 - Material Assets	Waste	In terms of waste, a waste management plan has been prepared for the proposed Project (Refer to Appendix 2.1.2). The waste management plan details best practice procedures to be implemented to manage waste generated as part of the construction phase of the proposed Project. The waste management plan is considered a 'live' document and as such will be reviewed and updated as required during the pre-construction detailed design phase as well as the construction, operation and decommissioning phases. Updates to the WMP may be required due to changes in legislation or due to changes in waste management best-practices. Updates may also be required to incorporate measures for compliance with any conditions of planning by the Local Authority. Mitigation measures outlined in the waste management plan include; To prevent contamination from fuel, oil, chemical and cementitious materials the following measures will be adopted:

		During concrete pours: - Concrete pours shall not occur during forecasted heavy rainfall, and the pour area must be drained of any water. In case of spills, temporarily block dirty water drains in the immediate area, monitor and adjust the pH levels of water in settlement ponds using CO₂ entrainment if necessary, and clear any spillage immediately, depositing it in the chute wash down area; Delivery trucks, tools, and equipment will be cleaned at designated areas within a controlled site area, with the concrete truck chute cleaning area lined with impermeable material to protect groundwater from pollution (refer to Planning Drawing 23604-405) – Part 1; For fuel, oils and chemicals - Ensure all fuels, oils, and chemicals are stored in bunded areas at least 50 meters from watercourses or drainage areas, with a capacity of 110% of the total volume. - Construct bunded areas in accordance with AS 1940:2004 standards; - The refuelling of construction machinery and vehicles will be carried out in designated refuelling areas using a prescribed refuelling procedure; - Refuelling and maintenance activities will be prohibited near watercourses or drainage areas to minimise contamination risks;
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		• Refuelling and maintenance activities will be undertaken on impervious surfaces or bunded trays to prevent spills from seeping into the ground • Appropriate spill kits will be readily available and stocked. Spill kits will be maintained on the mobile fuel truck and at numerous locations on the Site. • Only mechanically sound vehicles, equipment and machinery on Site will be used on site An Emergency Response Plan (ERP) will be in place for the construction phase and includes a spill response and control procedure that will be followed in the event of a spill/leakage occurring during construction. All site operatives will be trained in the requirements of the ERP, and all site vehicles will also contain emergency spill kits. The ERP will be updated prior to the construction phase commencing, by the Appointed Contractor. The ERP is detailed in Appendix 2.1-CEMP. In the event of a spill/leak, the following steps will be followed: • Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. • If applicable, eliminate any sources of ignition in the immediate vicinity of the incident. • Contain the spill using the spill control materials, track mats or other material as required.
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		• Do not spread or flush away the spill. If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats. If possible, clean up as much as possible using the spill control materials. • Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. • Notify the ECoW immediately giving information on the location, type and extent of the spill so that they can take appropriate action. • The ECoW will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. • The ECoW will notify the appropriate regulatory body such as Roscommon County Council and the Environmental Protection Agency (EPA), if deemed necessary. • A record of all environmental incidents will be kept on file by the ECoW and the Main Contractor. Ready-mix concrete deliveries to site will be planned in advance and supervised during concrete discharge and vehicle chute washout. Ready-mix concrete mitigation measures including waste mitigation are set out in the Environmental Method Plans
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		(EMP) which are contained in Appendix B of the CEMP (Appendix 2.1) .
	Utilities	In regards to utilities mitigation, ongoing consultation with Uisce Éireann, Gas Networks Ireland, EirGrid, ESB Networks (ESBN), and other pertinent local service providers will continue throughout the Project. All works will adhere to any requirements or guidelines issued by these providers. The appointed contractor will be responsible for ensuring that utility services are not disrupted, except where prior agreement has been obtained. As the Project design progresses, coordination and engagement will be maintained between the project team and ESBN, Uisce Éireann, and other relevant service providers within the area. Mitigation measures through avoidance by design has minimised impacts on the utilities surrounding the proposed Project, including the design of the GCR and TDR. Best practice procedures will be followed to ensure the protection of the existing utilities and the health and safety of the site operatives. Such measures will include; • Confirmatory drawings for all existing services will be sought upon consultation with ESB Networks, Uisce Éireann and Eir/NBI; • All construction workers to be trained on the Health and Safety Authorities (HAS) Code of Practice for Avoiding Danger from Underground Services;

			• The Health and Safety Officer for the Project shall implement a safe system of work, including safe digging practices when working on or near existing utility services; • 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 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 and passed to the utility providers to include on the Dial before you Dig maps; and • 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.;
		Telecommunications	Mitigation measures are fully detailed within Section 6 of Appendix 14.1 – Telecommunications Impact Assessment. A summary of mitigation for each impacted link is as follows: Three Ireland Link 1 - Relay the radio link via an existing Telecoms Mast: The most technically viable mitigation measure option to offset the potential impact on the Three Ireland Link between Mullaghmacormick

		and Sliabh Bawn is to relay the radio link via an existing telecoms mast at Lissawaddy to relay the radio link. See Figure 14-16 below illustrating the existing telecoms mast and the proposed mitigation solution. The radio link path profile shows clear Line-of-Sight (LOS) and the link budget results would pass the radio availability criteria required by ComReg (see Appendix 14.1 – Telecommunications Impact Assessment). Vodafone Link 1 – Relay the radio link via an existing telecoms mastTo mitigate the impact on the radio link between Mullaghmacormick and Sliabh Bawn the most technically viable mitigation measure option , is considered to be the use of an existing telecoms mast to relay that radio link. See Figure 14-17 below illustrating the existing telecoms mast and the proposed mitigation solution. The radio link path profile shows clear LOS and the link budget results would pass the radio availability criteria required by ComReg (see Appendix 14.1 – Telecommunications Impact Assessment). Vodafone Link 2 - Route the Vodafone service between Sliabh Bawn and Ballyfeeny via a new telecoms mast located within the wind farm site boundary: The most technically feasible mitigation measure option to mitigate the potential impact on Vodafone Link 2 would be to route the radio service to/from Sliabh Bawn via a new telecoms relay mast installed within the proposed wind farm site boundary. The proposed Project is seeking planning consent as part of this planning
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		application for the construction of a new 33m high, Relay Tower that would facilitate the diversion of this link. A 3D model of the proposed radio link was also generated to ensure that it would not be impacted by the turbine layout. The 3D model (Figure 14-18) confirmed that a radio link from the proposed mast site location would not be impacted by the turbine layout. The radio link path profile shows clear LOS and the link budget results would pass the radio availability criteria required by ComReg (see Appendix 14.1 Telecommunications Impact Assessment) Vodafone Link 4 Route the Vodafone service between Ballyfeeny and Roosky via a new telecoms mast located within the wind farm site boundary: The most technically feasible mitigation measure option to mitigate the potential impact on Vodafone Link 4 would be to route the radio service to/from Roosky via a new telecoms mast installed within the wind farm site boundary. The proposed Project is seeking planning consent as part of this planning application for the construction of a new 33m high, Relay Tower that would facilitate the diversion of this link. The proposed mitigation solution is shown in Figure 14-19 and Planning Drawing 23604-510 (Part 1). A 3D model of the proposed radio link was also generated to ensure that it would not be impacted by the turbine layout. The 3D model (Figure 14-19) confirmed that a radio link from the proposed mast site location
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			would not be impacted by the turbine layout. The radio link path profile shows clear LOS and the link budget results would pass the radio availability criteria required by ComReg (see Appendix 14.1 – Telecommunications Impact Assessment).
		Aviation	As previously outlined in Section 14.5.3 in Chapter 14 of the EIAR no likely significant effects are predicted during the construction, operation or decommissioning phases. In the event of a planning consent, the IAA and IAC/DoD are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed Project would be considered as an en-route obstacle. The wind farm shall be fitted with Aeronautical Obstacle Warning Lights in accordance with civil aviation industry and regulatory standards. Subject to further consultation with the IAA and IAC. As outlined in Appendix 14.2 – Aviation Review Statement, the proposed wind farm is not located in an IAC restricted area and it is highly unlikely that turbines at the proposed site would have any impact on IAC aviation activity. The DoD have made specific observations regarding an Aeronautical Obstacle Warning Light Scheme for the IAC. If permitted, the wind farm should be fitted with Aeronautical Obstacle Warning Lights in accordance with military aviation industry and regulatory standards. Subject to further consultation with the IAC. • Upon receipt of planning permission for the proposed Project, the Applicant in the interest of aviation safe-guarding will liaise (as noted in the scoping responses contained in Appendix 1.3 – Scoping Consultation Responses) with the IAA and the IAC/DoD to;

			• Agree an aeronautical obstacle warning light scheme for the wind turbine development that is agreeable to both IAA and IAC/DoD; • Will provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location to IAA and IAC/DoD; and • Notify the IAA and IAC/DoD of intention to commence crane operations with at least 30 days prior notification of the wind turbine erection.
		Substation and Relay Tower Decommissioning.	Best practice procedures is for the third party operators to continue to utilise the substation and relay tower after the operational life of the windfarm
Construction Phase			
	Chapter 15 – Shadow Flicker		As outlined in Section 15.3 in Chapter 15 of the EIAR, unless otherwise required by a condition planning, the Applicant, having due regard to the Draft WEDG 2019, has committed to eliminate adverse shadow flicker at dwellings or other potentially affected properties. As outlined in Section 15.2.1 in Chapter 15 of the EIAR, it is proposed that, for each of the three Technology Options, each turbine is fitted with an automatic shadow detection system during turbine manufacturing. This is an embedded mitigation measure that will see that the turbines shut down during periods where shadow flicker is predicted at any of the identified receptors, until

		the potential for shadow flicker ceases. Such systems are common in many wind farm developments, and the technology has been well established, and implemented previously by the developer as industry best practice. . A case study in Scotland found that the use of turbine shut-down control modules for turbines which were causing shadow flicker at nearby offices was successful (Brinckerhoff, 2022). These mitigation measures have been proposed with due regard to the Draft WEDG 2019. The control system will calculate, in real-time: • Whether shadow flicker has the potential to effect nearby receptors, based on pre-programmed co-ordinates for the receptors and turbines; • Wind speed, which can affect how fast the turbine will turn and how quickly the flicker will occur; • Wind direction; and • The intensity of the sunlight. When the control system detects that the sunlight is strong enough to cast a shadow, and the shadow falls on a receptor, then the turbine will automatically shut down; and will restart when the potential for shadow flicker ceases at the affected
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18.5 Summary of Monitoring

Where specific monitoring is identified within the assessment of the EIAR Chapters, it has been summarised in Table 18.2 below. In addition to the items listed, regular inspection, visual inspections and audits will be undertaken as part of the responsibilities as outlined in **Volume 3 Appendix 2.1 CEMP**. These form part of the responsibilities and roles of the Environmental Manager, the client appointed Environmental Clerk of Works, and the project specialists such as the Project Ecologist and Project Archaeologist roles. These are detailed in **Appendix 2.1 CEMP**

Table 18.2 Monitoring Schedule

EIAR Chapter	Monitoring Measure	Project Stage	Frequency	Reporting Period	Responsibility
Chapter 5 – Population and Human Health	Construction monitoring and management for human health managed by monitoring as outlined in Chapters 9 - Air Quality and Climate, Chapter 10 – Noise & Vibration, and Chapter 12 - Traffic and Transport. Site management and monitoring via onsite HSE Management through implementation of Construction Regulations 2013 and through site security.	Construction and Decommissioning	Daily	Weekly and Monthly	Site Manager and HSE Manager
	Operational noise and shadow flicker monitoring (as defined in Chapters 10 and 15)	Operation	As required	Annually	Operations Manager
	Monitoring of noise, shadow flicker and any other population effects through implementation of reporting and complaints system. Maintenance inspection at regular intervals (maximum 2 weeks period) for all other matters including security and access. 24 hr CCTV installed onsite (monitored service), 24-hour remote monitoring and fault notifications and call out for any operational issues, alarms etc.		Fortnightly	Monthly	Operations Manager
Chapter 6 Biodiversity	Appointment of an Environmental Clerk of Works (ECoW) to oversee and ensuring the project adheres to the application of all environmental mitigation measures and undertaking of monitoring to minimise adverse impacts on the surrounding natural environment. Appointment of an Ecological Clerk of Works (EcoCoW) to oversee and ensure project adheres to and applies all ecological mitigation measures and monitoring as specified in the NIS. The	Construction and Decommissioning	Daily visual inspections Period ecology inspection Onsite supervision during any felling or clearance		Environmental Manager

	EcoCoW may also act as the Project Ecologist or appoint same for monitoring of specific activities where required.				
	Monitoring of active raptor nests		Daily for 4 weeks if nest is occupied		
	Survey for nesting activity		Annual		
	Bat buffer monitoring		Seasonally and Annually		
	CRM Monitoring				Operations Manager
	Monitoring of Bird Breeding seasons				
	Inspection of potential bird breeding sites		Realtime monitoring		
	Raptor and owl survey and nesting survey		Seasonal		
	Hedgerows trees and planting		Years 1, 2, 3, 5, 10 and 15) and following year as detected		
		Operation	Annually for 5 years post planting or relocation		
	Vegetation checks around turbines for unsuitability for raptor foraging				

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	Collision fatality monitoring Inspection and reporting of mitigation and enhancement areas		Years 1, 2, 3, 5, 10 and 15 Continual As required in the SHMP Annually and as required in the SHMP		
	Ecological Chance Finds Protocol	All Phases	As required	Annually	Environmental Manager
Chapter 7 – Land, Soil and Geology	Appointment of an Environmental Clerk of Works (ECoW) to oversee and ensuring the project adheres to the application of all environmental mitigation measures and undertaking of monitoring to minimise adverse impacts on the surrounding natural environment;	Construction and decommissioning			Site Manager
	The potential for ground movement will be monitored regularly during the construction works, by means of regular site visits and assessments, by the ECoW; Concrete pours shall not occur during forecasted heavy rainfall, and the pour area must be drained of any water. In case of spills, temporarily block dirty water drains in the immediate area, monitor and adjust the pH levels of water in settlement ponds using CO₂ entrainment if necessary, and		As required As required	Monthly Monthly	

	clear any spillage immediately, depositing it in the chute wash down area				
	Importation of materials such as aggregates and other forms of construction materials will be monitored, documented, certified, sampled and tested as per the requirements of the CEMP.		As required	Monthly	
	Imported topsoils will be inspected and checked for certification as free of invasive species by the ECOW		As require	Monthly	
	Importation of materials such as aggregates and other forms of construction materials will be monitored, documented, certified, sampled and tested as per the requirements of the Appendix 2.1.2 – Waste Management Plan .		As required	Monthly	
	The revegetation process following the backfilling of Turbine Hardstanding areas will be monitored, and if necessary, erosion control matting will be used to aid in the re-establishment of vegetation.		Weekly for 3 months then quarterly for 2 years	Annually for 2 years	Operations Manager
Chapter 8 Water, Hydrology and Hydrogeology	Appointment of an Environmental Clerk of Works (ECoW) to oversee and ensuring the project adheres to the application of all environmental mitigation measures and undertaking of monitoring to minimise adverse impacts on the surrounding natural environment; Specifically, daily visual inspections of any drainage works, mitigation (silt screens berms etc) and visual inspection of any waters adjacent to active works	Construction and decommissioning	Daily	Monthly	Environmental Manager
	Regular inspections of the surface water management systems and public road cleaning near drains will be undertaken by the Appointed Contractor and ECOW		Daily	Monthly	Environmental Manager

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	Tree felling and vegetation clearance to occur in appropriate weather Monitoring of surface water on quantitative and qualitative parameters during the construction phase will be carried out. As a minimum, the following parameters will be recorded in surface waters: pH, conductivity, chemical oxygen demand, suspended solids and total dissolved solids. Surface water Visual Inspections, any Continuous Monitoring, Monthly physical parameters testing and any Laboratory Testing of Sample Locations will be compiled into a monthly report by the ECoW during earthworks If monitored levels exceed the threshold levels outlined in S.I. No 77/2019 European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2009 to 2019, mitigation measures to protect surface water will be reviewed by the Environmental Manager acting on behalf of the Appointed Contractor Active inspection of runoff control measures during any heavy or unseasonal precipitation events		As required	As required	EcoCOW
			Monthly (or weekly at key activities)	Monthly	ECOW
			As required	Annually	Site Manager
			As required	Quarterly	Environmental Manager
Chapter 9 Air Quality and Climate	ECOW will check and maintain environmental managers record of vehicle movements onsite, plant fuel usage and hrs of operations Occupational air quality will be monitored for a period of 3 months	Construction and decommissioning	Weekly	Monthly	Site Manager
Chapter 10 – Noise and Vibration	Noise and vibration monitoring in accordance with the guidance contained in BS 5228-1:2009 during the construction and decommissioning	Construction and decommissioning	As required	Monthly	Site Manager

	phases may be undertaken to ensure compliance with the criteria or if noise complaints are received.				
	Occupational noise monitoring (onsite noise monitoring against start up of specific activities under Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007) as amended from 12 November 2007 by the Safety, Health and Welfare at Work (General Application) (Amended) Regulations 2007 (S.I. No. 732 of 2007)	Construction and decommissioning	Weekly	Monthly	Site Manager HSE Manager
	Compliance with the prescribed limits as set out in Section 10.6.3, Table 10-27 may be demonstrated by development and implementation of a suitable post-construction NCMP. The NCMP will adopt the guidance in <i>IOA SGN No.5 Post Completion Measurements</i>. - Monitoring to be conducted under downwind conditions (45 degree sector); - Wind turbines to operate in normal mode i.e. without any additional restrictions; - Monitoring to be conducted at one or more Noise Monitoring Location(s) (where pre-commissioning background noise levels are available) or at representative/nearest Noise Sensitive Location(s); and - Synchronised 10-minute wind speeds at standardised 10m height to be derived from upwind anemometer or from turbine power output curves. It will usually be necessary to carry out noise monitoring for around 1 month to obtain the necessary range of wind speeds and wind directions to enable a conclusive evaluation of whether noise limits are being met for worst case downwind propagation conditions. However,	Operations	At least 1 month post commissioning Repeated as required or in response to received notification / Complaint	First Quarter Annually thereafter	Operations Manager

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	extended periods of noise monitoring may be necessary to capture sufficient conditions and will be carried out as necessary. • Some periods of wind turbine shut-down may be required to facilitate the NCMP and will be carried out as necessary. • The instrumentation used will comply with <i>IOA SGN No. 1 Data Collection</i> and conducted by a professionally competent organisation. • Where the results of the measurements to demonstrate an exceedance of the permitted noise levels, a mitigation strategy will be formulated to reduce turbine noise levels to within the prescribed noise limits. The noise monitoring will then be repeated with such mitigation measures in place to demonstrate compliance with the conditions and for the operator to continue to run the site in this way unless circumstances change. • As outlined in Section 10.2.2 Special Audible characteristics (such as OAM), is not a factor that can be foreseen at planning stage, but its presence can be measured and rated, typically in the event of a complaint, post construction. • The NCMP will include standard practice methodology for OAM to be investigated, only in the event of complaint, and, where the investigation verifies its presence, mitigation measures will be put in place to address the identified turbine OAM noise characteristics.				
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Chapter 12 Traffic and Transport	Appendix 2.1.3 –TMP, outlines the procedures and traffic monitoring required, The TMP should be regularly audited throughout the construction, operation and decommissioning phases to ensure compliance with the measures proposed. Vehicle movements and times will be recorded onsite and managed against the mitigation and operating hours as outlined in Chapter 12 Any other monitoring as required by conditions of the Road Opening Licence or Licences	Construction and Decommissioning	Working hours through construction and decommission vehicle movements	Weekly	Site Manager
	HGV Recoding and working hours checks. Any other monitoring as required by conditions of the Road Opening Licence or Licences	Operations	As required only when HGV required for maintenance works	As required	Operational manager
Chapter 13 Archaeology and Cultural Heritage	Project Archaeologist Present and application of Archaeological Chance finds protocol during any excavations	Construction and decommissioning	As required	Monthly	Site Manager
Chapter 14 Material Assets	Waste Management will be monitored onsite via the ECOW and Environmental Site Manager as per the waste management plan. Waste inventories and waste audits will be conducted monthly during construction activities	Construction and decommissioning	Recorded each transfer	Monthly	Environmental manager
	Telecoms	Operations	Managed by 3 rd party and reported to developer	Quarterly	Operations manager
Chapter 15 Shadow Flicker	Shadow flicker control system	Operations	Control system occurrences	Quarterly	Operations Manager
	Shadow flicker occurrence	Operations		As required	

			Complaints / reporting systems		
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18.6 Observations, Complaints and Grievance System

In accordance with the WEDG 2006 and with due regard to the draft WEDG 2019 and WEI guidelines, the project website will remain active throughout the lifecycle of the windfarm (construction, operational and decommissioning phases) which includes email, phone number and methods of communication to all any public or interested party make a report, observation or complaint to the developer and operator. In addition, the HSA has a wind farm complaint reporting system on their website is open at all times should members of the public, NGO or any other interested organisation that wish to submit a complaint through a third party.

To assist the lodgement and resolution of complaints and enquiries staff handling complaints will be provided appropriate training if not already trained in complaint management policy and procedures prior to them undertaking any complaint management activities. This training will help staff provide support to those making a complaint by providing practical assistance. The complaints process part of induction for organisation staff with all documentation on the complaints process accessible.

The complaints and grievance management process is outline in the Communication Management for the Ballyfeeny Green Energy project and summarised in **Appendix 5.1 - Community Report**.

Upon receipt of a complaint the Community Engagement Manager, Project Manager or other nominated person, shall assess whether the complaint is within the Project scope, i.e. complaints associated with construction, operation and decommissioning of the wind energy facility, including traffic impacts. Should any issue be deemed outside of the Project's scope, the complainant will be informed as soon as practicable and provided with an explanation as to why it is considered out with the Project's scope. The complaint will then be closed. If deemed as within the scope the Community Engagement Manager will also provide the complainants with an explanation of the complaints process, the expected timeframes for action, the complainants likely input to the process and the possible outcome of the complaint.

Initial assessment of the complaint will consider if there is more than one issue raised, and if so, whether each issue needs to be addressed separately. The Community Engagement Manager may request the Project Manager or delegate to collect further information from the complainant if required.

Relevant members of the Project Team may be asked to further investigate the complaint and seek mitigation or resolution measures. If deemed necessary by the Project Team, the complaint will be escalated internally to Senior Management for review and resolution.

Complaints will be responded to by acknowledgement within 5 working days and replied to within 30 days.

An update on investigations and proposed resolution (if available) will be provided by the Community Engagement Manager or delegate, or sooner if possible. Further updates will be provided to the complainant as required until the complaint is closed.

The Enquiries and Complaints Register will be maintained and available for public viewing during normal working hours allowing complainants to track their complaint through the process and form part of the annual reporting.

18.7 Inspection and audit management systems

Management of the site in construction and decommissioning is via the Environmental Management Plans as outlined in **Chapter 2 Project Description** and **Appendix 2.1 - CEMP**.

As part of the operational phase the project will implement and operate an onsite Environmental Management System. As part of the system the Environmental manager will be responsible for internal or appointment of 3rd party inspections and audits of the site. Such inspections may include the following.

18.7.1 Site Inspections

All site inspections required under the CEMP shall be completed by the Environmental Manager, ECOW or a member of the Environment Team. Where non-compliant conditions are found during daily environmental inspections, these will be detailed in an environmental inspection report. The report shall include, but not be limited to the following information:

- a description of the condition observed on site;
- what corrective actions need to be taken to rectify the condition;
- a time-stamped photograph of the issue observed;
- the responsible party for implementing the corrective actions; and
- by when the corrective action will be completed.

Environmental Inspections shall be conducted across the Site on a daily basis during construction and decommissioning and at least fortnightly during operations.

18.7.2 System Audits

A System Audit program will be implemented for the Project to review the implementation and records keeping required by all management plans, monitoring plans and procedures and to assess the effectiveness of the overall CEMP / DMP.

The Environmental Manager shall lead all System Audits. The following definitions provide guidance on determining and reporting conformance.

Major Non - Conformance - Examples of a major non-conformance include:

- An element of the CEMP / DMP is or has not been implemented;
- Corrective actions have not been applied to previously reported minor Nonconformances; and
- Several minor Non-conformances within the same work site or central theme, for example where inspections show that waste management practices are weak across a range of sites.

Minor Non - Conformance - Examples of a minor non-conformance include:

- An element of the CEMP / DMP that is not being implemented or used effectively by a few individuals; and
- A mitigation or monitoring measure is not effective in controlling the environmental effect and needs modification.

Observation - An observed opportunity for improvement. Something that is not causing a formal non-conformance but where a preventive action would prevent an incident or improve environmental performance or mitigation effectiveness.

Chance Find – An observation of either archaeological concern or ecological concern that requires a stop works or area avoidance until the matter is investigated by the project Archaeologist or Project Ecologist as appropriate.

18.7.3 Non-Conformance Notes

Formal audits will be recorded, and short reports prepared for submission to the Project proponent. In the event of any Non-conformances being identified a Non-Conformance Note (NCN) will be issued to the Construction Contractor / Operator and copied to the project proponent.

Within the NCN, agreed steps to bring the project back into compliance will be set out, with a timeline for completion of these steps. The Construction Contractor / Operator will be required to demonstrate completion of the required actions and compliance status.

18.7.4 Corrective Actions

Any identified Non-conformances will be recorded and an NCN issued. The Construction Contractor / Operator is required to carry out corrective actions to bring the Project back into compliance with the CEMP in the timeline associated with the NCN. Where the non-conformance may include risk of further impact or damage, the NCN may also be accompanied by a Stop Work Notice (SWN) which will remain in effect until the Environmental Manager has inspected the matter as resolved.