
APPENDIX 17.1

MITIGATION MEASURES

Introduction

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

All mitigation which will be implemented during the various phases of the project are presented in **Table 17.1a** below. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

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

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

All monitoring measures which will be implemented during the pre-commencement, construction, operational and decommissioning phases of the project are outlined in **Table 17.1b**. All monitoring measures were set out in the relevant chapters of this EIAR. The monitoring proposals are presented in terms of the monitoring requirement, frequency of monitoring and the mechanism for reporting results where applicable. By presenting the monitoring proposals in the below format, it is intended

to provide a monitoring schedule that can be reviewed and tracked during all phases of the project to ensure all the required monitoring is completed as required.

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

Table 17.1a: Summary of Mitigation Measures

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase						
MM1	EIAR Chapter 5	Population and Human Health	5.4.9.2	Properly designed and maintained wind turbines and associated infrastructure are a safe technology. A suitable separation distance from turbines and other key infrastructure to properties has been embedded in the Development design. These outlined measures will minimise the risk to humans.		
MM2	EIAR Chapter 5	Population and Human Health	5.6.1 Embedded Mitigations	The Development, as described in Chapter 2: Development Description , incorporates good practice measures for limiting the adverse effects of the construction works. Allowing for the implementation of embedded mitigation, no significant effects have been identified in respect of adverse effects to the construction workers and therefore no mitigation measures are required to reduce or remedy any adverse effect.		
MM3	EIAR Chapter 8	Soils and Geology	8.5.1.1	A detailed Site selection process was carried out by the Developer. This process identified steep slopes and shallow bedrock as specific geotechnical constraints.		
MM4	EIAR Chapter 8	Soils and Geology	8.5.2.1.1	Within the chosen Site, areas of shallow bedrock were identified, and the infrastructure design sought to avoid those areas as much as possible. Mitigation through design is especially applicable in the risk to human health during a project due to the risk of landslips or ground instability and this shall be exercised to minimise the negative risks present		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM5	EIAR Chapter 8	Soils and Geology	8.5.2.3.1	Excavation volumes have been reduced during the design phase by avoiding excessive cut and fill during construction. This will result in reduced excavation volumes and therefore reduced Site traffic.		
MM6	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.1.1	The fundamental mitigation measure to be implemented during each stage of the proposed Development will be avoidance of sensitive hydrological or hydrogeological receptors wherever possible, this key principle is referred to as "mitigation by avoidance".		
MM7	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.1.1	Hydrological constraints maps have been developed which identified areas of the Site where surface water, groundwater and drainage constraints resulted in areas of the Site being deemed less suitable for development.		
MM8	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.1.2	During the design phase of the Development, a self-imposed 50m buffer zone around surface waters and significant drainage features was implemented. The 50m buffer zone is intended to inform the design process by minimising or avoiding the risk to surface water receptors and by restricting construction disturbance to outside these zones. The buffer zone will in turn provide enhanced potential for filtering capacity of runoff and will protect riparian zone vegetation.		
MM9	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.1.2	Each proposed construction location will possess unique characteristics and will require assessment on a case by case basis to ensure adequate measures are implemented.		
MM10	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	The drainage, attenuation and other surface water runoff management systems will be installed prior to the commencement of construction activities. Whenever possible, drainage and attenuation		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				control measures will be installed during seasonally dry conditions to limit the potential for sediment laden run-off to discharge to surface waters during the installation of these measures.		
MM11	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	The design of the proposed crossings and a method statement for the proposed construction will be prepared in advance of works taking place.		
MM12	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	This design of all crossings will adhere to relevant available guidance and will be reviewed through consultation with the OPW which will mitigate against any significant impact on surface water flow and in turn the risk of localised or downstream flooding.		
MM13	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	Crossings will be designed to minimise, in so far as practical and to the extent deemed acceptable by the competent authority, the disturbance or alteration of water flow, erosion and sedimentation patterns and rates.		
MM14	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	A Construction Environmental Management Plan has been prepared and is appended to the EIAR in Technical Appendix 2.1. Adherence to this plan, which will be mandatory throughout the construction of the watercourse crossings, will include comprehensive details of the culvert design and construction methodology, including the environmental risk/s involved which have been identified and assessed in this EIAR. Detailed site-specific mitigation measures and best practice techniques will be contained in the construction management plan and Risk Assessment Method Statement (RAMS) for any proposed crossings of small unmapped drains.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM15	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	To mitigate against the potential risk of accidental leaks or spillages from plant and equipment, an emergency response plan for such incidents is contained in the CEMP appended to the EIAR in Technical Appendix 2.1. Multiple spill kits will be maintained on the Site at all times within the cabs of vehicles and placed strategically at environmentally sensitive locations across the Site. Spill kits will be routinely inspected to ensure that they are fully stocked with oil absorbent booms and pads at all times. Oil absorbent booms will be installed downstream of channel crossing work areas within 25m of the works location, prior to the commencement of works.		
MM16	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	Primary mitigation measure to avoid potential impacts associated with removal of forestry will be mitigation by avoidance. The design layout of the proposed Development will ensure that the pre-existing forestry road network, such as that leading towards the T05 position for example, is incorporated into the proposed Development. Similarly, the pre-existing manmade forestry drainage network, and the pre-existing fire breaks, will be utilised during the construction and operational phases to the greatest practical extent. Utilisation of the existing forestry infrastructure such as roads, drainage network and fire breaks will remove the need to construct new features that would perform the same function. A reduced construction footprint would in turn reduce the potential for adverse impacts to occur such as increased eutrophication resulting from nutrient runoff and/or the potential for sediment laden runoff to occur		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM17	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	<p>The construction methodology in areas of forestry will adhere to the best practice specifications listed in the following Guidelines:</p> <ul style="list-style-type: none"> • The Forestry Service (2000), Forestry and Water Quality Guidelines; • The Forestry Service (2000), Forest Harvesting and Environmental Guidelines (2000); • Forestry and Water Quality Guidelines (2000); • EPA (2008), Forestry Operations and Eutrophication – PEnrich, Sytheseis Report; • Department of Agriculture, Food and the Marine (2015), Forestry Standards and Procedures Manual; • Department of Agriculture, Food and the Marine (2016), Environmental Requirements for Afforestation; and, <p>Department of Agriculture, Food and the Marine (2019), Standards for Felling and Reforestation.</p>		
MM18	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	<p>A felling license will be obtained from the Forest Service of the Department of Agriculture, Food & the Marine prior to any felling activities being carried out. The associated afforestation of alternative lands equivalent in area to those lands being permanently clear-felled is also subject to licensing (i.e. 'afforestation licensing'). Compliance with all provisions set out in CEMP will be mandatory for all personnel.</p>		
MM19	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	<p>Buffer zone guidelines for the protection of water quality and aquatic ecosystems is provided for in Table 1 of the Forestry and Water</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Quality Guidelines (2000). These buffer zone distances will be adhered to at the Site. It should be noted that with the exception of the pre-existing manmade forestry drains at the Site, none of the tree felling activities will be carried out within the self-imposed 50m buffer zone at the Site. Areas to be selected for afforestation will not be located within the 50m buffer zone of surface waters.		
MM20	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	A programme of water quality monitoring outlining the selected parameters and monitoring frequency should be agreed with Inland Fisheries Ireland and Waterford City and County Council prior to the commencement of construction.		
MM21	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	<ul style="list-style-type: none"> In order to assist in the detection of any deviations from the baseline hydrochemistry conditions at the Site, regular periodic monitoring of the Site's surface waters will be carried out prior to and during construction. 		
MM22	EIAR Chapter 12	Material Assets and Other Issues	12.4.4	Mitigation measures to minimise impacts on agricultural land use have been incorporated into the pre-planning design stage. The construction and operational footprint of the Development has been kept to the minimum necessary to avoid impact on existing land uses and existing roads and tracks serving agricultural and forestry use have been used where possible.		
MM23	EIAR Chapter 12	Material Assets and Other Issues	Forestry	Where possible existing forestry tracks have been incorporated into the design to minimise the construction of new Site Access Tracks and minimise the removal of forested areas. New Site Access Tracks have been designed to minimise impact on forestry. Electricity cables		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				will be installed underground in or alongside Site Access Roads to avoid and minimise negative impact. Utilising existing access roads will provide some positive impact for forestry, as they will reduce timber forwarding distances, which in turn will save some fuel consumption and reduce soil impacts.		
MM24	EIAR Chapter 12	Material Assets and Other Issues	12.6.8	<p>All electrical elements of the Development are designed to ensure compliance with electro-magnetic fields (EMF) standards for human safety.</p> <p>Compliance with the EMC Directive 2014/30/EU will mean that the electromagnetic emissions from devices used will not cause interference to other equipment.</p> <p>Additionally, mitigation options, such as technical solutions including re-alignment or replacement of TV antenna, re-tuning to alternative TV transmitters or provision of subscription free satellite television services can be implemented.</p>		
MM25	EIAR Chapter 12	Material Assets and Other Issues	12.7.5	<p>Mitigation by design and avoidance will minimise impacts on existing electricity networks.</p> <ul style="list-style-type: none"> • Confirmatory drawings for all existing services will be sought upon consultation with ESB Networks. • Immediately prior to construction taking place, the area where excavation is planned will be surveyed by CAT scan (sub-surface survey technique to locate any below-ground utilities) 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>and all existing services will be verified. Temporary warning signs will be erected.</p> <ul style="list-style-type: none"> 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. 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. 		
MM26	EIAR Chapter 12	Material Assets and Other Issues	12.8.5	<p>The IAA will be consulted and upon request, the turbine with the highest elevation above sea level (mOD) or turbines at the extremities of the site, and any obstacle 100m or greater, will be installed with a warning light system under direct specification and in accordance with ICAO Annex 15. It should be noted that infra-red lights are not visible to the naked eye. The IAA and the Local Authority will be informed of the coordinates of the constructed positions of the turbines and the highest point of turbines or any infrastructure greater than 100m at least 30 days prior to erection. The IAA and Local Planning Authority will be notified at least 30 days in advance of intended crane erection.</p> <p>An aeronautical lighting scheme for the Development will be agreed and installed in consultation with IAA and Department of Defence.</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>The following data will be supplied to the IAA airspace team and Department of Defence:</p> <ul style="list-style-type: none"> • The WGS84 coordinates (In degrees, minutes and seconds) for each turbine • Height above ground level (to blade tip) and elevation above mean sea level (to blade tip) in both meters and feet. • Horizontal extent (rotor diameter) of turbines and blade length where applicable in both meters and feet. • Lighting of the wind farm, which turbine(s) is/are lit, and what type of lighting. 		
MM27	EIAR Chapter 12	Material Assets and Other Issues	12.9.4	<ul style="list-style-type: none"> • Existing tracks have been used where possible and the layout was designed to minimise the length of new track required in order to reduce the requirement for such stone material. • One site borrow pits will provide a total volume of c.31,788m³. The quarry will only be used where the material won onsite is not suitable (c.45,407m³). • Local quarries have been identified to reduce impact on transportation (Please see Chapter 14: Traffic and Transportation). • The source quarry will be chosen based on stone which is chemically similar to that occurring at the Development. This will reduce hydrogeochemical impacts. (Please see Chapter 8: Soils and Geology) 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM28	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	Provision for separation of waste streams will be provided so that e.g., paper, and cardboard waste and bottles may be recycled.		
MM29	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	It is proposed to install a rainwater harvesting system as the source of water for toilet facilities for the operational phase. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank, fitted with a high-level alarm. This is a device installed in a fuel storage tank that is capable of sounding an alarm, during a filling operation, when the liquid level nears the top of the tank.		
MM30	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	<p>All storage containers of over 200 litres will have a secondary containment of 110% capacity to ensure that any leaking oil is contained and does not enter the aquatic environment.</p> <p>A Chemical and Waste Inventory will be kept. This inventory will include:</p> <ul style="list-style-type: none"> List of all substances stored on-site (volume and description) Procedures and location details for storage of all materials listed Waste disposal records, including copies of all Waste Transfer Notes detailing disposal routes and waste carriers used Any tap or valve permanently fixed to the mobile unit through which oil can be discharged to the open or when delivered through a flexible pipe which is fitted permanently to the mobile unit, will be fitted with a lock and locked shut when not in use 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> Sight gauges will be fitted with a valve or tap, which will be shut when not in use. Sight gauge tubes, if used will be well supported and fitted with a valve Mobile units must have secondary containment when in use/out on site <p>Where mobile bowzers are used on site, guidelines will be followed so that:</p> <ul style="list-style-type: none"> Any flexible pipe, tap or valve will be fitted with a lock where it leaves the container and be locked shut when not in use; Flexible delivery pipes will be fitted with manually operated pumps or a valve at the delivery end that closes automatically when not in use. Where possible, a nozzle designed to dispense oil is used; The pump or valve will have a lock and be locked shut when not in use. <p>For loads in excess of 1000 litres (220 gallons), the bowser vehicle driver will have undergone training and hold a special licence</p>		
MM31	EIAR Chapter 13	Cultural Heritage	13.5.1	The wind farm layout was informed by the archaeological desktop studies and fieldwork undertaken during the design and assessment phases and was designed to avoid the known locations of the archaeological monuments within the Site.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM32	EIAR Chapter 14	Traffic and Transport	14.6	A survey of the Haul Route will be undertaken to identify if any overhead lines will need to be lifted along the route to allow abnormal loads such as tower sections and nacelles to be delivered.		
MM33	EIAR Chapter 15	Shadow Flicker and EMI	15.3.3	Due to the potential for shadow flicker to affect receptors within the shadow flicker study area, it is proposed that a shadow control system will be installed on each of the wind turbines.		
MM34	Appendix 2.1 CEMP	Environmental Controls	3.1	Turbines will be procured from a reliable manufacturer and will have undergone vigorous safety checks during design, construction, commissioning and operation.		
MM35	Appendix 2.1 CEMP	Environmental Controls	3.1	Physical and visual warnings such as signs will be erected as appropriate for the protection of site personnel and the public.		
MM36	Appendix 2.1 CEMP	Environmental Controls	3.1	Facility for remote turbine deactivation will be provided.		
MM37	Appendix 2.1 CEMP	Environmental Controls	3.1	The final turbine model chosen will be in line with International Electrotechnical Commission 61400-1 safety standards. Maintenance visits will take place as needed with the Supervisory Control and Data Acquisition (SCADA) control system monitoring turbine performance remotely. If a fault occurs, then a message is automatically sent to the operations personnel preventing emergency situations. Warning signs and security infrastructure will be in place around the onsite switchgear and control building to provide for public safety		
MM38	Appendix 2.1 CEMP	Environmental Controls	3.2.1.1.4	The Ecological Clerk of Works for the construction phase will complete a pre-construction survey of the construction footprint in order to confirm the continued absence of mammal breeding and		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				resting places within the construction footprint and within 50m of the construction footprint or identify the presence of newly established breeding/resting places. Based upon the results of these surveys, the ECoW will establish whether or not there is a need at that stage for the implementation of further mitigation measures and the requirement for protected species licences.		
MM39	Appendix 2.1 CEMP	Environmental Controls	3.2.1.3.2	All elements of the SWMP and the mitigation measures outlined in Chapter 9 to reduce the amount of silt-laden water generated within the construction footprint will be implemented. These measures will include the provision of clean water catch drains upslope of construction areas and the minimisation of excavation footprints and the time excavations and surfaces are left exposed and denuded.		
MM40	Appendix 2.1 CEMP	Environmental Controls	3.3.4	<p>Ground Stability - Mitigation by Avoidance and Good Practice</p> <p>Mitigation by Avoidance and Good Practice</p> <ul style="list-style-type: none"> careful design of the wind farm has reduced the amount of construction required in areas of steep slopes and other areas of potential ground instability. careful design of the wind farm has reduced the amount of construction required in areas of steep slopes and other areas of potential ground instability. 		
MM41	Appendix 2.1 CEMP	Environmental Controls	3.3.4	<i>Mitigation by Reduction</i>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>The temporary storage of construction materials, equipment, and earth materials will be kept to an absolute minimum during the construction phase of the Development.</p> <p>Example: The excavation material for the construction of Site Access Roads will not progress ahead of actual track construction (as discussed under mitigation addressing vehicular movements), therefore minimising the volume of arisings to be managed. Areas for permanent deposit of material e.g., backfill adjacent to constructed infrastructure, will be identified and suitable material deposited as it becomes available. These efficiencies can be seen in the Spoil Management Plan.</p>		
MM42	Appendix 2.1 CEMP	Environmental Controls	3.3.4	<p><i>Mitigation by Remediation</i></p> <p>Remediation of soils will include the deposit of suitable material where required. This will include replacement of soils / subsoils in line with baseline conditions. Remediated areas will be managed and monitored in terms of reestablishment of vegetated cover.</p> <p>In the unlikely event that a slope stability issue does arise on the Site during the construction or operational phases of the Development, given the variable potential extent of associated impacts, remediation will be assessed, prescribed and monitored by a suitably qualified geotechnical engineer/engineering geologist on a case-by-case basis</p>		
MM43	Appendix 2.1 CEMP	Environmental Controls	3.3.4	<i>Emergency Response</i>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>Emergency responses to potential stability incidents have been assessed (EIAR Chapter 5: Human Health and Population) and established to form part of Management Plan 1, Emergency Response Plan before construction works initiate.</p> <ul style="list-style-type: none"> In particular, catch fences and other physical barrier(i.e. concrete blocks) will be on Site and available in sufficient quantities to be used in the event of ground instability. A plan will be made to prevent or divert any landslide away from protected areas (NHA, SPA and/or SAC). <p>Detailed emergency response protocols are specified in the Management Plan 1: Emergency Response Plan</p>		
MM44	Appendix 2.1 CEMP	Environmental Controls	3.4.2.1	<p>Mitigation by Avoidance</p> <ul style="list-style-type: none"> A process of “mitigation by avoidance” was undertaken by the EIA team during the day Design of the turbine and associated infrastructure layout. Arising from the results of this study, a constraints map was produced that identifies areas where hydrological / hydrogeological constraints could make parts of the Site less suitable for development. The constraints map is presented in Figure 9.8a. Ecoquest Limited, in consultation with the design team has reviewed the layout plan and has identified it as the best layout design available for protecting the existing hydrological regime of the Site, while at the same time incorporating and overlaying 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				engineering and other environmental constraints as detailed in this EIAR.		
MM45	Appendix 2.1 CEMP	Environmental Controls	3.4.2.1	<p>As part of mitigation by avoidance during the design phase of the Development, surface water, and drainage buffer zones were established where applicable.</p> <ul style="list-style-type: none"> 50m Surface Water Buffer Zone - Mapped surface water features i.e. mapped streams, rivers, lakes. Source for mapped surface water features; EPA. It is noted through experience and consultation with Inland Fisheries Ireland on other windfarm developments that their recommendation has typically been for a minimum 15m buffer zone from all watercourses to be implemented. Implementation of a 50m buffer zone can therefore be considered to be a conservative approach. <p>Groundwater buffer zones are dependent on the characteristics of the receptor e.g., private well, or public supply source protection zone, and the characteristics of the underlying geology and associated aquifer e.g., poor unproductive aquifer, or regionally important karstified aquifer. Recommended groundwater buffer zones range from e.g., 15m (exclusion zone karst swallow holes) to entire catchments (source protection in regionally important karstified aquifer) depending on site specific characteristics. For the purpose of this assessment the following conservative approach has been applied:</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> 100m Groundwater Buffer Zone – Groundwater abstraction points in relation to proposed access tracks and cable trenches i.e., shallow excavation. Source for mapped abstraction points: GSI. Not applicable, none within 100m of the Site. Applicable to the grid connection and turbine delivery routes 250m Groundwater Buffer Zone – Groundwater abstraction points in relation to proposed borrow pits and foundations. Source for mapped abstraction points: GSI. Not applicable, none within 250m of the Site. There are no source protection areas or karst features in the vicinity of the proposed development. 		
Construction Phase						
MM46	EIAR Chapter 6	Biodiversity	6.7.1.1.1	<p>The Development has been designed to ensure that an adequate buffer zone is provided for between this infrastructure and watercourses. In addition, the design has sought to minimise the requirement for new watercourse crossings. This has been achieved by restricting the need for watercourse crossing to a total of one new crossing of the Aghkilladoon Stream within the proposed wind farm site, and three crossings along the proposed grid connection route. The buffer zone implemented between all large-scale infrastructure associated with the wind farm site, such as turbines, hardstand, and access tracks are located at distances of over 50m from any watercourses, except for where the Access Track crosses watercourses the Aghkilladoon Stream. In addition, the best practice</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				construction measures that are described above are designed to avoid impacts on areas that are outside the site including watercourses.		
MM47	EIAR Chapter 6	Biodiversity	6.7.1.1.1	A Surface Water Management Plan has been prepared for the proposed wind farm and this plan ensures the implementation of a suite of measures that will avoid negative impacts to water quality and the hydrological regime of the Finisk River.		
MM48	EIAR Chapter 6	Biodiversity	6.7.1.1.3	It is essential that the direct loss of dry heath habitat is fully minimised (notably also taking account of the international/national nature conservation value of these habitats) and so mitigation by avoidance is essential to limit such losses within the footprint of the Development, and its zone of influence. Mitigation in this respect.		
MM49	EIAR Chapter 6	Biodiversity	6.7.1.1.3	<p>The full extent of the infrastructure footprint will be marked out prior to the commencement of works, with an appropriately robust and visible fencing / marker system. Where this meets Annex I habitats, this will also be the full extent of the works corridor, with no machinery access (access will only be allowed on foot and only for the purposes of silt / pollution control if required), storage or other works allowed outside this area.</p> <p>The efficacy and coherence of the marker system (and required remediation) will form an essential part of the Site operations.</p>		
MM50	EIAR Chapter 6	Biodiversity	6.7.1.1.3	A pre-construction Invasive Species Survey will be conducted during the optimal growing season (May to August immediately prior to works occurring at this site for the Development) and shall include data on		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				all locations, extents and potential construction impacts in relation to scheduled and non-scheduled Alien Invasive Species (IAS). This survey will be completed along with reporting on the best course of action to be implemented to avoid the spread of such IAS on the Site or further afield. The management of IAS identified as occurring within the proposed development site will be undertaken in accordance with best practice management guidelines as set out in the TII guidelines "The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads" (2010).		
MM51	EIAR Chapter 6	Biodiversity	6.7.1.1.4	The Ecological Clerk of Works for the construction phase will complete a pre-construction survey of the construction footprint in order to confirm the continued absence of mammal breeding and resting places within the construction footprint and within 50m of the construction footprint or identify the presence of newly established breeding/resting places. Based upon the results of these surveys, the ECoW will establish whether or not there is a need at that stage for the implementation of further mitigation measures and the requirement for protected species licences. An example of where such a need could arise is where a badger sett becomes established along or in the immediate vicinity of a hedgerow that will be intersected by the proposed access track.		
MM52	EIAR Chapter 6	Biodiversity	6.7.1.1.5	Any trees and treelines along approach roads and planned site access tracks will be retained unless felling is unavoidable. Retained trees should be protected from root damage by an exclusion zone of at least		

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				7 metres or equivalent to canopy height. Such protected trees will be fenced off by adequate temporary fencing prior to other works commencing.		
MM53	EIAR Chapter 6	Biodiversity	6.7.1.1.5	No structures will be demolished as part of the construction phase of the proposed development and there will be no disturbance to confirmed bat roost structures occurring within and adjacent to the proposed wind farm site boundary.		
MM54	EIAR Chapter 6	Biodiversity	6.7.1.1.6	The Ecological Clerk of Works for the construction phase will complete a survey of the construction footprint during spring (late February / March / early April) ahead of the proposed works in order to identify any key amphibian breeding areas. This will allow wildlife barriers to be installed where necessary to minimise impacts upon such features where these are likely to be indirectly affected by the works.		
MM55	EIAR Chapter 6	Biodiversity	6.7.1.2.1	An Ecological Clerk of Works ("ECoW") will be employed from the commencement to completion of construction works, including Access Tracks, On-site Substation and Control Building, Temporary Construction Compound, Turbine Hardstands and Turbine Foundations and Wind Farm Internal Cabling works at a minimum. Primary roles for the ECoW will include the setting out and monitoring of the working corridor and review of pollution control measures and working practices during the active construction period as well as ad hoc input into site remediation.		
MM56	EIAR Chapter 6	Biodiversity	6.7.1.2.1	For the construction of culverts, all activities must adhere to IFI, (2016) Guidelines on Protection of Fisheries during Construction Works in		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				and Adjacent to Waters. Section 9 Planning, Design and Construction Issues details on Best Practice guidance for the installation of culverts on watercourses.		
MM57	EIAR Chapter 6	Biodiversity	6.7.1.2.1	All measures outlined in the accompanying SWMP will be fully implemented by the contractor and will be agreed to with the planning authority in advance of construction activities. The objective of the SWMP is to prevent pollution to watercourses and adverse impacts to sensitive fauna. The SWMP has provided sufficient detail so that all activities that could potentially lead to negative impacts on water quality have been identified. The SWMP is based upon a detailed understanding of the hydrology, hydrogeology and geology within and surrounding the proposed wind farm extension.		
MM58	EIAR Chapter 6	Biodiversity	6.7.1.2.1	All watercourses draining the Site will be examined on a repeated scheduled timeframe (i.e. daily/weekly/fortnightly etc.) as deemed appropriate by the Contractor, Planning Authority, NPWS and Inland Fisheries Ireland. A log will be kept of these examinations and a water sampling protocol to monitor key water quality parameters will be established in agreement with the NPWS and Inland Fisheries Ireland. The monitoring protocol will be devised so that sediment release (should it occur) from the Site is detected at an early stage. Sediment release to the above watercourses from the site will be restricted to <25mg/l as per the Salmonid Water Regulations.		
MM59	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Method statements outlining the approach to all surface watercourse crossing will be approved in advance with Inland Fisheries Ireland.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM60	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Disturbance to natural drainage features will be avoided during the construction phase of the Development. The design of the Development has allowed for the establishment of a 50m wide watercourse buffer zone during the construction phase.		
MM61	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Uncontaminated surface runoff will be diverted away from construction areas through the installation of interceptor drains up-gradient of construction areas.		
MM62	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Drainage waters originating in construction areas will be collected in a closed system and treated prior to controlled, diffuse release. Drainage waters from construction areas will be managed through a series of treatment stages that include swales, check dams and settlement/attenuation ponds along with other pollution control measures such as silt fences and silt mats.		
MM63	EIAR Chapter 6	Biodiversity	6.7.1.2.1	A three-stage treatment train will be employed to capture, retain and treat discharges during the construction phase. This treatment train is also proposed for discharges from hard surfaces that will be installed as a result of the Development.		
MM64	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Settlement/attenuation ponds will be used to attenuate and treat runoff. A detailed pre-construction peat stability assessment has considered the appropriate location of settlement/attenuation ponds so that these facilities will not increase the risk of slope failure. These will have permanent open water to minimise the risk of sediment washout. Settlement/attenuation pond side slopes will be constructed at shallow grades such as 1 in 3 side slope. Settlement/attenuation		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				ponds will be designed so that outflows are spread diffusely over a wider area so that increases in run-off can be mitigated. Erosion control and detention ponds will be regularly maintained during the construction phase.		
MM65	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Standing water from excavations will not be pumped directly into watercourses. Where dewatering of excavations is required, water will be pumped to the head of a treatment train in order to receive full treatment prior to discharge.		
MM66	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Roadside drains will be shallow with moderate gradients to prevent scouring. In steep areas check dams (possibly in conjunction with settlement ponds and / or cross drains) may be necessary to reduce flow rate.		
MM67	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Oil fuel will be stored within containment areas and emergency response measures for oil spillage on site will be prepared.		
MM68	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Refuelling of plant during construction will be carried out at a designated area, a minimum of 50m from watercourses. Drip trays and spill kits will be available on site. Maintenance of all plant and machinery will be undertaken off-site. Only emergency break-down maintenance will be carried out on site.		
MM69	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Cement will be mixed within containment areas and if Readymix vehicles are used these will be washed in the same area and the water cycled.		
MM70	EIAR Chapter 6	Biodiversity	6.7.1.2.1	All vehicles transporting materials to and from the Site will store materials in a contained load so that the potential for emissions or		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				spillage is reduced during journeys and bridge crossing over watercourses. The measures outlined in the UK's Planning Policy Guidance No. 26: Dealing with Spillages on Highways (a Good Practice Guidance notes proposed of the UK EA/SEPA/EHS) will be adhered to in the event of a spillage or accident during the transportation of materials.		
MM71	EIAR Chapter 6	Biodiversity	6.7.1.2.1	All construction personnel will be trained in pollution incident control response. An emergency response plan has been prepared as part of the CEMP for the proposed development and information outlining response procedures and contingency plans to contain pollution, as set out in the CEMP, will be made available on site.		
MM72	EIAR Chapter 6	Biodiversity	6.7.1.2.1	Access Tracks and turning areas will be confined to areas of shallow peat where possible and will be constructed on a geotextile layer. These areas will also be kept as level as possible to avoid fast run-off. This can be achieved by following contours where possible.		
MM73	EIAR Chapter 6	Biodiversity	6.7.1.2.1	At the proposed spoil storage area, impermeable berms will be put in place surrounding peat spoil receptor cells. The berms will be established in advance of the deposition of peat surplus material. The berms will be designed to account for a bulking factor of 10% of the surplus peat material to be disposed in these areas. In addition, all existing drainage ditch outflows from cutover blanket bog that will be used as receptor cells for surplus peat will be blocked in advance of the deposition of any surplus material within these cells. This will prevent the ongoing loss of water from these cut areas to receiving		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				lakes to the north and south and also prevent the migration of peat spoilt material from the cells to these lakes.		
MM74	EIAR Chapter 6	Biodiversity	6.7.1.2.2	Appropriate mitigation measures including management and control measures are required at all sites within the proposed works area where the non-native species for <i>Fallopia japonica</i> and <i>Prunus laurocerasus</i> is encountered for the prevention of spread of these species. The mitigation measures for the control of invasive species will follow the TII guideline document <i>The Management of Invasive Alien Plant Species on National Roads – Technical Guidance</i> (TII, 2020).		
MM75	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Where feasible, preference should be given to treating Japanese knotweed in its original location to limit the risk of further spread of the plant		
MM76	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Where cut, pulled or mown IAPS material arises, its disposal shall not lead to a risk of further spread.		
MM77	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Particular care shall be taken near watercourses as water is an effective conduit for the dispersal of plant fragments and seeds.		
MM78	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Particular care is required in relation to the disposal of Japanese and other knotweed species. Where burial is being used to dispose of		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				these species, a non-persistent herbicide shall be applied to the infestation prior to excavation. The material shall then be excavated and subsequently buried to a minimum depth of 5m. The waste shall be covered with a proprietary root barrier membrane layer and infilled with a minimum 5m depth of uncontaminated soil.		
MM79	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Any geotextile membranes used for burial must be undamaged, sealed securely, have a manufacturer's guarantee that it will remain intact for at least 50 years, and be UV resistant. Where burial to a depth of 5m is not possible, the infestation shall be treated with a non-persistent herbicide prior to excavation, excavated and then completely encapsulated in a proprietary root barrier membrane cell. The upper surface of the cell shall be buried to a depth of at least 2m with uncontaminated soil.		
MM80	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). Treat with glyphosate. Glyphosate is a broad-spectrum herbicide and, as such, is potentially damaging to non-target plants. Great care is, therefore, necessary when applying this herbicide. Effective control of Japanese knotweed may be achieved by biannual (summer and autumn) foliar glyphosate applications or by annual application of glyphosate in autumn (after the flowering period but prior to senescence) using stem injection (at high concentrations) or foliar spray (Jones, et al., 2018).		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM81	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). The use of herbicides containing the active ingredients aminopyralid and fluroxypyr are not to be used for stands of <i>Fallopia japonica</i> occurring in close proximity to watercourses and wetland habitats.		
MM82	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Prunus laurocerasus</i>). <ul style="list-style-type: none"> • Cutting – anytime of the year. This approach can be very labour intensive and does not kill the plant. Regular follow up is required to deal with re-growth. • Uprooting - anytime of the year. Small plants can be pulled by hand while large stems can be cut and the roots grubbed out by winch or machine. • Mulch matting - anytime of the year. This approach can be labour intensive and regular follow up is required to deal with re-growth. • Bud-rubbing – spring to autumn. This approach can be labour intensive and regular follow up is required to deal with re-growth. • Glyphosate – during the active growth in late spring or summer. Spot treatment of stands of <i>Prunus laurocerasus</i> on site. Triclopyr - during the active growth in late spring or summer. Spot treatment of stands of <i>Prunus laurocerasus</i> on site.		
MM83	EIAR Chapter 6	Biodiversity	6.7.1.2.2	(Physical and chemical control measures for <i>Fallopia japonica</i>). The application of herbicides and pesticides shall not be undertaken in the following conditions:		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> Windy weather where there is a risk of spray drift occurring During or preceding rainfall which can result in the chemical being washed off <p>During periods of particularly cold weather which can reduce the plant's ability to uptake the chemical.</p>		
MM84	EIAR Chapter 6	Biodiversity	6.7.1.2.2	Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site.		
MM85	EIAR Chapter 6	Biodiversity	6.7.1.2.2	All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species		
MM86	EIAR Chapter 6	Biodiversity	6.7.1.2.2	All washing will be undertaken in areas with no potential to result in the spread of invasive species. This process will be detailed in the contractor's method statement		
MM87	EIAR Chapter 6	Biodiversity	6.7.1.2.2	Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present		
MM88	EIAR Chapter 6	Biodiversity	6.7.1.2.2	All planting and landscaping associated with the Development shall avoid the use on invasive shrubs such as Rhododendron.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM89	EIAR Chapter 6	Biodiversity	6.7.1.3.1	A site-specific CEMP will be implemented to ensure that potential adverse impacts to upland watercourses flowing through the site are avoided. Minimum buffer zones will be implemented between areas associated with the construction of Turbine Foundations and streams/eroding gullies, except where stream crossings are required.		
MM90	EIAR Chapter 6	Biodiversity	6.7.1.3.1	Within the Broemountain Commonage Area site operatives, plant and machinery will be restricted to the footprint of the proposed development construction boundary and will not be permitted to encroach upon adjacent lands. This will reduce the potential for damage and disturbance to heath, acid grassland and mosaic habitats.		
MM91	EIAR Chapter 6	Biodiversity	6.7.1.4.1	The restoration of areas of dry heath and unimproved acid grassland and the implementation of measures such as the control of grazing will aim to achieve the restoration and enhancement of an area of approximately 12 ha of dry heath habitat as well as improving conditions within the Waterford Wetland Habitat Lisleagh Mountains (Site Code: 173) through the provision of appropriate grazing management.		
MM92	EIAR Chapter 6	Biodiversity	6.7.1.4.1	New hedgerow planting, consisting of native species and of local Waterford/Irish provenance will be provided within the proposed wind farm site to offset the loss of approximately 1.38km of hedgerow to the footprint of the proposed development. The corridors of proposed new hedgerow planting are outlined in Appendix 6.4 and amount to approximately 3.65km of new hedgerow. The planting of this		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				hedgerow and their successful establishment during the operation phase of the proposed wind farm site will result in an overall net increase of approximately 1.3km of hedgerow habitat within the proposed wind farm site. This will have the potential to represent a significant positive effect for hedgerow and the fauna that rely upon this habitat.		
MM93	EIAR Chapter 6	Biodiversity	6.9	There will be an overall loss of approximately 31 Ha of habitat to the footprint of the proposed wind farm. This will include a loss of approximately 3.4 Ha of Annex 1 dry heath habitat. In addition there will be approximately 1.38km of hedgerow lost to the footprint of the proposed wind farm. The Habitat Management Plan will be implemented to mitigate for the loss of habitat to the footprint of the proposed wind farm. This plan comprises measures for the restoration and enhancement of an area of approximately 12 Ha of degraded dry heath habitat as well as the establishment of approximately 3.65km of new hedgerow habitat with a net increase of c. 1.3km of this habitat. The habitat management measures that will be implemented for the poor fen and surrounding wet grassland habitat at the Lisleagh Mountain Waterford Wetland site will provide enhancement and ongoing protection for this habitat over the lifetime of the wind farm. These measures will also reduce the impact of wet grassland habitat loss to the footprint of the proposed wind farm. A summary of the measures to be implement as part of the Habitat Management Plan is provided in Table 6.14 (Chapter 6).		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Table 6.14 (Chapter 6) provides an assessment of the residual impacts of the Development, taking into account the mitigation measures set out in Section 6.7 (Chapter 6) and the measures set out in the Habitat Management Plan, as summarised in Table 6.16.		
MM94	EIAR Chapter 7	Ornithology	7.6.2.2	A Project Ecologist/Ecological Clerk of Works (ECoW) with appropriate experience and expertise (in implementing ecological mitigation measures for wind farm developments) will be employed for the duration of the construction phase to ensure that all the mitigation measures outlined in relation to the environment are implemented. The Project Ecologist/ ECoW will be awarded the authority to stop construction activity if there is potential for significant adverse ecological effects to occur.		
MM95	EIAR Chapter 7	Ornithology	7.6.2.3	Subject to other environmental concerns (e.g., run-off), the removal of vegetation and scrub as well as trimming of trees along the TDR and general wind farm area will be undertaken outside of the bird breeding season (March 1 st to August 31 st inclusive). This will help protect nesting birds. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt, A. L. and Langston, R. H., 2006). Construction operations will take place during the hours of daylight to		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM96	EIAR Chapter 7	Ornithology	7.6.2.3	Construction operations will take place during the hours of daylight to minimise disturbances to roosting birds, or active nocturnal bird species. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt and Langston, 2006). Limited operations such as concrete pours, turbine erection and installation of the grid connection may require night-time operating hours; these works will be supervised by the project ecologist/ECOW.		
MM97	EIAR Chapter 7	Ornithology	7.6.2.3	Toolbox talks will be undertaken with construction staff on disturbance to key species during construction. This will help minimise disturbance. This is in line with best practice recommendations for mitigation measures with regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt and Langston, 2006).		
MM98	EIAR Chapter 7	Ornithology	7.6.2.3	Where/if removed or altered, re-instated hedgerows will be planted with locally sourced native species. This will result in habitat enhancement for local species of conservation importance such as meadow pipit. This is in line with best practice recommendations for mitigation measures in regard to birds and wind farms as recommended by statutory bodies such as English Nature and the Royal Society for the Protection of Birds (Drewitt and Langston, 2006).		
MM99	EIAR Chapter 7	Ornithology	7.6.2.3	A re-confirmatory survey (March/April) will be conducted of the proposed turbine locations to assess any evidence of target species		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				activity or occupation of new territories (e.g. in the case of breeding snipe). Should any nesting locations be recorded, works at these locations will be restricted to outside the breeding season (March 1 st to August 31 st inclusive) or until chicks are deemed to have fledged (following monitoring).		
MM100	EIAR Chapter 7	Ornithology	7.6.2.3	No construction works shall be undertaken within the common area (Turbine 10, 11, 12 and 13) during the winter season. Preconstruction surveys for golden plover occupancy within the commonage area to re-confirm the findings of the EIAR, shall inform this restriction period typically between the months of October and March annually.		
MM101	EIAR Chapter 7	Ornithology	7.6.2.3	The use of "white lights" on the turbines will not occur as these can attract night flying birds such as migrants, and insects, which in turn can attract bats. Certain turbines will be illuminated with medium intensity fixed red obstacle lights of 2000 candelas where required by the IAA Lighting will be fitted with baffles to ensure that the light is directed skywards and will not be discernible from the ground.		
MM102	EIAR Chapter 8	Soils and Geology	8.4.2.1.3	Some material for the construction of the Turbine Hardstands will be imported from local Quarries. Only licenced quarries will be used.		
MM103	EIAR Chapter 8	Soils and Geology	8.4.2.1.3	All imported material will be fully tested in accordance with industry standards (TII Specification for Roadworks Series 800 and S.R.21 2014 + A1: 2016).		
MM104	EIAR Chapter 8	Soils and Geology	8.4.2.1.6	Bedrock excavations material is likely to be suitable for re-use after crushing and screening, and would be of use as granular fill for Site Access Track construction.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM105	EIAR Chapter 8	Soils and Geology	8.4.2.1.6	Soil and rock should be stockpiled no higher than 2m.		
MM106	EIAR Chapter 8	Soils and Geology	8.4.2.4.2	Good Site practice will mitigate any effect in the short-term and long-term		
MM107	EIAR Chapter 8	Soils and Geology	8.4.2.4.3	Wastewater/sewerage from the Temporary Construction Compound and 110kV substation compound will be placed in a holding tank, which will be emptied periodically. Chemicals will be used to reduce odours.		
MM108	EIAR Chapter 8	Soils and Geology	8.4.2.4.4	Any hazardous materials will be correctly stored within properly bunded areas in accordance with good Site practice as described in the IWEA and Scottish Best Practice Guidelines and in accordance with the CEMP.		
MM109	EIAR Chapter 8	Soils and Geology	8.4.2.4.5	All construction and operation waste materials will be correctly sorted, recycled or disposed of in accordance with best practice as described in the IWEA " <i>Best Practice Guidelines for the Wind Energy Association</i> " and the Scottish " <i>Good Practice during Wind Farm Construction</i> " and in accordance with the CEMP.		
MM110	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	Best practice (as defined by IWEA and Scottish Best Practice Guidelines) will be applied during construction which will minimise the amount of soil and rock excavation.		
MM111	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	All works will be managed and carried out in accordance with the Construction Environmental Management Plan (CEMP), located in Technical Appendix 2.1, which will be updated by the civil engineering contractor and agreed prior to any works commencing on Site.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM112	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	Excavated soil and rock will only be moved short distances from the point of extraction and will be used locally for Site Access Track construction or landscaping.		
MM113	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	Landscaping areas will be sealed and levelled using the back of an excavator bucket to prevent erosion		
MM114	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	In order to reduce the impacts associated with the use of off-site quarries, an on-site borrow pit will be developed which will reduce transport distances in addition to noise and dust hazards associated with off-site quarries.		
MM115	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	In order to reduce the impacts associated with the on-site borrow pit, rock use will be reduced and re-used wherever possible.		
MM116	EIAR Chapter 8	Soils and Geology	8.5.2.1.3	Adherence to the CEMP and IWEA/Scottish Best Practice Guidelines will ensure that the amount of earth materials excavated is kept to a minimum in order to limit the effect on the geological aspects of the Site. The management of geological materials is an important component of controlling dust and sediment and erosion control.		
MM117	EIAR Chapter 8	Soils and Geology	8.5.2.1.4	Soil and rock will be re-used for construction of Site Access Tracks wherever possible. The bedrock will comprise predominantly sandstone and siltstone which, when crushed and graded, should provide a good sub-base for Site Access Track construction.		
MM118	EIAR Chapter 8	Soils and Geology	8.5.2.1.4	The topsoil will be reused on Site for landscaping purposes around infrastructure and adjacent to access tracks. These measures will prevent the erosion of exposed areas of overburden in the short and long term.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM119	EIAR Chapter 8	Soils and Geology	8.5.2.1.4	The calculated surplus (approximately 55,000m ³ of subsoil/rock and 3,500m ³ of topsoil) will be used for reinstatement of the borrow pit (approximate dimensions 170m x 170m x 2m deep).		
MM120	EIAR Chapter 8	Soils and Geology	8.5.2.2.1	Best practice as described in the IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation and therefore also reduce storage and stockpile requirements.		
MM121	EIAR Chapter 8	Soils and Geology	8.5.2.2.1	Topsoil will only be moved short distances from the point of extraction and will be used locally for landscaping		
MM122	EIAR Chapter 8	Soils and Geology	8.5.2.2.1	Landscaping areas will be sealed and levelled using the back of an excavator bucket to prevent erosion.		
MM123	EIAR Chapter 8	Soils and Geology	8.5.2.2.2	Whenever possible, soil and rock will be re-used on the Site immediately, thereby reducing the need for double handling, which will also reduce the requirement to stockpile soils.		
MM124	EIAR Chapter 8	Soils and Geology	8.5.2.2.2	Excavated soil and rock will be used immediately for Site Access Track construction.		
MM125	EIAR Chapter 8	Soils and Geology	8.5.2.2.2	Whenever possible stockpiles will be avoided to prevent instability.		
MM126	EIAR Chapter 8	Soils and Geology	8.5.2.3	Vehicular movements will be restricted to the footprint of the proposed Development, particularly with respect to the newly constructed Site Access Tracks. This ensures that machinery will be kept on tracks and will not move onto areas that are not permitted for the Development.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM127	EIAR Chapter 8	Soils and Geology	8.5.2.3	Vehicular traffic on Site will be reduced through the re-use of excavated material on Site which will reduce the need to source material from external quarries.		
MM128	EIAR Chapter 8	Soils and Geology	8.5.2.3	Any vehicles utilised during the construction phase will be maintained on a weekly basis and checked daily to ensure any damage or leakages are corrected.		
MM129	EIAR Chapter 8	Soils and Geology	8.5.2.4.1	Best practice as described in the IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the risk of ground instability.		
MM130	EIAR Chapter 8	Soils and Geology	8.5.2.4.2	The Construction Environmental Management Plan (CEMP in Technical Appendix 2.1) will include an emergency response to be applied in the event of a landslide or ground instability		
MM131	EIAR Chapter 8	Soils and Geology	8.5.2.4.2	Catch fences and other physical barriers (i.e. concrete blocks) will be on Site and available in sufficient quantities to be used in the event of ground instability.		
MM132	EIAR Chapter 8	Soils and Geology	8.5.2.4.2	A plan will be made to prevent or divert any landslide away from protected areas (NHA, SPA and/or SAC).		
MM133	EIAR Chapter 8	Soils and Geology	8.5.2.5	The CEMP (Technical Appendix 2.1) includes provision for the checking of assets (plant, vehicles, fuel bowsers) on a regular basis during the construction phase of the Development. The purpose of this management control is to ensure that the measures in place are operating effectively, prevent accidental leakages, and identify potential breaches in the protective retention and attenuation network during earthworks operations		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM134	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water.		
MM135	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores.		
MM136	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Ancillary equipment such as hoses, pipes will be contained within the bund.		
MM137	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Taps, nozzles or valves will be fitted with a lock system.		
MM138	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage.		
MM139	EIAR Chapter 8	Soils and Geology	8.5.2.5.1	Only designated trained operators will be authorised to refuel plant on Site.		
MM140	EIAR Chapter 8	Soils and Geology	8.5.2.5.3	An emergency spill kit with oil boom and absorbers will be kept in Site vehicles in the event of an accidental spill. All Site operatives will be trained in its use.		
MM141	EIAR Chapter 8	Soils and Geology	8.5.2.6	All waste will be segregated and re-used where possible or removed from Site for recycling.		
MM142	EIAR Chapter 8	Soils and Geology	8.5.2.6	Any waste which is not recyclable or compostable will be properly disposed of to landfill.		
MM143	EIAR Chapter 8	Soils and Geology	8.5.2.6	Whenever possible, excavated materials will be re-used close to the area of excavation. The careful design of which will result in minimal excess soil and rock.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM144	EIAR Chapter 8	Soils and Geology	8.5.2.1.2	On completion of the construction phase, the borrow pit will be backfilled and returned, as close as possible, to its pre-development state.		
MM145	EIAR Chapter 8	Soils and Geology	8.5.2.1.5	On completion of the construction stage, any areas not required for operation will be reinstated. This will include the Temporary Construction Compound, turning areas and materials storage areas. Granular material will be removed as required and reinstated with topsoil in keeping with the adjacent soils.		
MM146	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	Management of excavated material will adhere to the measures related to the management of temporary stockpiles outlined in Chapter 8: Soils and Geology		
MM147	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	No permanent or semi-permanent stockpiles will remain on the Site during the construction or operational phase of the Development. Excess spoil is to be taken to the designated borrow pit at the Site		
MM148	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	Suitable locations for temporary stockpiles will be identified on an individual basis. The suitability of any particular location will consider Site specific characteristics, including; <ul style="list-style-type: none"> • The location of drainage networks in the vicinity; • The slope, incline and topography of the downgradient area; and, Any other relevant characteristics which are likely to facilitate or increase the potential for entrainment by surface water runoff.		
MM149	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	Construction activities will not be carried out during periods of sustained significant rainfall events, or directly after such events.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				This will allow sufficient time for work areas to drain excessive surface water loading and discharge rates to be reduced.		
MM150	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	Following heavy rainfall events, and before construction works recommence, the Site will be inspected and any required corrective measures implemented.		
MM151	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	An emergency response plan will be developed for the construction phase of the project. The plan, at a minimum, will involve 24-hour advance meteorological forecasting linked to a trigger-response system. When a pre-determined rainfall trigger level is exceeded such as a very heavy rainfall at >25mm/hr, planned responses will be undertaken. These responses will include cessation of construction until the storm event, including storm runoff, has ceased.		
MM152	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	<ul style="list-style-type: none"> Sediment fencing will be erected along proximal and paralleling areas of watercourses, channels and drains spanned by the works to reduce the potential for sediment laden run-off to reach sensitive receptors. 		
MM153	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	No direct flow paths between stockpiles and watercourses will be permitted at the Site.		
MM154	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.1	Excavated material will be backfilled to the excavation or transported to the spoil storage area as soon as is reasonably practicable to prevent long duration storage at the Site which increases the risk of adverse effects on aquatic environments.		
MM155	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Areas of subsoils to be excavated will be drained ahead of excavation works. This will reduce the volumes of water encountered		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				during excavation works and will therefore reduce the volume of water that is required to be dewatered whilst excavations are being carried out.		
MM156	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Dewatering pumping rates will be controlled by an inline gate valve or similar infrastructure which will facilitate a reduction of loading on the receiving environment, thus enhancing the attenuation and settlement of suspended solids.		
MM157	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	The direct discharge of dewatered loads to surface waters will not be permitted under any circumstances.		
MM158	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	All dewatering will follow a strict procedure of pumping to a settlement tank and then to a dewatering bag, or settlement ponds prior to discharging to receiving environment for overland flow.		
MM159	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Geofabric lined settlement ponds will buffer the run-off discharging from the drainage system which will reduce the hydraulic loading to watercourses.		
MM160	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Check dams will be constructed across drains and will reduce the velocity of run-off which will in turn promote settlement of solids upstream of potential surface water receivers. An additional benefit of check dams is that they will reduce the potential for erosion of drains.		
MM161	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Overland flow paths of the final dewatered discharge will be maximised to the greatest practical extent to avoid prematurely draining to drainage channels or surface waters. This approach will		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				allow for enhanced settling out of suspended solids entrained in the run-off.		
MM162	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	All pumps, tanks, settlement ponds, dewatering bags and check dams used in the dewatering process will be regularly inspected and maintained as necessary to ensure surface water run-off is appropriately treated.		
MM163	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	Sediment fencing will be installed up gradient of water courses which may receive the final overland flow.		
MM164	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	The final treated dewatered discharge will be directed towards heavily vegetated areas to allow for further natural filtration of suspended solids.		
MM165	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	A programme of water quality monitoring will be implemented during the construction phase.		
MM166	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.2	No extracted or pumped water will be discharge directly to the surface water network associated with the Site (this in accordance with the <i>Local Government (Water Pollution) Act 1977</i> as amended).		
MM167	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Collector drains and soil berms will be implemented to direct and divert surface water runoff from construction areas such as temporary stockpiles into established settlement ponds, buffered discharge points and other surface water runoff control infrastructure. This planning and placement of these control measures will be of fundamental importance, especially for the areas where works within the 50m buffer zone will be unavoidable.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM168	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Sediment control fences will be implemented significantly upgradient of potential receiving waters and as part of the drainage network. Sediment control fences will also be established upgradient of the Site's pre-existing natural and artificial drains. This practice will reduce the potential for elevated suspended solids entrained in surface water runoff to discharge to surface waters.		
MM169	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Multiple silt fences will be used in drains discharging to the surface water network. This will be especially important for the areas where works within the 50m buffer zone will be unavoidable.		
MM170	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Surface water runoff will be discharged to land via buffered drainage outfalls that will contain hardcore material of similar composition to the geology of the bedrock at the Site. This mitigation measure will promote the capture and retention of suspended sediment.		
MM171	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Buffered drainage outfalls also promote sediment percolation through vegetation in the buffer zone, reducing sediment loading to adjacent watercourses and avoiding direct discharge to the watercourse.		
MM172	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	A relatively high number of discharge points will be established to decrease the loading on any one particular outfall.		
MM173	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Discharging at regular intervals mimics the natural hydrology by encouraging percolation and by decreasing individual hydraulic loadings from discharge points.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM174	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	A site-specific CEMP appended to the EIAR in Technical Appendix 2.1 in Chapter 9 has been developed which mandates regular inspections and maintenance of pollution control measures. Contingency measures outlining urgent protocols to repair or backup any breaches of designed mitigation measures are incorporated into the site-specific CEMP.		
MM175	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	In the event that mitigation measures are failing to reduce suspended solids to acceptable levels, construction works will cease until remediation works are completed		
MM176	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	If fine solids or colloidal particles are very slow to settle out of waters, coagulant or flocculant will be used to promote the settlement of finer solids prior to discharging to surface water networks. Flocculant gel blocks can be placed in drainage channels, these are passive systems that are self-dosing, self-limiting and are environmentally friendly. Flocculant gel blocks bind elevated levels of silt and associated contaminants into masses that are easily separated, captured and then removed from the water.		
MM177	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.3	Surface water runoff controls will be checked and maintained on a regular basis and as soon as any signs of deterioration become visible. Surface water runoff controls, check dams and settlement ponds will be maintained and emptied on a regular basis and as soon as any signs of deterioration become visible.		
MM178	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Clearbore, which is not toxic to aquatic organisms and is biodegradable will be the drilling fluid used.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM179	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Mud mixing will be monitored to suit the ground conditions encountered and will initially be based on a mud programme developed by the specialised HDD Contractor, the drilling fluid supplier and an Environmental Clerk of Works.		
MM180	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	The drilling fluids will be constantly monitored, any changes required to the mix will be performed on site by a specialised HDD Contractor upon consultation with the drilling fluid supplier and Environmental Clerk of Works.		
MM181	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Mud testing equipment will be available at all times during drilling operations to monitor key mud parameters.		
MM182	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages.		
MM183	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Spill kits, including an appropriate hydrocarbon boom, will be available on the site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use.		
MM184	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	All plant, materials and wastes will be removed from site following the HDD works.		
MM185	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Test pits and boreholes will not be located directly on, or extend through, the proposed alignment, as these weak points may serve as conduits where inadvertent fluid returns or frac outs occur. At least a 3m offset will be provided between the boreholes and pipe alignment.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM186	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	The launch pit will be reinstated to the original land surface condition and the normal duct trench will continue from this point.		
MM187	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.4	Should any dewatering be required, it will be carried out in accordance with the site-specific CEMP.		
MM188	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Refuelling of vehicles will be carried out off site to the greatest practical extent. This refuelling policy will mitigate the potential for impacts by avoidance.		
MM189	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	<p>In instances where refuelling of vehicles on Site is unavoidable, a designated and controlled refuelling area will be established at the Site. The designated refuelling area will enable low risk refuelling and storage practices to be carried out during the works. The designated refuelling area will contain the following attributes and mitigation measures as a minimum requirement:</p> <ul style="list-style-type: none"> • The designated refuelling area will be located a minimum distance of 50m from any surface waters or Site drainage features; • The designated refuelling area will be bunded to 110% volume capacity of fuels stored at the Site; • The bunded area will be drained by an oil interceptor that will be controlled by a pent stock valve that will be opened to discharge storm water from the bund; • Management and maintenance of the oil interceptor and associated drainage will be carried out by a suitably licensed contractor on a regular basis; 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> Any oil contaminated water will be disposed of at an appropriate oil recovery plant or licensed tip site; Any minor spillage during this process will be cleaned up immediately; Vehicles will not be left unattended whilst refuelling; All machinery will be checked regularly for any leaks or signs of wear and tear; and, <p>Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure will be put in place with all staff properly briefed. Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.</p>		
MM190	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Oil absorbent booms and spill kits will be available adjacent to all surface water features associated with the Development. The controls will be positioned downstream of each construction area and at principal surface water drainage features. Oil booms deployed will have sufficient absorbency relative to the potential hazard.		
MM191	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Spill kits will also be available at construction areas such as at turbine locations, the temporary site compound, on-site substation, spoils storage areas and met mast location etc.		
MM192	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Spill kits will contain a minimum of oil absorbent pads, oil absorbent booms, oil absorbent granules, and heavy-duty refuse bags for collection and appropriate disposal of contaminated matter.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM193	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Should an accidental spill occur during the construction or operational phase of the Development, such incidents will be addressed immediately, this will include the cessation of works in the area of the spillage until the issue has been resolved.		
MM194	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Spill kits will be kept in each vehicle at the Site and will be readily available to all operators.		
MM195	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	No materials, contaminated or otherwise will be left on the Site.		
MM196	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	Suitable receptacles for hydrocarbon contaminated materials will also be available at the Site.		
MM197	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.5	A detailed spill response plan forms part of the site-specific CEMP appended to Technical Appendix 2.1 of this EIAR.		
MM198	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	The procurement, transport and use of any cement or concrete will be planned fully in advance and supervised by appropriately qualified personnel at all times.		
MM199	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Vehicles transporting cement or concrete to the Site will be visually inspected for signs of excess cementitious material prior to being granted access to the Site. This will prevent the likelihood of cementitious material being accidentally deposited on the site access tracks or elsewhere at the Site.		
MM200	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Drivers of such vehicles will be instructed to ensure that all vehicles are washed down in a controlled environment prior to the departure of the source site, such as at concrete batching plants.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM201	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Precast concrete will be used wherever possible, although the use of pre-cast concrete is not a viable option for large structures such as turbine foundations and so concrete will be delivered to the Site.		
MM202	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Concrete will not be poured during periods of rainfall or if any kind of precipitation is forecast. This policy will limit the potential for freshly poured concrete to adversely impact on surface water runoff.		
MM203	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Raw or uncured waste concrete will be disposed of by removal from the Site.		
MM204	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Washout of concrete trucks shall be strictly confined to the batching facility and shall not be located within the vicinity of watercourses or drainage channels. Only the chutes will be cleaned prior to departure from Site, and this will take place at a designated area at the temporary site compound.		
MM205	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Spill kits will be readily available to Site personnel, and any spillages or deposits will be cleaned up immediately and disposed of appropriately.		
MM206	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Pouring of concrete into standing water within excavations will be avoided.		
MM207	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place.		
MM208	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Any surplus concrete will not be stored or deposited anywhere on Site and will be returned to the source location or disposed of appropriately at a suitably licensed facility.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM209	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.6	Any required shuttering installed to contain the concrete during pouring will be fully secured around its perimeter to minimise any potential for leaks.		
MM210	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.7	Vehicles used in the construction of small drain crossings will only be refuelled at the Site's bunded and designated refuelling area. No refuelling will be permitted within 50m of any watercourse at the Site.		
MM211	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	During commencement of felling or afforestation activities machine combinations will be selected which are the most suitable for ground conditions at the time of felling in terms of minimising the potential for soil disturbance.		
MM212	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	Brush mats will be placed on top of the soil to minimise the potential for soil disturbance within areas of felling and afforestation.		
MM213	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	Drainage ditches which drain from the felling area towards existing surface waters will have check dams and silt strips installed.		
MM214	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	Direct discharges of sediment laden runoff to any drainage ditches will not be permitted.		
MM215	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.8	All sediment controls such as silt traps and check dams are to be regularly inspected and maintained as required to ensure that they remain effective throughout felling and afforestation activities.		
MM216	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.9	All other liquid-based chemicals such as paints, thinners, primers and cleaning products etc. will be stored in locked and labelled bunded chemical storage units.		
MM217	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.9	Temporary sanitation facilities such as portaloos used during the construction phase will be self-contained and supplied with water by		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				tank trucks. Portalooos will contain water storage tanks and separate wastewater storage tanks which will be routinely emptied by vacuum removal for offsite disposal via a tank truck. All temporary sanitation facilities will be removed from the Site following the completion of the construction phase.		
MM218	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.9	The controlled attenuation of suspended solids in settlement ponds and check dams etc. will result in inorganic nutrients (if present in elevated concentrations) such as phosphorus and nitrogen being absorbed and retained by the solids in the water column. This will allow for a reduction of peak inorganic discharges in a controlled and stable run off rate.		
MM219	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.9	Water quality will be monitored for trace metal concentrations prior to, during and after the construction phase.		
MM220	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.9	The potential for livestock such as cattle and sheep which have been observed grazing at the Site to cause bacteriological contamination of groundwater will be controlled through the implementation of strict grazing control zones, site perimeter fencing and exclusion zones around all open excavations.		
MM221	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	It is proposed that a programme of operational phase water quality monitoring is also implemented at a monitoring frequency agreed with the competent authority in order to aid the detection of any potential operational phase impacts on surface water quality.		
MM222	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	As a minimum requirement, field-measured parameters such as pH, conductivity, total dissolved solids (TDS), temperature, dissolved		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				oxygen (DO) and turbidity will be included in the water quality monitoring program. The results should be compared to the applicable EQS to determine if adverse impacts on water quality are occurring.		
MM223	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	It is also recommended that laboratory analyses for parameters such as total suspended solids, nitrogen, phosphorous, biochemical oxygen demand and trace metals etc. is implemented during and after the construction phase.		
MM224	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	Water quality monitoring locations will include both upstream and downstream points relative to the works locations. The locations of the water quality monitoring points will be flexible and will be moved as the construction phase progresses so that monitoring points remain representative of the most likely construction impact receptor points.		
MM225	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	The downstream monitoring locations will be positioned as close as possible downstream of the works location and another positioned further downstream. This approach will allow for an assessment of the dilution of potential contaminations (if present) as the distance from the point of diffuse source location increases.		
MM226	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	Watercourses which do not have year-round flows such as artificial drains, ditches or ephemeral streams will be avoided as water quality monitoring locations.		
MM227	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps,		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed.		
MM228	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	During the construction phase of the Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots.		
MM229	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	Any proposed crossings of small unmapped drains discussed in Section 9.5.2.7 Chapter 9 will be monitored daily during construction and during each Site visit during the operational phase. These small culvert crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity to identify any signs of erosion or potential for sediment release.		
MM230	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated before each use by a qualified Environmental Clerk of Works.		
MM231	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	Any discharges of sediment treated water should meet the requirements of the <i>Surface Water Regulations 2009</i> , as amended.		
MM232	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	All spill incidents will be dealt with immediately as they arise.		
MM233	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Spill kits will be prepared and available in vehicles associated with the construction phase of the Development.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM234	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Spill kits will also be prepared and made available at primary work areas such as at proposed turbine, hardstand, substation, met mast and construction compound locations.		
MM235	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Disposal receptacles for hydrocarbon contaminated materials will also be available at the Site.		
MM236	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Immediate escalation measures will be implemented for all major spill events.		
MM237	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Escalation measures may include installation of temporary sumps or drains to control the flow or migration of hydrocarbons or other chemicals.		
MM238	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Attempts to be made to limit or contain the spill using sandbags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill.		
MM239	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Excavation and disposal of contaminated material will be immediately carried out following any such incidents.		
MM240	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Evacuation procedures will be implemented to remove non-essential personnel from the area.		
MM241	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Data gathering and an investigation will commence immediately after the emergency is contained.		
MM242	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	If a significant hydrocarbon spillage does occur, the contractor on behalf of the developer must have an approved and certified clean-up consultancy available on 24-hour notice to contain and clean-up the spill.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM243	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	All major spills of this nature will be reported to the competent authority immediately following such instances.		
MM244	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Any Flooding of low lying areas of the site, Immediately remove all chemicals, fuels and other hazardous substances from low lying areas of the Site.		
MM245	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	In result of any flooding, immediately remove plant and equipment from low lying areas.		
MM246	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	In result of any flooding, recover materials washed from Site including sediment and other waste.		
MM247	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	In result of any flooding, review and address the potential for excess water entering the Site.		
MM248	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	In result of any flooding, review and maintain erosion and sedimentation controls.		
MM249	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Cement / concrete contamination incidents will be cleaned up immediately as they arise.		
MM250	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Spill kits will also be established at key construction areas and they will also be readily available in the cabs of plant and equipment.		
MM251	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.12	Suitable receptacles for cementitious materials will also be available at the Site.		
MM252	EIAR Chapter 11	Noise	10.5.1	General guidance for controlling construction noise through the use of good practice given in BS 5228 will be followed. During construction of the project, activity shall be limited to working times incorporated in any planning permission.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM253	EIAR Chapter 12	Material Assets and Other Issues	12.5.4	The construction works will be planned and managed by a Construction and Environmental Management Plan (CEMP) Appendix 2.1 . This provides details on day to day works and methodologies. As part of these works, the public and other stakeholders will be provided with updates on construction activities which will affect access to surrounding lands. This will be communicated to members of the public through a community liaison officer employed for the duration of the construction period.		
MM254	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	<ul style="list-style-type: none"> Precast concrete will be used wherever possible i.e., formed offsite. Elements of the Development where precast concrete will be used have been identified and are indicated in the CEMP. Elements of the Development where the use of precast concrete will be used include structural elements of watercourse crossings (single span / closed culverts) as well as Cable Joint Bays. Elements of the development where the use of precast concrete is not possible include turbine foundations and joint bay pit excavations. Where the use of precast concrete is not possible the following mitigation measures will apply. The acquisition, transport and use of any cement or concrete on site will be planned fully in advance and supervised at all times. Vehicles transporting such material will be relatively clean upon arrival on site, that is; vehicles will be washed/rinsed removing cementitious material leaving the source location of the material. 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>There will be no excess cementitious material on vehicles which could be deposited on trackways or anywhere else on site. To this end, vehicles will undergo a visual inspection prior to being permitted to drive onto the proposed site or progress beyond the contractor's yard. Vehicles will also be in good working order.</p> <ul style="list-style-type: none"> Any shuttering installed to contain the concrete during pouring will be installed to a high standard with minimal potential for leaks. Additional measures will be taken to ensure this, for example the use of plastic sheeting or other sealing products at joints. Concrete will be poured during meteorological dry periods/seasons. This will reduce the potential for surface water run off being significantly affected by freshly poured concrete. This will require limiting these works to dry meteorological conditions i.e. avoid foreseen sustained rainfall (any foreseen rainfall event longer than 4 hour duration) and/or any foreseen intense rainfall event (>3mm/hour, yellow on Met Eireann rain forecast maps), and do not proceed during any yellow (or worse) rainfall warning issued by Met Eireann. This also will avoid such conditions while concrete is curing, in so far as practical. Ground crew will have a spill kit readily available, and any spillages or deposits will be cleaned/removed as soon as possible and disposed of appropriately. 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> • Pouring of concrete into standing water within excavations will be avoided. Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place. • Temporary storage of cement bound sand (if required) will be on hardstand areas only where there is no direct drainage to surface waters and where the area has been bunded e.g., using sand-bags and geotextile sheeting or silt fencing to contain any solids in run-off. • No surplus concrete will be stored or deposited anywhere on site. Such material will be returned to the source location or disposed of off-site appropriately. <p>Upon implementation of the above mitigation measures, the effects of the construction of the Development are considered to be not significant.</p> <p>Concrete structures will be left in place during decommissioning and allowed to naturally revegetate over time. This is the least impactful process of decommissioning. As the Site will have already been altered, the impacts are negligible and permanent.</p>		
MM25	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	During construction, where possible, all refuelling on site will be within the temporary compound within the re-fuelling area (see Drawing No. 6497- PL- 803). Only essential refuelling (e.g., cranes)		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				will be carried out, outside of this area, but not within 50m of any watercourse. In such cases a non-permeable High-density Polyethylene (HDPE) membrane will be provided beneath connection points to catch any residual oil during filling and disconnection. This membrane will be inspected and if there is any sign of oil contamination, it will be removed from site by a specialist licensed waste contractor. All vehicles will be well maintained and free from oil or hydraulic fuel leaks.		
MM256	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	In accordance with the waste hierarchy, packaging will be returned to the originator ahead of re-use or recycling. Where this is not possible, waste will be separated as appropriate and safely stored on site appropriately in anticipation to be transferred offsite by a licensed contractor to a licenced facility.		
MM257	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	Waste metals from concrete reinforcing during construction will have commercial value and will be re-used or recycled with the appropriate licensed waste contractor.		
MM258	EIAR Chapter 13	Cultural Heritage	13.5.1	Ground works during the construction phase will be subject to archaeological monitoring by a suitably qualified archaeologist under licence by the National Monuments Service. A systematic advance programme of archaeological field-walking surveys will also be carried out within construction areas in forestry plantations following tree felling to confirm the conditions predicted in this assessment, i.e., that they contain no visible surface traces of potential unrecorded archaeological or architectural heritage sites.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM259	EIAR Chapter 13	Cultural Heritage	13.5.1	The proposed felling methodology at Turbine 6, which is located in the environs of the recorded location of a levelled hut site (WA013-020001-) in the margins of the forestry plantation and a standing stone (WA013-020001-) in the field to the west, will be carried out to establish a required bat buffer area around this turbine (Figure 13.3). This work will entail the use of tree-cutter plant machinery which will brace, cut and then lift the trees away from the location and this will avoid any potential impacts on the archaeological sites from falling trees. The machine will avoid traversing the locations of the two archaeological sites and will extend toward the recorded location of the level hut site, which is in the margins of the forestry plantation within the felling area, from the north. The tree stumps within the zone of notification around the levelled hut site will be left to remain <i>in situ</i> in order to avoid any impacts on sub-surface remains associated within this site. This work will be subject to licensed archaeological monitoring by the archaeologist appointed to supervise the construction phase.		
MM260	EIAR Chapter 13	Cultural Heritage	13.5.1	In the event that any sub-surface archaeological features are identified during archaeological monitoring of the construction phase they will be securely cordoned off, cleaned and recorded <i>in situ</i> . The National Monuments Service will then be notified and consulted to determine further appropriate mitigation measures, which may include preservation <i>in situ</i> (by avoidance) or preservation by record (archaeological excavation).		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM26	EIAR Chapter 13	Cultural Heritage	13.5.1	The archaeologist appointed to monitor the construction phase will also supervise the establishment of minimum 25m radius concentric buffer zones around the external-most elements of Standing Stone (WA013-021----), Standing Stone (WA013-020002-), Hut Site (WA013-020001-), Ringfort (WA013-022----) and the location of a cairn feature located c.60m to the southwest of Turbine 13, which is tentatively identified as being of archaeological potential. These buffer zones will be securely fenced off and their locations will be clearly signed as 'No Entry' for the duration of the construction phase. No ground excavation works of any kind (including but not limited to advance geotechnical site investigation) and no machinery, storage of materials or any other activity related to construction will occur within these buffer zones. The location of the derelict farm buildings within the Site will also be clearly signed as "No Entry" during the construction phase. The locations of these onsite archaeological monuments and farm buildings will also be identified as 'no-entry' areas during the construction phase site inductions.		
MM26	EIAR Chapter 13	Cultural Heritage	13.5.2	The mitigation measures presented in Section 13.5.1 will provide for either the avoidance of the potential unrecorded, sub-surface archaeological resource within the footprint of proposed construction locations or the proper and adequate recording of this resource by full archaeological excavation. Preservation <i>in situ</i> shall allow for a negligible magnitude of impact resulting in a potential not significant/imperceptible significance of effect in the context of		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				residual impact on the unrecorded archaeological resource. Preservation by record shall allow for a high magnitude of impact, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a potential slight/moderate range of significance of effect in the context of residual impacts on the unrecorded archaeological resource.		
MM263	EIAR Chapter 13	Cultural Heritage	13.5.3	The buffer zone mitigation measures presented in Section 13.5.1 will provide for protection of known archaeological monuments within environs of proposed construction locations. No residual construction phase indirect impacts are predicted following the implementation of these mitigation measures.		
MM264	EIAR Chapter 14	Traffic and Transport	14.6	Prior to delivery of abnormal loads i.e. turbine components, the Applicant or their representatives, will consult with An Garda Síochána and Waterford City and County Council to discuss the requirement for a Garda escort. The Applicant will also outline the intended timescale for deliveries and efforts can be made to avoid peak times such as school drop off times, church services, peak traffic times where it is considered this may lead to unnecessary disruption, and abnormal loads may travel at night and outside the normal construction times as may be required by An Garda Síochána. Local residents at sensitive locations along the affected route will be notified of the timescale for abnormal load deliveries.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM265	EIAR Chapter 14	Traffic and Transport	14.6	Wheel cleaning equipment will be used on the Site Access Track near the near the public road junction 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 construction site.		
MM266	EIAR Chapter 14	Traffic and Transport	14.6	Any 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. To reduce dust emissions, vehicle containers/loads will be covered during both entrance and egress to the Site where required.		
MM267	EIAR Chapter 14	Traffic and Transport	14.6	Turbine component deliveries will be timed to avoid peak times and in particular, times when pupils will be dropped off and picked up from the various schools on the turbine component Haul Route.		
MM268	EIAR Chapter 14	Traffic and Transport	14.6	During the wind farm construction phase, road works signs in accordance with the requirements of Chapter 8 of the Traffic Signs Manual will be erected at the wind farm site entrance on the N59 and at all locations on the haul route which are being modified to facilitate turbine delivery		
MM269	EIAR Chapter 14	Traffic and Transport	14.6	Access to the construction site will be controlled by on Site personnel and all visitors will be asked to sign in and out of the Site by security/Site personnel on entering and exiting the site. All Site visitors will undergo a Site induction covering Health and Safety		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				issues at the Contractor's temporary compound and will be required to wear appropriate Personal Protective Equipment (PPE) while onsite.		
MM27	EIAR Chapter 14	Traffic and Transport	14.6	<p>The public road network near the Site used to transport construction materials will be monitored during construction so that any damage caused by construction traffic associated with the Development can be identified and maintenance works carried out as soon as practicable to avoid issues for other road users and the local population of the area.</p> <p>The appointed contractor will be responsible for seeing that HGV drivers travelling to and from the Site obey the designated speed limits, rules of the road and that they only use the designated Civil Construction Haul Route. This will be done through regular tool-box talks for drivers</p>		
MM27	EIAR Chapter 16	Air Quality	16.5.1	<p>Good practice site procedures will be followed by the appointed contractor to prevent dirt and dust being transported onto the local road network. Good practice site control measures are likely to include the following:</p> <ul style="list-style-type: none"> Approach roads and construction areas will be cleaned on a regular basis to prevent build-up of mud and prevent it from migrating around the site and off-site onto the public road network; 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> • Wheel wash facilities will be provided near the site entrances to prevent mud/dirt being transferred from the site to the public road network; • 'Damping down' will be used if dust becomes an issue on any part of the site. For example, weather will be monitored, to predict the need for damping down activities during periods of dry weather when dust is likely to become airborne; • Vehicles delivering materials to the site will be covered appropriately when transporting materials that could result in dust, e.g. crushed rock or sand; • Ready-mix concrete will be delivered to site and it is envisaged that no batching of concrete will take place on site. Only washing out of chutes will take place on site and this will be undertaken at a designated concrete washout facility at the site compounds; • Speed restrictions on access tracks will be implemented to reduce the likelihood of dust becoming airborne; • Public roads along the construction haul route will be inspected regularly and if dirt/mud is identified that could result in dust generation, then the road will be cleaned as necessary; • Stockpiling of materials will be carried out in such a way as to minimise their exposure to wind where possible and damping down or covering of the stockpiles will be carried out where needed; and 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> A complaints procedure will be implemented on site where complaints will be reported to the site manager, logged and appropriate action taken. 		
MM272	Appendix 2.1 CEMP	Environmental Controls	3.3.1	<p><i>Mitigation by Remediation</i></p> <p>On completion of the construction stage, any areas not required for operation will be reinstated. This will include the Temporary Construction Compound, turning areas and materials storage areas. Granular material will be removed as required and reinstated with topsoil in keeping with the adjacent soils. The surplus volumes of subsoil/rock and topsoil will be used for reinstatement of the borrow pit. Drainage will be reinstated in order to minimise future erosion of the soils and restore the pre-development state of the environment (see Surface Water Management Plan).</p>		
MM273	Appendix 2.1 CEMP	Environmental Controls	3.3.5	<p><i>Mitigation by Avoidance</i></p> <p>Protecting soils from spills will in turn mitigate against the potential for contaminants reaching watercourses, mitigation measures for contaminants are presented in detail in EIAR Chapter 9: Hydrology and Hydrogeology.</p>		
MM274	Appendix 2.1 CEMP	Environmental Controls	3.3.5	<p><i>Mitigation by Reduction</i></p> <ul style="list-style-type: none"> Excess packaging and other materials will be discarded appropriately at the Temporary Construction Compound before advancing to the destined construction area. Any vehicles coming onto the Site will be required to be inspected and cleaned before leaving the Temporary 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>Construction Compound and before advancing to the destined construction area.</p> <ul style="list-style-type: none"> Precast concrete will be used wherever possible i.e., formed offsite. Where the use of precast concrete is not possible the following mitigation measures outlined in section 3.4 Hydrology and Drainage will apply. 		
MM275	Appendix 2.1 CEMP	Environmental Controls	3.3.5	<p><i>Mitigation by Remediation</i></p> <p><i>Any and all contaminants will be removed from the Site in an appropriate manner when ever produced or observed; and transported and disposed of in accordance with hazardous waste as per Management Plan 5: Waste Management Plan.</i></p>		
MM276	Appendix 2.1 CEMP	Environmental Controls	3.3.5	<p>Emergency Response</p> <p>Hydrocarbon spill or leak – Hydrocarbon contamination incidents will be dealt with immediately as they arise. Hydrocarbon spill kits will be prepared and kept in vehicles associated with the construction phase of the Development. Spill kits will also be established at proposed construction areas, for example, a spill kit will be established and mobilised as part of the turbine erection materials and equipment. Suitable receptacles for hydrocarbon contaminated materials will also be at hand.</p> <p>Significant hydrocarbon spill or leak – In the event of a significant or catastrophic hydrocarbon spillage, emergency responses will be escalated accordingly. Escalation can include measures such as the</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>installation of temporary sumps, drains or dykes to control the flow or migration of hydrocarbons, excavation and disposal of contaminated material.</p> <p>Cementitious material – Cement / concrete contamination incidents will be dealt with immediately as they arise. Spill kits will also be established at proposed construction areas, for example, a spill kit will be established and mobilised as part of the turbine erection materials and equipment. Suitable receptacles for cementitious materials will also be at hand.</p> <p>Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the vicinity of works. Additionally, emergency responses, including methodologies, are specified in the Management Plan 1: Emergency Response Plan.</p> <p>In the event of a significant contamination or pollution incident e.g., discharge or accidental release of hydrocarbons / fuel to surface water systems, contamination occurrences will be addressed immediately, this includes the cessation of works in the area of the spillage until the issue is resolved. The relevant authorities, noted above and stakeholders will also be promptly informed.</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM277	Appendix 2.1 CEMP	Environmental Controls	3.3.6	<p>Grid Connection Excavation – Mitigation Measures</p> <ul style="list-style-type: none"> The timing of grid connection cable laying will be carried out during metrologically dry seasons/periods. An Ecological Clerk of Works (ECoW) will be onsite in order to lessen environmental disruption and ensure site integrity is maintained. The ECoW will also be responsible for routine environmental monitoring and report writing. excavated material will be temporarily stockpiled adjacent to the section of trench, with appropriate material used as backfill. Excess/unsuitable material will be immediately removed and disposed of at a licenced waste disposal facility. Appropriate siltation measures, as per the measures set out in the subsequent sections below will be put in place prior to excavations. Stockpiles will be temporarily stored a minimum of 25m back from rivers/streams on level ground with a silt barrier installed at the base. For all grid connection trenching along the local road, any unsuitable backfill material excavated will be immediately taken away from the works area in trucks and disposed of under license to an authorised waste disposal facility. This will prevent any contaminated run-off to roadside drains during heavy rainfall. 		
MM278	Appendix 2.1 CEMP	Environmental Controls	3.4.3	<i>Excavation Dewatering Mitigation Measures</i>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> • Management of excavated material will adhere to the measures related to the management of temporary stockpiles outlined in Chapter 8: Soils and Geology; • No permanent or semi-permanent stockpiles will remain on the Site during the construction or operational phase of the Development. Excess spoil is to be taken to the designated borrow pit at the Site; • Suitable locations for temporary stockpiles will be identified on an individual basis. The suitability of any particular location will consider Site specific characteristics, including; <ul style="list-style-type: none"> ○ The location of drainage networks in the vicinity; ○ The slope, incline and topography of the downgradient area; and, ○ Any other relevant characteristics which are likely to facilitate or increase the potential for entrainment by surface water runoff. • Construction activities will not be carried out during periods of sustained significant rainfall events, or directly after such events. This will allow sufficient time for work areas to drain excessive surface water loading and discharge rates to be reduced; • Following heavy rainfall events, and before construction works recommence, the Site will be inspected and any required corrective measures implemented; 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> An emergency response plan will be developed for the construction phase of the project. The plan, at a minimum, will involve 24-hour advance meteorological forecasting linked to a trigger-response system. When a pre-determined rainfall trigger level is exceeded such as a very heavy rainfall at >25mm/hr, planned responses will be undertaken. These responses will include cessation of construction until the storm event, including storm runoff, has ceased; Sediment fencing will be erected along proximal and paralleling areas of watercourses, channels and drains spanned by the works to reduce the potential for sediment laden run-off to reach sensitive receptors; No direct flow paths between stockpiles and watercourses will be permitted at the Site; Excavated material will be backfilled to the excavation or transported to the spoil storage area as soon as is reasonably practicable to prevent long duration storage at the Site which increases the risk of adverse effects on aquatic environments; and, All mitigation measures related to surface water quality will be implemented before excavation works commence. 		
MM279	Appendix 2.1 CEMP	Environmental Controls	3.4.6	<ul style="list-style-type: none"> Excavated road and soil will be stored in an area at least 10m from the crossing structure and watercourse, and preferably down gradient of the watercourse crossing but up-gradient of 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>the excavated trench so that, after rainfall, material in run-off is contained in the trench.</p> <ul style="list-style-type: none"> Silt fencing and silt capture structures such as straw bales will be deployed along either side of a watercourse crossing beyond the full width of the pipe, culvert or bridge structure. Silt fencing will be installed so that the wooden posts and attached fence is buried at least 300mm below the surface of road-side vegetation. Gullies that lead directly to a watercourse either side of a structure are key pathways for run-off conveyance and these will be blocked to ensure that the direction of potential run-off is conveyed to vegetated verges to allow for infiltration and trapping. A pre-emptive site drainage management plan will be applied to take account of predicted rainfall so that large excavations adjacent to watercourse crossing can be suspended or scaled back when heavy rain is forecast. 		
MM280	Appendix 2.1 CEMP	Environmental Controls	3.6.1	The location of T9 and associated hardstand and access roads are within an area of improved green field land located 70m to the west of Wedge Tomb CO069-003 ----, and possibly within the general environs of any potential unrecorded sub-surface features associated with field boundary (CO069-070----). This grassland contains suitable ground conditions for undertaking a geophysical survey and this type of investigation will, therefore, be carried out in within the footprint of		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				the T9 hardstand and access roads in the grassland area in advance of the construction phase. This will be followed by targeted archaeological test trenching of any identified features of archaeological potential which will also be carried out during the pre-construction phase. These investigations will be carried out under licences issued by the National Monuments Service.		
MM28	Appendix 2.1 CEMP	Environmental Controls	3.6.1	Ground works during the construction phase within other areas of the Site, as well as green field locations along the grid route and within turbine delivery work areas, will be subject to constant archaeological monitoring under licence by the National Monuments Service. A systematic advance programme of archaeological field-walking surveys will also be carried out within forestry plantations following pre-construction tree felling to assess whether they contain any visible surface traces of potential unrecorded archaeological or architectural heritage sites. Construction phase ground works within these felled areas will then be subject to archaeological monitoring. All grid connection road works within 50m of the location of lime kiln (CO057-002001-) will also be subject to constant archaeological monitoring and the location of this structure will be clearly marked by signage during the construction phase. An archaeological watching brief of grid connection trench excavations within other public and forest roads will be carried out to appraise whether any areas of these roads overlay undisturbed topsoil layers which may have the potential to contain archaeological remains. Constant monitoring of trench		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				excavations will be carried out within any such identified areas as part of the programme of licensed archaeological monitoring of the Project sub-surface archaeological features		
MM28	Appendix 2.1 CEMP	Environmental Controls	3.6.1	<p>Buffer zones at the edge of proposed construction areas within the environs of the following extant recorded archaeological monuments will be securely cordoned off and clearly signed as 'No Entry: Archaeological Area' for the duration of the construction phase: Wedge Tomb CO069-003----, Wedge Tomb CO069-003---- and Enclosure CO069-002----.</p> <p>The Project is located within the Múscaí Gaeltacht area and any signage erected within the public realm during the construction phase will include Irish and English text</p>		
MM28	Appendix 2.1 CEMP	Environmental Controls	3.9.1	<p><u>Waste</u></p> <ul style="list-style-type: none"> The Contractors will avoid or minimise the volume of waste generated. Waste will be stored a minimum of 50m from nearby watercourses or drains at the proposed Dyrick Hill Wind Farm. Waste storage and disposal will be carried out in a way which prevents pollution in compliance with legislation. Rainwater, which has collected within bunded areas used for the storage of oils, chemicals and waste, will be collected and disposed offsite by suitably qualified waste Contractors. Waste derived from the port-a-cabins (office and canteen facility) onsite will be placed in an appropriately designed waste storage 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>area prior to collection a licensed Contractors under the Waste Management Act, 1996.</p> <ul style="list-style-type: none"> • Port-a-loos will be regularly maintained by a suitably qualified waste Contractors engaged by the supplier. • The wheel cleaning facility is proposed at the Site entrance; in addition, a track sweeper may be used. • All waste to be transported off-site to a licensed facility will be documented in accordance with the European Union (Waste Directive) Regulations 2020. An adequate description of the waste and where it came from will be given and an appropriate European Waste Catalogue Code and Standard Industrial Classification Code will be provided. The quantity and nature of the waste will be described and how it is contained. Personal details of the waste transferor and transferee at Dyrick Hill Wind Farm will be documented. Waste will only be transferred by registered/licensed and competent person(s). • Only trained operatives will handle hazardous substances. All stored hazardous waste will be clearly labelled. • All oil storage facilities of over 200 litres need secondary containment facilities of 110% storage capacity (e.g., bund, enclosure, drip tray). All of these will be regularly inspected for visual signs of leaks or something that would impact on their capacity – e.g., a drip tray full of rainwater. 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> Waste storage areas will be clearly located and signed. If space allows, key waste streams will be separated. All waste will be transported from the Site at appropriate frequency by a registered waste Contractors to prevent over-filling of waste containers. Frequency of Checks. The Contractors will ensure that all storage facilities are checked on a weekly basis. The checklist for completion is attached in Management Plan 5: Waste Management Plan. 		
Operational Phase						
MM284	EIAR Chapter 6	Biodiversity	6.7.2.1.1	Re-seeding / re-vegetation of all areas of bare ground or the placement of Geo-jute (or similar) matting will take place as practically possible at the start of the operational phase to prevent run-off		
MM285	EIAR Chapter 6	Biodiversity	6.7.2.1.1	Silt traps erected during the construction phase within roadside and artificial drainage will be replaced with stone check dams for the lifetime of the project. These stone check dams will only be placed within artificial drainage systems such as roadside drains and not natural streams or ditches.		
MM286	EIAR Chapter 6	Biodiversity	6.7.2.1.1	A full review of construction stage temporary drainage will be undertaken by the Developer (in conjunction with the Project Hydrologist/ Site Engineer and the Project Ecologist) following the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				completion of construction, and drainage removed or appropriately blocked where this will not interfere with infrastructure.		
MM287	EIAR Chapter 1	Biodiversity	6.7.2.1.1	The Temporary Construction Compound / office must house all chemicals within a secure bunded COSSH store for the operational phase of the project.		
MM288	EIAR Chapter 6	Biodiversity	6.7.2.1.2	Turbines will operate in a manner which restricts the rotation of the blades as far as is practicably possible below the manufacturer's specified cut-in speed (SNH 2021). This is usually achieved by feathering the blades during low wind speeds; the angle of the blades is rotated to present the slimmest profile possible towards the wind, ensuring they do not rotate or 'idle' when not generating power.		
MM289	EIAR Chapter 6	Biodiversity	6.7.2.1.2	Turbine blades spinning in low wind can kill bats, however bats cannot be killed by feathered blades which are not spinning (Horn et al., 2008). The feathering of turbine blades combined with increased cut-in speeds have been shown to reduce bat fatalities by up to 50% (SNH 2021). Feathering of blades to prevent 'idling' during low wind speeds is proposed for all turbines.		
MM290	EIAR Chapter 6	Biodiversity	6.7.2.2.1	Increasing the cut-in speed above that set by the manufacturer can reduce the potential for bat/turbine collisions. A study by Arnett et al. (2011) showed a 50% decrease in bat fatality can be achieved by increasing the cut-in speed by 1.5 m/s. Species with elevated risk of collision (Leisler's bat, soprano and common pipistrelle) in particular would benefit from increasing the		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>cut-in speed of turbines, as dictated on a case-by case basis depending on the activity levels recorded at each turbine.</p> <p>Cut-in speeds should be increased during the bat activity season (April-October) or where temperatures are optimal for bat activity to 5.5 m/s from 30 minutes prior to sunset and to 30 minutes after sunrise at turbines where surveillance shows high bat activity levels for High and Medium-Risk species and/or if bat carcasses are recorded.</p> <p>The duration required depends on the level of mitigation required for each individual turbine i.e. a full bat activity season or only spring and autumn (duration will be determined by the first year of surveillance).</p> <p>Cut-in speeds restrictions will be operated according to specific weather conditions:</p> <ul style="list-style-type: none"> • When the air temperature is greater than 7°C (as bat activity does not usually occur below this temperature). • Generally, bat activity peaks at low wind speeds (<5.5m/s). As such, it has been shown that curtailing the operations of wind turbines at low wind speeds can reduce bat mortality dramatically, particularly during late summer and the early autumn months. <p>Due to the considerable unnecessary down time resulting from the proposed “blanket curtailment” (above) and the advances in smart</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>curtailment a focused curtailment regime is further proposed from the year two of operation.</p> <p>This will focus on times and dates, corresponding with periods when the highest level of bat activity occur within the Site. This includes the use of the SCADA (Supervisory Control and Data Acquisitions) operating system (or equivalent) to only pause/feather the blades below a specified wind speed and above a specified temperature within specified time periods.</p> <p>Post-constructions surveys will be undertaken for the first three years of operation to confirm if blanket curtailment restrictions can be amended in line with post-construction activity levels. The post construction surveys will be used to update the current curtailment regime (blanket curtailment) designed around the values for the key weather parameters and other factors that are known to influence collision risk. This will include all of the following:</p> <ul style="list-style-type: none"> • Wind speed in m/s (measured at nacelle height) • Time after sunset • Month of the year • Temperature (°C) • Precipitation (mm/hr) 		
MM29	EIAR Chapter 6	Biodiversity	6.7.2.3.1	Restoration of habitats will require ongoing positive management input as well as monitoring of success and necessary remedial measures. This is set out in the Habitat Management Plan in Appendix 6.4.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM29	EIAR Chapter 6	Biodiversity	6.8	<p>An ECoW will be appointed prior to the commencement of construction. The ECoW will be an ecologist with experience of baseline ecological surveys, pre-construction surveys and construction phase supervision. The ECoW will be responsible for completing pre-construction surveys and supervising construction works and advising on the implementation of biodiversity enhancement measures that will be commenced during the construction phase.</p> <p>Pre-construction confirmatory surveys required in advance of the construction phase will include as a minimum:</p> <ul style="list-style-type: none"> • Otter surveys along the Finisk River. Surveys to be completed will pay particular attention to identifying the presence/absence of otter holts/couches within 150m of the proposed wind farm infrastructure. In the event that otter holts or couches identified within 150m of the proposed development the status of the breeding/resting place will be confirmed. Where the holt/couch is identified as a breeding site, then, in the absence of a derogation licence, no works will be permitted to proceed within a 150m radius of the breeding place, whilst it is still actively used as a breeding site. In the event that a non-breeding active holt or couch is identified within 50m of the proposed development, then, in the absence of a derogation licence, no works will be permitted to proceed within a 50m radius of the non-breeding but active holt or couch. 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<ul style="list-style-type: none"> • Non-native invasive plant species surveys: An up-to-date confirmatory non-native invasive plant species survey of the Site and adjacent areas will be completed during the growing season immediately prior to the commencement of construction works. • Confirmatory surveys for the presence of plant species of conservation interest. These surveys shall be completed during the growing season immediately prior to the commencement of the construction phase. The surveys shall be completed to identify the presence of any new stands of rare or threatened species as listed in Section 6.4.3 above. In the event that new stands of these species are identified as occurring within the footprint of the proposed wind farm, stands of these plants will be required to be translocated to a suitable receptor area either within the proposed development site or an alternative suitable location. Such translocations will only be permitted to proceed upon receipt of a derogation licence. • The ECoW will ensure that best practice construction methods and mitigation measures detailed in this EIAR and accompanying planning documentation including the CEMP and NIS are implemented in full. • The ECoW will be responsible for ensuring that the construction phase contractor is aware of key biodiversity receptors. The ECoW will inspect the construction works throughout the 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>construction phase and will pay particular attention to the implementation of all biodiversity related mitigation measures.</p> <ul style="list-style-type: none"> The ECoW will provide monitoring inspection reports during the construction phase and will also provide a close-out report following the completion of the contract construction works. Where necessary the ECoW will liaise with relevant authorities such as Waterford County Council, the IFI and the NPWS with respect to construction phase activities that relate to biodiversity. <p>As part of the ECoW terms of appointment, the ECoW will be vested with the authority to stop works where activities have been identified on site that are not in accordance with the mitigation measures outlined in this EIAR, the NIS and/or the CEMP prepared for the planning application for the proposed development.</p>		
MM293	EIAR Chapter 6	Biodiversity	6.8.1.2	Post construction phase monitoring will be completed as per the specification for monitoring set out in the Habitat Management Plan in Appendix 6.4 .		
MM294	EIAR Chapter 6	Biodiversity	6.8.1.1	Post construction phase monitoring for bats will be completed as per the specification for monitoring set out in Appendix 6.2 .		
MM295	EIAR Chapter 7	Ornithology	7.6.3	A post construction monitoring programme is to be implemented at Dyrick Hill in order to confirm the efficacy of the mitigation measures; the results of this will be submitted annually to the competent authority and NPWS. Published guidance on assessing the impacts of wind farms on birds from English Nature and the Royal Society for		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				the protection of birds recommends the implementation of an agreed post development monitoring programme as a best practice mitigation measure (Drewitt and Langston, 2006).		
MM296	EIAR Chapter 7	Ornithology	7.6.3	<p>In addition, published recommendations on swans and wind farms (Rees, 2012) suggests that systematic post construction monitoring; adapted to quantify collision, barrier, and displacement, be conducted over a period of sufficient duration to allow for annual variation or in combination effects. The following individual components are proposed:</p> <p>1) Fatality Monitoring (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction)- A comprehensive fatality monitoring programme is to be undertaken following published best practice (Shawn et al., 2010; Fijn et al., 2012 and Grunkorn, 2011); the primary components are as follows:</p> <p>a. Initial carcass removal trials to establish levels of predator removal of possible fatalities. This is to be done following best recommended practice and with due cognisance to published effects such as predator swamping, whereby excessive placement of carcasses increases predator presence and consequently skews results (Shawn et al., 2010). No turbines which are used for carcass removal trials are to be used for subsequent fatality monitoring. Carcass removal trials shall be continued for the duration of fatality searches.</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>b. Turbine searches for fatalities are to be undertaken following best practice (Fijn et al., 2012 and Grunkorn, 2011) in terms of search area (minimum radius hub height) and at intervals selected to effectively sample fatality rates based on carcass removal rates (e.g. 1 per month). To be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring to be agreed with NPWS.</p> <p>c. A standardised approach with a possible control group and/or variation in search techniques such as straight line transects/ randomly selected spiral transects/ dog searches will be undertaken. This will provide a means of robustly estimating the post construction collision fatality impact (if any).</p> <p>d. Recorded fatalities to be calibrated against known predator removal rates to provide an estimate of overall fatality rates.</p> <p>Reports will be submitted to the competent authority and NPWS following each round of surveys.</p> <p>2) Flight Activity Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction) - A flight activity survey is to be undertaken during the summer and winter months to include both vantage point and hinterland surveys as Per SNH (2017) guidance:</p>		

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

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>This survey is to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS. Reports will be submitted to the competent authority and NPWS following each round of surveys.</p> <p>4) Breeding Bird Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey (moorland breeding bird and Common Bird Census), following methods used in the baseline survey to be repeated yearly between early April to early July. This aims to:</p> <p>a. Assess any displacement effects such as those recorded on breeding birds. Overall density of breeding birds to be annually recorded.</p> <p>5) Breeding Wader Survey (to be conducted during years 1, 2, 3, 5, 10 and 15 post construction). A breeding bird survey, following methods used in the baseline survey to be repeated yearly April-May-June.</p> <p>Both of the above surveys are to be conducted during years 1, 2, 3, 5, 10 and 15 post construction to allow for annual variation and cumulative effects. Dependant on results further monitoring requirements will be agreed with NPWS.</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM297	EIAR Chapter 7	Ornithology	7.7	To minimise effects on those species which the literature suggests can be negatively impacted, a re-confirmatory survey (March/April) will be conducted of the proposed turbine locations to assess any evidence of target species activity or the occupation of new territories. Should any new nests be recorded, works at these locations will be restricted to outside the breeding season (April-July) or until chicks are deemed to have fledged (following monitoring).		
MM298	EIAR Chapter 7	Ornithology	7.7	A comprehensive monitoring program will also be implemented following construction of the proposed wind farm; this will monitor the degree of barrier effect, if any, on existing species as a result of the development, in addition to comprehensively monitoring any bird fatalities.		
MM299	EIAR Chapter 8	Soils and Geology	8.4.2.3.2	During the operation phase, vehicles will be limited to occasional maintenance vehicles only.		
MM300	EIAR Chapter 8	Soils and Geology	8.5.2.1.5	Drainage will be reinstated in order to minimise future erosion of the soils and restore the pre-development state of the environment.		
MM301	EIAR Chapter 8	Soils and Geology	8.5.2.8	The operational team will carry out maintenance works (to Site Access Tracks, 110kV Substation and turbines) and will put in place control measures to mitigate the risk of hydrocarbon or oil spills during the operational phase of the windfarm		
MM302	EIAR Chapter 8	Soils and Geology	8.5.2.8	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.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM303	EIAR Chapter 9	Hydrology and Hydrogeology	9.5.2.11	Following the completion of the construction phase, silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the operational phase water quality monitoring will also be carried out.		
MM304	EIAR Chapter 9	Hydrology and Hydrogeology	9.6.3.1	Ensuring that pre-existing and newly established drainage infrastructure is sufficiently maintained for the discharge rates associated with all areas of the Site. Once identified, any and all blockages which may adversely impact upon the drainage regime at the Site will be immediately removed during the operational phase of the proposed Development.		
MM305	EIAR Chapter 15	Shadow Flicker and EMI	15.3.3	<p>The control system will calculate, in real-time:</p> <ul style="list-style-type: none"> • Whether shadow flicker has the potential to affect nearby properties, based on pre-programmed co-ordinates for the properties and turbines • Wind speed (can effect how fast the turbine will turn and how quickly the flicker will occur) • Wind direction • The intensity of the sunlight <p>When the control system detects that the sunlight is strong enough to cast a shadow, and the shadow falls on a property or properties, then the turbine will automatically shut down; and will restart when the potential for shadow flicker ceases at the affected properties</p> <p>It is intended that the measures outlined above, subject to safe shut down time of approximately 60 seconds, will eliminate the potential for</p>		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				shadow flicker to affect any of the properties within the study area, this will be the case regardless of which turbine is selected within the turbine range. In the event that complaints of shadow flicker are received by the Developer / Site Operator or by Waterford City and County Council, an investigation will take place and the complaints frequency, duration and time of complaints will be considered and specialist modelling software will be used to confirm the occurrence(s). Should the complaint persist, a shadow flicker survey involving the collection of light data will also be carried out at the property in which the complaint was made. Further refinement of the blade shadow control system will be conducted to eliminate the shadow flicker occurrence. This could result in the shutting off turbines at specific times of day.		
MM306	Appendix 2.1 CEMP	Environmental Controls	3.1	Access to turbines for site personnel will be restricted in storm events. Where access by site personnel is required safety precautions may include remotely shutting down the turbine, yawing to place the rotor on the opposite side of the tower door and parking vehicles at a distance of at least 100 m from the tower. All personnel will be fitted with appropriate Personal Protective Equipment. Regular maintenance and inspections will take place during the 40-year operational phase.		
MM307	Appendix 2.1 CEMP	Environmental Controls	3.1	Access to the turbines will be via the door at the base of the turbines. The turbine access door will otherwise be securely locked at all times.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
Decommissioning Phase						
MM308	EIAR Chapter 6	Biodiversity	6.7.3	The potential risk remains for spills of fuels hazardous chemicals which is a common risk to all developments. The mitigation measures outlined in this chapter (Chapter 6 – Biodiversity) will be implemented during the decommissioning phase to reduce the potential for such impacts.		
MM309	EIAR Chapter 8	Soils and Geology		After decommissioning of the wind farm, all Site Access Tracks and areas of hardstanding will be returned to as close to their pre-development state as possible		
MM310	EIAR Chapter 8	Soils and Geology		Redundant Borrow Pits will be backfilled with surplus excavated soil and rock from the site, the surface will be covered by a layer of topsoil in order to encourage re-growth of native vegetation. All Site Borrow Pits will be returned to as close to their pre-development state as possible.	As required	Site Manager
MM311	EIAR Chapter 8	Soils and Geology		Drainage and slopes will be restored to as close to the original ground as possible.		
MM312	EIAR Chapter 9	Hydrology and Hydrogeology		Sediment fences will be implemented along the perimeter of all access tracks and hardstand areas during the reinstatement works		
MM313	EIAR Chapter 9	Hydrology and Hydrogeology		Additional precautions such as the implementation of check dams, secured straw bales, sandbags, or settlement ponds will be implemented at areas where surface water runoff is likely to be intercepted by both natural and artificial drainage features.		
MM314	EIAR Chapter 9	Hydrology and Hydrogeology		Any drains or outfalls which have the potential to draw water from reinstatement areas, or promote preferential surface water runoff flow		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				paths through reinstatement areas will be removed, blocked or decommissioned as required.		
MM315	EIAR Chapter 9	Hydrology and Hydrogeology		The mitigation measures for the preparation of the hardstand area surfaces prior to material being deposited discussed in Chapter 8: Soils and Geology will be implemented.		
MM316	EIAR Chapter 9	Hydrology and Hydrogeology		Monitoring and maintenance of the reinstated areas will be conducted regularly following the initial stages of establishment to ensure that the potential for excessive surface water runoff eroding deposited material along preferential pathways is minimised.		
MM317	EIAR Chapter 11	Landscape and Visual	11.5.1	The decommissioning phase will see a similar nature of effects to the construction stage due to the movement of heavy machinery within the site and to and from the site removing turbine components. However, such effects will be temporary in duration and decreasing in scale as turbines are removed from view and the landscape is substantially reinstated to former uses. As with construction stage impacts, decommissioning stage effects are not considered to be significant.		
MM318	EIAR Chapter 12	Material Assets and Other Issues	12.5.4	The decommissioning works will be planned and managed by a Construction and Environmental Management Plan (CEMP) Appendix 2.1 . This provides details on day to day works and methodologies. As part of these works, the public and other stakeholders will be provided with updates on construction activities which will affect access to surrounding lands. This will be communicated to members of the public through a community liaison officer employed for the duration of the construction period.		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
MM319	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	During decommissioning, where possible, all refuelling on site will be within the temporary compound within the re-fuelling area (see Drawing No. 6497- PL- 803). Only essential refuelling (e.g., cranes) will be carried out, outside of this area, but not within 50m of any watercourse. In such cases a non-permeable High-density Polyethylene (HDPE) membrane will be provided beneath connection points to catch any residual oil during filling and disconnection. This membrane will be inspected and if there is any sign of oil contamination, it will be removed from site by a specialist licensed waste contractor. All vehicles will be well maintained and free from oil or hydraulic fuel leaks.		
MM320	EIAR Chapter 12	Material Assets and Other Issues	12.10.7	Removal of metals during decommissioning etc. will have commercial value and will be re-used or recycled with the appropriate licensed waste contractor.		
MM321	EIAR Chapter 13	Cultural Heritage	13.5.7	No direct impacts on known elements of the cultural heritage resource are predicted during the decommissioning phase as there are no recorded cultural heritage assets located within the footprint of the various elements of the wind farm that will be subject to decommissioning. Any previously unrecorded archaeological remains identified during the archaeological monitoring of the construction phase will either be preserved by avoidance within the Site or preserved by record (excavation) and no decommissioning impacts on such potential features are predicted. The decommissioning of the Development will result in the reversal of the long term, indirect, negative visual impacts on archaeological monuments located within the surrounding landscape (Table 13.10).		
MM322	EIAR Chapter 14	Traffic and Transport	14.6	During the wind farm decommissioning phase, road works signs in accordance with the requirements of Chapter 8 of the Traffic Signs		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				Manual will be erected at the wind farm site entrance on the N59 and at all locations on the haul route which are being modified to facilitate turbine delivery.		
MM32	EIAR Chapter 16	Air Quality	16.5.1	<p>Good practice site procedures will be followed by the appointed contractor to prevent dirt and dust being transported onto the local road network. Good practice site control measures are likely to include the following:</p> <ul style="list-style-type: none"> - Approach roads and construction areas will be cleaned on a regular basis to prevent build-up of mud and prevent it from migrating around the site and off-site onto the public road network; - Wheel wash facilities will be provided near the site entrances to prevent mud/dirt being transferred from the site to the public road network; - 'Damping down' will be used if dust becomes an issue on any part of the site. For example, weather will be monitored, to predict the need for damping down activities during periods of dry weather when dust is likely to become airborne; - Vehicles delivering materials to the site will be covered appropriately when transporting materials that could result in dust, e.g. crushed rock or sand; - Ready-mix concrete will be delivered to site and it is envisaged that no batching of concrete will take place on site. Only washing out of chutes will take place on site and this will 		

Ref. No.	Reference Heading	EIAR Chapter	Section	Mitigation Measure	Audit Result	Action Required
				<p>be undertaken at a designated concrete washout facility at the site compounds;</p> <ul style="list-style-type: none"> - Speed restrictions on access tracks will be implemented to reduce the likelihood of dust becoming airborne; - Public roads along the construction haul route will be inspected regularly and if dirt/mud is identified that could result in dust generation, then the road will be cleaned as necessary; - Stockpiling of materials will be carried out in such a way as to minimise their exposure to wind where possible and damping down or covering of the stockpiles will be carried out where needed; and <p>A complaints procedure will be implemented on site where complaints will be reported to the site manager, logged and appropriate action taken.</p>		
MM324	Appendix 2.1 CEMP	Management Plan 6 Decommissioning Plan		The Site Manager in consultation with the ECoW will be responsible for employing the services of a suitably qualified ecologist and any other suitably qualified professionals as required throughout the decommissioning as required.		