

## 16. SCHEDULE OF MITIGATION

### 16.1 Introduction

All mitigation measures relating to the pre-commencement, construction, operational and decommissioning phases of the Cleanrath wind farm development are set out in the relevant chapters of the rEIAR submitted as part of this substitute consent application.

The CEMP was updated prior to construction and as required throughout the construction phase to include all mitigations measures, conditions and or alterations as they emerged throughout the project.

All mitigation measures which were implemented during the pre-commencement, construction and operational phase to date and mitigation which will be implemented in future operational and decommissioning phases of the project are outlined in Table 16-1. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

- > Construction Management
- > Drainage Design and Maintenance
- > Flora and Fauna
- > Peat, subsoils and bedrock
- > Air Quality/Dust
- > Noise and Vibration
- > Cultural Heritage
- > Traffic

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The 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.

Table 16-1 All Mitigation Measures for Cleanrath wind farm development

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
<b><i>Pre-Commencement Phase</i></b>				
MM1	REIAR Chapter 4	The on-site construction staff were responsible for implementing the mitigation measures specified in the rEIAR and the CEMP. Their implementation was overseen by supervising hydrogeologists, environmental scientists, ecologists or geotechnical engineers, depending on who was best placed to advise on the implementation.		
MM2	REIAR Chapter 4	The removal and disposal of wastewater from the site was carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the Waste Management (Collection Permit) Regulations, 2007.		
MM3	REIAR Chapter 4, CEMP	All site activities were provided for in a Construction Environmental Management Plan, prepared prior to the commencement of any operations onsite. The CEMP set out all measures necessary to ensure works were carried out in accordance with the mitigation measures set out in the rEIAR and set out the monitoring and inspections procedures and frequencies.		
MM4	REIAR Chapter 4	All materials and equipment necessary to implement the drainage measures outlined above, was brought on-site in advance of any works commencing.		
MM5	REIAR Chapter 4	The works programme for the groundworks part of the construction phase of the project took account of weather forecasts, and predicted rainfall in particular. Large excavations, large movements of overburden or large-scale overburden or soil stripping was suspended or scaled back if heavy rain was forecast. The extent to which works was scaled back or suspended related directly to the amount of rainfall forecast.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM6	REIAR Chapter 4	Any underground services encountered along the cable route was surveyed for level and the ducting passed over the service provided adequate cover was available. A minimum clearance of 300mm was required between the bottom of the ducts and the service in question.		
MM7	REIAR Chapter 6	A Habitat Restoration and Enhancement Plan was prepared to restore and enhance areas of degraded blanket bog and acid flush habitat within the windfarm site. This included restorations of areas of these habitats that are affected by temporary construction impacts which will be completed in the operational phase.		
MM8	REIAR Chapter 6	<p>The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2018.</p> <p>Any mature trees that required felling was assessed for the possible presence of roosting bats and felling plans were adjusted to mitigate for any negative impacts that were identified.</p> <p>Although no Badger setts were identified during surveys of the footprint of the Cleanrath wind farm development, pre-commencement surveys were carried out of the development footprint clarify this was still the case.</p>		
MM9	REIAR Chapter 6	The Cleanrath wind farm development did not have significant impacts on Kerry Slug. However, in view of its conservation status, the Habitat Restoration and Enhancement Plan included measures to create/enhance suitable habitat for Kerry Slug.		
MM10	REIAR Chapter 12	<p>➤ A structural engineer assessed bridges CH2 and CH8 along the grid connection route prior to the commencement of development.</p>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>&gt; The stepping stones in the river bed at CH8 was preserved in situ.</li> <li>&gt; The remains of the stone structure at Grousemount (CH20) was preserved in situ. This structure was highlighted in the CEMP.</li> </ul>		
MM11	REIAR Chapter 12	The house structure (CH20) at Grousemount was avoided as part of the construction works along the cable route and fenced off prior to development thus avoiding any potential direct impact.		
MM12	REIAR Chapter 14	All scoping responses received from telecoms operators, the comments of the consultees and any required mitigation measures was considered in the construction and operation of the Cleanrath wind farm development		
MM13	CEMP Section 3	Prior to the commencement of the Cleanrath wind farm development a Construction Waste manager was appointed by the project team. The Construction Waste Manager was in charge of the implementation of the objectives of the plan, ensuring that all hired waste contractors had the necessary authorisations and that the waste management hierarchy was adhered to. The person nominated had sufficient authority so that they ensured everyone working on the Cleanrath wind farm development adhered to the management plan.		
MM14	REIAR Chapter 14	The wind farm developer entered into a protocol agreement which ensures that should any impacts or interference on radio or television or other telecommunications reception in the area arise it would be adequately dealt with.		
MM15	CEMP Section 9	To protect breeding birds, construction did not commence during the breeding bird season from April to July inclusive. Construction continued throughout the next breeding season.		
MM16	CEMP Section 9	An ECoW oversaw the site works and implementation of the Environmental Management Plan and provided on-site advice on the mitigation measures as		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		necessary to ensure the project proceeded as intended. The level, detail and frequency of reporting expected from the ECoW for the Construction Manager, developer's project manager, and any Authorities or other Agencies, was agreed by all parties prior to commencement of construction, and was further adjusted as required during the course of the project		
MM17	CEMP Section 6	The Environmental Induction was integrated into the general site induction on a case by case basis for each member of staff employed on-site depending on their assigned roles and responsibilities on site.		
MM18	2017 Permission Condition	<p>As part of the noise monitoring programme to be agreed with the Planning Authority prior to commencement, the details were set out as follows:</p> <ul style="list-style-type: none"> <li>➤ Continuous noise monitoring was required at three locations in the vicinity of the site.</li> <li>➤ Baseline noise monitoring was conducted using unattended noise logging instrumentation for a period of some 4 weeks or until a sufficient data set was collected.</li> <li>➤ Measurements was taken externally at three locations.</li> <li>➤ All measurements was conducted in line with the requirements imposed by Condition no. 7.</li> <li>➤ All measurements were conducted using Type 1 Precision Digital Sound Level Meters and associated hardware, for example:</li> <li>➤ - Bruel &amp; Kjaer Type 2238 Sound Level Meter's (or similar) with environmental enclosure and proprietary double wind screens.</li> <li>➤ The instrument had the following characteristics and features:</li> <li>➤ - Continuous noise monitoring in 10-minute sample durations.</li> <li>➤ - Each individual sample consisted of LA90 and LAeq parameters.</li> <li>➤ A rain gauge (in the form of a 0.2mm tipper bucket system) was installed at one of the location for the duration of the noise monitoring period.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
<i>Construction Phase</i>				
<i>Construction Management</i>				
MM19	REIAR Chapter 4	Only ready-mixed concrete was used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks. The use of ready-mixed concrete deliveries eliminated any potential environmental risks of on-site batching. When concrete was delivered to site, only the chute of the delivery truck was cleaned, using the smallest volume of water necessary, before leaving the site. Concrete trucks were washed out fully at the batching plant, where facilities are already in place.		
MM20	REIAR Chapter 4	The small volume of water that was generated from washing of the concrete lorry's chute was directed into temporary lined impermeable containment areas typically built using straw bales and lined with an impermeable membrane.		
MM21	REIAR Chapter 4, REIAR Chapter 9	<ul style="list-style-type: none"> <li>➤ The risks of pollution arising from concrete deliveries was reduced by the following:</li> <li>➤ Concrete trucks were not washed out on the site but were directed back to their batching plant for washout.</li> <li>➤ Site roads were constructed to a high standard to allow transport of the turbine components around the site, and hence, concrete delivery trucks were able to access all areas where the concrete was needed. No concrete was transported around the site in open trailers or dumpers so as to avoid spillage while in transport. All concrete used in the construction of turbine bases was pumped directly into the shuttered formwork from the delivery truck. If this was not practical, the concrete was pumped from the delivery truck into a hydraulic concrete pump which transferred the concrete to the location where it was needed.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>The arrangements for concrete deliveries to the site was discussed with suppliers before work started, agreeing routes, prohibiting on-site washout and discussing emergency procedures</li> </ul>		
MM22	REIAR Chapter 4	<p>Special procedures were adopted in advance of and during all concrete pours to minimise the risk of pollution including.</p> <ul style="list-style-type: none"> <li>Using weather forecasting to assist in planning large concrete pours and avoiding large pours where prolonged periods of heavy rain was forecast.</li> <li>Restricting concrete pumps slewing over watercourses while placing concrete.</li> <li>Ensuring that excavations were sufficiently dewatered before concreting commenced and that dewatering continued while concrete set.</li> <li>Ensuring that covers were available for freshly placed concrete to avoid the surface washing away in heavy rain.</li> <li>Placing of surplus concrete after completion of a pour in agreed suitable locations away from any watercourse or sensitive habitats.</li> </ul>		
MM23	REIAR Chapter 4	<p>As part of refuelling, following mitigation measures were followed to avoid release of hydrocarbons at the site:</p> <ul style="list-style-type: none"> <li>Road-going vehicles to be refuelled off site wherever possible;</li> <li>On-site refuelling to be carried out at designated refuelling areas at various locations throughout the site. Machinery to be refuelled directly by a fuel truck that will come to site as required</li> <li>Only designated trained and competent operatives to be authorised to refuel plant on site. Mobile measures such as drip trays and fuel absorbent mats to be used during all refuelling operations.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>➤ Fuel volumes stored on site to be minimised. Any fuel storage areas to be bunded appropriately;</li> <li>➤ The plant used to be regularly inspected for leaks and fitness for purpose; and,</li> <li>➤ An emergency plan to was prepared deal with accidental spillages (refer to Section 6 of the CEMP) Spill kits to be available to deal with any accidental spillage within and outside the refuelling areas.</li> <li>➤ A programme for the regular inspection of plant and equipment for leaks and fitness for purpose to be developed at the outset of the construction phase.</li> </ul>		
MM24	REIAR Chapter 4	Temporary port-a-loo toilets were used during the construction phase. Wastewater from staff toilets was directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants.		
MM25	CEMP Section 3	All hazardous wastes were stored in covered bunded containers before being collected by an authorised waste contractor and brought to an EPA licensed waste facility. Hazardous wastes were kept separate from non-hazardous wastes so that contamination did not occur.		
MM26	CEMP Section 3	<p>Appropriate measures was taken to ensure excess waste was not generated during construction, including;</p> <ul style="list-style-type: none"> <li>➤ Ordering of materials to be on an ‘as needed’ basis to prevent over supply to site. Co-ordination was required with suppliers enabling them to take/buy back surplus stock.</li> </ul>		



Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>➤ Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.</li> <li>➤ Request that suppliers use least amount of packaging possible on materials delivered to the site.</li> <li>➤ Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal</li> <li>➤ Ensuring correct sequencing of operations.</li> <li>➤ Use reclaimed materials in the construction works.</li> </ul>		
MM27	CEMP Section 3	A detailed Waste Management Plan was included in Section 3.10 of the CEMP which outlined the best practice procedures during the excavation and construction phases of the project. The WMP outlined the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage. Disposal of waste was seen as a last resort.		
<b><i>Drainage Design and Management</i></b>				
MM28	REIAR Chapter 9	<p>Measures to be incorporated into the design and construction of the access roads and turbine bases to prevent hydrological impacts to acid flush habitats outside the direct footprint of the development. These measures were as follows:</p> <ul style="list-style-type: none"> <li>➤ Where flushes intersect access tracks there was a requirement to form a drainage pathway within the stone fill make-up of the access track so that flush flows were maintained. This was achieved by making a section of the installed access track porous (free draining). Use of clean 4” - 6” crushed stone in a 300 mm to 400 mm layer at the base of access track was sufficient to prevent flow impediment. A schematic of this arrangement is shown in Plate 7.3 and 7.4 in Chapter 7.</li> <li>➤ An impermeable membrane was installed above the porous fill within the track base to prevent vertical migration of surface water into the stone fill, and also to prevent finer material from the track surface layer being washed down and blocking the porous layer.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>There was no discharge of surface water runoff from the wind farm construction areas, or hardstanding areas, directly into flush areas.</li> <li>All surface water runoff from the wind farm construction areas was released onto natural vegetated surfaces away from flushes.</li> <li>Construction of access tracks in the area of flushes was undertaken during dry periods.</li> </ul>		
MM29	REIAR Chapter 4	<p>There was no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows or directly into artificial drainage ditches following the installation of silt traps, check dams and/or stilling ponds to these ditches. All discharges, over land, from the works areas was made over vegetation filters at a minimum of 50 metres distance from natural watercourses.</p> <p>Where there was infrastructure within 50 metres of a natural watercourse, stringent drainage measures was put in place to ensure the protection of the water quality of the natural watercourse.</p>		
MM30	REIAR Chapter 4	<p>Where artificial drains were in place in the vicinity of works areas, these drains were diverted around the works areas as required to minimise the amount of water in the vicinity of works areas. Where it was not possible to divert artificial drains around work areas, the drains were blocked to ensure potentially sediment laden water from the works areas had no direct route to other watercourses.</p> <p>Where drains had to be blocked, the blocking only took place after an alternative drainage system to handle the same water had been put in place.</p>		
MM31	REIAR Chapter 4	<p>Interceptor drains were installed upgradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site where it might otherwise have come into contact with exposed surfaces and picked up silt and sediment. The drains were used to divert upslope runoff around the works area to a location where it was redistributed over the ground surface as sheet flow. This minimised the volume of potentially silty runoff to be managed within the construction area.</p>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM32	REIAR Chapter 4	A level spreader was constructed at the end of each interceptor drain to convert concentrated flows in the drain, into diffuse sheet flow on areas of vegetated ground. The levels spreaders were located downgradient of any works areas in locations where they did not contribute further to water ingress to construction areas of the site.		
MM33	REIAR Chapter 4	Piped slope drains were used to convey surface runoff from diversion drains safely down slopes to flat areas without causing erosion. Once the runoff reached the flat areas it was reconverted to diffuse sheet flow. Level spreaders were only established on slopes of less than 6% in grade. Piped slope drains were used to transfer water away from areas where slopes were too steep to use level spreaders.		
MM34	REIAR Chapter 4	Vegetation filters were the existing vegetated areas of land that was used to accept surface water runoff from upgradient areas. The selection of suitable areas to use as vegetation filters was determined by the size of the contributing catchment, slope and ground conditions.		
MM35	REIAR Chapter 4	Drainage swales were installed downgradient of any works areas to collect surface flow runoff where it might have come into contact with exposed surfaces and picked up silt and sediment. Swales intercepted the potentially silt-laden water from the excavations and construction areas of the site and prevented it reaching natural watercourses.		
MM36	REIAR Chapter 4	The velocity of flow in the interceptor drains and drainage swales, particularly on sloped sections of the channel, was controlled by check dams, which was installed at regular intervals along the drains to ensure flow in the swale was non-erosive. Check dams were installed in some existing artificial drainage channels that received waters from works areas of the site.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM37	REIAR Chapter 4	Stilling ponds were used to attenuate runoff from works areas of the site during the construction phase and remain in place to handle runoff from roads and hardstanding areas of the development during the operational phase. The purpose of the stilling ponds was to intercept runoff potentially laden with sediment and to reduce the amount of sediment leaving the disturbed area by reducing runoff velocity. Reducing runoff velocity allowed larger particles to settle out in the stilling ponds, before the run-off water was redistributed as diffuse sheet flow in filter strips downgradient of any works areas.		
MM38	REIAR Chapter 4	Silt fences were installed as an additional water protection measure around existing watercourses in certain locations, particularly where works were proposed within the 50-metre buffer zone from natural watercourses, which was inevitable where existing roads were in proximity to watercourses to be upgraded as part of the Cleanrath wind farm development.		
MM39	REIAR Chapter 4	A “siltbuster” or similar equivalent piece of equipment was available to filter any water pumped out of excavation areas if necessary, prior to its discharge to settlement ponds or swales.		
MM40	REIAR Chapter 4, CEMP	Dewatering silt bags are made of a high quality geotextile fabric which allow the flow of water through them while trapping any silt or sediment suspended in the water. The silt bags provided a passive non-mechanical method of removing any remaining silt contained in the potentially silt-laden water collected from works areas within the site		
MM41	REIAR Chapter 4	Where sections of floating road were installed instead of excavated roads, cross drains were installed beneath the road construction corridor to maintain existing clean water drainage paths. Large surface water drainage pipes were placed at these locations below the level of the road sub-base. These drainage pipes were		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		extended each side of the road and cable trench construction corridor, along the paths of the existing drains.		
MM42	REIAR Chapter 4	To efficiently control drainage runoff from cable trench works areas, excavated material was stored on the upgradient side of the trench. Should any rainfall cause runoff from the excavated material, the material was contained in the downgradient cable trench. Excess subsoil was removed from the cable trench works area immediately upon excavation, and be transported to the on-site borrow pit, a licenced disposal area facility or used for landscaping and reinstatements of other areas elsewhere on site.		
MM43	REIAR Chapter 4, CEMP	In the event that an issue was identified with the installed drainage , the environmental clerk of works or supervising hydrologist stopped all works in the immediate area around the identified area. The source of the siltation was identified and additional drainage measures such as those outlined above were installed in advance of works recommencing.		
MM44	REIAR Chapter 9, CEMP	Best practice methods related to water incorporated into the forestry management and mitigation measures were derived from: <ul style="list-style-type: none"> <li>➤ Forestry Commission (2004): Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh;</li> <li>➤ Coillte (2009): Forest Operations and Water Protection Guidelines;</li> <li>➤ Coillte (2009): Methodology for Clear Felling Harvesting Operations;</li> <li>➤ Forest Service (Draft): Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures; and,</li> <li>➤ Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford.</li> </ul>		
MM45	REIAR Chapter 9	During the wind farm construction phase a self-imposed buffer zone of 50m was maintained for all streams.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM46	REIAR Chapter 9	<p>Where tree felling was required in the vicinity of streams, the following additional mitigation measures were employed:</p> <ul style="list-style-type: none"> <li>➤ Machine combinations were chosen which were most suitable for ground conditions at the time of felling, and which minimised soils disturbance;</li> <li>➤ Checking and maintenance of roads and culverts was on-going through any felling operation. No tracking of vehicle through watercourses occurred, as vehicles used road infrastructure and existing watercourse crossing points. Where possible, existing drains did not be disturbed during felling works;</li> <li>➤ Ditches which drain from the area to be felled towards existing surface watercourses were blocked, and temporary silt traps were constructed. No direct discharge of such ditches to watercourses occurred. Drains and sediment traps were installed during ground preparation. Collector drains were excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains included water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour;</li> <li>➤ Sediment traps were sited in drains downstream of felling areas. Machine access was maintained to enable the accumulated sediment to be excavated. Sediment was carefully disposed of in the peat disposal areas. Where possible, all new silt traps were constructed on even ground and not on sloping ground;</li> <li>➤ In areas particularly sensitive to erosion, where necessary double or triple sediment traps were installed. This measure was reviewed on site during construction;</li> <li>➤ All drainage channels tapered out before entering the aquatic buffer zone. This ensured that discharged water gently fanned out over the buffer zone before entering the aquatic zone, with sediment filtered out from the flow by ground vegetation within the zone. On erodible soils, silt traps were installed at the end of the drainage channels, to the outside of the buffer zone;</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>Drains and silt traps were maintained throughout all felling works, ensuring that they were clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth ensured that erosion and sediment build-up are minimized and controlled;</li> <li>Brash mats were used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal should take place when they become heavily used and worn. Provision should be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there was risk of severe erosion occurring, extraction should be suspended during periods of high rainfall;</li> <li>Timber was stacked in dry areas, and outside a local 50m watercourse buffer. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites;</li> <li>Works were carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water run-off;</li> <li>Checking and maintenance of roads and culverts were on-going through the felling operation;</li> <li>Refuelling or maintenance of machinery did not occur within 50m of a watercourse. Mobile bowser, drip kits, qualified personnel was used where refuelling was required; and,</li> <li>Branches, logs or debris was not allowed to build up in aquatic zones. All such material was removed when harvesting operations were completed, but care was taken to avoid removing natural debris deflectors.</li> </ul>		
MM47	REIAR Chapter 9	<p>The following items were carried out during inspection pre-felling and after:</p> <ul style="list-style-type: none"> <li>Communication with tree felling operatives in advance to determine whether any areas have been reported where there was unusual water logging or bogging of machines;</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>➤ Inspection of all areas reported as having unusual ground conditions;</li> <li>➤ Inspection of main drainage ditches and outfalls. During pre-felling inspection the main drainage ditches shall be identified. Ideally the pre-felling inspection shall be carried out during rainfall;</li> <li>➤ Following tree felling all main drains were inspected to ensure that they were functioning;</li> <li>➤ Extraction tracks nears drains were broken up and diversion channels created to ensure that water in the tracks spread out over the adjoining ground;</li> <li>➤ Culverts on drains exiting the site were unblocked; and,</li> <li>➤ All accumulated silt was removed from drains and culverts, and silt traps, and this removed material was deposited away from watercourses to ensure that it did not be carried back into the trap or stream during subsequent rainfall.</li> </ul>		
MM48	REIAR Chapter 9	The works programme for the initial construction stage of the development took account of weather forecasts, and predicted rainfall in particular. Large excavations and movements of peat/subsoil or vegetation stripping was suspended or scaled back if heavy rain was forecast. The extent to which works was scaled back or suspended related directly to the amount of rainfall forecast.		
MM49	REIAR Chapter 9	<p>Management of excavation seepages and subsequent treatment prior to discharge into the drainage network was undertaken as follows:</p> <ul style="list-style-type: none"> <li>➤ Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations were put in place;</li> <li>➤ If required, pumping of excavation inflows prevented build up of water in the excavation;</li> <li>➤ The interceptor drainage was discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters;</li> </ul>		



Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>➤ The pumped water volumes were discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit;</li> <li>➤ There was no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination occurred;</li> <li>➤ Daily monitoring of excavations by a suitably qualified person occurred during the construction phase. If high levels of seepage inflow occur, excavation work should immediately be stopped and a geotechnical assessment undertaken; and,</li> <li>➤ A mobile 'Siltbuster' equivalent specialist treatment system was available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites.</li> </ul>		
MM50	REIAR Chapter 9	An emergency plan for the construction phase to deal with accidental spillages was contained within Environmental Management Plan. Spill kits were available to deal with accidental spillages.		
MM51	REIAR Chapter 9	<ul style="list-style-type: none"> <li>➤ Self-contained port-a-loos with an integrated waste holding tank were used on the site, maintained by the providing contractor, and removed from site on completion of the construction works;</li> <li>➤ Water supply for the site office and other sanitation was brought to site and removed after use from the site to be discharged at a suitable off-site treatment location; and,</li> <li>➤ No water was sourced on the site, or discharged to the site.</li> </ul>		
MM52	EIS Chapter 4	Inspection and maintenance of all stilling ponds was ongoing through the construction period.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
<b><i>Flora and Fauna</i></b>				
MM53	REIAR Chapter 6	<p>Detailed specifications for measures to be incorporated into the design and construction of the access roads and turbine bases were used to prevent hydrological impacts to acid flush habitats outside the direct footprint of the Cleanrath wind farm development. These measures are as follows:</p> <ul style="list-style-type: none"> <li>➤ Where flushes intersect access tracks there was a requirement to form a drainage pathway within the stone fill make-up of the access track so that flush flows can be maintained. This can be achieved by making a section of the installed access track porous (free draining). Use of clean 4” - 6” crushed stone in a 300 mm to 400 mm layer at the base of access track was sufficient to prevent flow impediment. A schematic of this arrangement was shown in Plate 7.3 and 7.4 in Chapter 7.</li> <li>➤ An impermeable membrane was installed above the porous fill within the track base to prevent vertical migration of surface water into the stone fill, and also to prevent finer material from the track surface layer being washed down and blocking the porous layer.</li> <li>➤ There was no discharge of surface water runoff from the wind farm construction areas, or hardstanding areas, directly into flush areas.</li> <li>➤ All surface water runoff from the wind farm construction areas was released onto natural vegetated surfaces away from flushes.</li> <li>➤ Construction of access tracks in the area of flushes was undertaken during dry periods.</li> </ul>		
MM54	REIAR Chapter 6	Felling was carried out to ensure that the distance from the rotating blade tip of the turbine to the nearest part of the nearest trees was a minimum of 50 m.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM55	REIAR Chapter 9	Best guidance in relation to protection of freshwater pearl mussel (FPM) sites was followed from guidance document Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures (Draft).	>	>
MM56	REIAR Section 6	All mitigation measures as specified by the survey report and derogation licence was implemented by the client. Compensation habitat was provided to replace the relatively small area of habitat affected by the development and no significant impact on Kerry slug populations occurred as a result of this development.		
MM57	REIAR Section 6	A baseline invasive species survey was carried out at the wind farm site, grid connection route, haul route including all locations where accommodation works are required to accommodate turbine delivery to identify the presence and location of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) by a suitably qualified ecologist. An invasive species management plan was prepared for the site to prevent the introduction or spread of any invasive species within the footprint of the works. An invasive species management plan, is included as Appendix 6-2 of the rEIAR.		
<b><i>Peat, Subsoils and Bedrock</i></b>				
MM58	REIAR Chapter 8	The Geotechnical Risk Register was revised as required as construction progressed.		
MM59	REIAR Chapter 8	Once the required volume of rock had been extracted from the borrow pit area, it was reinstated with peat and overburden excavated from the works areas of the Cleanrath wind farm development.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM60	REIAR Chapter 8	Where possible, the acrotelm peat and / or top soil that had been excavated and not retained for reinstatement and landscaping works was stored with the vegetated side facing up so as to promote the growth of vegetation across the surface of the stored peat within the borrow pit area.		
MM61	REIAR Chapter 8	<p>Where possible to mitigate impact on peat within the development.</p> <ul style="list-style-type: none"> <li>➤ Placement of turbines and associated infrastructure in areas with shallower peat where possible;</li> <li>➤ Use of the existing forestry road network to reduce peat excavation and borrow pit volumes;</li> <li>➤ Use of floating roads (where geotechnically acceptable to do so) to reduce peat excavation volumes;</li> <li>➤ The peat and subsoil which was removed during the construction phase was localised to the turbine location and access roads;</li> <li>➤ No turbines or related infrastructure was constructed in any designated sites such as NHAs or SACs;</li> <li>➤ A minimal volume of peat and subsoil was removed to allow for infrastructural work to take place in comparison to the total volume present on the site due to optimisation of the layout by mitigation by design;</li> <li>➤ Construction of settlement ponds was volume neutral, and all excess material was used locally to form pond bunds and surrounding landscaping.</li> </ul>		
MM62	REIAR Chapter 8	<p>Where possible to mitigate impact on soils within the development.</p> <ul style="list-style-type: none"> <li>➤ Minimal refuelling or maintenance of construction vehicles or plant took on site. Off-site refuelling occurred where possible;</li> <li>➤ On site re-fuelling was undertaken using a fuel truck at designated refuelling areas. In more remote areas, refuelling was completed with a double skinned bowser with spill kits on the ready for accidental leakages or spillages;</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>Fuels stored on site was minimised. Storage areas where required was banded appropriately for the fuel storage volume for the time period of the construction and fitted with a storm drainage system and an appropriate oil interceptor;</li> <li>The plant used during construction was regularly inspected for leaks and fitness for purpose; and,</li> <li>An emergency plan for the construction phase to deal with accidental spillages were contained within Environmental Management Plan. Spill kits was available to deal with and accidental spillage in and outside the re-fuelling area.</li> <li>No refuelling took place within watercourse buffers along the grid connection cable route.</li> </ul>		
MM63	REIAR Chapter 8	Peat removed from turbine locations and access roads were used for landscaping, cast aside and used for restoring the borrow pit. Where possible, the upper vegetative layer was stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the peat used for reinstatement of the borrow pits. Re-seeding and spreading/planting of heather and moss cuttings were also be carried out in these areas. These measures prevented erosion of stored peat in the long term.		
MM64	REIAR Chapter 8	Any excess temporary mounded peat in storage for long periods was covered by a polyethylene sheets or seeded at the earliest opportunity. This prevented erosion of soil. Silt fences were installed around stockpiles to limit movement of entrained sediment in surface water runoff. The use of bunds around earthworks and mounds prevented egress of water from the works		
MM65	REIAR Chapter 8	In order to minimize erosion of mineral subsoils stripping of peat did not take place during extremely wet periods (to prevent increased silt rich runoff). Temporary drainage systems were required to limit runoff impacts during the		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		construction phase. Temporary drainage systems were required to limit runoff impacts during the construction phase.		
MM66	REIAR Chapter 8	Brash mats were used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal took when they become heavily used and worn. Provision was made for brash mats along all off-road routes, to protect the soil from compaction and rutting.		
MM67	CEMP	Borrow pit excavated to a depth not exceeding five metres below existing ground level. Rock from the borrow pit was only used for the purposes of road/hardstand construction on the site, and not be sold or transported off site.		
MM68	CEMP	A Peat Management Plan was included in Section 3.5 of the CEMP which outlines the methodology by which peat was handled and stored at the site. It includes a summary of the good construction practices which was employed.		
MM69	CEMP	<p>The following items incorporated into the construction phase of the project assisted in the management of the risks for this site (AGEC, 2015):</p> <ul style="list-style-type: none"> <li>➤ Appointment of experienced and competent contractors;</li> <li>➤ The site should be supervised by experienced and qualified personnel;</li> <li>➤ Allocate sufficient time for the project (be aware that decreasing the construction time had the potential to increase the risk of initiating a peat movement);</li> <li>➤ Prevent undercutting of slopes and unsupported excavations;</li> <li>➤ Maintain a managed robust drainage system;</li> <li>➤ Prevent placement of loads/overburden on marginal ground;</li> <li>➤ Set up, maintain and report readings from peat stability monitoring systems;</li> <li>➤ Ensure construction method statements are followed or where agreed modified/ developed; and,</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		➤ Revise and amend the Geotechnical Risk Register as construction progresses.		
<b><i>Air Quality/Dust</i></b>				
MM70	REIAR Chapter 4	Aggregate material for the construction of roads and turbine bases was sourced onsite; therefore, there was no need to transport this material to the site. Truck wheels were washed to remove mud and dirt before leaving the site where required. All plant and materials vehicles were stored in the dedicated areas. Areas of excavation was kept to a minimum, and stockpiling was minimised by coordinating excavation, spreading and compaction. Construction traffic was restricted to defined routes and a speed limit was implemented.		
MM71	REIAR Chapter 4, REIAR Chapter 10	In periods of extended dry weather, dust suppression may be necessary along haul roads and around the borrow pit area to ensure dust does not cause a nuisance. If necessary, water was taken from stilling ponds in the site's drainage system and was pumped into a bowser or water spreader to dampen down haul roads and site compounds to prevent the generation of dust. Silty or oily water did not be used for dust suppression, because this would transfer the pollutants to the haul roads and generate polluted runoff or more dust. Water bowser movements was carefully monitored, as the application of too much water may lead to increased runoff.		
MM72	REIAR Chapter 10	The wind farm development utilised existing roads where possible to gain access to the turbine locations and minimise the construction of additional roads through peat-based habitats.		
MM73	CEMP	A detailed plan for dust control was included in Section 3.7 of the CEMP which outlines the methodology by which dust levels were controlled on site. It includes a summary of the good construction practices which was employed.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
<b>Noise</b>				
MM74	rEIAR Chapter 5	<p>Best practice measures for noise control was adhered to onsite during the construction phase of the Cleanrath wind farm development in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:</p> <ul style="list-style-type: none"> <li>➤ Sensitive location of equipment, taking account of local topography and natural screening.</li> <li>➤ Working methods: construction noise was controlled by prescribing that standard construction work was restricted to the specified working hours. Any construction work carried out outside of these hours shall be restricted to activities that did not generate noise of a level that may cause a nuisance. The phasing of works had also been designed with regard to avoidance of noise impacts.</li> <li>➤ Plant was selected taking account of the characteristics of noise emissions from each item. All plant and machinery used on the site shall comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties was controlled.</li> <li>➤ Operation of plant: all construction operations shall comply with guidelines set out in British Standard documents ‘BS 5338: Code of Practice for Noise Control on Construction and Demolition Sites’ and ‘BS5228: Part 1: 1997: Noise &amp; Vibration Control on Construction and Open Sites’. The correct fitting and proper maintenance of silencers and/or enclosures, the avoidance of excessive and unnecessary revving of vehicle engines, and the parking of equipment in locations that avoid possible effects on noise-sensitive locations were employed.</li> <li>➤ Training and supervision of operatives in proper techniques to reduce site noise, and self-monitoring of noise levels, if appropriate.</li> </ul>		



Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM75	EIAR Chapter 9	<p>The contract documents require Contractor undertaking the construction of the works were obliged to take specific noise abatement measures and comply with the recommendations of <i>British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise</i>. These measures ensured that:</p> <ul style="list-style-type: none"> <li>➤ No plant used on site was permitted to cause an on-going public nuisance due to noise.</li> <li>➤ The best means practicable, including proper maintenance of plant, was employed to minimise the noise produced by on site operations.</li> <li>➤ All vehicles and mechanical plant was fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.</li> <li>➤ Compressors were attenuated models fitted with properly lined and sealed acoustic covers which were kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.</li> <li>➤ Machinery that was used intermittently was shut down or throttled back to a minimum during periods when not in use.</li> <li>➤ Any plant, such as generators or pumps, which was required to operate before 07:00hrs or after 19:00hrs was surrounded by an acoustic enclosure or portable screen.</li> <li>➤ During the course of the construction programme, supervision of the works included ensuring compliance with the limits detailed in Table 9.1 using methods outlined in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise.</li> </ul>		
MM76	REIAR Chapter 11	The methods used to minimise complaints on air overpressure could consist of some or all of the following:		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>&gt; Restriction of hours within which blasting can be conducted (e.g. 09:00 – 18:00hrs).</li> <li>&gt; A publicity campaign undertaken before any work and blasting starts (e.g. 24 hour written notification).</li> <li>&gt; The firing of blasts at similar times to reduce the ‘startle’ effect.</li> <li>&gt; On-going circulars informing people of the progress of the works.</li> <li>&gt; The implementation of an onsite documented complaints procedure.</li> <li>&gt; The use of independent monitoring by external bodies for verification of results.</li> <li>&gt; Trial blasts in less sensitive areas to assist in blast designs and identify potential zones of influence.</li> </ul>		
MM77	REIAR Chapter 11	<p>Specific to blasting the following mitigation measures were employed to control the vibration impact during blasts:</p> <ul style="list-style-type: none"> <li>&gt; Trial blasts were undertaken to obtain scaled distance analysis;</li> <li>&gt; Ensuring appropriate burden to avoid over or under confinement of the charge;</li> <li>&gt; Accurate setting out and drilling;</li> <li>&gt; Appropriate charging;</li> <li>&gt; Appropriate stemming with appropriate material such as sized gravel or stone chipping;</li> <li>&gt; Delay detonation to ensure small maximum instantaneous charges;</li> <li>&gt; Decked charges and in-hole delays;</li> <li>&gt; Blast monitoring to enable adjustment of subsequent charges;</li> <li>&gt; Good blast design to maximise efficiency and reduce vibration;</li> <li>&gt; Avoid using exposed detonating cord on the surface.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM78	CEMP	A detailed plan for noise control was included in Section 3.8 of the CEMP which outlines the methodology by which noise levels were controlled on site. It included a summary of the good construction practices which were employed.		
<b><i>Cultural Heritage</i></b>				
MM79	REIAR Chapter 12	➤ No archaeological features were encountered during site works A report on the monitoring was submitted to DAHG. The archaeologist was licensed by the DAHG to allow any uncovered features to be dealt with appropriately.		
MM80	REIAR Chapter 12	➤ Required buffer zones and fencing was established by the project archaeologist prior to the commencement of site works.		
MM81	EIS Chapter 11	Pre-development archaeological testing of roads, turbine bases, hardstands, borrow pits, substation, compound etc was undertaken where areas are not located in forestry. A report on the results should be prepared by the Archaeologist.		
MM82	EIS Chapter 11	Pre-development archaeological testing of roads, turbine bases, hardstands, borrow pits, substation, compound was undertaken along with Archaeological Monitoring in the vicinity of the aforementioned monuments was undertaken at the construction stage of the project to ensure their continued preservation.		
MM83	EIS Chapter 11	Archaeological monitoring of all ground works (to include site investigations, access roads, substation, turbine hardstands and bases and cable route was undertaken at the construction stage of the development.		
<b><i>Traffic</i></b>				

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM84	REIAR Chapter 14	<p>Prior to the construction stage a detailed traffic management plan was prepared by the haulage company and submitted to the relevant authorities for approval. The plan included:</p> <ul style="list-style-type: none"> <li>➤ A delivery schedule,</li> <li>➤ Details of the alterations required to the infrastructure identified in this report and any other minor alteration identified (hedge rows etc),</li> <li>➤ A dry run of the route using vehicles with similar dimensions.</li> </ul>		
MM85	REIAR Chapter 14	All of the deliveries comprising abnormally large loads were made outside the normal peak traffic periods to avoid disruption to work and school related traffic.		
MM86	REIAR Chapter 14	At locations where the grid connection crosses rivers/local streams by means of culverts/small bridges, the cable was installed without interfering with the watercourse.		
MM87	REIAR Chapter 5	Aggregate materials for the construction of any additional site tracks was obtained from the borrow pit on the site. This reduced the number of delivery vehicles required to access the site.		
MM88	REIAR Chapter 4	Due to the volume of concrete required for each turbine foundations, and the requirement for the concrete pours to be continuous, deliveries were carried out outside normal working hours in order to limit the traffic impact on other road users, particularly peak period school and work commuter traffic. Such activities are limited to the day of turbine foundation concrete pours, which are complete in a single day per turbine.		
MM89	REIAR Chapter 4	Wheels or vehicle underbodies are often washed before leaving sites to prevent the build-up of mud on public (and site) roads. It was not anticipated that vehicle or		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		wheel washing was required as part of the construction phase of the development because site roads was already formed using on-site materials before other road-going trucks begin to make regular or frequent deliveries to the site (e.g. with steel or concrete). The site roads were well finished with compacted hardcore, and so the public road-going vehicles did not be travelling over soft or muddy ground where they might pick up mud or dirt. A road sweeper was available if any section of the public roads were to be dirtied by trucks associated with the development.		
<b><i>Operational Phase</i></b>				
MM91	EIAR Chapter 6 OEMP Section 2	A habitat restoration and enhancement plan has been prepared to mitigate for peatland habitat loss		
MM92	EIAR Chapter 4 OEMP Section 2	An additional hectare of immature forestry will be removed to provide an area of enhanced peatland. Any further felling proposed for the site will be the subject of a Limited Felling Licence (LFL) application to the Forest Service.  Replanting will be undertaken for any further felling		
MM93	EIAR Section 6,	The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2018.		
MM94	EIAR Chapter 8	As part of peatland restoration works, the following measures are proposed:  <ul style="list-style-type: none"> <li>➤ Brash removed during the restoration process should be stored up slope of the cleared area, to provide a buffer to surface water flows which may have the potential to erode,</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		During tree felling brush mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas.		
MM95	EIAR Chapter 8, 9 OEMP Section 3	Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. On-site refuelling of machinery will be carried out at designated refuelling areas at various locations throughout the site. Heavy Plant and Machinery will be refuelled on site by a fuel truck. This will only take place for a short period during peatland habitat restoration works.		
MM96	REIAR Chapter 8	The electrical control building was bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area was fitted with a storm drainage system and an appropriate oil interceptor;		
MM97	EIAR Chapter 6 OEMP Section 3	The operational phase drainage of the development has been operated in full accordance with the design and mitigation measures that are fully described in Section 9.6 of Chapter 9: 'Water' and in the Operation and Environmental Management Plan. In addition, the same measures will be employed during any future operation. The Habitat Restoration Plan that is provided in Appendix 6.8 provides details of additional measures that will be implemented to protect water quality during the operation of the wind farm and the felling associated with the habitat restoration should it be granted permission.		
MM98	EIAR Chapter 9	Various combinations/adaptations of the runoff control and drainage management measures during the operational phase are employed at the site depending on the local conditions and topography:  ➤ Natural vegetation filters are used regularly across the site where the local drainage and topography allowed attenuation of surface water runoff.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<p>➤ Where possible, interceptor drains are installed up-gradient of infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It is now directed to areas where it can be re-distributed onto natural vegetation.</p> <p>Swales/roadside drains are used to collect runoff from access roads and turbine hardstanding areas of the site, likely to have entrained suspended sediment, and channeled it onto natural vegetation.</p>		
MM99	EIAR Chapter 9	<p>As part of peatland restoration works, the following water protection measures are proposed:</p> <ul style="list-style-type: none"> <li>➤ Brash removed during the restoration process will be stored up slope of the cleared area, to provide a buffer to surface water flows which may have the potential to erode;</li> <li>➤ During tree felling brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas; and,</li> <li>➤ Drain blocking and use of silt fencing and check dams until stabilisation has taken place.</li> </ul>		
MM 100	EIAR Chapter 7	<p>Operational monitoring at the Cleanrath wind farm development commenced in January 2020 and continued into May 2020. Appendix 7-6 contains the Post-Construction Bird Monitoring Programme.</p> <p>Post construction monitoring included and will include the following surveys:</p>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> <li>➤ Flight activity surveys: Vantage Point Surveys</li> <li>➤ Breeding Bird Surveys: Adapted Brown &amp; Shephard.</li> <li>➤ Winter Walkover Surveys</li> <li>➤ Breeding Raptor surveys</li> <li>➤ Hen Harrier Winter Roost Surveys</li> <li>➤ Targeted bird collision surveys (corpse searches) were/will be undertaken with training dogs. The surveys included detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.</li> </ul>		
MM 101	EIAR Section 6	All mitigation measures as specified by the survey report and derogation licence was implemented by the client. Compensation habitat was provided to replace the relatively small area of habitat affected by the development and no significant impact on Kerry slug populations was predicted to occur as a result of this development.		
MM 102	EIAR Chapter 7	Following the precautionary principle and in accordance with the SNH (2019) guidelines, any future operation of the wind farm will be the subject of ongoing monitoring as described in Appendix 6-4. If, following monitoring, there is any uncertainty as to the impacts on bat species, mitigation will be implemented. The mitigation that could potentially be applied is described below in Section 6.11.3.		
MM 103	EIAR Chapter 5 OEMP Section 3	<p>During the operational phase there will be ongoing maintenance of the wind turbines and associated infrastructure. Access to the turbines is through a door at the base of the structure, which is locked at all times outside maintenance visits.</p> <p>An Operational and Maintenance Health and Safety Plan has been prepared for the wind farm and is included as Appendix A of the OEMP.</p>		



Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM 104	EIAR Chapter 5, 11 OEMP Section 3	<p>Best practice measures for noise control will be adhered to onsite during the operational phase of the Cleanrath wind farm development in order to mitigate the slight short-term negative impact associated with this phase of the development. These measures included:</p> <ul style="list-style-type: none"> <li>➤ No plant used on site will be permitted to cause an on-going public nuisance due to noise.</li> <li>➤ The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.</li> <li>➤ All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.</li> <li>➤ Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools were fitted with suitable silencers.</li> <li>➤ Machinery that will be used intermittently will be shut down or throttled back to a minimum during periods when not in use.</li> <li>➤ During the course of the construction programme, supervision of the works will be undertaken to ensure compliance with the limits detailed in Chapter 11 using methods outlined in British Standard BS 5228-1:2014+A1:2019 Code of practice for noise and vibration control on construction and open sites – Noise.</li> </ul>		
MM 105	EIAR Chapter 5 OEMP Section 3	In periods of extended dry weather, dust suppression may be necessary along haul roads within the site to ensure dust does not cause a nuisance during use of plant or machinery. Where necessary, water will be spread with a bowser or water		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		spreader to dampen down haul roads and the temporary site compound to prevent the generation of dust. Silty or oily water will not be used for dust suppression		
MM 106	EIAR Chapter 5 OEMP Section 2	<p>All mitigation as outlined under noise and vibration, dust, traffic, visual amenity and shadow flicker in the EIAR, will be implemented in order to reduce insofar as possible impacts on residential amenity at properties located in the vicinity of the Cleanrath wind farm development works, including along the turbine and construction materials haul route.</p> <p>The installed wind turbines have been fitted with shadow flicker control units to allow the turbines to be controlled to prevent the occurrence of shadow flicker at properties surrounding the wind farm where necessary.</p>		
MM 107	EIAR Chapter 10 OEMP Section 3	Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise.		
MM 108	EIAR Chapter 5, 11 OEMP Section 3	<p>Best practice measures for noise control was adhered to onsite during the construction phase of the Cleanrath wind farm development in order to mitigate the slight short-term negative impact associated with this phase of the development. The measures include:</p> <ul style="list-style-type: none"> <li>➤ Sensitive location of equipment, taking account of local topography and natural screening.</li> <li>➤ Working methods: construction noise was controlled by prescribing that standard construction work was restricted to the specified working hours. Any construction work carried out outside of these hours shall be restricted to activities that did not generate noise of a level that may cause a nuisance.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
		<p>The phasing of works had also been designed with regard to avoidance of noise impacts.</p> <ul style="list-style-type: none"> <li>➤ Plant was selected taking account of the characteristics of noise emissions from each item. All plant and machinery used on the site shall comply with E.U. and Irish legislation in relation to noise emissions. The timing of on- and off-site movements of plant near occupied properties was controlled.</li> <li>➤ Operation of plant: all construction operations shall comply with guidelines set out in British Standard documents 'BS 5338: Code of Practice for Noise Control on Construction and Demolition Sites' and 'BS5228: Part 1: 1997: Noise &amp; Vibration Control on Construction and Open Sites'. The correct fitting and proper maintenance of silencers and/or enclosures, the avoidance of excessive and unnecessary revving of vehicle engines, and the parking of equipment in locations that avoid possible effects on noise-sensitive locations were employed.</li> <li>➤ Training and supervision of operatives in proper techniques to reduce site noise, and self-monitoring of noise levels, if appropriate.</li> </ul>		
MM 109	EIAR Chapter 14 OEMP Section 3	For a period of three weeks, a number of HGVs and excavator delivery vehicles will come to site as part of peatland habitat restoration works. These works will be undertaken in accordance with the Traffic Management Plan prepared for the construction phase which is included within Appendix 4-4 of the remedial EIAR		
MM 110	EIAR Chapter 14	<p>In the event of further scoping responses being received from the EIA consultees, the comments of the consultees and any mitigation measures are considered during operation of the Cleanrath wind farm development, subject to the outcome of the Substitute Consent process.</p> <p>The terms of the signed 2RN Protocol Document for the Cleanrath wind farm development will be adhered to throughout operation</p>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
<i>Decommissioning Phase</i>				
MM 111	EIAR Chapter 4	Prior to the end of the operational period the Decommissioning Plan (Appendix 4-4) will be updated in line with decommissioning methodologies that may exist at the time and will agreed with the competent authority at that time.		
MM 112	DP Section 3	Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the berms that will be temporarily removed during decommissioning at the turbine delivery accommodation roadway and the junction upgrade adjacent to the sawmill in Cloontycarthy. The invasive species survey will also be undertaken along the cable route to identify invasive species at joint bay locations where excavation to expose the cabling for removal will be required.		
MM 113	EIAR Chapter 9	Best guidance in relation to protection of freshwater pearl mussel (FPM) sites will be followed from guidance document Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures (Draft).		
MM 114	EIAR Section 6	All mitigation measures as specified by the survey report and derogation licence or any revision or renewals of this licence was implemented by the client. Compensation habitat was provided to replace the relatively small area of habitat affected by the development and no significant impact on Kerry slug populations was predicted to occur as a result of this development.		
MM 115	EIAR Chapter 6	Trees did not be replanted in the future within the felled areas. In areas of felling close to turbine bases brush was removed from the site, where not required for the upgrade of existing roads and to prevent rutting of the ground surface during felling operations, and management was put in place to keep the growth of regenerating scrubby/bushy vegetation down.		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM 116	EIAR Chapter 4 DP Section 2	On removal of turbines, the covering of the foundation will be completed using material imported to site as the required quantity of material does not currently exist at the site. The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation enhanced by spreading of an appropriate seed mix to assist in revegetation and accelerate the resumption of the natural drainage management that will have existed prior to any construction		
MM 117	EIAR Chapter 4 DP Section 3	<p>The following mitigation measures are proposed to avoid release of hydrocarbons at the site:</p> <ul style="list-style-type: none"> <li>➤ Road-going vehicles will be refuelled off site wherever possible;</li> <li>➤ On-site refuelling will be carried out at designated refuelling areas at various locations throughout the site. Machinery will be refuelled directly by a fuel truck that will come to site as required</li> <li>➤ Only designated trained and competent operatives will be authorised to refuel plant on site.</li> <li>➤ Fuel volumes stored on site should be minimised. Any fuel storage areas will be bunded appropriately;</li> <li>➤ The plant used will be regularly inspected for leaks and fitness for purpose; and,</li> <li>➤ An emergency plan for the decommissioning phase to deal with accidental spillages will be developed (refer to Section 4) Spill kits will be available to deal with and accidental spillage in and outside the refuelling area.</li> <li>➤ A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the decommissioning phase.</li> </ul>		

Ref. No.	Reference Location	Mitigation Measure	Audit Result	Action Required
MM 118	EIAR Section 7	<p>A Decommissioning Plan has been prepared (see Appendix 4-9) The following measures are proposed for the decommissioning phase:</p> <ul style="list-style-type: none"> <li>➤ During the decommissioning phase, disturbance limitation measures will be as per the construction phase (see Chapter 7 of the rEIAR).</li> <li>➤ Plant machinery will be turned off when not in use.</li> <li>➤ All plant and equipment for use will comply with the Construction Plant and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 (S.I. No. 632 of 2001).</li> <li>➤ A project ecologist will be appointed to oversee the decommissioning phase, with similar duties to those outlined above during the construction phase.</li> </ul>		
MM 119	EIAR Chapter 14 DP Section 3	<p>The Traffic Management Plan has been prepared to consider the decommissioning as a standalone project. The removal of turbines from site will be undertaken for a specialist haulier. The traffic management arrangements although similar to that implement for turbine delivery as outlined in the rEIAR will be agreed in advance of decommissioning (early or after 25 years of operation) with the competent authority.</p> <p>A traffic management plan has been prepared for the removal of cabling from cable duct on the grid connection route</p>		