



# **Technical Appendix 2-1 Outline Construction Environmental Management Plan (CEMP)**

**EIAR – Volume 3**

**Muingmore Wind Farm**

SLR Project No.: 501.065301.00001

April 2026



# Muingmore Wind Farm

## Construction Environmental Management Plan (CEMP)

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## Acronyms and Abbreviations

AIL	Abnormal Indivisible Load
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CMS	Construction Method statement
CMT	Construction Management Team
CTMP	Construction Traffic Management Plan
ECOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIERP	Environmental Incident and Emergency Response Plan
EPA	Environmental Protection Agency
EPPP	Emergency Pollution Prevention Plan
EPS	European Protected Species
EQS	Environmental Quality Standards
GPP	Guidance for Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HGV	Heavy Goods Vehicle
HMP	Habitat Management Plan
MCC	Mayo County Council
MW	Megawatt



PPE	Personal Protective Equipment
PPIP	Pollution Prevention and Incident Plan
PRP	Peatland Restoration Plan
PSCS	Project Supervisor Construction Stage
PSDP	Project Supervisor Design Process
QA	Quality Assurance
RAMS	Risk Assessment Method Statements
SAC	Special Area of Conservation
SHPP	Species & Habitat Protection Plan
SPA	Special Protection Area
SuDS	Sustainable Drainage System
SWMP	Site Waste Management Plan
SHWWR 2013	Safety, Health and Welfare at Work (Construction) Regulations 2013, as amended
TCC	Temporary Construction Compound
TDR	Turbine Delivery Route
WMP	Waste Management Plan
WQMP	Water Quality Monitoring Plan



## 1.0 Introduction

### 1.1 Background

This document presents a Construction Environmental Management Plan (CEMP) for RWE Renewables Ireland Limited (the “Applicant”), which sets out the principles and procedures for mitigation measures to achieve environmental management during construction of a proposed renewable energy development within the town lands of Muingmore (An Mhoing Mhór) and Doolough (Dumha Locha), County Mayo. The development comprises a 74.1 to 91 Megawatt (MW) wind farm, with 13 no. turbines and associated infrastructure (including 33kV collector cables), a Turbine Delivery Route (TDR), onsite substation, and battery energy storage system (BESS), which, in consistency with the terminology of the wider planning application documentation, is referred to as the “Proposed Development”.

Should consent be granted, this CEMP will be revised and updated to a final version with the appointed Contractor, which will be agreed upon with Mayo County Council (MCC) prior to the commencement of development. The Contractor will use the CEMP to ensure proper environmental management throughout the construction phase of the Proposed Project and will be expanded to cater for any additional management measures required by planning conditions attached to the permission.

The document should be read in conjunction with **Chapter 2: Project Description** and **Chapter 17: Schedule of Mitigation Measures** of the Environmental Impact Assessment Report (EIAR) submitted with the planning application.

The CEMP is a live document that will evolve during the different phases of the Proposed Project. As such it will be subject to ongoing review in order to:

- address relevant conditions required in the approved consent;
- ensure it reflects best practice at the time of construction;
- ensure it incorporates the findings of pre-construction site investigations;
- address changes resulting from the construction methods used by the contractor(s); and
- address unforeseen conditions encountered during construction.

The CEMP will be a key contract document, which will ensure that all mitigation measures, which are considered necessary to protect the environment, are implemented.

### 1.2 Aims and Objectives

The CEMP will be maintained and updated on site and will be supported by associated design specifications and relevant documentation prepared in accordance with S.I. No. 291/2013 – Safety, Health and Welfare at Work (Construction) Regulations 2013, as amended (SHWWR 2013), including the Project Supervisor Construction Stage’s (PSCS) Construction Phase Plan.

Where appropriate, the CEMP, or plans within the CEMP, will form part of the site induction which will be mandatory for all employees, contractors and visitors attending the Main Wind Farm Development Site. All employees and contractors will need to familiarise themselves with the relevant contents of the CEMP and supporting appendices as directed.

Management practices and mitigation measures have been developed for those aspects of the construction works that have been identified as having the potential to adversely affect the environment.

The objectives of the CEMP are to:

- identify the proposed mechanisms for ensuring the delivery of environmental mitigation measures to avoid or reduce potential environmental effects;

- ensure procedures are in place so that there is a prompt response to effects requiring remediation, including reporting and any additional mitigation measures needed to prevent a recurrence;
- provide an outline of the content that will be supplied in the construction method statements and strategies that will be prepared in order to secure mitigation measures in relation to different design aspects of the Proposed Development;
- ensure compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies;
- ensure that appropriate monitoring and reporting will be in place;
- provide a framework for reporting, compliance auditing and inspection to ensure environmental aims will be met; and
- set out the Applicant's expectations to guide contractors on their requirements with regards to environmental commitments and environmental management.

### 1.3 Definition of Terms

For the purposes of assessment, the following terms (Capitalised) are utilised throughout the EIAR:

- **Proposed Project:** Refers to the Proposed Development including the GCR.
- **Proposed Development:** Refers to the elements of the Proposed Project for which planning consent is being sought. This encompasses the wind farm and associated infrastructure (including the 33kV collector cables), Habitat Enhancement Area in the north-west quadrant (NWQ), any development associated with the Turbine Delivery Route (TDR), onsite substation, and battery energy storage system (BESS).
- **Proposed Development Site:** The site where the Proposed Development is located, as defined by the Planning Application Boundary.
- **Main Wind Farm Development Site:** part of the Proposed Development Site which includes the proposed wind turbines and associated infrastructure.

The Northern Cluster of the Main Wind Farm Development Site is comprised of a geographical area to the north of the local road, the L5252. Elements of the Proposed Development which will be located in the Northern Cluster comprise.

- 7 no. turbines (turbine nos. 1-7) and their associated access tracks, hardstandings and foundations.
- 1 no. 110kV substation.
- 1 no. temporary construction compound (TCC1).
- 1 no. BESS.
- 2 no. site access points (AP1 and AP2).
- Internal underground 33kV collector cables which connects both clusters to the onsite substation which is located within the Northern Cluster.
- Habitat Enhancement Area in the north-west quadrant (NWQ).

The Southern Cluster of the Main Wind Farm Development Site is defined by the area to the south of the local road, the L5252. Elements of the Proposed Development which will be located in the Southern Cluster comprise:

- 6 no. turbines (turbine nos. 8-13) and their associated access tracks, hardstandings and foundations.

- 1 no. temporary construction compound (TCC2).
- 1 no. meteorological mast.
- 1 no. site access point (AP3).
- Internal underground 33kV collector cables, connecting to the onsite substation which is located within the Northern Cluster.

**Turbine Delivery Route (TDR):** Refers to the proposed turbine delivery route from Killybegs Port to the Main Wind Farm Development Site and includes the 3 no. Over-run Areas.

**Over-run Areas:** Refers to the 3 no. areas (Over-run Areas 1, 2 & 3) along the TDR where temporary accommodation works on private lands are required.

**Grid Connection Route (GCR):** The designated route for the 110kV Underground Electricity Cable from the Proposed Development onsite substation to the national grid connection point at Bellacorick 110 kV Substation. The GCR will be the subject of a separate planning application.

**Habitat Enhancement Area in the NWQ:** An area to the north-west of the Main Wind Farm Development Site which will not include any infrastructure related to the Proposed Project other than that to enhance habitat.

## 1.4 Main Wind Farm Development Site

The Main Wind Farm Development Site and its surrounding area are described in **Chapter 1** and topic specific chapters of the EIAR but a summary is provided here for ease of reference.

The Main Wind Farm Development Site is situated within a coastal region of County Mayo and occupies a relatively condensed area of around 3km in a north-east to south-west orientation, encompassing 2 cluster areas. The surrounding area is predominantly rural in character but there are several small settlements within a 5km radius of the Main Wind Farm Proposed Development Site. The Main Wind Farm Proposed Development Site is also located c. 8km west of Bangor Eris and c.0.5km north of the village of Gweesalia.

Geographically, the Main Wind Farm Development Site lies north of the intersection of roads L1205 and L1206. The L1206 borders the southern edge of the Main Wind Farm Proposed Development Site, while the L1205 runs westward and leads to the R313, located c. 4km north of the Main Wind Farm Proposed Development Site. The R313 provides connections to more extensive road networks, as indicated below.

A local road (L5252) bisects the Main Wind Farm Development Site east to west. This local road branches off from the L1206. This road runs longitudinally through the Main Wind Farm Proposed Development Site, spanning from north-west to south-east, connecting the L1205 and L1206. Notably straight and offering good lines of sight, this road will provide access to the Main Wind Farm Development Site, both north and south of the road.

The Main Wind Farm Development Site predominately consists of cutover lowland blanket bog, conifer plantation and peatland. There is no built development within the Main Wind Farm Proposed Development Site, however a vacant industrial facility is located adjacent to the Northern Cluster but outside the planning application boundary.

The Main Wind Farm Proposed Site is less than 1 km from the Atlantic coastline and is located on low-lying terrain, ranging from approximately 3 m AOD at the southern end to approximately 33 m AOD at the northeastern portion.

A number of small streams are present within the Main Wind Farm Development Site and along the boundaries, such as along the northern boundary, flowing west, the lower portion of the east boundary, flowing south.

There are 109 residential properties indicated in **Figure 4-4 of the EIAR** as being located within 1km of the Main Wind Farm Development Site. The nearest residential property is located c. 740m from the nearest wind turbine (T10). There are 282 residential properties within 500m of the GCR.

## 1.5 Project Description

Planning permission is sought for a period of 10 years, for a renewable energy development comprising of the construction of a 13 no. turbine wind farm development, with associated 110 kV substation, battery storage, and all associated works on land within the townlands of Muingmore (An Mhoing Mhór), Doolough (Dumha Locha), Tristia (Troiste), Moneynierin (Moing an Iarainn) and Bangor (Baingear) County Mayo.

The planning application area is approximately 454 ha in size. Certain details of the proposed development are unconfirmed in this planning application and an opinion on unconfirmed details from An Coimisiún Pleanála (Case Reference: ABP -321948-25) pursuant to section 37CD of the Planning and Development Act 2000 (as amended) accompanies this planning application. The details unconfirmed in this application are the turbine tip height, rotor diameter and hub height. The range of parameters under which the turbine dimensions will fall are specified on this site notice and in the design flexibility opinion that accompanies this application.

The Proposed Development will consist of:

- Construction of 13 no. wind turbines, each with an overall blade tip height between 179-180m inclusive, rotor diameter between 149-163m inclusive, hub height between 98.5-105m inclusive, in two clusters.
- Battery energy storage system (BESS) compound to include control building with welfare facilities, all associated plant and equipment, security fencing and gates, underground cabling, and all ancillary structures, drainage works, as well as storage and parking.
- Construction of crane hardstands, laydown areas and turbine foundations.
- Construction of permanent internal site access roads including passing bays and all associated drainage infrastructure.
- Construction of a permanent 110 kV onsite electricity substation and onsite IPP (Independent Power Producer) substation to include control buildings with welfare facilities, all associated electrical plant and equipment, security fencing and gates, all associated underground cabling, wastewater holding tanks, and all ancillary structures and works.
- Construction of 33kV underground electricity cabling and communications cabling, including joint bays and ancillary works, to connect the windfarm and battery energy storage system to the proposed onsite substation.
- Construction of two temporary construction compounds with associated temporary site offices, parking areas, welfare facilities and security fencing.
- Development of an internal site drainage network and sediment control systems.
- Temporary works as part of road improvements to facilitate the delivery of abnormal loads and turbine component deliveries from Killybegs Port to site, to include 3 no. over-run areas along the turbine delivery route, (No. 1 in the townland of Tristia onto the L1206, No. 2 in the townland of Moneynierin at the junction of the N59 and the R312, and, No. 3 in the townland of Bangor off the R313).
- Construction of 1 no. new site entrance and the construction/ upgrade of 2 no. additional site entrances (all off local road L5252, west of the L1206),
- Ancillary forestry felling to facilitate construction of the development.

- All associated site development works including landscaping, lighting, soil management and the ongoing maintenance and management of the biodiversity measures in accordance with the Habitat Management Plan and the Peat Restoration Plan.
- The replacement of felled trees with the planting of new trees, and;
- The erection of a permanent meteorological mast 100m in height

A 35-year operational life from the date of full commissioning of the entire wind farm and battery storage is being sought for all works (other than temporary and permanent works specified above), and the subsequent decommissioning. The proposed substation will continue to exist on a permanent basis. Permanent planning permission is being sought for this element.

## **2.0 Schedule of Mitigation Measures and Implementation**

### **2.1 Schedule of Mitigation Measures**

The EIAR has identified the mitigation measures which will avoid or minimise the potential impacts of the Proposed Project

For each mitigation measure identified, the EIAR has detailed the specific mechanism by which it will be adopted, implemented, or enforced, as well as the timeframe within which the mitigation measure is to be carried out.

It will be mandatory for these mitigation measures to be implemented either before or during the construction phase of the Proposed Project, as set out in **Chapter 17** of the EIAR.

### **2.2 Implementation and Control**

Compliance with the CEMP is the key control measure required during construction to ensure mitigation measures necessary to protect the environment are implemented. The CEMP documents the principles and processes to be followed to implement these environmental mitigation measures.

The PSCS will prepare a series of method statements in accordance with the Schedule of Mitigation Measures. These method statements will detail how the contractor intends to implement the mitigation measures set out in the CEMP and will be integrated with their detailed Construction Method Statements.

If any significant changes are required to the Schedule of Mitigation Measures due to changing environmental sensitivities, results of pre-construction confirmatory surveys, unforeseen events or for any other reason, these will be discussed and agreed with statutory bodies in advance of any amended works being carried out. The Schedule of Mitigation Measures will be revised with any approved changes required resulting from the discussions with the relevant statutory bodies. Any such agreed revisions will be submitted to and receive the written approval of the Planning Authority prior to being implemented.

## 3.0 Roles and Responsibilities

During construction there will be key responsibilities for the Applicant, the PSCS and their teams. Establishing roles and responsibilities in relation to construction will be important in order to ensure the successful construction of the Proposed Project, including the implementation of the CEMP. The personnel who will implement, monitor and respond to the CEMP will be the Applicant's construction team and the PSCS.

### 3.1 Health and Safety

The construction works will be undertaken in accordance with health and safety legislation, namely:

- Safety, Health and Welfare at Work Act 2005 S.I. No. 10 of 2005) (as amended); and
- Safety, Health and Welfare at Work (Construction) Regulations 2013 S.I. No. 291 of 2013 (as amended) (SHWWR 2013).

The construction works for the Proposed Project will fall under the Safety, Health and Welfare at Work (Construction) Regulations 2013 S.I. No. 291 of 2013 (as amended). As such, the PSCS will provide a Construction Phase (Health and Safety) Plan in accordance with the requirements of the legislation. This Construction Phase (Health and Safety) Plan will provide a blueprint for managing and co-ordinating health and safety during construction. It will contain details of the project description and key information, key personnel and responsibilities, construction management, health and safety arrangements, emergency procedures, control of high-risk activities and record keeping. An induction programme will be implemented to include both the PSCS's site-specific rules and the Applicant's requirements, and it will include instructions for all staff regarding the Emergency Pollution Prevention Plan (EPPP) and relevant procedures.

A mandatory induction will be required for all personnel on site including permanent/temporary contractor/subcontractor, site visitors, client representatives and other 3<sup>rd</sup> parties. Inductions will be documented.

All site activities will follow a safe system of work, with specific tasks having Risk Assessment Method Statements (RAMS) detailing:

- how the task will be carried out.
- identifying potential hazards and evaluating the risk on the basis of how likely hazards are to occur and what the consequences could be in the event of an incident.
- mitigation measures to be implemented to reduce the risks of the task, which will follow a hierarchy of controls in the following order, with elimination being the most effective and PPE being the least effective:
  - Elimination – physically remove the hazard.
  - Substitution – replace the hazard.
  - Engineering controls – isolate people from the hazard.
  - Administrative controls – change the way people work.
  - PPE – protect the worker with equipment.

RAMS will be recorded, monitored and reviewed in advance of all works and any changes in work procedures. If works change in a manner not anticipated by RAMS, works will be stopped until the risk can be appropriately evaluated. and changes will be implemented accordingly.



Plant operators and construction staff will be trained by the PSCS with regard to spill prevention/mitigation measures and procedures and in the use of relevant mitigation material (e.g. spill kits).

Staff and subcontractors employed by the PSCS will be trained and have to prove certification for all plant, vehicle and use of specialist equipment such as electrical and hot works. Training will be tailored to cover site-specific technology, in particular the BESS and substation, and they will be instructed on the Battery Safety Management Plan.

### 3.2 Construction Management Team

The Applicant will appoint a Construction Management Team (CMT). The CMT will be led by the designated Project Supervisor for the Design Process (PSDP), which is a legal requirement under the SHWWR 2013 (as amended). The team will include, as a minimum, a Resident Engineer (usually a Health and Safety Manager for the works), a subcontracted Environmental Clerk of Works (ECoW), and a Planning Monitoring Officer.

As the CEMP is a live document, the PSCS will update and implement the document throughout the construction stage. Both the PSDP and PSCS roles are integral to the successful and safe completion of construction projects. While the PSDP lays the foundation for a safe working environment by addressing potential risks in the design phase, the PSCS ensures that the following safety measures are effectively put into practice on-site.

- regular liaison with the PSCS's Site Manager;
- maintaining environmental risk registers;
- communicating with regulators and consultees such as Mayo County Council (MCC) regarding any additions or updates that need to be made to the CEMP including the Schedule of Mitigation Measures; and
- ensuring that any required changes are approved and updated within the CEMP.

The PSCS and Resident Engineer will have the power to stop works at any stage should it be deemed necessary or recommended by the ECoW, i.e., if there were environmental, transport, or health and safety risks from construction that could not be mitigated immediately.

### 3.3 Ecological Clerk of Works (ECoW)

An ECoW will be appointed during the period of construction and post-construction restoration. The appointment of the ECoW will be approved by MCC.

The role of the ECoW will be to provide environmental advice and monitor compliance with mitigation measures. The ECoW will have tasks (as outlined in **Chapter 17: Schedule of Mitigation Measures**) to carry out during construction and prior to the outset of each construction phase. They will be required to keep an active register of all issues that arise during the works and report as required to MCC.

The ECoW will have sufficient powers to:

- oversee construction work and identify where mitigation measures are required;
- recommend temporary stoppage of works if required; and
- to review working methods and advise whether alternative or more appropriate working methods require to be adopted.

The ECoW will undertake the following activities:

- to work with the PSCS and PSDP to induct all site personnel with regards to key environmental sensitivities and mitigation measures to be applied during construction;



- Toolbox talks shall be given by the ECoW throughout the construction period in the event that additional unforeseen issues arise that require alternative working methods;
- undertaking site walkovers, monitor implementation of the water management measures as stipulated in the Schedule of Mitigation Measures (see **Chapter 17**);
- liaising with contractors during the construction phase;
- inspecting working areas and ensuring compliance with the CEMP;
- undertaking water quality monitoring;
- providing advice on sediment and drainage management;
- communicating with all site personnel regarding any environmental issues and mitigation measures;
- overseeing that all necessary licenses regarding protected species are obtained, if required and facilitating with the support of suitably qualified and experienced Ecologists; and
- documenting and reporting any environmental issues and incidents as required to the applicant and MCC.

### 3.4 Resident Engineer

The Applicant will appoint a Resident Engineer for the construction of the Proposed Development. The Resident Engineer will provide support to the Construction Management Team and have day to day responsibility for monitoring the Proposed Development onsite on behalf of the PSCS, PSDP and Applicant.

The Resident Engineer will have a wide range of duties including but not limited to:

- overseeing construction works to ensure conformance with the specification, monitoring quality and progress and most importantly ensure that health, safety and the environment is given a high priority at all times. The Resident Engineer will effectively be the Applicant's eyes and ears on the Proposed Development Site and will report directly to the Construction Management Team;
- authority to stop the construction works in the case of a health and safety, environmental or quality issue. This applies when delays may lead to increased risk or damage;
- daily visual inspections of working areas to identify possible construction issues from a quality, environmental, programme and safety perspective. Any issues will be raised directly with the contractor;
- If any pollution is observed, all works will be halted until the source of the pollution has been managed;
- working closely with the ECoW to ensure that ecological and environmental requirements dictated by the CEMP, best practice and the planning conditions are adhered to by the works contractor;
- reviewing construction related documents from all contractors – including method statements and risk assessments and providing comments directly onsite to the PSCS; and
- reporting all environmental or health and safety incidents and near misses to the PSCS in a form and timescale required by the Construction Management Team.



### 3.5 Project Supervisor Construction Stage (PSCS)

The PSCS will be required to comply with and continually review the CEMP throughout the construction period. Trigger-based reviews will be undertaken should an environmental incident occur, a significant change in construction activity, following audit findings and when method statements are updated. This will include being aware of any changes or updates to the CEMP following the identification of any new environmental sensitivity or any changes to the Proposed Development. These changes will be controlled and implemented by the Applicant's Construction Management Team, as required.

The PSCS and their team (including any sub-contractors) will be responsible for:

- undertaking their duties in accordance with SHWWR 2013 (as amended);
- liaising with the Applicant's Construction Management Team;
- completing the construction of the Proposed Development in a manner which complies with all relevant laws, rules, regulations and supporting guidance;
- acquiring licenses and permits as necessary for their works;
- ensuring that all method statements in line with the principles set out in the CEMP have been provided;
- planning, managing, monitoring and coordinating all pertinent activities relating to construction;
- liaising with and providing justification to the competent authority if any significant changes are required from the Schedule of Mitigation Measures;
- developing and implementing a Pollution Prevention and Incident Plan (PPIP) and ensuring that all personnel (including sub-consultants and sub-contractors) understand and are aware of procedures to be undertaken should an environmental incident occur. This will sit as an additional appendix in the updated CEMP;
- ensuring that all personnel receive training and are aware of the potential to damage sensitive environmental receptors and procedures required to be implemented to avoid, minimise and mitigate against such damage;
- verifying the competence and resources of all personnel working on the Proposed Development and any sub-consultants and sub-contractors that were engaged on the Proposed Development; and
- implementing the Schedule of Mitigation Measures.

### 3.6 Project Supervisor Design Process (PSDP)

The PSDP can be an individual or body, and generally the role is fulfilled by a firm of architects, chartered surveyors, consulting engineers or project managers. In all cases, the person or company undertaking the role must have the necessary competence to carry out the relevant duties. The PSDP must be appointed before construction design work commences to ensure effectiveness in addressing and coordinating safety and health matters from the very early stages of a project.

The PSDP is responsible for:

- Identifying hazards arising from the design or from the technical, organisational, planning or time-related aspects of the project.
- Where possible, eliminating hazards or reducing the risks.



- Communicating necessary control measures, design assumptions or remaining risks to the PSCS so they can be dealt with in the safety and health plan.
- Ensuring that the work of designers is coordinated to ensure safety.
- Organising co-operation between designers.
- Preparing a written health and safety plan for any project where construction will take more than 500 person days or 30 working days, or there is a particular risk and deliver it to the client prior to tender.
- Preparing a safety file for the completed structure and giving it to the Client/Applicant.
- Notifying the Health and Safety Authority and the client of non-compliance with any written directions issued.
- The PSDP may issue directions to designers, contractors or others.

### 3.7 Site Personnel

All Site personnel, including all members of the Applicant and PSCS's teams, all sub-contractors and sub-consultants are required to:

- attend all inductions and site-specific training including toolbox talks carried out by the ECoW; and
- implement control measures throughout the Proposed Development Site, as required.

### 3.8 Communication

Prior to the commencement of construction, the Applicant will set up a community liaison strategy. The objective of community liaison will be to keep the community informed of progress of construction of the Proposed Development. The community liaison strategy will be designed to establish processes to keep the community informed, reviewing incidents that have occurred and how these have been resolved and discussing the forthcoming programme of work. The Applicant has already established a Community Liaison programme through the appointment of a Community Liaison Officer, who has undertaken door to door consultation, scheduled meetings and delivered project updates with named contact details since 2023. Prior to any construction starting on the Proposed Development Site, the community liaison strategy will be updated and communication will be maintained on a monthly basis until construction is complete, and the Proposed Development is operational. Through a programme of community meetings, leaflet drops and a project website, the Applicant will provide contact details of:

- the Resident Engineer – who will be on the Proposed Development Site for the majority of the construction phase;
- the Applicant's Community Liaison Officer; and
- the Applicant's Public Relations Officer.

Any resident who has a question regarding the construction of the Proposed Development will be directed to one of these contacts. All questions will be logged and an auto response will be provided with an anticipated timeframe for a reply.

Once construction has started, the Applicant will provide details of any construction activity that will impact on the local community, such as deliveries.

Careful logging and monitoring of any complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the issue will be reviewed in sequential stages of work programming to reduce the likelihood of further incidents.



## 4.0 Phasing

### 4.1 Construction

The construction works will take place over a 24-month period. Construction activities are proposed to occur during standard working hours, from 07:00 to 19:00, Monday to Friday, and 07:00 to 13:00 on Saturdays. While work on Sundays and public holidays is not expected, out of hours works may be required for certain critical activities, such as abnormal load deliveries, concrete pours for turbine foundations, and the lifting of turbine components. These exceptions will only occur with prior approval from MCC.

Through the provisions of the Community Liaison Strategy, the PSCS will keep local residents informed about the proposed working schedule, including the times and duration of any abnormally noisy activity that may cause concern.

The following activities will be carried out during the construction work phases:

- Phase 1 – Site set-up:
  - site preparation, including tree felling and vegetation clearance where necessary;
- access road improvements, including widening and drainage adjustments;
  - establishment of site compounds, including installation of welfare facilities and temporary storage areas;
- Phase 2 – Construction:
  - construction of new site access tracks and upgrades to existing tracks;
  - excavation and construction of turbine foundations;
- preparation and installation of crane hardstanding areas; and
- construction of the substation and BESS.
- Phase 3 – Commissioning:
  - turbine delivery and construction;
- wind farm commissioning;
- substation and BESS testing and commissioning; and
  - turbine and wind farm reliability run;
- Phase 4 – Demobilisation:
  - take over;
  - snagging; and
  - decommissioning of temporary compound / structures and restoration of the Site.

A proposed construction programme is shown in **Table 4-1** for information. The construction phase of the Proposed Development, which includes civil, electrical, grid works, and turbine assembly is anticipated to take 24 months once the proposed turbines are acquired via a competitive tender process. Prior to construction, a final construction programme will be provided to MCC by the PSCS.



**Table 4-1: Proposed Construction Programme**

Construction Activity	Months																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<b>Mobilisation &amp; site set up</b>	█																							
<b>Site clearance and felling</b>		█	█	█	█																			
<b>Site access and internal access tracks</b>			█	█	█	█	█	█																
<b>Turbine hardstands</b>					█	█	█	█	█	█	█	█												
<b>Turbine foundations</b>							█	█	█	█	█	█	█											
<b>Turbine Delivery &amp; Installation</b>													█	█	█	█	█	█	█	█	█			
<b>On Site Cabling</b>										█	█	█	█	█	█	█								
<b>Onsite substation, BESS and Grid connection cable works</b>									█	█	█	█	█	█	█	█	█	█	█	█				
<b>Commissioning and Testing</b>																					█	█	█	
<b>Landscaping, reinstatement and demobilisation</b>																							█	█



## 4.2 Post Construction Reinstatement

Good practice techniques for vegetation and habitat reinstatement such as the Draft Wind Energy Development Guidelines (Rev December 2019) and Best Practice Guidelines for the Irish Wind Energy Industry (2012) will be adopted and implemented on areas subject to disturbance during construction as soon as practicable.

The following reinstatement works will be implemented as appropriate:

- re-use of turves;
- re-use of topsoil/peat where appropriate; and
- reseeding with appropriate species.

For clarity, the following are definitions for the different plant and peat make-up of the natural ground between the surface and rockhead (from top down):

### a) Vegetation:

This is typically plant matter that can be removed/stripped above the ground level (i.e. does not include roots/topsoil). This can vary depending on the nature of the vegetation encountered on site.

### b) Turf/Turves:

Turf (turves) refers to the surface layer comprising grass and a matrix of interwoven roots and organic soil. The thickness of turves varies depending on ground conditions and vegetation type, and is typically carefully stripped to maintain integrity for potential reuse.

### c) Peat:

The near-surface organic ground formed from partially decomposed vegetation. Thickness is highly variable across the site. The upper peat is typically fibrous with a vegetation mat, underlain by more decomposed, saturated peat. Peat can be excavated as intact turves where reinstatement is required, or otherwise segregated and placed in temporary storage in line with the Peat Management Plan.

### d) Superficial Soils:

This is a generic term used for all material between topsoil/peat and rockhead. This can vary in depth and content throughout the depth profile at any location.

### e) Weathered Rock:

This is a layer that may exist above rockhead that is neither rock nor superficial material but a mixture of both. It can be mostly fractured rockhead as a result of physical and chemical weathering processes. When excavated it may have elements of fractured rock and superficial material as the boundary can be difficult to distinguish.

In some cases, this can provide suitable engineering material for the construction of foundations, embankments, tracks, etc.

### f) Rockhead:

This is a naturally occurring solid aggregate of minerals which lies beneath the superficial soils.

The above terms are defined for clarity as they may be referred to in the CEMP in relation to soil management.



## 5.0 General Construction Good Practice

References to Good Practice guidance on which the Schedule of Mitigation Measures is based are provided at the rear of this CEMP. Site access will be controlled throughout the construction process by means of secure gated entrances and appropriate site boundary controls, in order to prevent unauthorised access, illegal dumping and use by off-road vehicles.

All backfilling and construction-phase activities will be undertaken in accordance with relevant best practice environmental guidance published by the Environmental Protection Agency and CIRIA C741 – Environmental Good Practice on Site (4th Edition). All waste management activities will comply with the provisions of the Waste Management Act 1996 (as amended).

The main requirements in relation to the Proposed Project are set out below.

### 5.1 Invasive Species Management

Mitigation measures to safeguard against the introduction or spread of invasive species to or from the Proposed Development Site will be implemented as follows:

- Strict plant and machinery clean-down procedures (high-pressure wash, disinfect, dry).
- Check-Clean-Dry protocol to prevent crayfish plague.
- Imported material is certified to be clean inert and is sourced from reliable suppliers and sites.
- The resident engineer holds power to reject contaminated loads and can be supported by the ECoW.
- Clean down procedures such as wheel washes upon entry and exit of site.

### 5.2 Peat Management

A detailed Peat Management Plan (PMP) has been developed based on ground investigations undertaken across the Main Wind Farm Development Site as well as a Peat Landslide Hazard Risk Assessment.

The PMP will be followed by all involved in peat excavation and management works. The ECoW will oversee the works and provide guidance where necessary on the excavation, transportation and storage of peat.

A Geotechnical Risk Register will be developed and maintained by the appointed geotechnical engineer.

Undercutting of peat slopes will be avoided. Where this cannot be avoided, a more detailed geotechnical stability assessment of the area of concern by the geotechnical engineer will be undertaken to include review of site-specific ground investigation data and site inspection.

Floating tracks will be access tracks across in areas with excess of 1m deep peat (as described in Section 9.4). Floating tracks will be used for access track construction in areas where peat depths exceed 1 m (as described in Section 9.4). The temporary TDR overrun areas will also primarily use floated construction to minimize excavation in peat and to preserve the existing ground and hydrological conditions.

The established drainage pattern regime will be protected and hydrological management will be implemented to ensure that no areas will receive surcharge. This will ensure that the current level of stability of the peat mass, will be retained if not improved. All drainage channels constructed on site along infrastructure will be 'shallow' drainage ditches to maintain stability of both the peat and infrastructure.



Construction activities in peat will be undertaken with due regard to prevailing ground and weather conditions. Peat stability, water content and rainfall will be continuously monitored, and construction methodologies will be adapted as necessary to minimise disturbance to peat and reduce the risk of instability and erosion.

Cut and fill will be avoided in areas of peat greater than 1 m in depth where practicable. Where this cannot be avoided, the following measures will be implemented:

- Excavation will be to a sound stratum / peat substrate.
- Where the depth of cut is deemed unstable, a stepped or benched surface will be implemented with the intention of minimising the exposed surface of the up-slope cut face. Where groundwater becomes a construction issue, sheet piles or cofferdams will be installed.
- All exposed peat surfaces will be protected from erosion and desiccation, by ensuring the integrity and moisture content of the peat is maintained.
- A small bund will be formed at the top of cut slopes to retain moisture within the peat, thereby preventing desiccation and maintaining slope stability.

To minimise the risk of potentially inducing peat landslides during construction of the Proposed Development, the following will be implemented:

- Raise health and safety awareness of the peat environment for construction staff by incorporating the issue into the site induction.
- Include peat slide risk assessment information (e.g. peat instability indicators, best practice and emergency procedures) in toolbox talks with relevant operatives e.g. plant operatives.
- Carry out confirmatory pre-construction surveys and ground investigations prior to the commencement of works.
- Minimise off-track plant movements within areas of peat, use trackways once constructed.

### 5.3 Handling of Excavated Materials

The construction of tracks, turbine foundations, crane hardstanding areas and the substation and BESS compound will require excavation and handling of peat and substrate material. In order to reduce the risk of localised erosion during excavation and infilling, the area of bare or exposed soils and rock will be kept to a minimum, insofar as practicable.

Excavated materials will be reused or placed in temporary storage. Arisings will be mainly peat, with minor quantities of soil and rock. Description of the existing land, soils and geological setting is provided in EIAR **Chapter 6: Land, Soils and Geology**. Soils and peat will be used for reinstatement works or reuse associated with access tracks, cable trenches, turbine foundations, crane hardstandings and the temporary construction compounds. The priority of the peat material is for reposition and reuse as per the PMP. The upper vegetated turves (where available) will be stored and be used to dress infrastructure edges and to be replaced on areas which have been temporarily stripped.

Excavated material will be used as soon as practicable and as close as possible to the area it was excavated from; however some temporary storage will be required.

### 5.4 Materials Storage

Excavated, granular, non-organic material required to be stored temporarily will be compacted to reduce the potential for erosion and transfer of sediment and stockpiled in designated areas



at least 50 m from any watercourse. Material placement will be managed to avoid compaction of sensitive habitats and prevent encroachment beyond the defined working area.

Temporary stockpiles will be appropriately sited away from marshy grassland, bog or heath, with the locations agreed in advance with the ECoW. Where required, stockpiled soils (pending re-use) or exposed surfaces (pending further backfilling to final ground level) will be temporarily covered. They will be evaluated and monitored during and following rainfall events and kept stable for safety and to minimise erosion.

Where excavated material cannot be transferred immediately to an appropriate restoration area, short-term storage will be required. In this case, the following good practice will apply:

- peat will be stored in line with the PMP measures;
- local gullies, diffuse drainage lines (or very wet ground) and locally steep slopes will be avoided for storage;
- stored upper turves (incorporating vegetation) will be reinstated adjacent to similar habitats as advised by the ECoW;
- monitoring of stockpiles/excavation areas will occur during and following rainfall events; and
- if material is stockpiled on a slope, silt fences will be utilised to reduce sediment transport in accordance with CIRIA Control of Water Pollution from Construction Sites. Guidance for consultants and contractors (C532)'. Additional measures will be implemented where necessary to control flow of water and sediment transport on site in accordance with this guidance.

Material excavated during new and upgraded access track construction will be stored adjacent to the track and granular, non-organic material compacted in order to limit instability and erosion potential. Peat will not be allowed to dry out, through rewetting and monitored irrigation.

To prevent sediment entrainment and habitat degradation the following will be applied:

- Stockpiles will be stored >50 m from watercourses and stabilised by covering or seeding.
- Silt fencing will be installed at the downslope edges of stockpiles.
- Fine sediment handling will avoid periods of heavy rainfall.
- Material placement will be managed to avoid compaction of sensitive habitats and prevent encroachment beyond the defined working area.

## **5.5 The Management and Movement of Concrete**

### **5.5.1 Accidental Spillage**

Appropriately sized spill kit(s) will be provided and maintained onsite, consideration will be given to suitable locations across the active areas of the Proposed Development Site and to having vehicles, including plant, carry a spill kit. This kit will contain materials, such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and will be deployed, as necessary, should a spillage occur within the construction site.

In the event of any spillage or pollution of any watercourse, the emergency spill procedures as described in the Environmental Incident and Emergency Response Plan (EIERP) will be implemented immediately (refer to Section 6.1).



A speed limit of 24 kph will apply for vehicles onsite and will be monitored and enforced by the PSCS. Maximum vehicle load capacities will not be exceeded.

### **5.5.2 Vehicle Washing**

To avoid mud and debris being tracked onto the public road there will be wash-out facilities within the construction compounds or at the exit points to the L5252, consisting of a sump overlain with a geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving water to pass through to the sump. The sump water will be pumped to a licenced carrier and taken offsite for approved disposal. No washing of concrete-associated vehicles will be undertaken outside the wash out facility, and the area will be signposted, with all site contractors informed of the locations.

Wheel wash facilities will be situated a minimum of 50m away from any watercourse on site and will be placed on an impermeable surface.

Wash facilities will be inspected routinely, with sediment removed and disposed of appropriately to maintain effectiveness.

### **5.5.3 Concrete Pouring for Turbine Foundations**

To prevent pollution, all concrete pours will be planned, and specific procedures adopted in accordance with CIRIA C532 Guidance. These procedures will include:

- ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. Construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system;
- ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation; and
- perimeter drains will include silt traps where necessary.

The excavated area will be back-filled with compacted layers of graded material from the original excavation, where this is suitable, and capped with peat or soil. The finished surface around the base of the turbine, will be capped with crushed aggregate providing a walkway to allow for safe personnel access.

## **5.6 Surplus and Waste Material**

### **5.6.1 Introduction**

A Waste Management Plan (WMP) will be prepared and submitted to Mayo County Council for agreement prior to the commencement of construction works. The WMP will be prepared in accordance with relevant national and regional waste management policy and guidance, and will apply the principles of the European Waste Hierarchy as set out in the Waste Management Act 1996 (as amended).

The WMP will detail how all waste materials will be managed, including the management and definition of excavated materials.

The PSCS will take all reasonable steps to ensure that all waste from the site is dealt with in accordance with the requirements under the above Act and that materials will be handled efficiently, and waste managed appropriately.

Appropriate waste management, disposal and waste carrier documentation and licences will be obtained (e.g. complete waste transfer notes prior to waste leaving site, ensure all waste carriers have a valid waste carrier's registration certificate, ensure wastes are disposed of at a correctly licensed site, complete notification for hazardous waste to the EPA).



Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc.), wooden pallets, waste batteries, fluorescent tubes etc.

## 5.6.2 Hazardous and Other Wastes

**Table 5-1** lists the types of waste that are anticipated to be generated during the construction works. Although some waste types may be generated in locations other than the construction compounds, such waste materials will be stored within the construction compounds only. Waste materials generated outside the construction compounds will be taken to the compounds on a daily basis to be managed thereafter.

No oils, greases, hydraulic fluids or other hazardous substances (or associated wastes) will be stored outside designated areas within the Main Wind Farm Development Site. All such materials will be stored only within designated COSHH storage areas located in the construction compounds, substation and BESS compounds. These storage areas will comprise impermeable surfaces, be covered where appropriate, and include fuel spill trays and/or bunded containers.

**Table 5-1: Common Construction Wastes**

EWC Code	Description
13 01 10*	Used mineral hydraulic oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
13 02 05*	Waste engine, gear or lube oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
16 01 07*	Oil filters
20 01 23*	Discarded equipment containing CFCs e.g. waste fridges
16 06 01*	Lead batteries
16 07 08*	Oily waste from transport and storage tanks
16 10 01*	Hazardous liquid wastes to be treated off-site
20 01 21*	Fluorescent tubes and other mercury-containing waste
20 01 33*	Hazardous batteries and accumulators that are collected separately
15 02 02*	Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances
15 01 01	Cardboard or paper packaging
15 01 02	Plastic packaging e.g. toner and ink cartridges, polythene sheeting
15 01 03	Wooden packaging e.g. timber pallets
15 01 04	Metallic packaging e.g. drink cans, paint tins
16 01 03	Tyres
16 01 15	Antifreeze fluids that do not contain dangerous substances e.g. Coolants
16 01 17	Ferrous metal from vehicles e.g. car parts
16 02 14	Non-hazardous waste electricals e.g. washing machines, power tools
16 05 05	Gases in pressure containers i.e. gas cylinders
17 01 01	Concrete



EWC Code	Description
17 02 01	Wood from construction or demolition e.g. timber trusses, supports, frames, doors
17 04 11	Cables that do not contain dangerous substances e.g. electric cabling
20 01 01	Paper and card similar to that from households e.g. office paper, junk mail
20 01 30	Non-hazardous detergent e.g. flushing agent/universal cleaner
20 01 39	Separately collected plastics e.g. plastic containers, bottles
20 03 01	Mixed waste similar to that from households e.g. mixed office, kitchen and general waste
20 03 04	Septic tank sludge

\*Denotes Hazardous Waste, as categorised by the European Waste Catalogue.

Foul water from the onsite facilities at the construction compounds will be removed from the Proposed Development Site by an appropriately licensed contractor.

### 5.6.3 Regulatory Compliance

Waste will be transferred to a licensed waste management site or site with a waste exemption. The PSCS will check that the site is licensed and that the licence permits the site to take the type and quantity of waste involved. Copies of the waste management licence or waste exemption license will be held on file.

A 'Waste Transfer Note' must be completed by all parties involved and must be retained for a period of two years. Sub-contractors excavating and hauling waste offsite must complete their own Waste Transfer Notes and copy them to the PSCS. It is not necessary to have a Waste Transfer Note for each load of waste and a Waste Transfer Note can be issued weekly or monthly as a season ticket.

It will be the responsibility of the PSCS to ensure that other parties involved in the transport, storage and disposal of waste are legally entitled to carry out their duties.

### 5.7 Dust Mitigation

Good practice measures as listed in **Table 5-2** will be adopted during construction to control the generation and dispersion of dust to ensure that significant impacts on neighbouring habitats will not occur. The hierarchy for mitigation will be prevention – suppression – containment.

**Table 5-2: Dust Mitigation Measures**

Task	Mitigation Measures
Phasing and grading of works	<ul style="list-style-type: none"> <li>- Internal access roads will be constructed prior to the commencement of other major construction activities. These roads will be finished with graded aggregate.</li> <li>- Grading and reinstatement will be completed progressively.</li> <li>- Double handling of materials is to be avoided.</li> <li>- Dust generating activities will be contained, suppressed or stopped during periods high winds.</li> </ul>



Task	Mitigation Measures
Stockpiling of loose materials	<ul style="list-style-type: none"> <li>- Earthworks and exposed areas/soil stockpiles will be revegetated to stabilise surfaces as soon as practicable.</li> <li>- Materials likely to cause dust will be sealed over and covered.</li> <li>- Material stockpiles will be located away from the site boundary, sensitive receptors, watercourse and surface drains.</li> </ul>
Management measures	<p>A water bowser will be used to spray work areas (wind turbine area and cable route) and haul roads, especially during periods of excavation works coinciding with dry periods of weather, to suppress dust migration from the site.</p> <ul style="list-style-type: none"> <li>- All loads which could cause a dust nuisance will be covered to minimise the potential for fugitive emissions during transport.</li> <li>- The access and egress of construction vehicles will be controlled to designated locations, along defined routes, with all vehicles required to comply with onsite speed limits.</li> <li>- Wheel wash stations will be implemented where vehicles exit on to public roads.</li> </ul>

## 5.8 Noise Management

The sources of construction noise are temporary and vary both in location and their duration as the different elements of the Proposed Development are constructed, and arise primarily through the operation of large items of plant and equipment such as bulldozers, diesel generators, vibration plates, concrete mixer trucks, rollers etc. Noise also arises due to the temporary increase in construction traffic near the Main Wind Farm Development Site. The level of noise varies depending on the different elements of the Proposed Development being constructed.

BS 5228-1:2009 'Noise control on construction and open sites; Part 1 – Noise' will be relied on for guidance on appropriate methods for minimising noise from construction activities.

All construction activities will adhere to good practice as set out in BS 5228-1 as current best practice in the absence of any Ireland specific guidance.

Mitigation measures will be implemented to reduce noise levels with due regard to practicality and cost as per the concept of 'best practicable means' as defined in Section 5 of the Air Pollution Act 1987 (as amended).

During construction, a temporary 2.5 m high solid close-boarded wooden fence, or equivalent noise barrier, will be installed on the north section of overrun area 1 as this was identified within **Chapter 9** of the EIAR as having a potential temporary noise impact on the neighbouring dwelling.

Noise management mitigation measures will consider the following:

- Adherence to core working hours.
- Use of low noise or silenced plant.
- Use of prefabrication off site to reduce site activities.
- Avoiding, where possible, multiple activities simultaneously.
- Progressive working away from sensitive receptors rather than static prolonged works.
- Properly maintain plant and prevent unnecessary revving, idling.



- Careful positioning of static plant such as generators, compressors within compounds.
- Use of temporary acoustic screens or barriers or earth bunds.
- Speed restrictions and no unnecessary use of reversing alarms.
- Communication with local residents.

## 5.9 Site Lighting

Temporary site lighting will be required for specific activities to ensure safe working conditions during winter working and periods of limited natural light.

Sources of artificial lighting will include vehicle and plant headlights; construction and compound lighting; office complex lighting; and localised floodlights/mobile lighting units. The requirement for artificial lighting will be minimised, and unnecessary nighttime working will be avoided where practicable, in accordance with the mitigation measures set out in **Chapter 5** of the EIAR.

During the summer months, natural lighting during normal working hours will reduce the need for artificial lighting.

Where artificial lighting is required, it will be kept to the minimum necessary to safely undertake the works. The timing, duration and positioning of lighting will be considered as part of the construction method statement to minimise potential effects on ecological receptors.

Lighting will be directional and time-limited to reduce disturbance to bats and birds.

Artificial lighting will only be used within the limits of the permissible working hours and will be shielded/hooded to negate or minimise any effect to local residents or ecological species.

Directional lighting will be employed to minimise light pollution. This includes angled downward lighting, focused lighting on working areas only and avoiding light spill beyond the site boundary.

## 5.6 Shadow Flicker

a programmable shadow flicker control module, consisting of bespoke software, a clock, a timer, a switch, a wind direction sensor and a light sensor will be installed on all wind turbines. The module allows for programmed shut down on specific dates at specific times when the sun is bright enough, there is sufficient wind to rotate the blades, and the wind direction is such that nuisance shadow flicker could occur at a specified at-risk receptor. During operation of the proposed turbines, any complaints relating to shadow flicker will be fully investigated by the Applicant and the shadow flicker control system updated accordingly.

## 5.7 Contractor Parking and Access Arrangements

Parking - parking areas located at the site construction compound will have safe and secure barriers to segregate all personnel from site plant and vehicle routes. No parking will be allowed on internal or public roads; all cars that are directed to the site parking area will be required to reverse park for health and safety reasons.

Each construction compound will have sufficient parking spaces to accommodate workers for the construction period. The Proposed Project Manager/s will ensure that sufficient space is provided within the compounds for vehicles to park, whilst maintaining sufficient space for material and plant storage, loading and unloading and turning of HGVs.



## 5.8 Construction Traffic Routing

The proposed construction traffic routes are set out in **Chapter 14** of this EIAR and shown on **Figure 14-4** of that chapter. All contractor and delivery traffic will be required to follow these routes. Haulage contractors undertaking deliveries associated with the Proposed Project will be informed of the relevant routes by the Proposed Project Manager/s or delegated representative/s as part of their delivery instructions (and signage along the route will reinforce this information). Contractor staff will be given the construction routes and minibus travel to work arrangements as part of their joining instructions. It is the responsibility of the Proposed Project Manager/s to ensure that all visitors to the Main Wind Farm Development Site are aware of the construction traffic routes prior to travelling to the Main Wind Farm Development Site.

Driver training and Delivery Management Plan delivery instructions to drivers (at Section 5 of the CTMP in **Technical Appendix 14-4** of the EIAR) will reinforce the following:

- Avoidance of parking on the public road except at laybys;
- Not to use residential driveways, farm accesses, or other private accesses for turning; and
- Consideration for pedestrians, cyclists and equestrians on local roads.



## 6 Pollution Prevention Measures

### 6.1 Environmental Incident and Emergency Response Plan

The PSCS will be responsible for continuing to develop and implement an Environmental Incident and Emergency Response Plan (EIERP). The plan will provide reference to procedures to be followed in the event of a specific incident. In general, if an environmental incident was to occur, the following will take place immediately:

- mitigation will be implemented to stop or reduce impacts from the incident;
- if these are ineffective, work in the area will cease immediately;
- if necessary, monitoring will be undertaken to identify the source of the incident;
- work will only recommence once it is considered that it will not continue to adversely impact sensitive environmental receptors; and
- provision of a full report by the PSCS and separately by the ECoW to the Applicant following an incident occurring.

The EIERP will reflect site-specific conditions/issues. The PSCS will submit the detailed Plan to the Applicant and PSDP for approval prior to any construction works commencing onsite. The plan will provide:

- a summary of the key actions required as part of the Battery Safety Management Plan (BSMP);
- a summary of local environmental sensitivities, e.g. environmentally designated areas, protected species or habitats and high amenity areas;
- a description of the construction works and appropriate references to other environmental plans and construction method statements;
- an inventory of stored materials and emergency response spill kits;
- details on training requirements, evidence of training of site staff / plant operators in emergency response procedures including inclusion of EIERP training in site inductions and tool box talks; and key staff contacts for environmental management and emergency response;
- detailed procedures to be taken in the event of an incident or emergency (including procedures for positioning and movement of plant) and identification of relevant personnel who will be responsible for implementing such procedures; and
- contact telephone numbers for emergency services and the EPA Pollution out-of-hours telephone number (0818 33 55 99).

A plan of the site will also be provided, detailing:

- all areas of potential pollution sources including the locations of car parks, delivery and fuel / chemical storage areas, oil separator equipment, excavations, and any other high risk areas that could give rise to pollution;
- the location of potential sensitive environmental receptors, including sensitive habitats or species, surface watercourses, drains or culverts where pollution may travel to; and
- the location of spill kits and other pollution control or emergency response equipment.

The procedures for responding to a major pollution incident will be a regular topic at onsite tool box talks and management meetings in order to ensure that the incident response plan is fully understood by all personnel, and that all involved know their role in it. Any lessons learnt



from any response to real incidents will be fed back into the plan to ensure that best practice is followed.

## 6.2 Re-Fuelling of Vehicles, Plant and Machinery

Vehicle re-fuelling will take place either within the compound at a dedicated impermeable refuelling pad or by mobile double skinned bowsers with a 50 m buffer from watercourses as recommended by OPW (2019). Drainage from the compound will be passed through oil interceptors prior to discharge.

Oils, greases, hydraulic fluids or hazardous substances (or any associated wastes) will be stored under cover, over fuel spill trays / bunded containers within designated storage areas within the construction compounds. There will be no fuel storage outside the compounds. Plant will be maintained in good operational order and any fuel/oil leaks recorded for attention. Absorbent pads/granules in the case of an accidental leak/spillage will be available at the temporary construction compounds.

Good site management practices will be implemented to reduce risks of spills, including regular monitoring and inspection of storage vessels and regular maintenance and servicing of construction plant and equipment. The Applicant will ensure that necessary plant and resources are provided and operated in accordance with best waste management practice and that activities comply fully with environmental management systems and planning consents. The EIERP will include contingency plans / procedures to deal with potential leaks and spills. Emergency spill response kits will be held on Site at strategic locations including refuelling areas and within plant. Refuelling procedures and risk assessments and method statements will be provided by the PSCS to the Applicant for approval prior to work commencing.

## 6.3 Spillage

All other fuels, oils and potential contaminants, as well as waste oils, will be stored in secure, fit for purpose containers within bunded containment as appropriate and in accordance with the EPA guidance<sup>1</sup>. The refuelling pad would have an impermeable base and bund with a capacity of 110% with sumps provided such that they do not drain directly into the surface water drains. Maintenance of mobile plant will take place within the construction compounds only and will comply with relevant the EPA guidance<sup>2</sup>.

## 6.4 Other Storage

Stockpiles for stone material for the construction of tracks, compounds and hardstandings will be limited to within work areas. Stone deliveries will be aligned with the construction programme, with materials either offloaded and temporarily stored close to the working area or placed, spread, and compacted shortly after delivery. Short-duration storage will be used where immediate use upon delivery is not possible, with temporary stockpiles located within pre-developed areas in close proximity to the working area.

Low mounded stockpiles will be formed from excavated material, adjacent to access tracks, turbine areas and compound areas, away from open drains.

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<sup>1</sup> Guidance Note on Storage and Transfer of Materials for Scheduled Activities (EPA, 2004)

<sup>2</sup> Guidance Note on Storage and Transfer of Materials for Scheduled Activities (EPA, 2004)



## 6.5 Prevention of Mud and Debris on Public Roads

Plant and wheel washing facilities and road sweepers will be provided as required to prevent mud and deposits from being transferred from the Proposed Development Site onto the public highway. Wheel washing facilities will be located at site exits with each vehicle passing through the process before accessing the public road.

Such facilities will be located within a designated hardstanding at least 50m from the nearest watercourse or surface water drain. Runoff from the facilities will be captured within the attenuation basin network described in Section 7.0. Settled solids will be regularly removed and buried along with other silty fines collected from silt fences (see Section 7.4).

Open backed lorries or tippers delivering or removing material to/from the Proposed Development Site will be sheeted where there is a risk of loose or deleterious material being deposited on the local public road network.

Weather responsive management will be conducted by the Principal Contractor where controls will be increased in periods of wet conditions and high vehicle movement volumes.

## 6.6 Cement / Concrete

Ready-mixed concrete will be brought onto the construction site from an offsite source for use as required.

Any bagged cement will be stored within a soil bunded area on pallets above the ground and covered with secured plastic sheeting to minimise the risk of wind-blown cement and uncontrolled washout occurring.

Any spilled cement will be removed by shovelling/excavator and suitably disposed offsite.

No washing of concrete-associated vehicles would be undertaken outside the designated wash out facility, and the area would be signposted, with all site contractors informed of the locations.

## 6.7 Silt

Silt laden runoff could be expected from any areas of recently exposed soil or rock and from access tracks in regular use. There will be no discharge or disposal of any material directly into any river, stream or drainage ditch. The measures that will be implemented to control potential silt entrainment in surface water runoff are identified in Section 7.4.

## 6.8 Waste and Litter

Construction waste is discussed in Section 5.6.

With respect to the control of litter on site, there is little potential for waste generation other than construction waste. A fully authorised and licenced waste management contractor will be appointed prior to the commencement of construction works. This contractor will provide the appropriate receptacles for the collection of the various waste streams, including from domestic/canteen style waste, and will ensure regular emptying and/or collection of these receptacles.

## 6.9 Hydrocarbon Contamination

### 6.9.1 Vehicle Maintenance

As noted in Section 5.0, plant and machinery will be regularly maintained to ensure that the potential for fuel or oil leaks/spillages is minimised. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water



pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages.

### **6.9.2 Chemical Storage**

All fuels, oils and other chemicals will be stored in the construction compound in secure, fit for purpose containers within bunded containment as appropriate. The bunded containment will have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base.

The bunded areas will be within the temporary construction compounds and will be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater.



## 7 Drainage and Surface Water Management

### 7.1 Introduction

Control of water is of great importance during construction to prevent exposed peat and soils eroding and silting up surrounding drainage channels and watercourses. It is essential that the works have little or no impact on the existing hydrology in order to minimise potential impact on ecology and environmental quality of the surrounding area.

The EOW will conduct daily inspections of watercourses and the measures identified in Sections 7.0 and 8.0 below will be implemented across the site to adequately protect hydrological, and related, resources. The measures will be finalised in detail prior to commencement of construction, which will provide the same or greater protection for the water environment as those described in this document. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific mitigation measures will be agreed for those locations.

### 7.2 Site Induction and Training

All employees and contractors will undergo a site induction to ensure that they are familiar with the site rules prior to any work commencing on site. In addition, the PSCS will ensure that all operatives and contractors responsible for handling fuel, oil, concrete or cement or other potential pollutants undergo a thorough induction programme with respect to the relevant proposed pollution control measures. The relevant programme will include, as a minimum, the following:

- waste management;
- emergency response procedures;
- materials management;
- habitat and species protection,
- surface water management;
- potential sources of pollution and their effects on the environment;
- requirements of the contract and legislation with respect to pollution;
- the PSCS's pollution avoidance plan;
- traffic management and routing, including areas where access is not permitted; and
- training in the use of pollution control equipment.

### 7.3 Site Drainage

During the construction phase of the Proposed Development, measures will be adopted in order to prevent silt, chemicals and/or other contaminants from being washed into existing watercourses. Areas exposed due to the removal of vegetation are more susceptible to erosion during heavy rainfall, so areas will be reinstated as soon as possible to minimise this effect.

Some temporary dewatering may be required during excavations. The measures for sediment control identified in Section 6.0 will provide protection of watercourses from any potential infiltration of sediment. Dewatering activities will be temporary and ditches and existing peat drains will remain in place to convey surface water flows during the operational life of the Proposed Development. Prior to main earthwork activities, interceptor drains, or diversion ditches will be created to minimise the pooling water in areas of development. The employed



diversion method will flow into the existing peat drainage channels. The diversion method will follow the topography of the site and installation shall commence up gradient of all construction to commence. The clean surface water will be collected and diverted to the existing ditches via the peat channels.

A drainage system for the Proposed Development Site will be developed to comprise:

- The excavation of in channel rock drainage channels approx. 2 m in width and 275 mm in depth from the edge of the Proposed Development Site's access tracks.
- Silt fence textile will be laid within the channel. The silt fence textile will be Hy-tex Terrastop premium or similar and will be fixed to the upslope side of the supporting slope within the main drainage channel.
- Support posts for silt fence support and for channel supports will be inserted at the edge of the drainage channel at 1,500 mm intervals.
- Silt fence textile will be anchored using clean drainage stone.

The proposed drainage system will be based on the following methods:

- The first method will involve protecting existing water quality by avoiding disturbance to natural drainage features, minimising any works in or around drainage features, and diverting clean surface runoff around excavations and construction areas.
- The second will involve collecting any drainage water from works areas that might carry silts or sediments, and to route them towards attenuation basins prior to controlled diffuse release over vegetated natural surfaces. To achieve this, shallow surface water drains will be excavated around areas of earthworks to prevent surface water runoff into the working area and thereby protect the wider water network from siltation.

The drainage design for the Proposed Development shall utilise the existing peat drains and drainage ditches.

Perimeter drainage channels will be installed around the compounds and surface water drainage pipework will be installed within trenches in the stone platform, with downpipes from the buildings discharging to the surface water network.

Separate surface water and foul drainage networks will be provided. The network will include manholes located at junctions and directional changes in the drainage pipework as appropriate.

Oil separators will be installed where required, particularly in transformer or plant areas, to prevent hydrocarbons entering the surface water system. Discharge from the built compounds and turbine hardstandings will be directed to a network of associated attenuation basins, which will be connected by a series of underground pipes, as shown on Planning Drawing Number 501.065301.00001.D14.

## 7.4 Management of Sediment and Surface Waters

Good practice construction techniques<sup>3</sup> will be adopted for the management of sediment and surface water run-off generated during the construction phase of the Proposed Development. Sustainable Drainage Systems (SuDS) will be used where applicable.

Drainage from the Site will include elements of SuDS design. SuDS replicate natural drainage patterns and have several benefits:

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<sup>3</sup> CIRIA (2015). The SuDS Manual (C753). London: Construction Industry Research and Information Association (CIRIA).



- SuDS will attenuate run-off, thus reducing peak flow and any flooding issues that might arise downstream;
- SuDS will treat run-off, which can reduce sediment and pollutant volumes in run-off before discharging back into the water environment; and

In addition, a wet weather protocol will be implemented by the PSCS to manage activities during periods of heavy and prolonged precipitation.

Heavy or prolonged rainfall during construction and operation may lead to sediment transport or vegetation causing blockage to infrastructure drainage channels or watercourse crossing structures. Regular monitoring and prompt maintenance of these assets will ensure that the drainage system continues to function as designed.

These measures prevent sediment release, hydrocarbon contamination, alkaline leachate from concrete, and altered hydrological pathways that could impact aquatic habitats, fish spawning areas, macroinvertebrate communities, peatland vegetation and downstream designated nature conservation sites.

## 7.5 Sustainable Drainage Systems (SuDS)

During drainage design runoff pollutants, such as silt, will be treated within the development, such that the surrounding environment is not harmed, and local drainage connections are not overloaded. SuDS are a sustainable method of reducing the quantity and improving the quality of runoff into local water courses and connecting drainage network systems. They are inspired by natural systems and aim to improve the local amenity and biodiversity.

SuDS are desirable and easily constructible at a large scale for wind farms. Additionally, wind farm sites usually have established vegetation which can act as a form of SuDS, naturally intercepting pollutants and allowing for slow infiltration. Thus, the use of SuDS for wind farm sites can assist in reducing the risk of polluting the local environment and/or overwhelming drainage systems to a non-significant level. There are several forms of SuDS, however the methods set out below will be used:

- Permeable surfaces such as gravelled areas, drain water through voids within the gravel, into the layers below. The access tracks to the wind turbines will be constructed using porous materials, encouraging a natural and slow infiltration process.
- Filter strips are a method of source control constructed by providing a gently sloping vegetated area over which runoff can flow. As runoff passes over the vegetation, pollutants such as silt are intercepted, and flow velocities are reduced, allowing infiltration into the underlying soil or peat. Filter strips are typically located between development areas (e.g. access tracks) and nearby watercourses to provide a buffer for surface water runoff. Their effectiveness depends on appropriate gradients and ground conditions,
- Swales are a source control and a method of deterring runoff from accumulating into one large drainage area. Swales are typically broad but shallow and can be created by excavating a small trench alongside the source of runoff, for example access tracks. Swales assist water into a storage or discharge system to reduce flood risk and encourage slow infiltration.
- Silt fences, which are constructed using a closely woven synthetic geotextile material, are a quick and easy form of SuDS which can be used from the construction stage. They can be established along the leading runoff routes, intercepting high runoff flows and pollutants. Both methods have high capabilities of intercepting the mass of pollutants during the construction stage, with further use of being temporary check dams if required, for example within swales.



- Attenuation basins will be constructed down slope of a wind farm site by constructing a depression within the ground where water from the drainage network and runoff collects. Basins reduce flood risk while encouraging slow infiltration into the ground below.

## 7.6 Location of Silt Traps

Silt traps will be utilised to trap and filter sediment-laden run-off (in very small quantities) from isolated areas of excavation works at the Proposed Development.

Silt fences will be employed where required, at the downslope edges of stockpile, to minimise sediment levels in run-off. Fine sediment handling will avoid periods of heavy rainfall.

All attenuation basins will be actively managed, with regular inspections and removal of silt build up to control water levels and ensure that any run-off is contained, especially during times of rainfall.

Attenuation basin outflow will be regularly inspected, and discharge may be pumped, when required, for maintenance purposes.

Sediment traps will be installed at the three TDR overrun areas to ensure there is no impact on the water environment from these.

## 7.7 Location of Attenuation Basins

All attenuation basins will be actively managed, with regular inspections and removal of silt build up to control water levels and ensure that any run-off is contained, especially during times of rainfall. If required to achieve the necessary quality of the final run-off, further measures will be carried out, including increasing the depth of basins, and the use of silt busters.

## 7.8 Outflow Monitoring from Attenuation Basins

Attenuation basin outflow will be regularly inspected, and discharge may be pumped, when required, for maintenance purposes. Any pumping activities will be supervised and authorised by the PSCS and Site ECoW.

Treated water will be discharged with care in accordance with the following principles:

- water to be discharged in planar sheet flow way rather than as a single point discharge in order to slow and spread the flow and minimise potential scour;
- use of many small/mid diameter off lets, rather than collecting larger volumes of drainage flows to discharge to a smaller number of larger capacity outlet points;
- not allowing direct, contaminated ditch discharge into watercourses, loughs and sensitive wetlands or grasslands; and
- not diverting natural flows, unless under prior agreement with EPA and MCC.

## 7.9 Foul Drainage

Separate surface water and foul drainage networks will be provided. The network will include manholes located at junctions and directional changes in the drainage pipework as appropriate.

A separate system consisting of foul water drainage pipework, manholes and a foul water holding tank will be installed. The foul water holding tank contents will be tankered off-site by a permitted waste collector to a wastewater treatment plant.



Foul water holding tanks will be provided within the substation and IPP compounds. The foul water holding tank will be a sealed storage tank with all foul water tankered offsite as required by an authorised waste collector to a wastewater treatment plant. Only waste collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007, will be employed to transport foul water away from the Proposed Development Site. The proposed foul water storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. The foul water storage tank alarm will be part of a continuous stream of data from the Proposed Development's turbines, wind measurement devices and electricity substation that will be monitored 24 hours a day seven days per week. This approach for managing foul water onsite has become a standard practice in wind farm sites. Foul water within the construction compounds will consist of integral holding tanks or external sealed tanks which form part of the site cabins (toilets and canteen). These will be self-contained units and emptied regularly by licensed waste contractors.

The system will be designed for approval by EPA and MCC prior to the construction phase of the Proposed Development.

## 8 Water Quality Monitoring and Contingency

### 8.1 Water Quality Monitoring

Water quality monitoring during the construction phase will be undertaken for the surface water catchments that serve the Proposed Development Site, to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring will be carried out on a weekly or monthly basis as required on these catchments.

With regard to the protection of the water environment the following risks will be addressed:

- siltation of watercourses;
- discolouration of raw water;
- potential pollution from construction traffic due to diesel spillage or similar;
- alteration of raw water quality resulting from imported track construction material;
- excavation and earthworks;
- use of large quantities of concrete; and
- construction compound and associated drainage/foul drainage and diesel spill issues.



The PSCS will compile a monitoring and maintenance plan for the drainage system and surface water runs for use by the ECoW which will as a minimum include:

- visual monitoring/inspections; and
- During site works, including water crossing construction works, the relevant drainage/surface water runs potentially being impacted by these works will be inspected daily by the ECoW while works are ongoing in this area.

A Water Quality Monitoring Plan (WQMP) is already in place by the Applicant, and this will be submitted to MCC prior to construction and development. The WQMP will be continued to monitor surface water quality, fish populations and macroinvertebrate community prior to, during and post-construction. A robust baseline of water quality in surface watercourses/drainage channels downstream of construction works has already been established prior to construction commencing and can be used as a benchmark of water quality for the construction phase monitoring.

Groundwater monitoring standpipes have been installed at locations BH01, BH06 and BH07 within the Main Wind Farm Development Site, and screened in the bedrock to facilitate groundwater quality monitoring.

The purpose of the WQMP is to:

- ensure that the commitments put forward in the EIA Report are fulfilled with regards to identified ground and surface water receptors;
- provide a specification for monitoring prior to, during and after construction;
- provide a record of water quality across the Proposed Development Site that can be compared to rainfall and site activities;
- provide reassurance of the effectiveness of pollution prevention measures installed to protect surface watercourses throughout the construction period; and
- provide data to identify any potential pollution incidents, and to inform a structured approach to manage and control such incidences.

The WQMP records data on water chemistry and ecological indicators (fish, macroinvertebrates) to enable monitoring of surface watercourses down gradient of works areas including watercourse crossings, access tracks, turbine foundations and at control sites (up gradient of works areas), and includes:

- monitoring locations;
- frequency of monitoring prior to, during and after construction;
- parameters for field hydrochemistry testing and laboratory analysis including as a minimum pH, electrical conductivity, suspended solids, dissolved metals, nutrients and hydrocarbons;
- sampling and analysis protocols;
- relevant environmental quality standards (EQS);
- responsibilities for monitoring; the ECoW will be responsible for daily inspections of watercourses particularly around active works areas and watercourse crossings. Further monitoring on a less frequent basis (i.e. monthly) may be done by an external party; and
- procedures to be followed in the event of an environmental incident; and recording and communicating of results.



Any deviation from expected trends will trigger inspection, corrective action and reporting under the EIERP.

Monitoring will involve laboratory analysis of water samples taken at agreed locations (agreed by MCC prior to construction) across the Proposed Development Site and will continue throughout the construction phase and immediately following construction.

## 8.2 ECoW WQMP Duties

In addition to the monitoring and analysis, regular watercourse inspections (frequency depending on nature and proximity of works to the watercourse) will be undertaken by the ECoW in areas selected in the field and where construction is taking place. As daily inspection points, they will be readily accessible points close to infrastructure.

The regular inspections will include, but not be limited to:

- regular visual inspection of the sediment control structures;
- investigation of problem areas (e.g., those causing silty run-off) to try to establish the cause and locate the source;
- management of the PSCS to comply with method statement activities;
- development of a clear line of communication with site staff to address issues promptly;
- prioritisation of issues so that site staff know how to react to incidents; and
- regular hydrological reporting - daily records and monthly reports.

## 8.3 Incident Response

Drainage networks provide a conduit for rapid transport of silty water and potential contamination from surface spills of fuels/oils, concrete or chemicals. A pollution incident will include any discharge to the drainage network that could potentially cause environmental damage. Examples of pollution incidents include:

- fuel drips or spills during refuelling;
- leaking plant or equipment;
- leaks from fuel or chemical containers;
- contaminated water or sediment/silt entering a watercourse or drainage network;
- windblown dust and waste;
- excess silt deposition in drainage ditches, channels, culverts following heavy rainfall events;
- operational failures of pumps and pipelines; and
- failures of treatment or sediment controls.

The PSCS will prepare a Pollution Prevention and Incident Plan (see Section 3.5) which will provide emergency response contacts, reporting procedures, and procedures for dealing with all potential pollution incidents during the construction of the Proposed Development.



## 9 Construction Phase

### 9.1 Introduction

This section describes in more detail the key components of construction and specific mitigation measures to be incorporated to reduce potential impacts.

The overall site design has been developed in accordance with the mitigation measures identified during the technical assessments of the EIA, and to reflect the requirements and specifications for transporting wind turbine components to the proposed turbine locations.

### 9.2 Temporary Compounds

The construction project involves establishing two Temporary Construction Compounds (TCC) to support the works. One compound is proposed to be located adjacent to the primary access road which runs through the middle of the Main Wind Farm Development Site, with a second compound located to the north of this near the proposed substation. The construction compounds will consist of:

- temporary modular building(s) to be used as security and site offices;
- welfare facilities;
- parking for construction staff, visitors and construction vehicles;
- laydown areas for the storage of large items;
- secure storage for tools, small parts and oils;
- waste storage facilities;
- a receiving area for incoming vehicles; and
- a sealed bunded area where fuel and oil storage tanks will be situated, to prevent potential contamination.

Welfare facilities will be provided for the duration of the construction period in accordance with the SHWWR 2013 (as amended). Facilities for waste management, refuelling, power, water supply (imported containers of potable water) and chemical/material storage will be provided.

All compound lighting will be designed and positioned to minimise disturbance to the surrounding environment, in accordance with the mitigation measures set out in **Chapter 5**. All temporary construction compound lights will be time-limited, directional, shielded and faced away from surrounding habitats.

The construction methodology for the compounds is outlined below:

The compound boundaries will be set out and marked prior to any works commencing. Any significant surface undulations or irregularities will be trimmed and the removed peat placed in designated peat storage areas for reuse or reinstatement, subject to ECoW approval. Otherwise, surface vegetation is to remain intact to increase founding strength.

Where the fibrous top layer is weak or saturated, a geotextile or geocomposite material will be placed directly upon the ground surface to improve load distribution, separation, filtration and drainage.

A base geosynthetic layer, to be specified pending the specific site conditions identified at the pre-construction stage, will be installed across the full compound footprint. Overlaps, anchorage, and tensile orientation will conform to manufacturer requirements.



Imported well-graded granular fill will be tipped incrementally across the compound footprint, progressing outward from the floating access track, and spread by a wide tracked dozer. The initial stone layer will be compacted utilising non vibration methods as determined by the Contractor.

Where required, an intermediate geogrid layer will be installed. This will be placed upon the first stone layer and will be overlapped and tensioned in accordance with the manufacturer's specification.

A second layer of granular fill will be placed upon the intermediate geogrid to the designed thickness. Where very low California Bearing Ratio (CBR) values are encountered, a third geogrid layer may be required.

A final compacted wearing layer of appropriately graded stone will be installed to accommodate construction traffic and pedestrian use.

Where necessary, pressure berms (stabilising berms) will be constructed around the perimeter of the compounds to enhance stability and reduce lateral displacement.

Ongoing consolidation and localised settlement of the compound surface should be expected throughout the construction period. The Contractor will be responsible for maintaining the compound to required standards, including remediation of rutting, settlement, or lateral spread using additional granular fill and localised geogrid repairs where appropriate.

Shallow drainage ditches will be excavated at a safe offset from the compound to prevent undercutting of peat. Existing field drains will be connected where appropriate and protected using silt-management measures such as silt fences or settlement features.

The drainage across the compound will be directed in to an attenuation basin.

Once all construction works are complete, the work areas will be reinstated with excavated peat or soil and either seeded out with native species, allowed to vegetate naturally, or reinstated with excavated grass turves and will be restored to their original condition (in consultation with EPA). The ground surface will be restored in line with the PMP should damage occur during the construction or decommission of the construction compounds.

### 9.3 Transport Routes (including TDR)

Both construction personnel and materials for the Proposed Project will use defined transport routes set out in the Construction Traffic Management Plan (CTMP) See **Technical Appendix 14-4** of the EIAR.

Primary access to the Proposed Project will be via the TDR originating at Killybegs Port. From Killybegs the route follows the R263 to the N56 north of the port, continues south through Dunkineely, the Mountcharles Bypass and Donegal Bypass, then merges onto the N15. The route continues for approximately 65 km through Ballyshannon and Bundoran before joining the N4 at Sligo. From Sligo the route continues to the N59, passing Ballysadare, Dromore West, Ballina and Crossmolina to reach Bangor Erris. At Bangor Erris, traffic diverts to the R313 and then connects to the L1206, with final approach to the Main Wind Farm Development Site via the L5252 which serves the proposed three access points. These links constitute the agreed abnormal indivisible load (AIL) corridor for turbine components.

Conventional HGVs importing stone, concrete and equipment will also primarily use the national road network from Co. Donegal to Co. Mayo. All of the below licenced quarries and concrete are suitably located so that they can deliver material to their existing customers and for the Proposed Project works. All locations are capable of quickly joining the N59 or are located on the N59.



- A - Barretts Quarry, Bangor Erris
  - 12.2km Haul from origin to Main Wind Farm Development Site
- B - Killala Rock Quarry, Killala
  - 66.1km Haul from origin to Main Wind Farm Development Site
- C - Coolturk Quarries Ltd., Crossmolina
  - 42.8km Haul from origin to Main Wind Farm Development Site
- D - Harringtown Concrete & Quarries, Abbeytown
  - 105.0km Haul from origin to Main Wind Farm Development Site
- E - Molloy Concrete Limited, Ballina
  - 64.9km Haul from origin to Main Wind Farm Development Site

Haul route origin A from Barretts Quarry will egress the origin in a right turn onto the N59 proceeding west for approximately 600m before joining the R313 and continuing west for another 400m. Vehicles on the haul route will turn left onto the L1206 and proceed south for 8km, where they will turn right on to the L5252 proceeding west and entering the Main Wind Farm Development Site through a right turn into AP 1, and AP 2 or a left turn into AP 3.

Haul route origin B from Killala Rock Quarry will egress the origin in a left turn onto the L1111 proceeding east for approximately 2.5km. Vehicles on the haul route will turn right onto the R314 and proceed south for 9km where they will join the N59 in Balina. The haul route continues south on the N59 for 500m before undertaking a turn to the right to continue moving west on the N59 for 42.6km before joining the R313 and continuing west for another 400m. Vehicles on the haul route will turn left onto the L1206 and proceed south for 8km, where they will turn right on to the L5252 proceeding west and entering the Main Wind Farm Development Site through a right turn into AP 1, and AP 2 or a left turn into AP 3.

Haul route origin C from Coolturk Quarries Ltd., Crossmolina, will egress the origin in a right turn onto the N59 proceeding west for approximately 31.1kmm before joining the R313 and continuing west for another 400m. Vehicles on the haul route will turn left onto the L1206 and proceed south for 8km, where they will turn right on to the L5252 proceeding west and entering the Main Wind Farm Development Site through a right turn into AP 1, and AP 2 or a left turn into AP 3.

Haul route origin D from Harringtown Concrete & Quarries, Abbeytown, will egress the origin in a right turn onto the N59 proceeding west for approximately 92.6km before joining the R313 and continuing west for another 400m. Vehicles on the haul route will turn left onto the L1206 and proceed south for 8km, where they will turn right on to the L5252 proceeding west and entering the Main Wind Farm Development Site through a right turn into AP 1, and AP 2 or a left turn into AP 3.

Haul route origin E from Molloy Concrete Limited, Ballina, will egress the origin in a left turn onto the L1321 proceeding north for approximately 10km before making a left turn and joining the R294 and continuing west for another 640m and joining the N59. On the N59 the route proceeds west for approximately 42.6km before joining the R313 and continuing west for another 400m. Vehicles on the haul route will turn left onto the L1206 and proceed south for 8km, where they will turn right on to the L5252 proceeding west and entering the Main Wind Farm Development Site through a right turn into AP 1, and AP 2 or a left turn into AP 3.

For day-to-day Main Wind Farm Development Site access, all staff light vehicles and HGV deliveries will approach using the regional network via the N59 and R313 before routing onto the L1206 and L5252 to reach the 3 no. proposed access points. Internal movements will be managed to minimise queuing at the proposed access points and to keep local junctions clear



during peak periods. Where the grid connection works will require trenching within the public road, traffic management will be implemented in line with the CTMP, including clear temporary signage, phased working and localised lane closures or controlled diversions to maintain safe passage for residents and businesses while cable ducts are installed and reinstated.

Construction traffic management will be undertaken in accordance with the CTMP, including advance route condition surveys on key links, road works required on the three TDR overrun areas, coordinated planning, timing and Garda escort of AIL convoys, temporary signage and escorts where required to safeguard other road users. Passing opportunities and temporary traffic controls will be installed at constrained locations, particularly along the L1206 and L5252, to allow safe interaction between construction vehicles and local traffic. Engagement with Mayo County Council and Transport Infrastructure Ireland will be maintained throughout delivery windows to confirm restrictions, notify any short-term traffic management, and agree reinstatement. Post construction, road condition will be reviewed against pre-works records to identify and rectify any project related damage.

Access to the Main Wind Farm Development Site will be via the public road network, connecting to newly constructed internal access tracks explicitly designed for the Proposed Development. The main site access will be from the L5252 using APs 1-3 for the northern and southern clusters as required. This plan will ensure the safe transport of construction materials, equipment, and turbine components to all work sites.

For day-to-day site access, all staff light vehicles and HGV deliveries will approach from the regional network via the N59 and R313 before routing onto the L1206 and L5252 to reach the northern and southern clusters. Internal movements will be managed to minimise queuing at access points and to keep local junctions clear during peak periods. Where the grid connection works require trenching within the public road, traffic management will be implemented in line with the CTMP, including clear temporary signage, phased working and localised lane closures or controlled diversions to maintain safe passage for residents and businesses while cable ducts are installed and reinstated.

Overall, adherence to the CTMP will ensure that HGV movements and turbine deliveries follow approved routes and that appropriate mitigation measures are in place to minimise disruption, protect road infrastructure and maintain safety for all users along the R263, N56, N15, N4, N59, R313, L1206 and L5252 during the construction period.

Full detail of the assessment of effects on the road network is provided in **Chapter 14: Traffic and Transport** of the EIAR.

## 9.4 Access Tracks

Internal access tracks, spanning approximately 8.75 km, will be constructed to link turbine locations, the substation, BESS, crane hardstandings, and temporary compounds, providing continuous connectivity for construction and future maintenance activities.

The access tracks on this site will primarily use floated construction to minimize excavation in peat and to preserve the existing ground and hydrological conditions. Furthermore, there will be existing tracks which will be enhanced and built upon as well as founded, cut trucks where there is no peat or very shallow peat. The floated tracks will consist of geogrid(s), geotextile and granular stone build constructed on top of the ground surface. The existing track enhancement will utilise the existing makeup and be enhanced through geogrid, geotextile and granular stone widening and thickening to specification. Finally, where there is no peat or shallow peat, cut access tracks will be founded on suitable strata and will receive a geogrid and granular build. This specification provides robust bearing capacity and controls rutting under heavy trafficking, including abnormal indivisible load deliveries. The finished running width will be approximately 6 m, with localised widening at bends, junctions, and passing places to accommodate turbine transport and installation vehicles.



Access tracks will be formed from a sub-base of general fill and finished off with a cap- stone / wearing course of graded crushed rock to provide a nominal Type-B (Series 800) finish. Wearing course stone will be of a suitable material that is not susceptible to breaking down / weathering to a high fines content material.

Maintenance of the running surface on all access tracks will be carried out on a regular basis, as required, to prevent undue deterioration. Loose track material generated during the use of access tracks will be prevented from reaching watercourses by maintaining an adequate cross fall on the tracks. Periodic maintenance of tracks by way of brushing or scraping will be carried out to minimise the generation of wheel ruts, which could lead to some track material being washed away.

On-site signage will be positioned to identify access points, one-way systems, speed limits, and designated parking and laydown areas, ensuring clear route guidance and safe vehicle movements throughout the construction phase. Traffic management measures will regulate entry to and egress from the public road network, reduce queuing at site entrances, and protect local road users. Within the site, route discipline will be enforced to separate construction traffic from sensitive working areas and to maintain clear approaches to crane pads, turbine hardstandings, and laydown zones.

## 9.5 Floating Tracks

Internal access across the Main Wind Farm Development Site will be provided predominantly by floating tracks constructed over peat and soft soils to avoid excavation and preserve the existing hydrological regime.

Floating tracks will vary dependent on the peat's CBR value which will be obtained during detailed site investigations for each track section. The range of the depth can be between 400mm and 1500mm thickness with a varied depth and quantity of geocomposite layer placement. A standard floating track incorporates two geogrid layers, or similar.

A general construction methodology of floating tracks will be followed and will consists of the following procedures where applicable:

- The designed alignment of the track will be marked out and clearly indicated prior to any construction works.
- The ground surface will receive a base geogrid, placed directly along the track alignment, in line with the geogrid manufacturer's specification. Where the ground surface lacks a fibrous surface layer, a geotextile or geocomposite (typically bonded geogrid and geotextile) will be placed to improve strength, separation, filtration and drainage.
- The makeup of the track will follow the designed requirement which may differ across the Main Wind Farm Development [Site](#) subject to the grounds CBR values. General methodology consists of an initial layer of specified, well-graded, granular fill being tipped in sections, typically 10m, on the base geogrid and spread using a suitable dozer, followed by a second geogrid, topped with the same specified fill and completed with a surface layer to accommodate construction traffic requirements.
- The stone buildup can range with interchangeable geogrid depths and quantities subject to the ground condition requirements. Very low CBR values may require up to three geogrid installations throughout its depth.
- In sections of floating tracks where lateral support is deemed necessary, pressure berms or stabilising berms will be constructed either side of the track. This is an



unlikely requirement due to the flat topography on site but may be beneficial for the reuse of excavated material. The berms act as a counterweight which widens the base of an embankment load to increase the factor of safety against slip failure.

- Shallow drainage ditches will be excavated and will tie into the existing field drains where applicable.
- Both drainage ditches and cable trenches will follow the alignment of the access tracks and will be suitably distanced to ensure track stability is maintained.

## 9.6 Upgrading existing tracks

The existing on-site tracks are incorporated into the Proposed Development design and will form a foundation for the construction of upgraded floating roads, or cut roads where ground conditions permit. In both cases, the existing tracks will have their depth increased as well as their width to ensure track specifications are met. The historic peat compaction and drainage caused by the continued use of the tracks will benefit the founding of the upgraded floating tracks.

The improvement and extension of the existing floating tracks will follow the same methodology of the floating track construction where existing tracks are located on deep peat. The upgraded track will have interlocking geogrids installed over and around the existing track to form a base in which the upgraded track will utilise.

Where existing tracks are located on shallow peat or soils, the methodology of cut access tracks will be used. The width of the existing track and the required distance on either side of the track, will be extended to suit the requirement.

## 9.7 Cut Access Tracks

Cut access tracks will be formed on suitable underlying material (superficial soil or rock with sufficient bearing capacity) in the following manner:

- Stripping of surface vegetation (turves) and careful stockpiling of this material.
- Excavating the remaining superficial soil materials and stockpiling this material.
- Where different superficial materials are present these will be stored according to type. This material will be retained for reinstatement purposes.
- The exposed suitable track formation will receive a geogrid prior to rock fill material being tipped from dumper trucks directly onto the proposed access track alignment.
- This material will then be either spread by a dozer or placed by a hydraulic excavator and compacted in layers, typically using vibratory rollers.

### 9.7.1 Drainage, sediment control and peat-sensitive measures

Existing drainage infrastructure will be retained and utilised where possible, and improved where required, with new drainage provided along new access tracks. Drainage measures will be developed at the construction design stage to favour shallow, peat-sensitive and discontinuous features rather than continuous deep V-ditches, and will tie into existing field drains where appropriate. Frequent cross-drains, check structures and SuDS features will be used where needed to manage runoff rate and quality and to avoid undercutting peat at the track margins. Drainage ditches and cable trenches will follow the track alignment and be set at a suitable distance to maintain track stability.



During the initial post-construction period, temporary silt management measures (such as sediment traps and silt control features) will be implemented where appropriate until natural regeneration or reseeded is established. Trackside and slope conditions will be monitored, and any unexpected, localised erosion or sediment mobilisation will be addressed promptly through regrading, reinstatement and additional drainage or silt controls as necessary, consistent with the EIAR and Peat Management Plan commitments.

### **9.7.2 Materials and maintenance**

Stone for new internal access tracks will be sourced from suitable quarries in the vicinity of the site. Finished surfaces will be formed to provide a robust running course (for example, a Type B Series 800 style finish where appropriate), and the Resident Engineer will undertake routine inspection and maintenance to manage settlement, rutting and surface degradation. This will include maintaining adequate crossfall, periodic brushing/scraping to control rut formation, and dust suppression during dry weather if required.

### **9.7.3 Onsite Vehicle Movements**

Access tracks will be designed to be single track with a 6m running track and space for stone shoulders where required.

During the periods of delivery of the large components, the Contractor will use appropriate site communications and access control techniques to enable safe one-way operation of the tracks.

The presence of crane pads within the construction compound will facilitate traffic movement onsite. Internal track junctions will also be used to facilitate multiple options for construction traffic movement. This will allow vehicles to move more directly between construction locations and double as passing places.

## **9.8 Turbines and Foundations**

The wind turbines will have a maximum blade-tip height of approximately 179-180 m (depending on the final turbine model selected within the assessed range). Each turbine will be supported by a reinforced concrete foundation designed to provide stability under construction, operational and extreme environmental loading, including overturning, fatigue and settlement criteria.

The final foundation solution for each turbine will be confirmed at construction stage following completion of the confirmatory ground investigation and the turbine supplier's requirements. Given the prevalence of peat and soft ground across the site, piled foundations are anticipated to be the predominant solution, with gravity foundations used only where competent founding strata and settlement performance allow.

In locations where piling is deemed necessary, reinforced piles will support a reinforced concrete foundation, measuring 22 meters in diameter. In areas suitable for gravity foundations, diameters will be 27 meters, with depths reaching 3.5 meters, all situated below the finished ground level. For gravity foundations, an assumed concrete volume of 1,000 cubic meters has been used for assessment purposes. Any turbine-specific adjustments will be made where piling is required, based on the measured depth to competent strata influencing the pile schedule.

An overview construction methodology for piled foundations is outlined below.

- The turbine location, foundation footprint and associated working area shall be set out and marked prior to commencement of works.



- Access to each turbine location shall be via the pre-constructed floating access track. A temporary working area shall be established at the end of the track using geogrid(s) and granular stone to provide a stable platform for excavators, piling rigs and ancillary construction plant.
- A controlled excavation cell shall then be formed to the designed foundation formation level. Excavation will proceed through peat and soft soils until the specified piling platform formation is reached. Excavated peat shall be stored in accordance with the PMP for reposition or reuse.
- Shallow surface water drains will be excavated around the working area to prevent surface water runoff into the working area.
- Subject to peat depth, water ingress and stability conditions, excavation support shall be provided through one of the following methods:
  - Sheet Pile, Rock or Modular Cofferdam - Used where peat is saturated or unstable. A method will be chosen based on ground conditions with sheet piled and modular cofferdams being temporary and rock cofferdams being left in situ.
  - Benched Excavation - Used where peat has sufficient shear strength to maintain stable slopes, subject to geotechnical approval and slope toe support where required.
- A designed piling pad will be constructed at formation layer consisting of geogrid and stone build up to the specified requirement based on the piling rig used.
- Piling shall be carried out in accordance with the detailed foundation design and the appointed piling contractor's method statement. The final pile type and installation method shall be determined by ground investigation results, accounting for peat characteristics, underlying strata and environmental constraints. Piling methods may include:
  - Bored Piles with Temporary Casing – Suitable in saturated or unstable peat to prevent ingress or instability.
  - Continuous Flight Auger – Typically used where bore stability can be maintained and groundwater inflow is manageable.
- Pile casings shall be advanced through peat to prevent wall collapse and ensure clean concrete placement. Piles shall be installed to a competent bearing layer.
- A steel reinforcement case will be slotted down the casing prior to concrete pouring through a tremie pipe or similar.
- Once the piles have been cured, they will be cut to the designed pile-cut level ensuring uniform height across the foundation footprint. The top of the piles will be cleaned and prepared for the foundation construction.
- A blinding layer shall be placed across the foundation footprint to provide a level, clean surface for the foundation reinforcement installation. Reinforcement steel, including anchor ring and pedestal reinforcement, shall be fixed in accordance with the structural design.
- Duct routes will be set out along the designated cable entry side of the foundation, typically at 90 degrees to the proposed door entry. The ducts are installed through the



formwork openings, tied to the reinforcement, sealed and end capped to prevent concrete ingress.

- Temporary formwork will be installed prior to concrete pouring.
- The foundation slab will be poured in a continuous pour and vibrated using high-frequency vibrators to remove entrapped air. The concrete will be placed using appropriate methods such as pump lines.
- Following curing of the foundation slab, the pedestal will receive its specified concrete pour within erected formwork. Once all concrete has cured and been verified, the formwork can be removed.
- Backfill material, specified upon bulk density, will be placed around the foundation to near existing ground level where a final, graded surface layer will be placed.
- Temporary excavation supports (sheet piles, modular cofferdams or slopes) shall be removed or restored and reinstated.

Gravity foundations will generally follow the same enabling and preparatory construction sequence described for piled foundations, including set-out, access arrangements, establishment of the working platform, surface water management and excavation controls.

The primary difference is that gravity foundations do not require piling operations or associated piling platforms. Instead, following excavation to the designed formation level and installation of any required excavation support measures (e.g. cofferdams or benched slopes), the foundation is constructed directly on competent bearing strata or engineered replacement fill, subject to ground conditions confirmed during excavation.

Once the formation has been prepared and accepted, the construction sequence continues with blinding, reinforcement installation (including anchor and pedestal reinforcement), ducting provision, formwork installation, concrete placement, curing, and subsequent backfilling and reinstatement in line with the same principles adopted for piled foundations.

These procedures comply with the guidelines established in **Chapter 2** of the EIAR and will be carried out in accordance with the Peat Management Plan to properly handle and segregate peat, and sensitively reinstate disturbed ground.

## 9.9 Crane Pads

Adjacent to each turbine foundation, crane pads (hardstandings) will be constructed to provide stable working areas for turbine delivery, erection, maintenance and component replacement. The pads will comprise geotextile-separated, compacted granular build-ups with geosynthetic reinforcement as required, and the final arrangement will be confirmed in line with the final turbine model and in response to local ground conditions, peat depth and crane loading requirements. In areas of deeper peat and low bearing capacity, the crane pad will incorporate a piled solution. Where the peat is shallower and competent formation can be achieved, excavation will be undertaken to the required formation level for construction.

The construction methodology for the crane pads located in deep peat will be as follows:

- Temporary geosynthetic-reinforced working platforms, or piling pads, for piling rigs shall be constructed on top of the ground surface to a specified requirement based on the piling rig proposed. The platforms will consist of geogrid(s) and granular stone.
- The specified piling method shall be carried out across the crane pad area to a detailed design schedule and in accordance with the specified number, spacing, and



arrangement of piles as indicated in the design documentation. Should construction stage determine that crane loading on auxiliary pads require piles, these areas will also be piled to the same methodology.

- The piling type and installation method will follow the same principles as the piled foundation with piles installed to a competent bearing layer.
- The piles will receive a reinforcement cage and specified concrete.
- Once cured, each pile will be cut down to specified elevation to create a uniform cap level and cleaned prior to pile caps being constructed.
- High-strength specified geogrids will be installed over the set pile caps to the manufacturer's specification and quantity. A well-graded granular material will be placed and compacted in controlled layers over the geogrids to completion.
- Blade laydowns, assembly areas, and temporary storage areas will generally be constructed as floating hardstands. These will consist of a designed stone depth with interchangeable geosynthetic quality and quantity based on ground conditions.
- The Contractor will be responsible for maintaining the hardstands to required standards, including remediation of rutting, settlement, or lateral spread using additional granular fill and localised geogrid repairs where appropriate.
- Peripheral, shallow drainage ditches will be formed around the hardstand to intercept surface runoff and protect peat stability.

The construction methodology for the crane pad and hardstand on competent bearing strata will be as follows:

- Topsoil and unsuitable material within the hardstand footprint will be stripped to the required depth and stockpiled or reused in accordance with the PMP. Subgrade preparation will include proof-rolling, localised excavation of soft spots, and replacement with engineered fill where necessary.
- Where ground conditions require improvement, a base geogrid layer will be installed.
- Stone placement upon the excavated formation level will be carried out in layers with each layer being suitable compacted until specified thickness is achieved.
- The crane pad will be constructed to the design platform level and bearing capacity specified by final crane model.
- Peripheral drainage, such as shallow ditches, will be formed around the hardstand to intercept surface water runoff and to prevent water ingress.
- Surplus topsoil will be placed along the side of the hardstanding and dressed to blend in with surrounding landscaping.

Crane pads will be constructed to facilitate the installation of turbine components. Their location and orientation have been optimised to utilise the existing topography, minimise land take and avoid environmental constraints where applicable.

Crane pads will remain in place for the operational life of the development. Following construction, adjacent laydown and assembly areas will be reinstated where practicable, using stored peat and soils to soften platform edges and integrate the hardstanding with surrounding ground levels. Surface water drainage will be incorporated to manage runoff and prevent erosion while maintaining peat-sensitive hydrological conditions, and pad orientation will be optimised to make use of local topography and minimise land take.



## 9.10 Substation

The turbines will be connected by underground collector cabling to a newly constructed 110 kV on-site substation within the Main Wind Farm Development Site. The substation will provide the interface between the wind farm, BESS and the national grid and will include the switchgear, protection and metering equipment required for export. The substation compound will measure 84.5m wide on the southwest width and 82m wide on the northeast width by 149m long on the northwest length and 147.5m on the southeast length. The compound will accommodate two control buildings alongside the necessary electrical equipment for grid connection. The Customer Switchgear Room (IPP building) will be operated by the Applicant and is designed at 22.1 m x 12.7 m with an overall height of 6.17 m, while the Transmission System Operator Control Building (EirGrid building) will measure 27 m x 20 m with an overall height of 7.85 m.

The compound will be enclosed by a 2.6 m high steel palisade fence with internal segregation fencing where required, and lighting will be provided by pole-mounted fittings and external wall lights to support safe operation and maintenance. Staff welfare will be provided within the control buildings, with a proposed rainwater harvesting system supplying limited water for toilet flushing and handwashing through a tank installed adjacent to the buildings.

The substation and IPP compound will be constructed in line with the following principles:

- The Substation and BESS compound boundary and layout will be set out and marked prior to any works commencing.
- All peat within the footprint of the Substation and BESS compound shall be excavated in accordance with the design model. Excavated peat shall be stored in accordance with the PMP, and only with ECoW approval, for reuse around the Substation and BESS compounds and in accordance with the wider peat restoration plans for the Proposed Site.
- Following peat removal, the exposed formation will be inspected and proof-rolled.
- Any significant undulations or irregularities within the compound footprints following the removal of peat will be excavated or trimmed.
- Localised soft spots will be excavated and backfilled with engineering fill as directed by the project engineer or stabilised using a geogrid and engineering fill.
- A geotextile separator layer will be installed over the prepared formation surface to prevent contamination of the structural fill.
- Geogrid reinforcement layers will be installed in accordance with the design and subject to the ground conditions to provide load distribution and stability.
- Imported crushed stone will be placed in layers of specified thickness and compacted using suitable plant to achieve required density and bearing capacity.
- The depth of stone and number of geogrid layers will be subject to ground conditions and design requirements.
- Finished levels will be graded where required to promote surface water runoff towards the drainage systems.
- Tracks across the compounds will be constructed in stages to allow for temporary access, intermediate access and the final access standard once all major works are complete.

Drainage measures will be implemented to control surface water runoff and prevent ingress into working areas, including the use of shallow perimeter drains and localised drainage



features. All drainage will be constructed in accordance with the site drainage strategy and integrated with site infrastructure.

Cable infrastructure will be installed in accordance with the project layout, including ducting, trenching and cable routing from the turbines to the wider network. Installation will be coordinated with foundation and civil works to ensure correct positioning, protection and segregation.

A range of concrete foundations will be constructed across the substation and IPP compound. Raft foundations will be constructed for major buildings within the compound including the EirGrid control building and the MV switchgear building. Other concrete foundations will include concrete plinths, base slabs and post foundations.

Electrical infrastructure, including internal turbine connections and associated equipment, will be installed following completion of the civil works.

Fencing, access gates, CCTV and lighting will be installed as required to protect infrastructure and restrict unauthorised access during construction and operation.

Any oil-containing equipment will be installed with appropriate containment, and site activities will follow good housekeeping, designated refuelling arrangements and spill response procedures. The substation will be a permanent installation and, upon completion of construction and commissioning, will be handed over to EirGrid for operation.

## 9.11 BESS

It is proposed to construct one onsite BESS compound with a capacity to reflect the generation capacity of the proposed wind farm. The BESS will have the future ability to store excess power being generated locally on the grid and will release it back into the grid when there is a demand for it. The BESS will comprise 120 Battery Containers and 15 Inverter Containers in total, within a compound measuring 156m long on the northwest length, 153m long on the southeast length and 99m wide either side, secured by a 2.6m high palisade fence.

Each of the 120 battery container units will measuring 2.9m in overall height, 2.54m in width and 6m in overall length. Each of the 15 inverter units will measure 2.9m in overall height, 2.7m in width and 6m in overall length.

Prior to construction of the BESS, an area incorporating a drainage system surrounding it will be marked out by a qualified engineer prior to excavation and installation of the drainage system. Peat is present at a depth from 1.8m to up to 3m across the proposed BESS and substation compound area and will be excavated in accordance with the proposed design, including details on slope excavation of peat. This will remove the need for piled foundations.

The construction methodology, drainage, cabling and security for the BESS compound will follow the same principles as the substation and IPP compound.

The BESS MW switchgear building will be set upon a raft foundation with BESS PCS units on concrete slabs and battery container units on concrete plinths.

The associated BESS equipment will be connected to the substation via underground cables. Marker tape and cable tiles will be placed above the buried services.

## 9.12 Internal Collector Cable Layout

The cable layout for the Proposed Development will involve underground cabling that connects each turbine to the on-site substation, facilitating efficient energy transfer to the national grid. Wherever feasible, cables will be installed in trenches alongside the internal access tracks, minimizing ground disturbance and reducing the environmental footprint. The trenches will be



carefully prepared, with cables laid in protective conduits surrounded by a bedding layer of sand or cement-bound material (CBM) to ensure durability and stability.

Appropriate buffers and environmental management measures will be implemented to avoid impacts on sensitive areas and habitats. The design will incorporate measures to manage drainage and protect watercourses, particularly in areas where cables need to cross such features.

When installing cables a standoff distance will be agreed with the ECoW with silt control measures being implemented such as silt fences, sediment traps or the use of the attenuation basins.

Cable trenching backfill material will consist of suitable, non-contaminated, inert material ensuring that no pollutants or deleterious substances are introduced to the ground and surrounding environment.

## 9.13 Watercourses

### 9.13.1 General

The Main Wind Farm Development Site is drained by a network of small peat and forestry drains that connect into larger “main” peat drains running along the existing access road and, in places, along the site boundary. The main drains in the northern part of the site ultimately discharge to the Doolough Stream and the An Mhoing Mhór Stream, while drainage from the central and southern parts of the site flows via unnamed drains to the Irish Sea.

Watercourses in the northern area of the site are classified as “At Risk” with a current WFD status of “Poor”, while those in the southern area are “Under Review” with a “Good” status. Protection of these receiving waters is therefore a key environmental constraint during construction. As part of the project design, all wind turbines and associated infrastructure on the Main Wind Farm Development Site have been sited outside the 50m watercourse buffer zone.

In relation to over-run areas 2 and 3 of the TDR, the temporary tracks will encroach on the 50m buffer to the nearby streams. Appropriate construction mitigation measures will be implemented to prevent surface run-off of sediment or potential pollutants into these watercourses. These include:

- No refuelling of vehicles / machinery and no storage of stockpile material within 50 m of nearby drains and streams;
- No discharge from the temporary construction works at the over-run areas to nearby drains or river channels;
- Silt fences will be installed between any construction works and the river channel and any drains within the 50 m buffer to ensure no silt will enter the water course;
- Daily visual inspections will be undertaken at all drains and river channels; and
- If any pollution is observed, all works will be halted until the source of the pollution has been managed.
- Upon completion of works, the Proposed Development Site will be restored to its existing land use without delay.

Tracks have been routed to minimise any crossing of the watercourses. There are two new and two upgraded watercourse crossings proposed within the internal access track network. The new crossings (WCX1 and WCX2) will be provided as culverts according to typical specifications identified in Planning Drawing Number 501.065301.00001.D19.



New crossings are designed to convey 1% Annual Exceedance Probability Mid-range Future Scenario (AEP MRFS) storm event, with a minimum 300mm freeboard level. This is in line with the Office of Public Works (OPW) requirements. A Section 50 application will be required to obtain the consent of the OPW for the construction of the crossings.

The two existing watercourse crossings on the access tracks (WCX3 and WCX4) will be upgraded to accommodate the new loads posed by construction traffic and operation. Upgrades will include the strengthening of existing structures, installation of appropriately sized culverts.

All instream works are to be minimised and carried out in low flow conditions where feasible. Silt control measures are to be implemented and all disturbed areas are to be reinstated promptly to prevent sediment runoff and protect the water quality.

There is only one water crossing associated with the TDR over-run areas. Overrun area 2 crosses the Moneynierin (WFD ID MUIING\_010) and a temporary crossing will be required here. No instream works, modification of the river channel or obstruction of flow will be required and on completion of works, the site will be restored to its existing land use without delay.

Although Overrun area 1 is located within the vicinity of an unnamed stream (WFD ID OWENMORE (MAYO)\_060), there will be a 50 m buffer between this stream and any proposed construction or infrastructure related to this over-run area. There will be no construction works required on the crossing structures to facilitate the turbine delivery.

The GCR will not require any new watercourse crossings

All construction works on the Proposed Development Site, and specifically construction works to be undertaken within and in the vicinity of the watercourse, will be completed in compliance with current legislation and best practice as detailed through sections 5 to 8 and in the reference list contained within this CEMP.

The ECoW will be consulted on all watercourse crossing works. Surveys by the ECoW will be carried out immediately prior to construction of the crossing to identify areas of ecological interest and more specifically, mammal and fish activity in watercourses to ensure that adequate mitigation measures are built into the design.

### 9.13.2 Design Philosophy

Good practice set out in NRA (2008) and Inland Fisheries Ireland (2016) guidance has been incorporated to watercourse crossing design, including the measures detailed below:

- where appropriate, the watercourse will be routed through culverts appropriately sized and designed not to impede the flow of water and will allow safe passage for wildlife, such as fish, water voles, otters etc. (i.e. the crossings will have a capacity well in excess of the design flow);
- when installing culverts, care will be taken to ensure that the construction does not pose a permanent obstruction to migrating species of fish, or riparian mammals (i.e. the crossing will make provision for fish and wildlife migration);
- culverts will be sized so that they do not interfere with the bed of the stream during construction, (i.e. the crossing will leave the watercourse in as natural condition as possible);
- culverts with a single orifice will be used in preference to a series of smaller culverts that may be more likely to become blocked with flotsam and create erosion (i.e. the crossing will not constrict the channel);
- ease and speed of construction are important to minimise disruption to the watercourse and surrounding habitat;



- culverts will be designed for the life of the project;
- culverts will be low maintenance; and
- culverts will be visually in keeping with the surroundings.

In accordance with guidance and the requirements of an Office of Public Works (OPW) in Section 50 application licence under the Arterial Drainage Act, 1945, the watercourse crossings have been designed to be appropriate for the width of watercourse being crossed, and the prevailing ecological and hydrological situation (i.e. the “sensitivity” of the watercourse). Environmental factors including the ecological sensitivity of the watercourse, water quality protection and hydrological processes as well as engineering factors include the width, depth, gradient of the channel, flow characteristics, ground conditions and anticipated loading will influence the selection of structure type and the design of the crossing.

The watercourse crossings will be designed to convey a minimum 1 in 200 years plus climate change return period flood event, and individually sized and designed to suit the specific requirements and constraints of its location.

The watercourse crossing will include splash boards and run-off diversion measures to prevent direct siltation of watercourses.

### 9.13.3 Culverts

Culverts are used where a closed crossing is required and where this can be achieved without unacceptable hydraulic or ecological effects. Culvert type and size will be confirmed at construction stage, informed by the local drain geometry, flow conditions and constructability. For this site, crossings will be required over both small and main peat drains (typically circa 0.5 m wide by 0.75 m deep for smaller drains, and up to circa 2 m wide at the top and about 1.5 m deep for main drains).

General culvert requirements will include:

- sizing and alignment to minimise blockage risk and prevent backwatering and local flooding;
- integration with existing peat drainage so that flows are not diverted into new preferential pathways;
- inlet and outlet detailing to protect embankments and reduce erosion potential, using appropriately selected protection measures compatible with peatland settings;
- inspection and maintenance access so that accumulated sediment and vegetation can be removed promptly, particularly following heavy rainfall events.

Temporary crossing arrangements, where required, will be controlled through method statements and will include measures to prevent direct discharge of sediment-laden runoff to the drain or watercourse during the works.

### 9.13.4 Relevant Mitigation Measures

The following is a summary of the relevant mitigation measures and general good practice associated with the development of watercourse crossings:

- site track crossings will be constructed with granular materials, which will limit the production of surface runoff and the direct discharge of sediment into the watercourse;
- the methods of drainage described for the site tracks in Section 9.4.3 will prevent the significant discharge of surface runoff and suspended solids into the watercourse adjacent to the tracks. This is owing to the runoff being collected within the upslope ditch, the presence of peat dams and culverts at appropriate intervals so as to limit



longitudinal flow and the discharging of water to the downslope ground. There will therefore be no long runs of ditches that directly discharge into watercourses;

- the watercourse crossing will be designed to avoid disruption and/or habitat loss to aquatic systems or to affect free passage of fish; and
- where possible, a minimum buffer strip of 50 m will be kept free from development from the top of the banks of any watercourse/waterbody.

## 9.14 GCR

Prior to the GCR installation works within public roads (subject to a separate planning application), all access points (domestic, business, farm) will be considered when finalising the temporary road closures and diversions, to maintain local access and avoid impacts on various land uses.

The construction of the GCR installation shall consist of a mixture of trench excavation and inline horizontal directional drilling (HDD) where trench excavation is not suitable within the public corridor, such as at watercourses, culverts, bridges and existing utilities.

Invasive species such as Japanese Knotweed have been identified along the route and will need to be treated in accordance with the European Communities (Bird and Natural Habitats) Regulation 2011, S.I. No. 477 of 2011 and EU Invasive Alien Species Regulations (EU) No. 1143/2014.

Measures in this CEMP will also apply to the GCR.



## 10 Pre-Construction Confirmatory Surveys, Protected Species and Monitoring

### 10.1 Pre-Construction Confirmatory Surveys

Detailed site investigations that can only be undertaken at the construction stage will be undertaken prior to ground works to confirm the findings of the pre application surveys. This will enable the designers/engineers to confirm the suitability of engineering methods. Preconstruction habitat and protected/ notable mammal surveys will be required to confirm management plans, in recognition of the constant evolution of ecological habitats. Confirmatory surveys for protected species will be undertaken by the ECoW in line with the locations and programme of works. Survey outcomes will inform the designers/engineers in selecting appropriate working methods.

### 10.2 Water Quality Monitoring

Prior to the works commencing, baseline water quality monitoring will be undertaken by an appropriately qualified and experienced independent consultant to establish the water quality prior to any interference from the works.

This will be undertaken in accordance with the proposed water quality monitoring developed by the PSCS and as detailed within Section 8.0.

This water quality monitoring is to be agreed and reviewed by the Applicant in advance of the works commencing to ensure that the conditions during the monitoring and the testing undertaken are representative and allow a suitable benchmark to be established.

### 10.3 Archaeology

The Proposed Development Site has undergone an assessment to identify any potential archaeological or cultural heritage features within the development area. Only one statutory archaeological or cultural heritage designations has been identified within the Main Wind Farm Development Site boundary, with several recorded archaeological features and sites of interest exist in the surrounding area, particularly within a 5 km radius. These include protected structures, architectural conservation areas, and regionally significant heritage assets that are identified in **Chapter 12** of the EIAR. Construction works at Turbine 11 have been designed to avoid an archaeological zone located c.0.23 km away from the zone of protection of national monument (crannog registered as Site and Monument Record MA025-004).

### 10.4 Ecology and Biodiversity

The Proposed Development Site does not contain any statutory ecological designations; however, it is located near several sensitive ecological features and habitats of high conservation value. Full details of any potential ecological resources in and around the Proposed Development Site are provided in **Chapter 5: Biodiversity** of the EIAR.

The closest statutory designations include the Blacksod Bay/Broadhaven Special Protection Area (SPA) and the Mullet/Blacksod Bay Complex Special Area of Conservation (SAC), both situated less than 1 km from the Proposed Development Site boundary. These areas support important habitats, such as mudflats, salt marshes, and machair systems, as well as protected species, including otters (*Lutra lutra*), petalwort (*Petalophyllum ralfsii*), and various bird species such as light-bellied Brent geese and red-breasted mergansers.

Baseline ecological information has been informed by a desk study and targeted field surveys. A high-level ecological constraints survey for the TDR (including overrun areas) was



completed on **26 July 2023**, with additional survey work and reporting completed on **18 July 2025** to cover parcels not confirmed at the time of the 2023 survey.

The desk study for the 2025 work drew on publicly available datasets (including EPA mapping, NPWS resources, the NBDC database, I-WeBS data and relevant planning portals), and the field surveys mapped habitats in accordance with Fossitt classifications and best-practice habitat survey guidance, recording invasive species and notable/protected flora and fauna where observed. Please see **Table 5-5** in **Chapter 5** for dates and timing of completed ecology surveys.

While works are not proposed within European site boundaries as part of the turbine delivery route elements assessed, a number of European sites occur within the surrounding receiving environment, and some locations have hydrological connectivity to designated sites via drains, ditches and watercourses. For example, European sites within the wider area of assessed turbine delivery route work locations include Blacksod Bay/Broad Haven SPA, Broadhaven Bay SAC, Mullet/Blacksod Bay Complex SAC and Owenduff/Nephin Complex SAC/SPA (among others), with distances varying by location.

## 10.5 General Pre-Construction Confirmation Surveys

To prevent accidental disturbance to resting places of mammals (badgers, red squirrel, pine marten, otter and hedgehog), a confirmatory ecological walkover survey will be undertaken prior to any construction activities within the development footprint.

Similarly, trees and structures within the works corridor will be re-assessed for bat roosting potential, with any inspections or emergence surveys carried out as required under licence.

Confirmatory checks for nesting birds will be carried out for construction undertaken during the bird breeding season. If nests are recorded, ongoing monitoring and appropriate exclusion zones will be implemented to determine when and where works can proceed. If exclusion zones cannot be implemented, NPWS will be contacted and based on their advice, additional mitigation will be implemented, with relevant licences applied for if required – although at this point it is important to note that no licences are required based on the results of the surveys.

## 10.6 Peatland and Habitat Management

A detailed Habitat Management Plan has been prepared to ensure the overall improvement of the condition of the cutover blanket bog within the Proposed Development Site. Prior to any construction work taking place, activities will be planned against the strategic management plan and vegetation clearance will be planned to avoid the main bird breeding season from March to September, inclusive. The ECoW will provide specific advice regarding timings and micro-siting of construction activities to minimise disturbance to mammals, birds and aquatic fauna.

If unforeseen site clearance and construction activities are required to take place during the main breeding bird season, pre-commencement confirmatory surveys will be undertaken to ensure that nest destruction and disturbance is avoided. This will include the implementation of disturbance-free buffers for common snipe (400 m).

## 10.7 Construction

### 10.7.1 Vegetation Clearance, Earthworks and Excavations

The Habitat Management Plan has identified measures to remove and control invasive species such as Rhododendron and Prickly Heath which have been discovered on site.



Temporary works areas will be sited on previously disturbed or low-value habitats where possible and reinstated post-construction. Drainage controls, settlement measures and buffers (as described in Section 7.0) will be implemented to prevent runoff from entering sensitive habitats. Lighting will be directional and time-limited to reduce disturbance to bats and birds.

The following management measures will be taken to minimise general habitat loss, fragmentation and disturbance:

- Vegetation clearance will be limited to the minimum footprint required.
- Woodland, treeline and hedgerow trimming will follow seasonal constraints to protect nesting birds and roosting bats.
- Root protection zones and exclusion fencing will be implemented to prevent unnecessary encroachment into retained habitats.
- Excavations for cables and turbine bases will incorporate silt fences, cut-off drainage and rapid reinstatement to prevent sediment release to watercourses.
- Stockpiles and construction zones will be fenced to avoid accidental overspill into adjacent habitats.
- Amphibian-proof fencing will be implemented around any basins/pools that may attract frogs or smooth newts while construction work is ongoing in close proximity.

General good practice construction techniques to control invasive species that will be implemented are identified in Section 5.0. Measures set out in Section 5.2 on stockpiling and material handling will be implemented to prevent sediment entrainment and habitat degradation.

Measures set out in Section 6.0 will be implemented to protect vegetation, prevent smothering of bryophytes and lichens, and reduce the risk of dust entering aquatic systems.

Measures set out in Section 7.0 will be implemented to prevent sediment release, hydrocarbon contamination, alkaline leachate from concrete, and altered hydrological pathways that could impact aquatic habitats, fish spawning areas, macroinvertebrate communities, peatland vegetation and downstream designated nature conservation sites.

The Peatland Restoration (PRP) and Habitat Management Plan (HMP) (see **Technical Appendix 5-5 of the EIAR**) includes management of key species and will ensure that all required protection measures are undertaken with regard to protected species and the habitat which they rely upon.

The HMP will ensure all required precautions are taken to safeguard protected species from disturbance, injury and death and to protect any structure, place or habitat, which any such protected species uses for growth, breeding, resting, shelter or protection during the construction and, operation of the Proposed Development (with emphasis on the construction phase).

Good practice measures to protect sensitive ecological receptors during the construction phase will be implemented, including the erection of temporary protective fencing demarcating the working footprint, to be monitored and supervised by the ECoW with advice on remedial actions where necessary – as per the PRP and HMP (see **Technical Appendix 5-5 of the EIAR**).

The HMP will be fulfilled by adopting the following objectives throughout the construction of the Proposed Development:

- objective A – Implement a monitoring and protection plan for protected species;



- objective B – Follow an approved procedure if a sensitive ecological receptor is suspected/identified; and
- objective C – Ensure adequate education and awareness of site personnel.

The ECoW will have the specific remit of monitoring compliance with the PRP and HMP (See **Technical Appendix 5-5 of the EIAR**) during the construction phase and report any breaches to the Construction Project Management Team. The ECoW's role will involve direct monitoring of all activities on the Proposed Development Site to the extent the ECoW considers this to be required, and/or training of nominated personnel to carry these out in a manner likely to minimise the potential for impact on the protected species. The ECoW will also agree changes to construction operations to prevent breaches of the HMP.

## 10.8 Tree Felling

The proposed method of tree felling near infrastructure will be limited to:

- 10 m wide exclusion zone to be established from the edges of any aquatic zones or water hotspots as per Standards for Felling & Reforestation (Department of Agriculture, Food and the Marine (DAFM), 2019).
- 5 m wide exclusion zone to be established from the edges of any relevant watercourses (DAFM, 2019).
- Construction works at Turbine 11 have been designed to avoid an archaeological zone located c.0.23 km away from the zone of protection of national monument (crannog registered as Site and Monument Record MA025-004).
- In the event that an unrecorded archaeological feature is found during tree felling, the discovery must be immediately reported to the National Museum of Ireland or the Garda Síochána. A minimum exclusion zone of 20m must be established around the feature until the site of the find has been investigated (Forest Service, 2000).
- All mitigation measures that are required under the standards, guidelines and conditions in place at the time of issue of the felling licence by the Minister for the Department of Agriculture, Food and the Marine (DAFM).

### 10.8.1 Species Specific Control Measures

The HMP also includes specific measures for species management for species such as Kestrel for agreement with MCC, in advance of works commencing on Main Wind Farm Development Site. The HMP will set out in sufficient detail the measures and procedures that will be followed to ensure the protection of sensitive species as well as legally protected species during construction.

#### 10.8.1.1 Construction-type Works

The ECoW will oversee activity during the construction and reinstatement periods (at a frequency to be agreed with MCC), to ensure natural heritage interests are safeguarded. The role of the ECoW will include the following specific roles with regard to the ornithology interest of the Main Wind Farm Development Site:

- clearance of woodlands and uncultivated vegetation i.e. trees (including vegetation removal for creation/maintenance of requisite bat mitigation buffers around the wind turbines), will be undertaken outside the main breeding season from March to September inclusive.



- the ECoW will undertake pre-construction confirmatory surveys for nesting birds throughout the construction period that falls within the nesting season and set up and monitor appropriate exclusion areas whilst nests of relevant species are in use.
- once vegetation has been removed from the works corridor, these areas will be retained in a condition that limits suitability for nesting birds for the remainder of the construction phase. Cover for ground nesting species will be made unsuitable by cutting vegetation or tracking over with an excavator.

### 10.8.1.2 Operation of Wind Turbines

Mitigation measures to limit foraging interest for common kestrel will be implemented to avoid risk of collision with the operational wind turbines. These will focus on reducing prey availability in an area of 91.4 m to 105.5 m surrounding each turbine for conifer and 72.1 m to 90.4 m for scrub (depending on the final choice of turbine model selected):

- creation of uniformly short vegetation heights via infrequent mowing or trimming of vegetation.
- removal of timber/brush from felling and chipping of tree stumps to ground level.
- spread and compaction of chipped wood and spoil to create a flat surface to prevent rapid colonisation of new vegetation.
- piping/filling over of open field/forestry drains.

### 10.8.1.3 Species Monitoring

Based on current best-practice guidelines (SNH, 2009 and NatureScot, 2021) and in accordance with EC Recommendation (C/2022/3219), a targeted range of flight activity surveys and collision monitoring (carcass searching) will be undertaken for birds and bats will be undertaken in years 1, 2 and 3 post construction, to monitor the rate of avian/bat turbine collisions and identify any significant effects.

Should the bird monitoring programme indicate that there is a significant effect on bird populations during operation of the wind turbines, a curtailment procedure for turbine operation will be implemented where appropriate during 'at-risk' time periods and weather conditions, and as discussed and agreed with the National Parks and Wildlife Service (NPWS).

Should the bat monitoring programme indicate that the implemented bat buffer areas around turbines are not sufficiently effective in avoiding a significant effect on bat populations during operation of the wind turbines, additional measures such as feathering of blades and/or curtailment of turbines will be investigated.



## 11 Reinstatement

During the construction of infrastructure elements (as detailed in Section 9.0), excavation will be necessary for locations such as turbine foundations, substations, BESS platforms, and localized cut sections. The vegetated peat layer will be carefully lifted intact as turves, with the growing side facing up, and stored adjacent to the work area. The underlying catotelm peat will be excavated to the required depth and stored separately to prevent mixing.

To minimize peat movement, direct placement into restoration areas will be prioritized whenever possible. Storage areas will be located at least 50m away from water features and arranged as low, stable mounds not exceeding 1m in height. If short-term storage is necessary, the peat will be irrigated as needed to prevent drying out and placed on separation layers to maintain stability.

Following construction, reinstatement will proceed as soon as practicable, working progressively with the build. Restored profiles will be graded to blend with surrounding ground, with excavated peat used to batter platform edges and soften the interface with adjacent habitats. Intact turves will be relaid to maximise vegetative recovery, and, where needed, supplementary revegetation or brash spreading will be applied in line with the habitat restoration approach in the EIAR. On floated track margins and other areas without excavation, the existing vegetated mat will be retained and protected during construction, limiting the need for reinstatement to local repairs.

Drainage features will be reinstated to peat-sensitive layouts that preserve natural flow paths and avoid concentrated drawdown, with small check structures used where required to control velocities during the early establishment period. Temporary silt controls will be maintained until vegetation has re-established and runoff is demonstrably clean. Where erosion is observed on embankments or cut faces, local re-grading and re-turfing will be undertaken promptly to stabilise surfaces and protect water quality.

Quality assurance and aftercare will include immediate post-reinstatement inspection of each area, followed by routine monitoring by the Resident Engineer and ECoW to confirm vegetation take, peat surface condition and the effectiveness of drainage and silt controls. Any deficiencies will trigger corrective actions such as additional turf placement, irrigation, minor re-grading, or temporary sediment fencing. Peat mass balance records will be maintained and updated through construction to evidence that excavated peat is reused on site for restoration, consistent with the PMP, which anticipates no surplus peat requiring off-site disposal.



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