

# MWP

## **Environmental Impact Assessment Report (EIAR)**

### **Volume 3: Appendix 2 Construction Environmental Management Plan (CEMP)**

**Dernacart Wind Farm  
110kV Substation and Grid Connection**

**Statkraft Ireland**

**October 2024**

# MWP

## **Preliminary Construction Environmental Management Plan (CEMP)**

**Dernacart Wind Farm  
110kV Substation and Grid Connection**

**Statkraft Ireland.**

**October 2024**

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**MWP, Engineering and Environmental Consultants**

**Address:** Reen Point, Blennerville, Tralee, Co. Kerry, V92 X2TK

[www.mwp.ie](http://www.mwp.ie)



## 1. Introduction

This Preliminary Construction and Environmental Management Plan (CEMP) has been prepared by Malachy Walsh and Partners (MWP) on behalf of Statkraft Ireland to accompany the submission of a planning application to An Bord Pleanála for the proposed construction of:

- a 110kV substation in place of the permitted (but not yet constructed) Dernacart Wind Farm 110kV substation,
- construct and install associated access track and underground electrical cabling from the Dernacart Wind Farm to the relocated substation, and
- install a 110kV underground electrical cable from the proposed relocated Dernacart Wind Farm substation to the consented Bracklone 110kV Substation (Planning Ref. 20/638) in Portarlinton Co. Laois.

This CEMP has been developed specifically for this project and outlines construction practices and environmental management measures which will be implemented during the construction phase, in order to ensure that the project is constructed in accordance with best practice, with the minimum impact on the surrounding environment.

### 1.1 CEMP Purpose and Objectives

The purpose of a CEMP is to outline how the Contractor(s) will implement a Site Construction Management System to meet the specified requirements which include Contractual, Regulatory and Statutory Requirements, Environmental Mitigation Measures and Planning Conditions.

In essence this preliminary CEMP is to provide the Client and the Main Project Contractor with a practical guide to ensure compliance by all parties with Planning and Environmental requirements.

The preliminary CEMP achieves this by providing the environmental management framework to be adhered to during the pre-commencement, construction phases of the proposed 110kV substation and grid connection. It outlines the work practices, construction management procedures, management responsibilities, mitigation measures and monitoring proposals that are required to be adhered to in order to construct the works in an appropriate manner.

This CEMP is intended to be a live document whereby different stages will be completed and submitted as the development progresses.

## 2. Project Overview

### 2.1 110kV Substation Compound

**Figure 2.1** shows the proposed substation development footprint and illustrates the positions of the proposed plant and infrastructure, including internal access/service roads within the development boundary, future expansion area and a new site entrance from the R423. See also Planning Drawing No 23268-MWP-00-00-DR-C-5200.

The overall proposed 110kV substation compound will occupy an area of approximately 2.07ha divided into two adjoining sections: an EirGrid section (c9865m<sup>2</sup> in area) along with a future expansion area, and an IPP (Independent Power Producer) section (c2775m<sup>2</sup> in area), each of which are enclosed within a 2.6m high palisade fence. An additional outer concrete post and rail fence (1.4m in height) will be installed around the perimeter of the EirGrid compound.

Each section will contain a control building and an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning and lighting masts. The IPP section will also contain one grid transformer within a bunded enclosure with back up emergency diesel generator and tank.

The EirGrid control building will be c440.2m<sup>2</sup> in area and contain a control room, battery room, generator room, meeting room, welfare facilities and workshop/store. The IPP control building will be c160.2m<sup>2</sup> in area and contain a control room, switchgear room, welfare facilities and store room. Both buildings will be a block built single storey building approximately 8.5m in height, with pitched roof and an external blockwork and plastered finish.

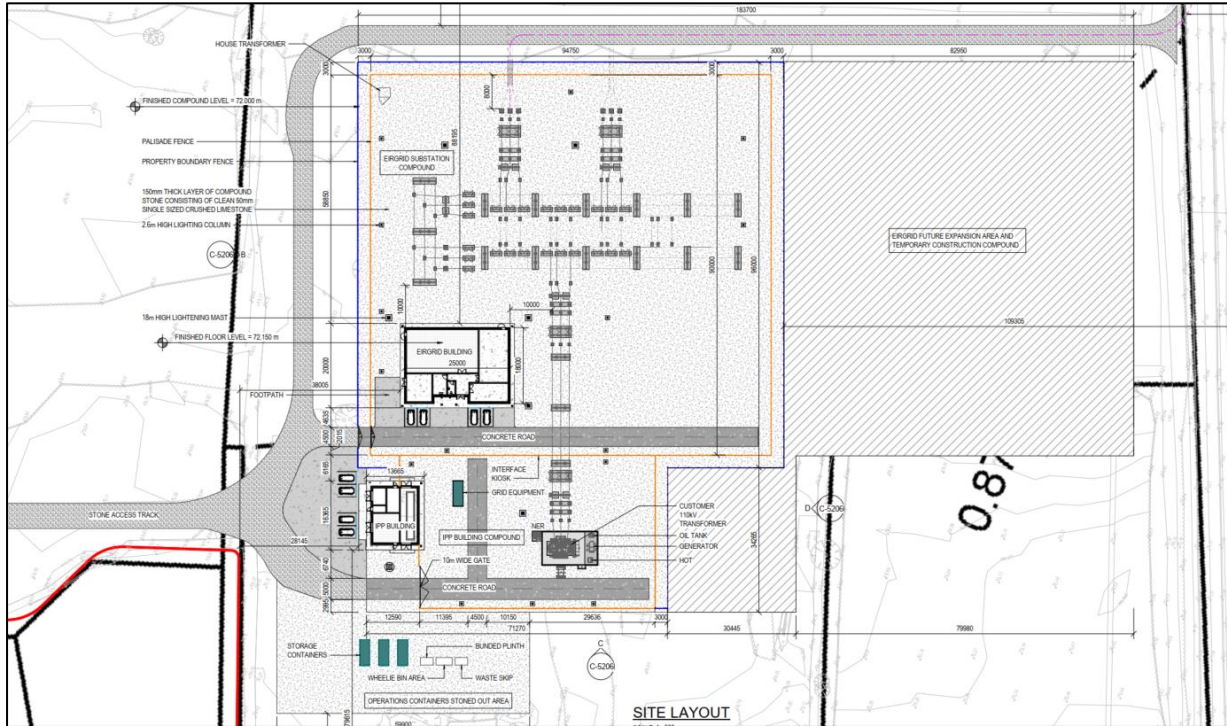
Parking will be provided within the compound area adjacent to each of the buildings.

There will be a very small water requirement for toilet flushing and hand washing and therefore it is proposed to harvest water from the roofs of the buildings. The discharge from the sanitary facilities within each building will go to separate wastewater holding tanks located within the substation compound where the effluent will be temporarily stored and removed at regular intervals by a permitted waste contractor and removed to a licensed/permitted waste facility for treatment and disposal.

Access to the substation site will be gained from the R423 regional roadway to the south of the site via a new entrance and access track. The new access track will be a 370m long 4.5m wide open graded stone road. The overall development footprint of this access road is c0.17ha. The construction of the new entrance and access road will require the removal of an area of approximately 45m of hedgerow and scrub vegetation.



Figure 2-1 Proposed Substation Layout



## 2.2 Underground Wind Farm Collector Cable and Access track

Figure 2.2 shows the proposed route of the underground electrical cabling (UGC) from the Wind Farm to the proposed substation. See also Planning Drawings No. 23268-MWP-GR-XX-DR-C-5102 and 23268-MWP-GR-XX-DR-C-5103. The length of the route is approximately 2.45km with an overall development footprint of approximately 1.5ha. A 5.5m wide access track of open stone finish will be laid over the underground collector cable to facilitate access between the wind farm and the substation.

There are 4 no water crossings required along this route. Tree felling (c.2.8ha) and hedgerow removal (approximately 320m) will also be required to accommodate this access road.

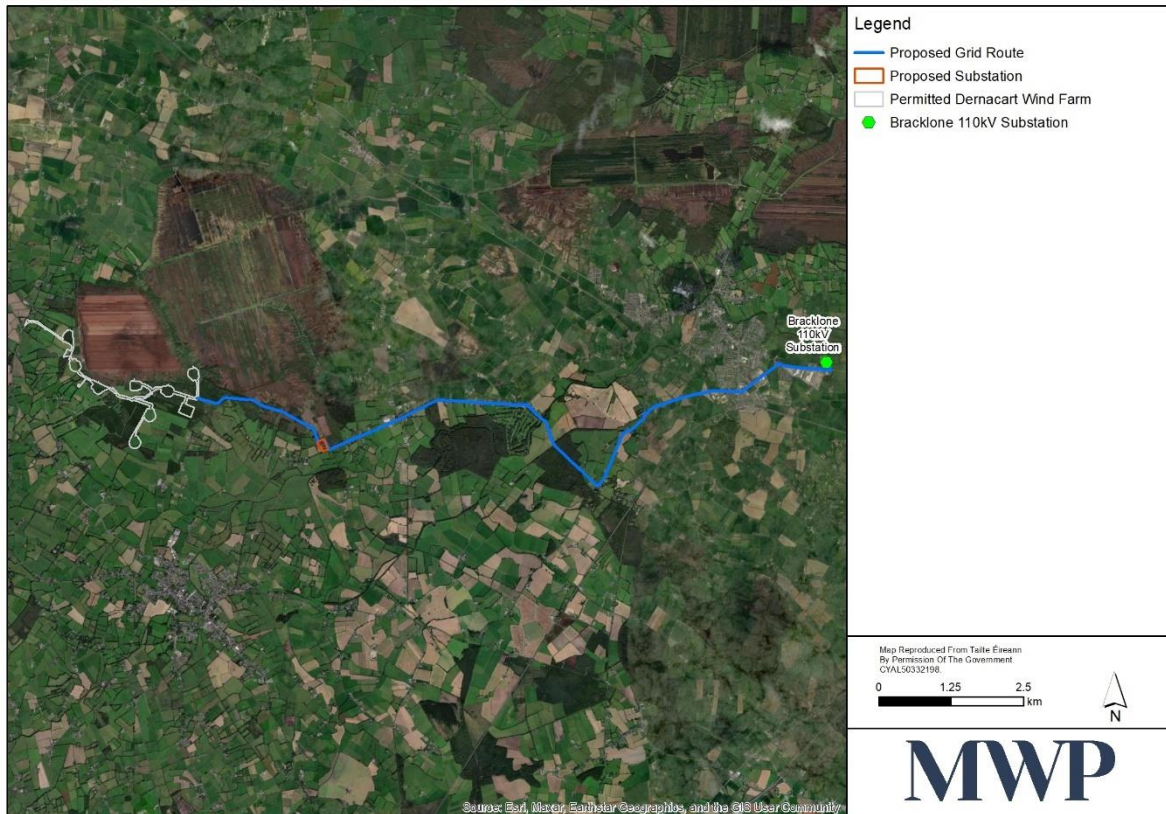
Figure 2-2 Proposed Access Track and Cable Route from Wind Farm to Substation



### 2.3 Underground Grid Connection Cable

The proposed route for the installation of an underground grid cable (UGC) from the proposed 110kV Dernacart Wind Farm substation compound in Barranaghs townland to the consented Bracklone 110kV substation in Portarlinton, Co. Laois is shown in **Figure 2.3**. See also Planning Drawing No 23268-MWP-GR-XX-DR-C-5103 to 23268-MWP-GR-XX-DR-C-5108.

Figure 2-3 Proposed Underground Grid Cable (UGC) Route



The grid connection will have a length of c.10.85 km passing through the townlands of Barranaghs, Garryhinch, Annamoe in County Offaly and Coolnavarnoga, Coolaghy, Kilbride, Ballymorris, Coolederry and Bracklone Co. Laois.

The UGC works will consist of the installation of ducts and joint bays in an excavated trench within the public road network to accommodate power cables, and a fibre communications cable to allow communications between Dernacart Wind Farm Substation and Bracklone Substation.

The proposed grid connection will require a Road Opening License (ROL) prior to the commencement of any grid connection works on the public road. The road surface of the public roads will be reinstated to the standards set out by the Department of Transport, Tourism and Sport Guidelines on the Opening, Backfilling and Reinstatement of Trenches on Public Roads (April 2017).

### 3. Construction Works

#### 3.1 110kV Substation

Key elements of the civil works and activities associated with the construction phase of the substation are as follows:

- Pre-commencement activities including site investigation work and pre-construction surveys
- Site preparation including fencing (for ecology, water and archaeological exclusion zones if necessary),

- Construction of site entrances and sections of internal access roads necessary to facilitate access to the temporary construction compound;
- Installation of site drainage systems;
- Construction of temporary construction compound including site offices, parking, material laydown and storage areas, etc;
- Establishment of temporary storage of stockpiled overburden and surplus excavated materials within the material storage areas.
- Bulk earthworks for formation of access road and substation compound base;
- Substation compound base and equipment foundations;
- Cable trenching and cable laying;
- Construct of control building and install equipment within compound;
- Construction of permanent drainage system
- Aggregate placement, grading and compaction for substation access road
- Complete site works: lighting, security fencing, gates, signage;
- Reinstatement of temporary drainage system;
- Demobilise offices and tidy up site.

### **3.2 Underground Wind Farm Collector Cable and Access track**

The construction of the proposed collector cable and access track will principally comprise of the following civil works and activities:

- Pre-commencement activities including site investigation work and pre-construction surveys
- Felling of any areas of coniferous forestry plantation necessary to facilitate construction works;
- Site preparation including fencing (for ecology, water and archaeological exclusion zones if necessary),
- Construction of new watercourse crossing at Cottoners Brook;
- Earthworks and drainage infrastructure associated with construction of collector cable and new access road;
- Cable trenching and ducting;
- Cable laying;
- Reinstatement of the cable collector track.
- Aggregate placement, grading and compaction for new access track.

### 3.3 Underground Grid Connection Cable

The construction of the proposed underground grid connection cable will principally comprise of the following civil works and activities:

- Pre-commencement activities including site investigation work and pre-construction surveys
- Cable trenching and cable laying;
- Construction of Joint Bays and communication chambers;
- HDD under watercourse crossings;
- Reinstatement of the public road.

### 3.4 Schedule of Construction Works

It is envisaged that the proposed development will commence in 2025 with a 16-month construction period. The start date is dependent on planning being granted, receipt of a grid connection offer from EirGrid, funding and all permits being in place. A framework programme of works is outlined in **Table 3-1** and **Table 3-2** below.

**Table 3-1 Outline Substation and Windfarm Collector Cable Construction Programme**

Stage	Activity	Estimated Duration
Phase 1	Pre-construction activities, Site preparation and Enabling works including construction of new site entrance	4 weeks
Phase 2	Temporary Drainage systems and Substation Access Track construction	6 weeks
Phase 3	Substation Compound excavation and formation	6 weeks
Phase 4	Windfarm collector cable and access road	12 weeks
Phase 5	Trenching, ducting and cabling	4 weeks
Phase 6	Hard standings	4 weeks
Phase 7	Control buildings construction	16 weeks
Phase 8	Electrical Infrastructure installation and other electrical works	6-8 weeks
Phase 9	Security fencing	2 weeks
Phase 10	Facility commissioning, removal and reinstatement of drainage system and site demobilisation	8 weeks
Total		<b>16 months</b>

**Note:** Phases are likely to overlap and will not be completed in isolation resulting in estimated total programme duration of approximately 16 months.

**Table 3-2 Outline Grid Route Construction Programme**

Stage	Activity	Estimated Duration
Section 1	Section within the R423 to L-50183	8-10 Weeks
Section 2	Section with the L-50183 and L-7161 to L-3152	6 Week
Section 3	Section within the L-3152 to R419	3 Weeks
Section 4	Section within the R419 to L-3158	2-3 days
Section 5	Section within the L-3158 to R420	8 Weeks
Section 6	Section within the R420 to Bracklone Substation	3 Weeks
Total		<b>30 Weeks</b>

### 3.5 Working Hours

Working hours will be.

7:00am – 7:00pm\* (Monday – Friday inclusive)

7:00am – 13:00pm\* (Saturday)

There will be no intrusive work on Sunday and Bank Holidays\*

\*The working day may extend occasionally at times when critical elements of work need to be advanced

### 3.6 Construction Personnel

During the construction phase, the number of on-site construction personnel will vary for each phase of the development. Overall, it is envisaged that the proposed development would generate employment for up to 30 - 40 persons during the construction phase to include site contractors, on-site vehicle and plant operators, engineers, materials delivery personnel, environmental personnel, health and safety personnel.

### 3.7 Construction Delivery Vehicles and Route

#### 3.7.1 Delivery Vehicles

All construction excavated material for the proposed windfarm collector cable, substation and the associated proposed access road/track between the proposed substation and Dernacart Wind Farm would be retained on-site.

The 16 months construction would require the importation of a total of up to 11,584 loads of construction materials plus the removal of 814 loads from the grid connection works along the public road network to a licensed waste facility. All construction materials would be transported using standard heavy vehicle delivery trucks with capacities of 10 m<sup>3</sup> and 20 tonnes, and 8 m<sup>3</sup> for concrete trucks. The peak daily imported loads would occur during the six weeks’ substation formation and access road/track works. The proposed construction works heavy vehicle loads are provided in Table 2-3.

Works	Total Number of Heavy Vehicle Loads		
	Total Construction (16 months)	Peak Daily	Highest Hour
Substation, WF Collector Cable and Access Road/Track (16 months)	9,911	183 <sup>(1)</sup>	18 <sup>(1)</sup>
Grid Connection (30 weeks)	2,487	15	2
<b>Total (16 months)</b>	<b>12,398</b>	<b>183 <sup>(1)</sup></b>	<b>18 <sup>(1)</sup></b>

Note <sup>(1)</sup>: During six weeks’ substation formation and access road/track works.

**Table 2-3: Proposed Construction Works Heavy Vehicle Loads**

### **3.7.2 Delivery Vehicle Routes**

The potential material sources for the proposed development construction are detailed in Chapter 2 Description of the Proposed Development of the EIAR, and include suppliers located in the northeast, east, south, southwest and west of the proposed development site.

It is envisaged that the delivery of construction materials would be typically circa 50% via the R423 east of the proposed substation access, and circa 50% via the R423 west of the proposed substation access, but could be up to 100% via either direction during specific periods of construction.

Abnormal load delivery (eg Transformers for the substation) will come through the permitted Dernacart Wind Farm.

## **3.8 Construction Methodology - Substation**

This section describes the construction methodologies that will be used for both the EirGrid substation building as well as the substation compound.

The proposed works will comprise the following:

### **3.8.1 Site Preparation**

As part of the site preparation and pre-construction activities the following key works will be undertaken:

- Any detailed ground investigations, environmental surveys etc required to support the construction process.
- The site boundary will be clearly marked with high visibility tape and the appointed contractor will not be permitted to use any areas outside the identified site boundary for any activity relating to construction. Hoarding/ Fencing will be erected to secure the site for safety reasons.
- Topsoil will be removed and will be used on site in landscaping/berms. Any excess soil will be removed offsite.
- A temporary site construction compound will be set up upon commencement of the construction phase of the buildings within the site boundary.

### **3.8.2 Excavation**

- All plant operators and general operatives will be inducted and informed as to the location of any services. The area of the substation compound will be marked out using ranging rods or wooden posts and the soil stripped and removed to a temporary storage area (in development footprint) for later use in landscaping. All remaining excavated material will be brought to the on-site storage areas for final deposition.
- Following the installation of drainage, a cut-fill earthworks operation will be carried out to provide a level platform to facilitate the construction of the substation buildings and electrical equipment.

### 3.8.3 Construction Materials, Plant and Equipment

The materials and equipment required to complete the development are listed hereunder:

#### Materials:

##### **Construction-related Materials (indicative)**

- Hoarding, scaffolding
- Structural/Secondary support steelwork
- Flooring
- Non-structural metalwork
- External wall finishes
- Roof finishes
- Above ground drainage pipes, fitting and pipework ancillaries
- Foul and surface water drainage
- Watermain pipework
- Concrete (in-situ, reinforcement, sundries, formwork, precast/composite)
- Brickwork/blockwork
- Roofing, cladding and waterproofing
- Woodwork
- Road and pavements (sub-bases, bases and surfacing)
- Kerbs, channels and edgings
- Signage
- Manholes and gullies
- Attenuation tank
- Full retention and bypass interceptors, silt traps, grease trap
- Water storage units for fire fighting
- Electrical pipework
- Fill (crushed stone Clause 804, pea gravel)
- Plaster, render, cement mortar etc.
- Wall cladding
- Tiling

##### **Construction plant and machinery required (indicative):**

- Hydraulic excavators
- Mobile cranes
- Specialist hydraulic demolition/crushing machines
- 20t 360 Excavators
- 20t Dumper Truck
- 3t Mini Digger
- 5t Dumper truck
- 3t roller
- Ready-mix concrete trucks
- Pump unit for ready mix concrete
- Vibrating rollers
- HGV 20 foot trailers
- HGV 40 foot trailers
- Telescopic site handlers



- Road Sweeper
- Block Grab
- Teleporter
- 20m<sup>3</sup> Skips
- Articulated Booms 65ft
- Scissor Lifts
- 30 kva Generator (until temporary Power is live)
- Kerbing Machine
- Asphalt paver finisher.

### 3.8.3.1 Temporary Construction Compound

A temporary site construction compound will be set up upon commencement of the construction phase within the site boundary. The compound will be used as a secure storage area for construction materials and excess spoil and also contain temporary site units to provide welfare facilities for site personnel.

The compound will be constructed early in the project in order to provide site offices and accommodation for staff and for the delivery of materials. Any surface water management, waste management measures etc will also be put in place at the outset. Site security if required, will be put in place adjacent to the entrance and will be maintained throughout all phases of the work. The compound will be in place for the duration of the construction phase and will be removed once construction is complete.

### 3.8.3.2 Site Drainage System

Details of the proposed drainage system is provided in in Planning Drawings No.23268-MWP-SS-00-DR-C-5207, 23268-MWP-SS-XX-DR-C-5404 and 263268-MWP-00-00-DR-C-5701 to 5707.

The drainage system will be implemented along all works areas including all internal site access roads, storage areas, substation and temporary construction compound.

At the outset it is proposed to install clean water cut-off drains around the perimeter of the development areas to intercept surface water run-off from catchments uphill of the proposed development works. The cut-off drains will collect and divert the collected runoff around site infrastructure to prevent it entering the site and potentially coming in contact with site runoff containing suspended solids.

At the substation compound, it is proposed that surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, including areas where a risk of a contaminant leak or spill may be present (such as the transformer bund), will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the south-east side of the substation compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the western side of the compound.

A separate surface water run-off drainage system will be implemented along all internal access roads, to separate and collect 'dirty water' run-off from the roadway and to intercept clean over land surface water flows from crossing internal roadways. To achieve separation, clean water drains will be positioned on the upslope and dirty water drains positioned on the downslope of road sides, with road surfaces sloped towards dirty drains. Clean water will be piped under both the access roads and downslope collection drains to avoid contamination. Piping the clean water under the service road allows the clean water to follow the course it would have taken before

construction thus mimicking the existing surface water over land flow pattern of the site and thus not altering the natural existing hydrological regime on site.

### 3.8.3.3 Water Supply

Potable water demand will be minimal and will be satisfied by an imported bottled water supply.

### 3.8.3.4 Watercourses

Refer to **Section 3.10.1** for details of watercourses.

## 3.9 Construction Methodology – Underground Wind Farm Collector Cable and Access Track

### 3.9.1 Excavated Roads / Access Track Construction

Excavated Road / Access Track Construction and build-up for new excavated roads / access track is as follows:

- The appointed contractor(s) will survey the area for any unforeseen hazards prior to the commencement of works and set up warning signage as appropriate.
- Excavators will first remove any topsoil / vegetative layer which may be present. This material will be transported to an agreed temporary storage area and maintained for re-use during the restoration phase of the wind farm construction. Topsoil / vegetative removal will be kept to a minimum in order to prevent any runoff of silt during heavy rainfall.
- Excavators will continue to strip and excavate the soft subsoil / peat underneath which will be temporarily stored adjacent to the access roads in accordance with approved methods with the use of an articulated dumper truck. Excavated material will only be temporarily stored on slopes under 5° and to a maximum height of under 1.0m until they are transported to the selected deposition areas where they will be permanently stored.
- All excavations to be carried out will be battered back to a safe angle of repose (minimum slope angle of 45°).
- Once a section of the excavated access road is exposed to suitable formation; a layer of geogrid or geotextile material may be placed along its formation depending on ground conditions which will be covered with aggregate stone as required compacted in maximum 250mm layers.
- The stone will be delivered to the required work area and spread out locally with the use of excavators and compacted with the use of a roller which will roll the stone aggregate in maximum 250mm layers on top of the geogrid / geotextile material in order to achieve the required design strength.
- All new excavated access roads will be constructed to a minimum drivable width of 5.0m with a maximum crossfall of 2.5% in order that water can flow off the roads and reduce the risk of rutting / potholes occurring.
- Roadside drains will be constructed to manage clean and dirty water runoff along excavated access roads.
- The final running surface of the new excavated roads / access track will be capped with a minimum 150mm layer of hard-wearing Class 6F stone using a road grader.

- Any surplus spoil material generated from the excavated road / access track works will be transported back to the designated materials storage areas. Excavated topsoil and subsoil will be kept separate at the excavation and storage areas.
- Where drop offs greater than 1.0m in height occur alongside road edges; physical edge protection will be constructed in order to reduce the risk of vehicles overturning. Roadside marker posts will also be erected to delineate road edges in poor weather.
- The appointed contractor(s) will ensure that on site personal will be aware of environmental constraints / sensitive areas within the wind farm site in which works are to avoid.

### 3.9.1.1 Floated Roads

The sequence of constructing floating roads will comprise the following as per guidance from the Scottish Natural Heritage / Forestry Commission Scotland (Forestry Civil Engineering - FCE) on the construction of floated roads over peat:

- The appointed contractor will mark out the line of the proposed floated road using a GPS / total station;
- The intended floating road area is cleared of major protrusions such as rocks, trees, bushes etc down to ground level but residual stumps and roots are left in place.
- The local surface vegetation and soils are left in place where possible as the existing vegetation and root mat may be the strongest layer in the system and care should be taken to preserve this layer if at all possible.
- Any local hollows and depressions are filled in with a suitable local lightweight fill such as tree brash, logs, or geogrid / geotextile material with stone aggregate.
- A formation, 7 to 8m, wide is prepared where a layer of geogrid / geotextile is laid out by hand along the line of the proposed floated road.
- The specification for geotextiles will be finalised by the design engineer at construction stage but past empirical experience on previous constructed wind farms within Ireland and Scotland has proven the suitability of floated road construction over peat.
- Where there is a drainage requirement, suitably sized HDPE drainage pipes shall be laid on top of the installed geogrid / geotextile prior to the placement of stone aggregate. Cross drains will be laid at appropriate intervals to maintain the existing drainage regime on the site.
- The material required for construction of new floated roads will be sourced from a combination of the four proposed on-site borrow pits and external quarries. The extraction of stone aggregate from the proposed borrow pits will be undertaken by 30-60 Ton 360° excavators and loaded onto articulated dumper trucks that will deliver the stone aggregate to the work face of required floated access roads.
- Wide tracked 360° excavators will be used for constructing the floated roads by cascading a minimum 450mm thickness of site won stone aggregate over the geogrid / geotextile. The suitable site won stone aggregate should be suitably sized in order to achieve a sound interlock with the geogrid / geotextile material. It is common practice for floated road construction on wind farms that the compaction of the stone aggregate is done by the wheels and tracks of construction plant alone.
- An additional layer of geogrid / geotextile may be placed over the stone aggregate if necessary before a minimum capping layer of 150mm of Class 6F or similar material is laid out with excavators.
- All floated access roads will be constructed to a minimum drivable width of 5.0m with a maximum crossfall of 2.5% in order that water can flow off the roads and reduce the risk of rutting / potholes occurring.

- Roadside drains as per Section 3.16 will be constructed to manage clean and dirty water runoff along floated roads.
- Where drop offs greater than 1.0m in height occur alongside road edges; physical edge protection will be constructed in order to reduce the risk of vehicles overturning. Roadside marker posts will also be erected to delineate road edges in poor weather.
- To allow for the safe movement of site traffic during the construction of floated roads; a site traffic management plan will be prepared by the appointed contractor. Care will be taken when reversing vehicles on floating roads to ensure that they do not run along the edge of the road but stay within the delineated safe running zone.
- The appointed contractor will ensure that on site personnel will be aware of environmental constraints / sensitive areas within the wind farm site in which works are to be avoided.

### 3.9.2 Collector Cable

Underground collector cabling from the wind farm to the substation compound will consist of single or twin cable trenches within the internal access road.

A cable marker post will be installed on top in order to protect and identify the cable trench underneath. Each marker post will contain appropriately worded warning signage highlighting to persons the presence of high voltage electricity cables underneath. Cable marker posts will either be made of concrete, recycled plastic or timber material.

The cable trench will be backfilled with lean-mix concrete in order to protect ducting from being damaged by heavy axle loads that will pass above.

The excavated material generated from the trenches will be deposited within the proposed on-site material storage areas.

Where an open drain or watercourse is encountered during the installation of the internal site cable trenches; the cable trenches will cross the open drain or watercourse within the road carriageway via new or existing road crossings points to ensure that no in-stream works occur. Marker tapes of non-corrodible material in bright red and yellow colour will be placed within the trench for identification and safety purposes in accordance with ESB Networks guidelines (esbnetworks.ie).

#### 3.9.2.1 Backfill

- Once a section of the excavated access track is exposed to suitable formation; a layer of geogrid or geotextile material may be placed along its formation depending on ground conditions which will be covered with site won aggregate stone as required compacted in maximum 250mm layers.
- The material required for the excavated access tracks is proposed to be imported stone from the nearby quarries. All tracks will be finished with imported 150mm crushed stone of Clause 804, or similar aggregate type material.
- The stone will be delivered to the required work area and spread out locally with the use of excavators and compacted with the use of a roller which will roll the stone aggregate in maximum 250mm layers on top of the geogrid / geotextile material to achieve the required design strength.

### 3.9.2.2 Drainage

- All new excavated access tracks will be constructed with a maximum crossfall of 2.5% in order that water can flow off the tracks and reduce the risk of rutting / potholes occurring.
- Trackside drains as will be constructed to manage clean and dirty water runoff along excavated access tracks.

### 3.9.2.3 Surface

- The final running surface of the new excavated access tracks will be capped with a minimum 150mm layer of crushed stone Clause 804 material or similar using a road grader.
- Excavated topsoil, subsoil and any surplus spoil material generated from the excavated access track works will be transported to the material deposition area to aid final reinstatement.
- Where drop offs greater than 1.0m in height occur alongside track edges; physical edge protection will be constructed to reduce the risk of vehicles overturning. Marker posts will also be erected to delineate track edges in poor weather.

### 3.9.2.4 Miscellaneous

- Civil works associated with the construction of the transformer bund, equipment plinths etc. within the substation compound will commence.
- The installation of palisade fencing and stock proof, agricultural fence (to be installed outside palisade) and associated gates to the perimeter of the substation compound will proceed.

### 3.9.2.5 Electrical

- Civil works associated with construction of underground cable ducts and trenches within the substation compound will commence.
- The installation of electrical equipment within the substation compound and buildings including transformers, busbars, circuit breakers, cable supports, switchgear, panels etc. and all associated cabling will occur.

### 3.9.2.6 Watercourses

Refer to **Section 3.10.1** for details of watercourses.

### **3.10 Underground Grid Connection Cable**

This section describes the construction methodologies which will be used for both the construction of the grid route which will involve Open Trenching and / or Horizontal Directional Drilling. Open Trenching and Horizontal Directional Drilling works comprise of the following;

#### **3.10.1 Open Trenching**

An excavator and material handling vehicle will set up to remove the topsoil layer or surface layer. Trench shoring may be required depending on the depth. The material handling vehicle will deliver specified bedding material to the site and the excavator will place the material in the trench, the bedding material will be compacted with an appropriately sized compactor. Specifications and installation methodology will be followed when installing the ducting. Haunching, concrete or backfill material depending on the location, will be placed in the trench around the duct. The depth of excavation may vary from location to location therefore the depth and material required for backfilling up to the surface layer may vary along the route. The backfill will be placed and backfilled in layers. The surface layer will be either topsoil in greenfield areas, UGMA on access tracks to the proposed surface or a specified finish to the satisfaction of Laois / Offaly County Council in public road areas.

#### **3.10.2 Horizontal Directional Drilling**

Direction drilling may be used at watercourse crossings or under existing services depending on the detailed design approach taken. The directional drilling machine will set up at a launch and reception pit (an enlarged portion of on-road trench, i.e., a service trench on either side of the crossing point at an appropriate distance back from the watercourse). The drill will then bore in an arc under the watercourse feature. The drilling head of the boring tool has a series of nozzles that feed a liquid bentonite mix along the bore direction, which provides both lubrication and seals the cut face of the bore. Once the bore reaches the reception pit, the duct is then attached to the drill head and the duct is pulled back along the route of the bore to the original drilling point. Any bentonite mix is deposited within the bore shaft and spillage is collected at either end of the bore with a dedicated sump; all excavated material and excess bentonite will be removed from site and brought to an authorised waste facility. The launch and reception pits will be backfilled in accordance with normal specification for backfilling excavated trenches and to the satisfaction of Laois / Offaly County Council.

### 3.10.3 Ducting and Cable Construction

#### 3.10.3.1 Excavation

During construction works, the trench will be excavated down through the existing pavement and stone in the road/topsoil using an excavator machine. As stone fill/topsoil is removed it is temporarily stockpiled adjacent to the trench for re-use in backfilling or removal to an appropriately licenced facility. **Figure 3-1** shows an image of typical trenching for an electrical cable in a public road.



Figure 3-1 Photograph of Trenching in Public Road

### 3.10.3.2 Installation of Ducts

The ducts are placed within the trench and raised within the trench bed to the specified level to allow for the concrete bedding and haunching. **Figure 3-2** shows ducts laid in a trench in the public road.



**Figure 3-2** Photograph of cables installed in a trench on a public road.

### 3.10.3.3 Bedding and Haunching

The trench is then prepared to receive concrete bedding and surround for the ducts. The ducts are surrounded by concrete with adequate cover over the duct.

### 3.10.3.4 Trench Backfill

Once the concrete is compacted into place, appropriate imported stone material is placed over the concrete surround and filled back up to the top of trench. Suitable warning tapes will also be installed in the trench. Once the trench is filled, the trenching and ducting process will move along the route in planned stages.



### 3.10.3.5 Road Surface

Where the route is within the public road, the trench surface receives a temporary surface dressing of either spray and chip or macadam. Once a significant section of the scheme is complete, the relevant area of the grid connection route and associated road will receive a new permanent macadam finish as agreed with Laois / Offaly County Council. A new unbound stone access track will be constructed over the route which is not within the public road. **Figure 3-3** shows typical road reinstatement following installation of the ducts.



**Figure 3-3 Temporary Road Reinstatement**

### 3.10.3.6 Marking Posts

- The as-built location of the ducting will be surveyed using a total station / GPS. Marker posts will be installed along the grid connection route to also denote the location of ducting on the ground.
- A condition survey will be carried out on the public road impacted by the grid connection route, both pre and post construction.

### 3.10.4 Joint Bay Construction

- Joint bays are pre-cast concrete chambers that will be required along the grid connection route over its entire length. They are required to join cables together to form one continuous cable. They will be located at various points along the grid connection route approximately every 500 - 1,000 metres depending on gradients, bends etc.
- Joint bays for the 110kV grid connection cable for this project will be located in public roads.

- The joint bays and communication chambers will be precast. In order to place the boxes, the area of excavation will first be marked out on the ground and any necessary preparatory protection measures put in place to avoid any runoff or loss of soil materials. These include appropriate siltation measures (silt fences, check dams etc.).
- The material excavated from the joint bay chambers will be removed from the area to the onsite deposition areas or to appropriately licenced facilities deposition areas within the substation site. Prior to the chamber being installed in a compacted layer of suitable stone or lean mix concrete, appropriate material will be placed in the excavation to a level surface. The boxes are then positioned *in situ* and backfilled around them with imported crushed stone material. The precast concrete joint bay chamber cover is then put in place. **Figure 3-4** shows a typical joint bay installation.



**Figure 3-4 Joint Bay Installation**

### **3.10.5 Excavated Material**

All excavated material will be temporarily stored adjacent to the trench or removed immediately and transported by an appropriately authorised waste collector and disposed of at an appropriately licenced waste facility.

### **3.10.6 Standard Clearances and Crossing Methods**

Existing underground services including watermains, ESB and telecoms are present along the proposed grid route. A minimum vertical clearance of 300mm is required from the bottom of the ducting to the top of any underground service. If this clearance cannot be achieved, the ducting will pass below the service with a minimum 300mm clearance maintained from the top of the ducting to the bottom of the service. A minimum horizontal clearance of 300mm is required from outside wall of the ducting to any standard/normal underground service, the

horizontal clearance to any large pipeline or high-pressure pipe increases to 600mm. The vertical and horizontal clearances are as per EirGrid Networks requirements.

Depending on the service and site constraints a variation to standard installation may be required. Options have been kept broad at the planning stage as future site investigation or onsite construction conditions may vary to what is currently expected, one of the below options 1-3 may be used:

#	Name	Description	Figure
1	Standard Over/Under	Standard trefoil formation constructed over/under existing service or watercourse while maintaining minimum separation requires	
2	Flatbed Over/Under	Flatbed formation constructed over/under existing service or watercourse where unable to maintain minimum separation requires	
3	HDD	Horizontal directional drilling where standard and flatbed trefoil formations can't be achieved. Also used for specific site constraints like transverse watercourses, protected structures and difficult geology.	

**Table 3-3 Utility and Water Crossing Details**

### 3.10.7 Existing Services

All relevant bodies i.e., ESB Networks, EirGrid, Gas Networks Ireland, Eir, Laois / Offaly County Council etc. will be contacted and drawings for all existing underground services along the grid connection route sought. Any underground services encountered will initially be surveyed for levels to determine if there is adequate cover available for ducting to pass over or under these services.

If the required separation distances cannot be achieved by either going above or below the underground service, then a number of alternative construction options are available as outlined in the previous section.

The exact location of the underground HV ducting may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction and following consultation with Roscommon County Council and all other relevant stakeholders, having regard to all environmental protection measures outlined in the planning application and accompanying technical reports. Any such minor modification will be within the planning boundary.

### 3.10.8 Watercourse Crossings

There are a total of sixteen (16) no. water crossings required to facilitate the proposed development. The number of crossings related to each element of the proposed development includes:

- One (1) crossing at the new site entrance to the proposed 110kV Substation;
- Four (4) crossings located along the route of the underground collector cable and access road; and
- Eleven (11) crossings along the route of the 110kV underground grid connection cable.

Refer to **Figure 3-5** for the location of these crossings. Details of each water crossing is provided in **Table 3-5**.

As part of the construction activities, no instream works will be undertaken within any watercourse. Crossing No. 1 and No. 5 will be achieved by the addition of new clear span structures so as to leave the natural bed and banks undisturbed. Details of new clear span crossings are shown on Drawing 23268-MWP-ZZ-00-DR-S-1101.

Crossings to be achieved by means of Horizontal Directional Drill (HDD) will require a service trench (launch pit) for the drill in the road either side of the watercourse. Refer to Drawing No. 23268-MWP-GR-XX-DR-C-5403 and 23268-MWP-GR-XX-DR-C-5410 for further details.

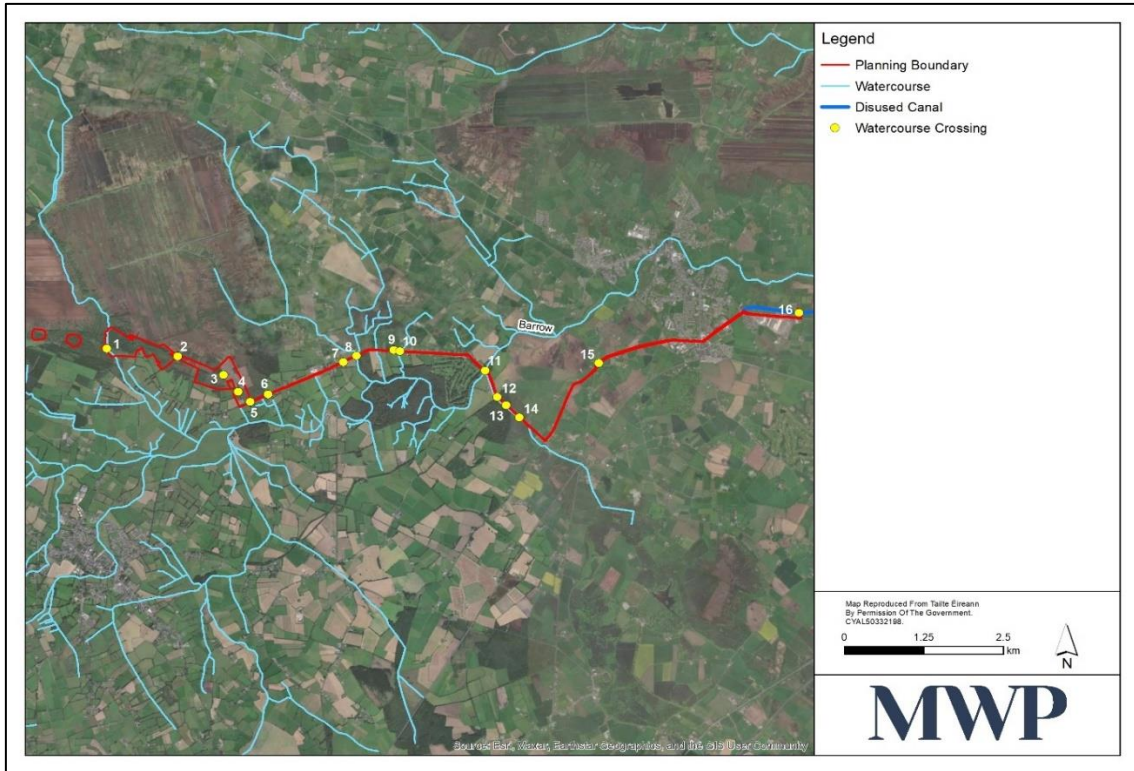


Figure 3-5 Watercourse Crossing Locations

Water Crossing Number	ITM (X) easting	ITM (Y) northing	Crossing Type, Diameter and Span	EPA listed river waterbody	Anticipated options for UGC crossing method*
1	645343	711091	New crossing over Cottoners Brook for access track and wind farm collector cable	Yes	New clear span structure
2	646457	710961	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
3	647178	647405	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
4	647405	710380	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
5	647596	710217	New crossing over land drain for access road to substation	No	New clear span structure
6	647878	710339	Minor drain crossing	No	1, 2 or 3
7	649059	710868	Minor drain crossing	No	1, 2 or 3
8	649268	710973	Single stone arch	Yes	3

Water Crossing Number	ITM (X) easting	ITM (Y) northing	Crossing Type, Diameter and Span	EPA listed river waterbody	Anticipated options for UGC crossing method*
9	649582	711066	Single stone arch	Yes	3
10	649950	711046	Single stone arch	Yes	3
11	651294	710128	Stone Arch Bridge. Kilnahown Bridge over the river Barrow	Yes	3
12	651480	710296	Minor drain crossing	No	1, 2 or 3
13	651622	710161	Minor drain crossing	No	1, 2 or 3
14	651830	709960	Minor drain crossing	No	1, 2 or 3
15	653082	710849	Minor drain crossing	No	1, 2 or 3
16	656227	711672	900 diameter pipe which links to abandoned canal	No	1, 2 or 3
<p><i>*Potential Crossing Methods;</i></p> <ol style="list-style-type: none"> <li>1. Standard trefoil/flatbed formation under piped culvert crossings via open trench.</li> <li>2. Flatbed formation over bridges/culverts or under a pipe. UGC laid in existing road make up above the bridge/culvert or under an existing pipe.</li> <li>3. Horizontal Directional Drill under the bridge/culvert.</li> </ol>					

**Table 3-4 Watercourse Crossing Details**

### 3.11 Other Elements of the Construction Phase

#### 3.11.1 Water Requirement

There will be a very small water requirement for toilet flushing and hand washing and therefore it is proposed to harvest water from the roofs of the buildings. The discharge from the sanitary facilities within each building will go to separate wastewater holding tanks located within the substation compound where the effluent will be temporarily stored and removed at regular intervals by a permitted waste contractor and removed to a licensed/permitted waste facility for treatment and disposal.

### **3.11.2 Wastewater Treatment / Effluent Disposal**

During the construction period, wastewater production is estimated to be 1,500-2,000 litres per day. Wastewater from welfare facilities at the temporary construction compound will drain to integrated wastewater holding tanks associated with the toilet units.

During the operational phase, although primarily controlled remotely, maintenance personnel will visit the substation building on a regular basis. The daily average wastewater production during the operational phase is estimated from the average number of workers on site, which is expected to be 1-2 workers, resulting in a typical wastewater production rate of 100 litres per day. The wastewater generated during the operational phase will be managed by a holding tank which is of twin-hull design and fitted with an alarm to indicate levels and when it is due for empty. The stored effluent will then be collected on a regular basis from site by a permitted waste contractor and removed to a licensed/permitted waste facility for treatment and disposal.

### **3.11.3 Waste Management**

All waste arising during the construction phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Act 1996 and associated amendments and regulations and the Waste Management Plan. Construction phase waste may consist of concrete, spare steel reinforcement, shuttering timber, food waste and unused oil, diesel and building materials. This waste will be collected at regular intervals during the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Plastic waste will be taken for recycling by an approved contractor and disposed or recycled at an approved facility. Soil will be reinstated into trenches where possible. In the event, there is excess material, with no defined purpose, it will be transported to an authorised soil recover site.

### **3.11.4 Fuel Storage and Management**

All plant will be refuelled on site e.g. excavators, dumpers etc, while rigid and articulated vehicles will be filled off site as would all site vehicles (jeeps, cars and vans). A fuel management plan will be developed in relevance to the site, and the specific plant and equipment required for construction. The plan outlined will have regard to the following elements:

- Mobile bowsers, tanks and drums will be stored in a secure, impermeable storage area, away from drains and open water;
- Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;
- Ancillary equipment such as hoses, pipes will be contained within the bund;
- Taps, nozzles or valves will be fitted with a lock system;
- Fuel and oil stores, including tanks and drums, will be regularly inspected for leaks and signs of damage;
- Only designated trained operators will be authorised to refuel plant on site;
- Procedures and contingency plans will be set up to deal with an emergency accidents or spills; including availability of specialist 24/7 spill contractor in case of major incident.

### 3.12 Method Statements

The appointed Contractor will provide method statements to carry out the works and risk assessments based on the outline method of works, procedures and the environmental requirements set out in this CEMP.

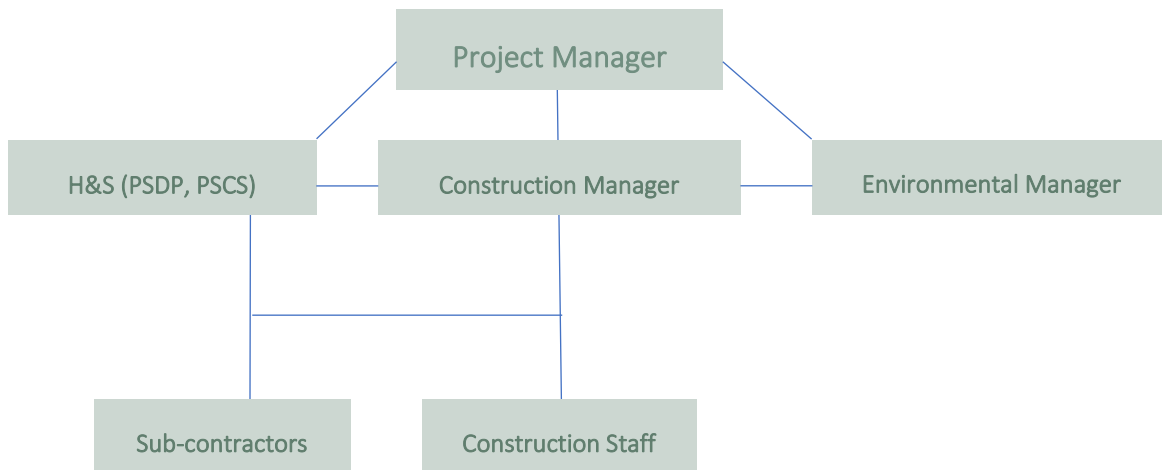
The following will be considered during the detailed planning of the works phase:

- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA) in particular.
- Method statement for management of surface water to prevent run-off of silt or any other pollutant from the site to watercourses.
- C532 Control of water pollution from construction sites: guidance for consultants and contractors (Masters-Williams et al, 2001).
- SP156 Control of water pollution from construction sites – guide to good practice (Murnane et al, 2002).
- Requirements for the protection of fisheries habitat during construction and development works at river sites developed by the ERFB.
- Proper storage and bunding of any oils/ hydrocarbons.
- Noise management measures.

## 4. Organisational Structure, Duties and Responsibilities

### 4.1 On Site Organisational Structure and Responsibility

The Organisational Structure for the Contractor’s Project Team is included below. This structure is defined by the Contractor and includes the names of the assigned personnel with the appropriate responsibility and reporting structure reflected.



The Contractor will select the Project Team for the construction of the Project. The Contractor’s Project Team will include an overall Project Manager, whose duties will stretch beyond the day-to-day works to budgetary, procurement and scheduling matters. The selected Construction Manager will have overall responsibility for the construction site personnel carrying out the works and the Construction Manager will report to the Project Manager.

A competent Environmental Manager will be appointed for the duration of the works and will report to the Project Manager. The Construction Manager will communicate regularly with the Environmental Manager to ensure



mitigation measures are applied to specific works. The Environmental Manager will carry out tasks as required, including installation and maintenance of sediment control measures and implementing and maintaining approved waste management control measures. The use of dedicated staff, under the direction of the Environmental Manager, will ensure the environmental controls are in situ ahead of the works on site.

## 4.2 Duties and Responsibilities

The general role of key people on site implementing the CEMP will be:

- The Project Manager - liaises with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor(s)'s project team.
- The Construction Manager - liaises with the Environmental Manager when preparing site works where there is a risk of environmental damage and manages the construction personnel and general works.
- The Design Engineer - undertakes and certifies the Design and supervises the standard of works, including geotechnical aspects (Geotechnical engineer may need to be consulted).
- The Environmental Manager - ensures that the CEMP is developed, implemented and maintained. The Environmental Manager's tasks at the construction site are described below at Section 5.2.4. To ensure adequate cover of environmental tasks, waste management tasks and responsibilities, dedicated construction staff will be assigned to the Environmental Manager to implement and maintain the Sediment and Erosion Plan and any other measures required.

Other roles include:

- Health and Safety (PSDP and PSCS)
- Waste Management Coordinator (report to the Environmental Manager)
- Geotechnical Engineer (as required by Design Engineer)

### 4.2.1 Project Manager

**Name:** TBC

A Project Manager is to be appointed on behalf of the main Contractor(s) to manage and oversee the entire project. The Project Manager is responsible for:

- Implementing of the Construction and Environmental Management Plan (CEMP)
- Implementing the Health and Safety Plan
- Management of the construction project
- Liaison with the client/developer
- Liaison with the Project Team
- Assigning duties and responsibilities in relation to the CEMP
- Production of construction schedule
- Materials procurement
- Maintaining a site project diary

### 4.2.2 Construction Manager

Name: TBC

The Construction Manager manages all the works to construct the project, on behalf of the Contractor. The Construction Manager reports to the Project Manager. In relation to the CEMP, the Construction Manager is responsible for:

#### 4.2.2.1 Site-Specific Method Statements

- Liaising with the Environmental Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage, by incorporating relevant Environmental Control Measures and referring to relevant Environmental Control Measure Sheets.
- Liaising with the Environmental Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental and Waste Management Control Measures and Environmental Control Sheets have been altered, and
- Liaising with the Environmental Manager where third party agreement is required in relation to site-specific Method Statements, Environmental & Waste Management Control Measures and/or Environmental Control Measure Sheets.

#### 4.2.2.2 General

- Being aware of all project Environmental Commitments and Requirements.
- Ensuring that all relevant information on project programming, timing, construction methodology, etc., is communicated from the Project Manager, to the Environmental Manager in a timely and efficient manner in order to allow pre-emptive actions relating to the environment to be taken where required;
- Programming and planning of excavation works and communicating this schedule to the Environmental Manager;
- Ensuring that adequate resources are provided to design and install any environmental interventions;
- Liaising with the Design Engineer and providing information on environmental management to the Design Engineer during the course of the construction phase;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor's project staff; and
- Ensuring that the Environmental Manager performs regular and frequent environmental site inspections; and
- Reviewing and approving all waste management control measures ensuring compliance with National and International waste legislation and best practice.

### 4.2.3 Design Engineer

Name: TBC

The Design Engineer is responsible for:

- Design of the Works;
- Review and approval of relevant elements of the method statements – assist the Construction Manager with the overall review;
- Participating in Third Party Consultations; and
- Liaising with Third Parties through the Environmental Manager.

#### **4.2.4 Environmental Manager**

**Name:** TBC

- The Environmental Manager is responsible for:
  - **General**
    - Being familiar with the project environmental commitments and requirements;
    - Being familiar with baseline data gathered for the various environmental assessments and during pre-construction surveys;
    - Assisting the Construction Manager in liaising with the Design Engineer and the provision of the information on environmental management to the Design Engineer during the course of the construction phase, and
    - Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor’s project staff.
    - Implementing the environmental procedures of the CEMP;
    - Liaising with the Construction Manager to ensure that the control measures set out in the Schedule of Environmental Mitigation are implemented;
    - Liaising with the client/developer in relation to environmental issues.
    - Auditing the construction works from an environmental viewpoint.
  - **Site-Specific Method Statements**
    - Liaising with the Construction Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage. These site-specific Method statements should incorporate relevant Environmental Control Measures and take account of relevant Environmental Control Measure Sheets;
    - Liaising with the Construction Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental Control Measure and Environmental Control Sheets have been altered, and
    - Liaising with the Construction Manager where third party agreement is required in relation to site-specific Method Statements, Environmental Control Measures and/or Environmental Control Measure Sheets.

- **Third Party Consultations**
  - Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
  - Ensuring that the minutes of meetings, action lists, formal communications, etc., are well documented and that the consultation certificates are issued to the Design Engineer as required;
  - Liaising with all prescribed bodies during site visits, inspections and consultations;
  - Where new Environmental Control Measures are agreed as a result of third party consultation, ensuring that the CEMP is amended accordingly;
  - Where new Environmental Control Measures are agreed as a result of third party consultation, the Environmental Manager should liaise with the Construction Manager in updating relevant site-specific Method Statements, and
  - Where required, liaising with the Construction Manager in agreeing site-specific Method Statements with third parties.
- **Licensing**
  - Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licences, certificates, planning permissions, etc.;
  - Liaising with the designated licence holders with respect to licences granted pursuant to the Wildlife Act, 1976, as amended (if required);
  - Bringing to the attention of the Project, Design and Construction Team any timing and legal constraints that may be imposed on the carrying out of certain tasks.
- **Waste Management Documentation**
  - Holding copies of all permits and licences provided by waste contractors;
  - Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc., have appropriate authorisation, and
  - Gathering and holding documentation with the respect to waste disposal.
- **Legislation**
  - Keeping up to date with changes in environmental legislation that may affect environmental management during the construction phase;
  - Advising the Construction Manager of these changes, and
  - Reviewing and amending the CEMP in light of these changes and bringing the changes to the attention of the Contractor's senior management and subcontractors.
- **Specialist Environmental Contractors**
  - Identifying requirements for specialist environmental contractors (including ecologists, waste contractors and spill clean-up specialists) before commencement of the project;
  - Procuring the services of specialist environmental contractors and liaising with them with respect to site access and report production;

- Ensuring that the specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues, and
- Co-ordinating the activities of all specialist environmental contractors on environmental matters arising out of the contract.
- **Environmental Induction Training and Environmental Toolbox Talks**
  - Ensuring that Environmental Induction Training is carried out for all the Contractor's site personnel. The induction training may be carried out in conjunction with Safety Induction Training,
  - Providing toolbox talks on Environmental Control Measures associated with Site-specific Method Statements to those who will undertake the work.
- **Environmental Incidents/Spillages**
  - Prepare and be in readiness to implement at all times an Emergency Response Plan.
  - Notifying the relevant statutory authority of environmental incidents, and
  - Carrying out an investigation and producing a report regarding environmental incidents. The report of the incident and details of remedial actions taken should be made available to the relevant authority, the Design Engineer and the Construction Manager.
  - The Site Environmental Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour.
- **Site Environmental Inspections and Auditing**
  - Carrying out regular documented inspections of the site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements, etc.,
  - Carrying out inspections of the site drainage system.
  - Appending copies of the inspection reports to the CEMP.
  - Liaising with the Construction Manager to organise any repairs or maintenance required following the daily inspection of the site.
  - Accommodate audits by the Employer and/or independent auditing consultants during the project.
  - Accommodate third party environmental auditing when required.
  - During audits, the Environmental Site Manager shall make the necessary staff available during each audit and provide access to all documentation and site areas (and provide necessary induction and training to allow access where required).
  - If there are any adverse findings arising from the environmental audits, the Environmental Site Manager shall be required to take prompt mitigation actions and provide written reports to the Employer detailing such mitigation.
  - The Environmental Site Manager shall notify the Employer of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement

of statutory authorities or emergency services or where any pollution events occur, the Employer shall be notified within 1 hour.

Note: Communication in respect of the project to regulatory or statutory bodies shall be undertaken by the Employer, unless otherwise agreed, except in the case of incident notification.

- Environmental Records
  - The Construction Environmental Manager shall provide all CEMP documentation to the Client on completion of the site works. Reports arising during the site works, such as verification reports or waste disposal records shall be provided to the Client within one month of completion of the activity and may be subject to review.

## 4.2.5 Other Roles

### 4.2.5.1 Health and Safety Personnel

The Health and Safety personnel for the construction project is appointed by the Contractor in line with the Construction Regulations:

- Carrying out duty of Project Supervisor Construction Stage (PSCS)
- Responsible for safety induction of all staff and personnel on site
- Implementing the Health and Safety Plan
- Auditing and updating the Health & Safety Plan
- All other required legal duties

### 4.2.5.2 Geotechnical Engineer

The Geotechnical Engineer is responsible for:

- Assisting the Design Engineer as required
- Providing advice on geotechnical aspects of the works

### 4.2.5.3 Waste Management Coordinator

Name: TBC

The Waste Management Coordinator has been appointed by the Contractor and is responsible for:

- The management of waste that may be generated at the site.
- Educating site personnel, sub-contractors, and suppliers, about the best alternatives to conventional waste disposal/Waste Management Regime at the site.
- Keep records of all waste being removed from site, the effectiveness and accuracy of the documentation is to be monitored on a regular basis.
- Update the Waste Management Plan on a regular basis where required and make available as required (i.e. sub-contractors).
- Continually identifying waste minimisation actions on site and update the WMP plan accordingly.

- Distinguish reusable materials from materials suitable for recycling.
- Ensure maximum segregation at source.
- Cooperate with Site Management, on locations for stockpiling reusable materials.
- Separate materials for recovery.
- Identify and liaise with operators for recovery outlets.
- The Environmental Site Manager & Waste Management Coordinator will observe and advise upon all work carried out by sub-contractors where there are direct waste management issues of concern e.g. the excavation of non-hazardous and hazardous subsoils for off-site disposal. The sub-contractors will be instructed to comply with the CEMP.

#### 4.2.5.4 All Site Personnel

The site personnel appointed by the Contractor are responsible for:

- Adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements
- Adhering to the Health and Safety Plan
- Reporting immediately to the Environmental Manager and Construction Manager any incidents where there has been a breach of agreed procedures including:
  - a spillage of a potentially environmentally harmful substance;
  - an unauthorised discharge to ground, water or air, damage to a protected habitat, etc.

### 4.3 Contacts

#### 4.3.1 Main Contractor Contacts

Position Title	Name	Phone	Email
Main Contractor	TBC		
Project Manager	TBC		
Construction Manager	TBC		
Design Engineer	TBC		
Environmental Manager*	TBC		
Safety (PSCS)*	TBC		
Safety Officer*	TBC		
Site Emergency Number*	TBC		
Waste Management Coordinator	TBC		
Overall Project PSDP	TBC		

*\*24 hour contact details required*

### 4.3.2 Employer Contacts

Position Title	Organisation	Name	Phone	Email
Employer				
Employer's Representative				

### 4.3.3 Third Party Contacts

Organisation:	Position:	Name/Address:	Phone:	Email Address:
Inland Fisheries Ireland			+353 (0)1 8842 600	info@fisheriesireland.ie
National Parks and Wildlife Service			01 888 2000	natureconservation@npws.gov.ie
Environmental Protection Agency (EPA)	EPA	EPA Headquarters	(053) 916 0600	info@epa.ie
Local Authority	Laois/Offaly County Council	Laois/Offaly County Council	Laois – (057) 86 64000 Offaly – (057) 9346800	Laois – <a href="mailto:environmentadmin@laoiscoco.ie">environmentadmin@laoiscoco.ie</a> Offaly – customerservice@offalycoco.ie
Health and Safety Authority	Health and Safety Authority		0818 289 389	contactus@hsa.ie
Emergency Services	An Garda Síochána		999 or 112	
Emergency Services	Ambulance and Fire Service	Ambulance and Fire Service	999 or 112	



## 5. Environmental Commitments

### 5.1 Auditing, and Monitoring

A Preliminary Monitoring Schedule is provided below (**Table 5-1**) and will be finalised pending appointment of the Contractor.

The Contractor will assign a full-time Environmental Manager/Ecologist who will visit the site regularly to monitor the construction activities on a day to day basis. The duties will include completing the required checklists (sample checklist included below) and coordinating with the relevant personnel (e.g. Design Engineer as required) ensuring all environmental monitoring is carried out.

Figure 5-1 Auditing and Monitoring Table

Aspect	Area of Inspection	Monitoring Required	Note/Checks	Frequency	Responsibility
<b>Surface Water Run-off Controls</b>	Site compound Wastewater facilities Site entrance	Visual inspection	<ul style="list-style-type: none"> <li>Leaks</li> <li>Cracks/broken plastic piling</li> <li>Build up of sediment</li> </ul>	Regular/daily/weekly during the construction phase as well as during and after significant rainfall events	Environmental Manager/Ecologist
	Weather Forecast	Met Éireann download	<ul style="list-style-type: none"> <li>Pre-determined rainfall trigger levels (e.g. 1 in 5 year storm event or heavy rainfall at &gt;25mm/hr)</li> </ul>		Environmental Manager/
	Discharges from on-site sediment and erosion controls	Visual inspection	<ul style="list-style-type: none"> <li>Colour, presence of silts</li> <li>Silt build up</li> <li>Damage</li> <li>Blockages in the pipework conveying runoff</li> </ul>		
<b>Water quality monitoring</b>	Discharges from on-site sediment and erosion controls	Visual inspection	<ul style="list-style-type: none"> <li>Unacceptable level of sediment/silt on the road surface</li> <li>Presence of waste</li> </ul>	Weekly	Environmental Manager
	Internal site road Site Entrance	Visual inspection	<ul style="list-style-type: none"> <li>Unacceptable level of sediment/silt on the road surface</li> <li>Presence of waste</li> <li>Surface Condition</li> </ul>	Daily	Project Manager
<b>Roads</b>	Fuel & Oil Storage areas	Visual inspection	<ul style="list-style-type: none"> <li>Damage to containers or ancillary equipment</li> <li>Leakages</li> <li>Unlocked storage container</li> <li>Fuels stored within bunded area</li> </ul>	Daily	Project Manager
	Construction Materials Storage Areas	Visual inspection	<ul style="list-style-type: none"> <li>Damage</li> <li>Untidiness</li> </ul>	Daily	Environmental Manager
<b>Operation Control</b>	Concrete pours	Visual inspection	<ul style="list-style-type: none"> <li>Run-off / spills</li> </ul>	Weekly	Project Manager
	Dust generation	Visual Inspection	<ul style="list-style-type: none"> <li>Cleanliness of roads and compound area</li> <li>Dust at stockpiles</li> <li>Dust from delivery vehicles</li> </ul>	To be scheduled with pours	Project Manager

## 5.2 Environmental Performance Indicators

The Contractor will outline the key performance indicators for the site in gauging successful site management in the prevention of pollution and the protection of the environment.

Environmental performance indicators will include:

- Number of environmental accidents/incidents logged;
- Breach of procedure and corrective actions;
- Number of environmental complaints received;
- Results of monthly water quality monitoring;
- Results of noise and vibration monitoring, and
- Results of site audits.

The performance indicators will be communicated to all relevant personnel and sub-contractors. The review periods for analysing site performance indicators must also be specified.

## 5.3 Response Procedure/ Corrective Action

In the event of an environmental incident, or breach of procedure, or where a complaint is received, or in the event of encountering buried waste or contaminated soils/groundwater, the contributing factors are to be investigated and remedial action taken as necessary. The Contractor will ensure that the following respond actions will take place:

- 1) The Project Manager must be informed of any incident, breach of procedure and/or complaint received and details must be recorded in the incident/complaint register
- 2) The Project Manager is to conduct/co-ordinate an investigation to determine the potential influence that could have led to the non-compliance.
- 3) The Project Manager is to notify and liaise with the appropriate site personnel where required, e.g. Site Environmental Manager, Project Ecologist, Project Archaeologist
- 4) The Project Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour.
- 5) If necessary, the Project Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- 6) The details of the incident will be recorded on an Incident / Complaints Form which is to record information such as the cause, extent, actions and remedial measures used following the incident/complaint. The form will also include any recommendations made to avoid reoccurrence of the incident.
- 7) The Project Manager will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Designer and Client as appropriate.
- 8) The Site Project Manager is to ensure that the relevant environmental management plans/procedures are revised and updated as necessary

## 6. Summary

This CEMP provides the information which will be contained in the final contractor-developed plan at the construction stage of the project. The requirement on the Contractor to update these details has been explained, and there is a particular requirement for an update to the roles and responsibilities of those appointed on the site for the construction of the project. The CEMP is a live document and will be improved upon as the project progresses as appropriate.

## 7. Environmental Management Plans

A number of environmental management plans (EMP) have been prepared for managing the impacts of Construction Activities associated with the Project. Refer to Sections below. These plans are to be implemented by the Appointed Project Manager and/or Project Contractor(s) as relevant.

The Contractor will ensure that plans/procedures are communicated to all site staff, including sub-contractors, through induction, training and at relevant meetings.

- EMP-1** Management of Excavations
- EMP-2** Surface Water Run-Off Control (Sediment and Erosion Control)
- EMP-3** Fuels and Oils Management
- EMP-4** Management of Concrete
- EMP-5** Ecological Management Plan (Protection of Habitats and Fauna)
- EMP-6** Invasive Species Management Plan
- EMP-7** Construction Waste Management Plan
- EMP-8** Construction Traffic Management
- EMP-9** Management of Archaeology
- EMP-10** Construction Noise Management
- EMP-11** Construction Dust Management
- EMP-12** Emergency Response Plan
- EMP-13** Site Environmental Training Awareness
- EMP-14** Monitoring and Auditing
- EMP-15** Environmental Accidents, Incidents and Corrective Actions
- EMP-16** Environmental Complaints

**Table 7-1: Environmental Management Plans (EMP)**

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<b>EMP 1</b> <b>Management of Excavations</b>	To describe measures for the management of all excavations on the site	<p><b><u>General</u></b></p> <ul style="list-style-type: none"> <li>• Bulk excavations will be done during dry weather periods so as to avoid run-off from exposed excavation areas. Weather will be monitored during the project and no excavation works will be allowed during severe or heavy rainfall.</li> <li>• All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Where appropriate and necessary, cuts and excavations will be protected against ingress of water or erosion by the use of cut off drains around the excavation works. Temporary works will be such that they do not adversely interfere with existing drainage channels/regimes.</li> <li>• Vehicular movements will be restricted to the footprint of the permitted development, particularly with respect to the newly constructed access roads. This implies that machinery must be kept on existing roads/hardstands/yard areas and aside from advancing excavations do not move onto areas that are not permitted for the development.</li> </ul> <p><b><u>Management and Storage of Excavated Materials and Soil Management</u></b></p> <ul style="list-style-type: none"> <li>• Storage of excessive material will be at one of the three designated material storages areas. These areas will require preparation which includes the construction of natural stone berms to manage the location of stored materials. The material storage areas will be graded and vegetated with locally occurring vegetation feedstock. The deposition areas will be fenced in for a period of 12 months post construction to allow for revegetation.</li> </ul>	<ul style="list-style-type: none"> <li>• The Environmental Manager will monitor the excavation areas and associated drainage.</li> <li>• The Construction Manager will monitor vehicle movements throughout the construction phase</li> <li>• The Project Manager will oversee the phasing of the excavation and machinery movement across the site.</li> <li>• The Design Engineer, Geotechnical Engineer and Sub-contractors will have responsibilities as appropriate.</li> </ul> <p><b><u>Details of Excavating Soil and Rock to be finalised by Appointed Contractor</u></b></p>
<b>EMP 2</b> <b>Surface Water Run-off Control (Sediment and Erosion Control)</b>	To describe measures for the management of all surface water and run-off on the site, for the protection of watercourses and in particular, sediment and erosion control.	<p><b><u>Drainage, Erosion and Sediment Control</u></b></p> <ul style="list-style-type: none"> <li>• Implement erosion control to prevent runoff flowing across exposed ground and become polluted by sediments.</li> <li>• Intercept and divert clean water runoff away from construction site runoff to avoid cross-contamination of clean water with soiled water.</li> <li>• Implement sediment control to slow down runoff allowing suspended sediments to settle in situ particularly on roads.</li> <li>• Implement the erosion and sediment controls before starting site clearance works.</li> </ul>	<ul style="list-style-type: none"> <li>• The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out. Where standards are breached and remedial action is taken, an investigation must be carried out in</li> </ul>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 2 (ctd)	Surface Water Run-off Control (Sediment and Erosion Control)	<ul style="list-style-type: none"> <li>Minimise area of exposed ground by maintaining existing vegetation that would otherwise be subject to erosion in the vicinity of the compound and keeping excavated areas to a minimum.</li> <li>Delay clearing of soil until before construction begins rather than stripping the entire site months in advance particularly during road construction.</li> <li>Avoid working near drains during or after prolonged rainfall or an intense rainfall event and cease work entirely near drains when it is evident that pollution is occurring.</li> <li>Implement sediment control measures that includes for the prevention of runoff from adjacent intact ground that is for the separation of clean and 'dirty' water.</li> <li>Provide recommendations for public road cleaning where needed particularly in the vicinity of drains.</li> <li>Prior to and during construction works, operations will be monitored by a competent member of the construction team on a regular basis to check if working appropriately.</li> <li>Prior to any construction activity, the site will be inspected for areas that would be prone to siltation of nearby watercourses. Where necessary, existing pollution prevention measures (check dams and silt ponds) will be maintained / upgraded to ensure optimum standard of water running into streams from the drainage adjacent to access road. Drainage, silt fences and settlement ponds will be installed where new development components are proposed. Additional silt fencing and emergency spill kits will be kept on site for use in emergencies.</li> <li>All erosion control and retention facilities will be regularly maintained during the construction phase. The treatment approach described below will reduce significantly any potential increase in surface water run-off as a result of the facility development.</li> </ul> <p><b>Drains</b></p> <p>A site-specific drainage system has been designed taking account of the following:</p> <ul style="list-style-type: none"> <li>Maintenance of any existing vegetative land drains in order to keep them vegetated.</li> <li>Continuation of flows by natural flow paths via existing drains before entering the watercourse, providing further retention and treatment of discharges.</li> <li>Existing land drains will be utilised at the site for drainage. Maintenance of the existing vegetative land drains will ensure they stay vegetated.</li> </ul>	<p>conjunction with the Construction Manager, and further samples must be taken to verify that the situation has returned to normal.</p> <ul style="list-style-type: none"> <li>The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations and that booms for watercourses are long enough and have adequate anchorage.</li> <li>The Construction Manager (or a designate) is responsible for ensuring the spill kits are adequately stocked and should inform the Environmental Manager when items have been used.</li> </ul> <p><i>Details and Responsibilities for Sediment and Erosion Control to be finalised by Appointed Contractor</i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 2 (ctd)  Surface Water Run-off Control (Sediment and Erosion Control)		<ul style="list-style-type: none"> <li>• Where necessary, existing pollution prevention measures (vegetation in drains, check dams and silt ponds) will be maintained / upgraded to ensure optimum standard of water running into the nearby rivers from the land drainage system.</li> <li>• Where the drains have a gradient greater than 2.5%, check dams will be installed in the drains.</li> <li>• Where each land drain exits the proposed development a double silt trap will be placed. Each silt trap will be made up of a stone or straw dam combined with a silt fence.</li> <li>• Additional silt fencing and emergency spill kits will be kept on site for use in emergencies.</li> </ul> <p><b><u>Dewatering</u></b>                      Any ground water/surface water that may enter building foundations will be removed and treated and disposed of appropriately, in accordance with best practice. Any dewatering (if/where required) will adhere to the following measures:</p> <ul style="list-style-type: none"> <li>• Ground water/surface water will not be pumped directly into roadside drains/watercourses.</li> <li>• Ground water/surface water which has become silted within the building foundations will be pumped to the surface water drainage system/sediment ponds.</li> <li>• In the case of heavy siltation, water will be tankered off site for disposal at an authorised waste facility or pumped to a portable onsite settlement tank for treatment</li> </ul> <p><b><u>Monitoring</u></b></p> <ul style="list-style-type: none"> <li>• The Environmental Manager will walk the site each day and check the cross-drain pipes, dirty water drains and outlets, settlement ponds, interceptor drains and silt fences for any damage or blockages. Any damage or blockages will be repaired or cleared promptly.</li> <li>• As detailed above, weather forecasts will be monitored during the construction phase. The 24 hour advance meteorological forecasting service from Met Éireann will be used.</li> <li>• A surface water monitoring schedule, drawn up prior to construction, and agreed with the planning authority will be followed. Suspended solids monitoring will be undertaken on a weekly basis and ad-hoc if required (rainfall event for example), while monthly monitoring of pH, metals, nitrates and phosphates will also take place.</li> </ul>	



Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 3</p> <p>Fuel and Oils Management</p>	<p>Construction machinery and associated equipment will be the principal sources of pollutants such as oil, lubricants, fuel and hydrocarbons. The purpose of this plan is to describe measures for the management of all fuel and oils on-site for the protection of natural resources (soils and groundwater) from any spills.</p>	<p><u>Construction Machinery and Vehicles</u></p> <ul style="list-style-type: none"> <li>• The potential for hydrocarbons getting into the existing drains and local watercourses will be mitigated by only refuelling construction machinery and vehicles in designated refuelling areas using a prescribed re-fuelling procedure.</li> <li>• Refuelling will be carried out using 110% capacity double bunded mobile bowzers. The refuelling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using.</li> <li>• No servicing or repair of plant, machinery or vehicles should be undertaken on-site and the mechanical soundness of construction machinery will be checked prior to the commencement of construction works.</li> <li>• To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up-to-date service record will be required from the main contractor.</li> <li>• Contractors supplying concrete and crushed stone to the site will be contractually required to supply their products using roadworthy vehicles.</li> <li>• Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility.</li> <li>• The Environmental Manager will be immediately informed of the oil leak/spill and will assess the cause and the management of the clean-up of the leak or spill. They will inspect nearby drains for the presence of oil and initiate the clean-up if necessary.</li> <li>• Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery.</li> <li>• Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction.</li> <li>• In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill, kits kept in site vehicles and machinery.</li> </ul>	<ul style="list-style-type: none"> <li>• The Construction Manager and Environmental Manager are responsible for ensuring Fuel and Oils are managed in line with this procedure. The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations.</li> <li>• The Construction Manager is responsible for ensuring the spill kits are adequately stocked and should inform the Environmental Manager when items have been used. The Appointed Contractor, in updating the CEMP, must designate personnel to the tasks relating to Fuels and Oil, as outlined.</li> </ul> <p><u>References</u>                      Best Practice Guidelines BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).</p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 3 (ctd)	Fuel and Oils Management	<p><b><u>Accidental Spills / Contaminated Runoff</u></b></p> <ul style="list-style-type: none"> <li>• Good site practice [CIRIA 32 (2001)] is applied to ensure no fuels, oils, other substances or contaminated runoff are stored in a manner on site in which they may spill and enter the ground, particularly when the initial top layer is excavated. Dedicated, bunded storage areas will be used for all fuels or hazardous substances. Spill kits will be maintained on site.</li> </ul> <p><b><u>Drainage and Sediment Control</u></b></p> <ul style="list-style-type: none"> <li>• Construction pollutants such as oil or fuel will be stored in secure bunded impermeable construction compounds away from drains and open water and inspected regularly for leaks or signs of damage.</li> <li>• To help prevent the contamination of the ground and groundwater, contaminated materials (oils, fuels, chemicals etc.) will be used and stored in an appropriate manner as outlined in the relevant guidance, i.e. CIRIA (2001) and DMRB Volume 11 (1994).</li> </ul> <p><b><u>Temporary Construction Compound</u></b></p> <ul style="list-style-type: none"> <li>• Drainage within the temporary site compound will be directed to an oil interceptor to prevent pollution if any spillage occurs;</li> <li>• Temporary toilet facilities will be managed by the appointed Contractor during the construction phase;</li> <li>• The compound will be in place for the duration of the construction phase with the option to be in place during the operational phase.</li> </ul>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<b>EMP 4</b>  <b>Management of Concrete</b>	The purpose of this plan is to describe measures for the management of concrete on-site for the protection of natural resources from any spillages.	<p><b><u>Supervision of Concrete Pours</u></b></p> <ul style="list-style-type: none"> <li>To reduce the potential for cementitious material entering watercourses, concrete pours will be supervised by the Construction Manager, a suitably qualified Engineer and/or the Environmental Manager.</li> <li>The construction manager will ensure that the area of the pour is completely drained of water before a pour commences.</li> <li>Pours will not take place during forecasted heavy rainfall.</li> <li>Incidental rainfall from light showers during the period of a pour is typically absorbed into the concrete matrix but heavier showers can result in some run off from the top surface of the concrete pour. If run-off is encountered the supervisor in charge will block the outflow from the drains to retain or treat the run-off until the pH is neutral before discharge to the drainage network.</li> <li>In the event of a spillage on site, the Environmental Manager will temporarily block the dirty water drains in the immediate area and monitor the pH levels of the water and if necessary, will adjust the pH levels using CO<sub>2</sub> entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area.</li> <li>Temporary storage of cement bound granular mixtures will be on hardcore areas. Cement products are hazardous and should always be stored in a COSHH store or similar (shipping container), and only be in the open when in use. If cement products are temporarily located in the open, then they will be located within an impermeable bunded area and covered to prevent contact with rainwater. This will prevent direct drainage of cement storage areas to surface waters.</li> </ul> <p><b><u>Concrete Water</u></b></p> <ul style="list-style-type: none"> <li>To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The wash down area will consist of a suitably sized polythene lined bunded area.</li> </ul>	<ul style="list-style-type: none"> <li>The Construction Manager and EHS Manager will supervise all concrete pours.</li> <li>The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out. Where standards are breached, he/she should carry out an investigation and in conjunction with the Construction Manager, he/she should ensure remedial action is taken and further samples taken to verify that the situation has returned to normal.</li> </ul>
<b>EMP 5</b>  <b>Ecological Management Plan (Protection of Habitats and Fauna)</b>	The Project is located within 15km of the following designated sites: <ul style="list-style-type: none"> <li>River Barrow and River Nore SAC</li> <li>Slieve Bloom Mountains SAC and SPA</li> <li>Mountmellick SAC.</li> </ul>	<p><b><u>Environmental Manager / Ecological Clerks of Work</u></b></p> <ul style="list-style-type: none"> <li>A suitably qualified and experienced Project Ecologist/ECoW will be employed during the construction phase of the project</li> <li>The appointed project ecologist/ECoW will be awarded a level of authority and will be allowed to stop construction activity if there is potential for adverse environmental effects other than those predicted and mitigated. For example, if there is a risk of contaminated surface water entering a drain, and measures are not in place to block</li> </ul>	<ul style="list-style-type: none"> <li>Periodic routine inspections of construction activity will be carried out by an Environmental Manager/Ecological Clerk of Works (ECoW) to be employed by the main contractor to ensure all controls to prevent environmental impact are</li> </ul>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 5 (ctd)</p> <p><b>Ecological Management Plan (Protection of Habitats and Fauna)</b></p>	<p>These sites are designated for the protection of Qualifying Interest (QI) aquatic habitats/species and Special Conservation Interest (SCI) bird species which are sensitive to water pollution and disturbance.</p> <p>The purpose of this plan is to describe measures for the management and protection of habitats and fauna on the Site.</p>	<p>the pathways to the River Barrow, then the project ecologist can stop the work until prescribed measures to prevent such a risk have been implemented.</p> <ul style="list-style-type: none"> <li>Spraying of vegetation using pesticides (herbicides, fungicides and insecticides) will not be permitted at any stage of development.</li> </ul> <p><b><u>Ecological Protection Measures</u></b></p> <p><b>a) <u>General Habitats</u></b></p> <ul style="list-style-type: none"> <li>The extent of construction works area within the development site boundary is to be clearly marked out such that the construction zone, including extent of access for all construction plant and machinery, site compound and materials storage areas, is defined and is clearly visible to all contractor staff and machine operators.</li> <li>Movement of construction plant/construction vehicles is to be restricted as much as is practicably possible to within the extent of works footprint within the development site boundary.</li> <li>Acknowledging that works required for development are exempt from conditions stipulated in the Wildlife Acts, removal of vegetation will be conducted where possible outside the general bird breeding season which runs from the 1st of March to the 31st of August inclusive, in accordance with Section 40 of the Wildlife Acts.</li> <li>Habitat disturbance to fauna will be limited by controlling the movement of maintenance vehicles. Construction vehicles will not encroach onto habitats beyond the proposed development footprint.</li> <li>Construction work will not take place at night unless in exceptional circumstances to reduce potential disturbance to fauna.</li> <li>In the unlikely event that protected faunal species are found actively using the site for breeding/roosting during the construction phase, works will cease immediately, and the area will be cordoned off until advice is sought from a suitable qualified specialist;</li> </ul> <p><b>b) <u>Protection of Fauna</u></b></p> <ul style="list-style-type: none"> <li>A pre-construction survey for badger should be undertaken prior to the commencement of any works as per NRA (2005) guidance in order to identify any changes within the site. The pre-construction survey should be undertaken no more than 10-12 months in advance of construction commencement. The survey should be supplemented by an additional survey immediately prior to site works</li> </ul>	<p>in place. Only suitably trained staff will undertake environmental inspection at the site. The appointed ECoW will attend for vegetation clearance to ensure ecological/environmental mitigation measures described in this CEMP are implemented in full.</p> <p><i><b>Details of Ecological Protection to be finalised by Appointed Contract</b></i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 5 (ctd)	Ecological Management Plan (Protection of Habitats and Fauna)	<p>commencing if a sufficient time period has elapsed since the pre-construction survey.</p> <ul style="list-style-type: none"> <li>Any mitigations required for badgers will be carried out under license from NPWS and using NRA Guidelines (2005) (now TII) where applicable, Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes.</li> </ul> <p><b>c) Protection of Bats</b></p> <p>Two trees were identified above as Potential Bat Roost Feature (PBFs) and having 'low – moderate' bat roosting potential. Tree one is outside the boundary of the 110kV substation area and Tree two is situated within a hedgerow inside the 110kV substation area boundary.</p> <p>Pre-construction roost surveys, including emergence/re-entry surveys, as required, of both trees considered to have any potential to accommodate roosting bats, are to be carried out at the site in advance of construction commencing.</p> <p>Prior to the felling of any trees identified as PBRs, detailed physical inspections of the trees potential roost features (PRFs), using endoscope and high-powered torch, and/or dusk/dawn surveys will be undertaken by a bat specialist/suitably qualified ecologist to determine if roosting bats are present.</p> <p>In the event that a bat roost is identified, mitigation will be recommended by the appointed ecologist, as required, and as per best practice guidance.</p> <p>Where mature trees require felling, they will ideally be felled between September and early November,</p> <p>Once felled, trees will be left intact on-site for a minimum 24 hours prior to disposal to allow any bats which may be present to leave.</p> <p>To help mitigate for loss of potentially suitable tree roosting habitat, bat boxes will be erected prior to any tree felling to mitigate for loss of potential roost-sites. The final number and type of bat boxes required will be determined by the species recorded and number of bats or roosts that are affected and/or the category and number of PBF trees proposed to be felled.</p>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 5 (ctd)  Ecological Management Plan (Protection of Habitats and Fauna)		<p><b><u>d) Light During Construction</u></b></p> <ul style="list-style-type: none"> <li>• Lighting will be provided with the minimum luminosity sufficient for safety and security purposes. Where practicable, precautions will be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas.</li> <li>• Where possible, construction lights will be switched off when not in use.</li> <li>• Lighting will be positioned and directed so that it does not to unnecessarily intrude on adjacent ecological receptors. There will be no directional lighting focused towards the boundary habitats respectively and cowling and focusing lights downwards will minimise light spillage; and</li> <li>• Works will primarily take place during hours of daylight to minimise disturbance to any nocturnal mammal species.</li> </ul> <p><b><u>e) Pre-construction mammal survey</u></b></p> <ul style="list-style-type: none"> <li>• In accordance with NRA Guidance, pre-construction mammal surveys will be undertaken to identify evidence of protected mammals (e.g. in particular otter holts and badger setts) within the works areas associated with the Proposed Development. The surveys will be undertaken to ensure that such protected species have not taken up residence within or close to the development footprint. Should breeding or resting places be recorded in the pre-construction surveys a site-specific mitigation plan shall be prepared prior to the commencement of works. It is not anticipated that any protected mammal breeding/resting places will be encountered as part of the proposed project based on the findings of the extensive surveys undertaken. However, should any breeding/ resting places be encountered during the pre-construction surveys, NPWS will be informed and they will be subject to exclusion procedures as outlined in the TII/NRA guidelines (2006).</li> </ul>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 6</p> <p><b>Invasive Species Management Plan</b></p>	<p>To describe measures for the management of invasive species on site.</p>	<ul style="list-style-type: none"> <li>• An invasive species survey shall be undertaken prior to commencement of construction.</li> <li>• Areas where invasive species are present will be identified and demarcated prior to commencement of construction.</li> </ul> <p><u>Invasive Species</u></p> <p>The following measures address potential effects associated with the construction phase of the project.</p> <ul style="list-style-type: none"> <li>• Pre-construction site surveys are to take place during the growing period for any viable knotweed or other IAPS material.</li> <li>• Where any IAPS is identified within the works footprint, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site. Fencing and/or advisory signage is to be erected. Where stands are small, comprising individual plants, the use of signage may suffice. Exclusion zones will be established to prevent access by plant or operatives to the invasive species plant area to prevent any further potential spread of the invasive species.</li> <li>• No ground disturbance should take place within IAPS fenced areas, without prior consultation with, and the direction of the appointed invasive specialist, and then only under strict supervision.</li> <li>• Where there will be encroachment into IAPS infested areas as part of the development, site-specific soil remediation plans are to be developed and implemented to provide for the safe and bio-secure removal and disposal of IAPS infested soil. These plans should include for the provision of vertical and horizontal root barrier membranes, as and where appropriate, and all other measures necessary to ensure bio security compliance.</li> <li>• Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice, direction and supervision of the appointed invasive specialist.</li> <li>• Where necessary, the off-site removal of Japanese knotweed, its variants, soil infested with knotweed material, and other IAPS is to be carried out according to the relevant NPWS licence and any conditions attached. This licence is to be procured in advance of any removal of IAPS material off-site and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).</li> <li>• Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil</li> </ul>	<ul style="list-style-type: none"> <li>• Project Manager</li> <li>• Environmental Manager</li> <li>• Construction Manager</li> <li>• Project Ecologist</li> </ul> <p><b><i>Should newly established invasive species be identified within the development site, a site-specific Invasive Species Management Plan will be developed and will be incorporated into the finalised Contractors CEMP.</i></b></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 6 (ctd)  Invasive Species Management Plan		<p>and deter subsequent reinvasion. Planting should be carried out with regard to <i>'Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species (Kelly, 2012).</i></p> <ul style="list-style-type: none"> <li>• Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be taken into account. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used.</li> <li>• Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake.</li> <li>• All herbicides are to be pre-mixed in a designated secure area. Only the volumes of herbicide necessary for each treatment area are to be prepared.</li> <li>• Herbicide will be applied to target species only and great care taken to avoid affecting surrounding vegetation by run-off or drift.</li> <li>• Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012) and Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). The herbicide selected must be used in compliance with the Pesticide Product Label and any conditions set out in it.</li> <li>• All management and control measures implemented on-site during the construction phase are to be carried out strictly in accordance with best practice guidance as set out in <i>'The Management of Noxious Weeds and Non-native Invasive Species on National Roads'</i> NRA (2010) and <i>'Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species (Kelly, 2012)</i> and in accordance with the site-specific IAPS Management Plan, which will be updated accordingly as the project progresses.</li> <li>• Physical remediation post-construction, if required, is to be managed and undertaken as per the IAPS Management Plan which is to be updated continually over the course of the multi-annual management approach to IAPs within the site.</li> <li>• Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Himalayan Balsam,</li> </ul>	



Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 6 (ctd)</p> <p>Invasive Species Management Plan</p>		<p>Rhododendron etc) by thoroughly washing vehicles in wheel washing designated zone prior to leaving any site.</p> <ul style="list-style-type: none"> <li>Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.</li> <li>All site users should be aware of invasive species mitigation and treatment methodologies through site induction training and subsequent toolbox talks.</li> </ul> <p><u>Biosecurity</u></p> <ul style="list-style-type: none"> <li>To reduce the likelihood of invasive species being introduced to the site from construction works on other sites, it will be required that vehicles and tools will arrive on site clean. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the site for the first time (Also requirement during water quality sampling between different catchments). All PPE will be visually inspected, and any attached vegetation or debris removed. PPE and tools will remain on site for the duration of construction.</li> </ul> <p><u>Methodologies</u></p> <ul style="list-style-type: none"> <li>Invasive species management methodologies and plans outlining Best Available Techniques (BAT) will be sourced from the National Invasive Species Database, from previously published documents and from the Invasive Species Ireland and Inland Fisheries Ireland websites.</li> </ul>	
<p>EMP 7</p> <p>Construction Waste Management</p>	<p>The purpose of the plan is to describe measures for the management of all wastes associated with construction works.</p>	<ul style="list-style-type: none"> <li>The appointed contractor(s) will be required to develop a Construction Waste Management Plan (CWMP) which will form part of the overall live Construction Environmental Management Plan. The waste management goal for the construction phase of the project is to manage all waste in accordance with the relevant statutory provisions and the waste hierarchy:</li> <li>Regard should be had to the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG, July 2006) in preparing and maintaining this plan.</li> <li>National waste management policy is governed primarily by the requirements of European law, particularly the Directive 2008/98 on Waste, also known as the Waste Framework Directive. The Directive was responsible for implementing the Waste Hierarchy as show in Figure below.</li> </ul> <p>The adoption of the CWMP (appointed contractor(s)) and OWMP (facility management team) will abide by the waste hierarchy and will be developed in accordance with</p>	<ul style="list-style-type: none"> <li>The Environmental Manager will be responsible for adherence to correct waste management procedures. They will also identify a waste contractor to remove waste that can be recycled or re-used.</li> <li>The Environmental Manager will keep records provided by waste contractors of all waste being removed from site. The Environmental Manager will record waste removed from site regularly. This information will be recorded in a</li> </ul>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 7 (ctd)</p> <p><b>Construction Waste Management</b></p>		<p>Laois/Offaly County Development Plan as well as the local and national waste management policies</p> <p>The Construction Phase Waste Management Plan should address the following aspects of the Project:</p> <ul style="list-style-type: none"> <li>• Analysis of the waste arising/material surpluses.                             <ul style="list-style-type: none"> <li>○ Specific waste management objectives for the project.</li> <li>○ Methods proposed for prevention, reuse and recycling of wastes.</li> <li>○ Material handling procedures.</li> </ul> </li> </ul> <div data-bbox="846 496 1424 916" data-label="Diagram"> </div> <ul style="list-style-type: none"> <li>• Any material deemed unsuitable for re-use in the works will be transported off site in trucks and disposed of under license from Laois/Offaly County Council. This will prevent any contaminated run-off to drains adjacent to access road during heavy rainfall.</li> <li>• As part of the record keeping procedures, the Environmental Manager will keep records provided by waste contractors of all waste being removed from site. The Environmental Manager will record waste removed from site on a quarterly basis. This information will be recorded in a standard format.</li> </ul> <p><b>Excavated soils, Subsoil:</b></p> <ul style="list-style-type: none"> <li>• A dedicated trained banksman will supervise the operation paying particular attention to the condition of materials and making sure that different materials are separated accordingly to their deposition points.</li> <li>• Temporary stockpiles of sub-soils will be located in an area away from drainage ditches and will be bunded on the downgradient edges with a silt curtain or other</li> </ul>	<p>standard format. It will be the construction manager’s responsibility to organise the removal of skips from their area when they are full.</p> <ul style="list-style-type: none"> <li>• The Environmental Engineer will inspect waste segregation and temporary soil/rock storage stockpiles during his regular site visits.</li> </ul> <p><i>Details of Site Waste Management to be finalised by Appointed Contractors.</i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 7 (ctd)  Construction Waste Management		<p>suitable materials to reduce risk of silt run-off. Surplus topsoil or excavated material unsuitable for reuse in the reinstatement of the temporary construction features and landscaping will to be transported to an approved licenced waste facility capable of accepting the material</p> <p><b><u>Domestic Waste-Water Effluent</u></b></p> <ul style="list-style-type: none"> <li>Wastewater from welfare facilities on site will drain to integrated wastewater holding tanks associated with the toilet units. The stored effluent will then be collected when required from site by a permitted waste contractor and removed to an appropriately authorised waste facility for treatment and disposal.</li> </ul> <p><b><u>General Waste</u></b></p> <ul style="list-style-type: none"> <li>Access to materials will be controlled. A dedicated storage area will be provided in the site compound for building materials such as cables, geotextile matting, blocks, tools and equipment, fence posts and wire, booms, pipes etc.</li> <li>This waste will be stored in the construction compound and collected throughout the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility.</li> <li>Access to stored materials will be restricted; the site compound will be securely fenced from the outset and will be locked when there are no site personnel present.</li> <li>Plastic waste will be taken for recycling by an approved contractor and disposed or recycled at an approved facility; and</li> <li>Waste oil and waste oil drums will be collected and stored in containers and on a bunded tray within the storage container.</li> <li>Domestic type waste generated by contractors will be collected on site, stored in an enclosed skip at the construction compounds and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility.</li> </ul> <p><b><u>Construction Compound</u></b></p> <ul style="list-style-type: none"> <li>Construction compound(s)/waste storage area(s) will be created for storage of waste materials, plant, and equipment and for site offices, and welfare facilities. Wastes Generation Best practice procedures in general will minimise waste generated on-site. Measures including good site management will be taken to limit the quantity of waste generated during the construction phase. Waste such as excavated material on-site will be recycled where possible. Waste streams will include wastes generated by plant, machinery and construction workers over the</li> </ul>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 7 (ctd)  Construction Waste Management		<p>period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc), wooden pallets, waste batteries, fluorescent tubes etc.</p> <p><b><u>Soil and Spoil</u></b></p> <ul style="list-style-type: none"> <li>Any materials excavated on site in the course of the construction works (i.e. soil/peat stripping for track construction, foundations/hardstanding areas) will be stored on site and re-used on site. As such, off-site disposal of this material is not expected. Excavated materials from all construction activities will be temporarily stockpiled at hardstand locations during construction and subsequently reused on site for backfill/re-grading or re-vegetation.</li> </ul> <p><b><u>Hazardous and Other Waste</u></b></p> <p>If hazardous waste is encountered, then appropriate handling, storage, transportation, and disposal will be carried out. Prior to being removed from the site, the waste will undergo a comprehensive waste assessment and classification by suitably trained/qualified person(s), in accordance with the European Waste Catalogue hazardous waste list. At the site every effort will be made to segregate waste, and properly segregate hazardous waste from non-hazardous and inert waste arising. Hazard wastes will be identified, removed and kept separate from other wastes in order to avoid cross contamination. Specific method statement detailing the necessary mitigation measures during the excavation/handling, transportation, and disposal of hazardous materials encountered at the site will be prepared as required.</p> <p>Oils, paints, adhesives and chemicals will be kept in a separate contained secured storage area. Lids will be kept on containers to avoid spillage/evaporation. Waste oils, adhesives etc will handle, and disposed of appropriately. Every effort will be made at the site for no long-term storage of hazardous materials/fuels/oils/chemicals, etc. There shall be no long-term storage of waste oils etc. at the site.</p> <p><b><u>Concrete</u></b></p> <p>Concrete waste may potentially occur. There shall be no washout of trucks at site. Excess concrete will be returned to the supplier for reuse. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The environmental manager will monitor the pH of the water in the chute wash down bund.</p> <p><b><u>Metals</u></b></p> <p>It is now common practice to segregate metals for reuse and recycling,</p> <p><b><u>Timber</u></b></p>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 7 (ctd)  Construction Waste Management		<p>Timber waste will be stored separately. Any pallets will be returned to the supplier for reuse. Offcuts/trimmings will be used in formwork where at all possible. A container for waste wood, covered where possible will be located at compound/other storage areas. This waste will be collected by the waste contractor and will forward it for wood recycling.</p> <p><u>Packaging/ Plastic</u>                      Waste packaging will be segregated and in separate containers, at storage area for collection by the waste contractor for disposal to a licensed facility.</p> <p><u>Other Waste</u>                      Other wastes which may be generated may include residual non-recyclable waste such as paper, cloth, some cardboards, or plastics. Others may include fibreglass and geotextiles, and polystyrene. These types of materials will be stored in a dedicated container at the site compound. All residual wastes will be dispatched to suitably licensed facility for disposal. Other construction and demolition waste will be collected and disposed of appropriately.</p>	
EMP 8  Construction Traffic Management	To describe measures for the management of construction traffic, including construction personnel traffic and oversized loads, for the minimisation of disturbance and nuisance to the local community.	<ul style="list-style-type: none"> <li>• All traffic management and road signage will be in accordance with the Department of Transport (DoT) Traffic Signs Manual Chapter 8: Temporary Traffic Measures and Signs for Road Works; and in agreement with Laois County Council and Offaly County Council.</li> <li>• The proposed grid connection will require a Road Opening License (ROL) prior to the commencement of any grid connection works on the public road. The road surface of the public roads will be reinstated to the standards set out by the Department of Transport (DoT) Guidelines on the Opening, Backfilling and Reinstatement of Trenches on Public Roads (April 2017). All road permanent reinstatement works will be in accordance with the requirements of Laois County Council and Offaly County Council.</li> <li>• A construction wheel wash facility will be provided at the construction compound to wash truck tyres leaving the construction site.</li> </ul> <p><u>Traffic Management Plan</u></p>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>• Project Manager;</li> <li>• Construction Manager;</li> <li>• Construction personnel;</li> <li>• Sub-contractors as appropriate; and</li> <li>• Delivery personnel</li> </ul> <p><i>Details of Traffic Management Plan to be finalised by Appointed Contractor</i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 8 (ctd)  Construction Traffic Management		<ul style="list-style-type: none"> <li>• A detailed Traffic Management Plan (TMP) will be prepared and submitted to Laois/Offaly County Council for approval prior to the commencement of construction.</li> <li>• The plan will include the proposed haul routes, vehicle types, anticipated traffic numbers etc, for the construction stage of the development.</li> <li>• The plan will include provisions for:                             <ul style="list-style-type: none"> <li>- Communicating with the community, the Gardaí and the Local Authority.</li> <li>- Details of site access and any site traffic rules, including security, parking, loading and unloading, required speed or other relevant details.</li> <li>- Programme of maintenance and upkeep of public roads.</li> <li>- Site operating hours (including delivery) to be outlined.</li> </ul> </li> <li>• The contractor will adopt the following principals in planning, developing and implementing traffic management proposals:                             <ul style="list-style-type: none"> <li>- Maximize the safety of the workforce and the travelling public.</li> <li>- Keep traffic flowing as freely as possible and reduce the impact of the road works to a minimum.</li> </ul> </li> <li>• The contractor will plan and manage the construction works to ensure to ensure as far as is reasonably practicable that:                             <ul style="list-style-type: none"> <li>- Works within the site and road network do not result in a safety hazard to road users or the workforce involved in the contract.</li> <li>- Any resulting increase in traffic delays and congestion is minimized.</li> </ul> </li> </ul> <p><u>Traffic Management Measures</u></p> <p>At a minimum the following measures outlined below will be implemented to minimize the impacts of construction phase traffic associated with the project.</p> <ul style="list-style-type: none"> <li>• The appointed contractor will survey the area for any unforeseen hazards prior to the commencement of works and set up warning signage as appropriate.</li> <li>• Ensure a strict protocol for Heavy Goods Vehicle (HGV) drivers to follow the designated haulage route and timing restrictions as detailed.</li> <li>• Advanced warning should be given to the residents and road users for specific times when large volumes of HGV traffic may occur and any works are being completed on the public road network in regard to the implementation of the laying of the cable.</li> <li>• The disruption to residents along the grid route will be kept to a minimum by maintaining access to all properties throughout the works. Access to dwellings</li> </ul>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 8 (ctd)		<p>throughout the laying of the cables can be facilitated by using steel plates to cover the area that are excavated so cars can safely drive past.</p> <ul style="list-style-type: none"> <li>• Signage relating to the proposed construction traffic will be installed at the entrance to the substation.</li> <li>• A maximum speed limit would be imposed for HGVs on the local road network during the construction phase.</li> <li>• A well planned and executed delivery programme avoiding peak traffic on typical days would be ensured.</li> <li>• In order to minimize traffic congestion during peak traffic hours, the majority of staff will either arrive on-site before or after the peak morning traffic and finish work before or after the evening peak traffic hours.</li> <li>• The condition of the public road will be monitored on an on-going basis and a road sweeping vehicle would be provided as required to remove any mud that is deposited on the road network on the approach to the site.</li> <li>• Enforcement of existing regulatory markings and signage would be ensured.</li> </ul> <p><u>Road Safety Protocol</u></p> <ul style="list-style-type: none"> <li>• A road safety and courtesy protocol will be in place for all road users for the duration of construction. All companies delivering to site would have to sign up to this protocol as part of their supply contract. Courtesy for other road users is fundamental to the protocol. HGV traffic would give way to oncoming traffic where possible. Vehicles would always slow down or stop, as appropriate, for pedestrians and cyclists along the proposed haulage routes. Passing bays will be provided to ensure intervisibility between traffic coming from opposing directions.</li> </ul> <p><u>Road Network Maintenance</u></p> <ul style="list-style-type: none"> <li>• The road condition will be inspected daily by site management to ensure that the access route road is maintained in a safe and passable condition. When necessary, potholes and ruts will be filled in and the road cleaned of any mud and rubble. Following completion of construction, the condition of the public access route road will be of at least the same standard as it was prior to commencement of construction.</li> </ul> <p><u>Signage</u></p> <ul style="list-style-type: none"> <li>• Signage will be manufactured using retro-reflective material to Class Ref 2 of EN 12899. The colours, chromaticity and luminance factors will be as specified in Specification TS4 published by the Department of the Environment, Heritage, and</li> </ul>	

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
		<p>Local Government. Specification TS4 consists of guidelines produced by the DoEHLG, Dublin.</p> <ul style="list-style-type: none"> <li>• Signage will be inspected at regular intervals by the contractor to check that it is in place, secure, unobstructed (by vegetation etc.) and cleaned when required. Warning lights will be appropriately fitted as required. Where signs could be obscured by bends, hills, or dips in the road, additional warning signs will be put in place. If traffic management controls involving traffic lights are being implemented, a contact person will be available in the event of traffic light failure outside of normal working hours.</li> </ul> <p><u>Staff Training</u></p> <ul style="list-style-type: none"> <li>• The contractor will provide training to operatives in the traffic control systems being used on site. The works will be designed and maintained by a trained operative holding a current Signing Lighting and Guarding CSCS card.</li> <li>• The importance of traffic management, the safety of motorists, pedestrians and site staff will be emphasised to all construction staff. All personnel will be informed of the Traffic Management Plan during their induction when they first arrive on site. Toolbox talks will also be given so that all personnel are aware of traffic management controls being implemented as the work progresses. On-site turning bays, speed limit signage, directional signage to the sub-station, site compound, delivery routes, exit routes, stores, offices, canteen, and the requirement for reverse parking, will be erected as required.</li> <li>• The appointed contractor will also ensure that on site personnel will be aware of environmental constraints / sensitive areas in which works are to be avoided.</li> </ul>	



Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p><b>EMP 9</b></p> <p><b>Management of Archaeology</b></p>	<p>There is potential for unknown subsurface archaeological features to be disturbed during the construction works. The purpose of this plan is it to describe measures for the management and protection of these archaeological and features.</p>	<ul style="list-style-type: none"> <li>• Archaeological monitoring of ground works to be undertaken</li> <li>• The appointed contractor is to make provision for archaeological monitoring to be carried out under licence to the Department of Housing, Local Government and Heritage (DHLGH) and the National Museum of Ireland (NMI), and will ensure the full recognition of, and the proper excavation and recording of all archaeological soils features, finds and deposits which may be disturbed in the course of the works. All archaeological issues will be resolved to the satisfaction of the DHLGH and the NMI. The archaeologist should be provided with information on where and when the various elements and ground disturbance will take place.</li> <li>• Mitigation to offset the risk of damage Kilnahown Bridge and Blackhall Bridge (two structures listed in the NIAH), and subsurface elements of the former course of the Grand Canal, in particular will include recording, protection and monitoring of the sensitive fabric prior to and for the duration of the Construction Phase. Recording, overseeing of protective measures and monitoring is to be undertaken by an appropriate heritage specialist engaged by the appointed contractor.</li> </ul>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>• Environmental Manager</li> <li>• Construction Manager</li> <li>• Project Archaeologist</li> </ul> <p><i>Details of any management and protection of archaeological and cultural heritage on the site to be finalised by Appointed Contractor</i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p><b>EMP 10</b></p> <p><b>Construction Noise Management</b></p>	<p>The construction phase of the Project has the potential to increase noise levels at noise sensitive locations surrounding the Site. The purpose of this plan is to describe measures for the management of impacts from construction noise.</p>	<p>Best practice in the form of BS5228 –1&amp;2:2009 + A1 2014, <i>Code of Practice for the Control of Noise and Vibration on Construction and Open Sites</i> will be adopted during the construction phase in order to minimise the noise generated by construction activities and nuisance to NSLs including the following:</p> <ul style="list-style-type: none"> <li>• A pre-construction commitment to managing nuisance noise will be agreed through notification and consultation with affected parties, if deemed necessary.</li> <li>• Working hours at the site during the construction phase will be limited to 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. Work on Sundays or public holidays will only be conducted in exceptional circumstances and subject to prior notification insofar as possible with the local community.</li> <li>• Construction contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 as amended in 1990 and 1996 (S.I. No. 320 of 1988, S.I. No. 297 of 1990 and S.I. No. 359 of 1996), and the Safety, Health, and Welfare at Work (Control of Noise at Work) Regulations, 2006 (S.I. No. 371 of 2006).</li> </ul> <p>The main control measures will be control of noise at source using the following methods in line with Clause 8 ‘Control of noise’ of BS 5228-1:2009+A1:2014:</p> <ul style="list-style-type: none"> <li>• Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery (Clause 8.2.1 General).</li> <li>• Use of appropriate plant and equipment where possible with low noise level generation where possible (Clause 8.2.2 Specification and substitution).</li> <li>• All construction plant to be used on site should have effective well-maintained silencers and mufflers (in the case of pneumatic drill) (Clause 8.2.3 Modification of existing plant and equipment).</li> <li>• Noise generating equipment will be located as far as possible away from local noise sensitive areas identified (Clause 8.2.5 Use and siting of equipment); and</li> <li>• Regular and effective maintenance of site machinery including a full maintenance schedule to ensure that all pieces of equipment are in good working order. With efficient use of well-maintained mobile equipment, considerably lower noise levels than those predicted can be attained (clause 8.2.6 Maintenance).</li> </ul> <p>In addition, the following best practice measures are proposed:</p> <ul style="list-style-type: none"> <li>• Training of site staff in the proper use and maintenance of tools and equipment.</li> <li>• The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest</li> </ul>	<ul style="list-style-type: none"> <li>• The Construction Manager will be familiar with the noise sensitive receptors and alert the Environmental Manager in good time prior to work commencing in the areas closest to any noise sensitive receptors.</li> <li>• The Environmental Manager will review any relevant planning conditions in updating this plan.</li> </ul> <p><u>References</u>  <i>BS5228 –1&amp;2:2009, Code of Practice for the Control of Noise and Vibration on Construction and Open Sites</i>                  IOA GPG Supplementary Guidance Note 5: <i>Post Completion Measurements</i> (July 2014).</p> <p><b><i>Details of management of noise on the site to be finalised by Appointed Contractor</i></b></p>
<p><b>EMP 10 (ctd)</b></p> <p><b>Construction Noise Management</b></p>			

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 10 (ctd)  Construction Noise Management	<p>The main air quality impacts will be associated with dust generation during construction works. The purpose of this plan is to describe the measures for the management of nuisance impacts on air quality from construction generated dust.</p>	<p>sensitivity. While high noise generating works are in progress on a site at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to prevent unacceptable disturbance at any time.</p> <ul style="list-style-type: none"> <li>• Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment.</li> <li>• Machines that could be in intermittent use will be shut down between work periods or will be throttled down to a minimum.</li> <li>• Plant start-up will be sequential rather than all together.</li> <li>• Internal access tracks to be well maintained.</li> <li>• Plant known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise-sensitive locations and</li> <li>• Drop heights for materials such as gravels will be minimised whenever practicable</li> </ul>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>• The Environmental Manager is responsible for reviewing the site Dust Minimisation Plan.</li> <li>• The Construction Manager is responsible for:                             <ul style="list-style-type: none"> <li>- Organising dust suppression through use of bowsers and cleaners</li> <li>- Plan site layout so that machinery and dust causing activities are located away from receptors as far as possible.</li> </ul> </li> </ul>
EMP 11  Construction Dust Management	<p>The main air quality impacts will be associated with dust generation during construction works. The purpose of this plan is to describe the measures for the management of nuisance impacts on air quality from construction generated dust.</p>	<p><u>The following measures shall be taken in order to avoid dust nuisance occurring</u></p> <ul style="list-style-type: none"> <li>• Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.</li> <li>• Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.</li> <li>• Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.</li> <li>• Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph.</li> <li>• Public roads in the vicinity of the site entrance will be regularly inspected for cleanliness and cleaned as necessary.</li> <li>• Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.</li> </ul>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>• The Environmental Manager is responsible for reviewing the site Dust Minimisation Plan.</li> <li>• The Construction Manager is responsible for:                             <ul style="list-style-type: none"> <li>- Organising dust suppression through use of bowsers and cleaners</li> <li>- Plan site layout so that machinery and dust causing activities are located away from receptors as far as possible.</li> </ul> </li> </ul>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 11 (ctd)  Construction Dust Management	<ul style="list-style-type: none"> <li>• During movement of materials both on and off-site and before entrance onto public roads trucks will be adequately inspected to ensure no potential for dust emissions.</li> <li>• Ensure regular maintenance of plant and equipment. Carry out periodic technical inspection of vehicles to ensure they perform most efficiently.</li> <li>• All site vehicles and machinery will be switched off when not in use, and no idling of engines will be permitted.</li> </ul> <p>At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.</p>	<ul style="list-style-type: none"> <li>- Remove materials that have the potential to produce dust from site as soon as possible.</li> <li>- Cover seed of fence stockpiles to prevent wind whipping.</li> <li>- Ensure all vehicles switch off their engines when stationary – no idling vehicles.</li> <li>• The Project Manager is responsible for:                             <ul style="list-style-type: none"> <li>- Recording all dust and air quality complaints, identify causes and take appropriate measures to reduce emissions in a timely manner.</li> <li>- Make a compliant log available to Laois/Offaly County Council when requested.</li> <li>- Record any exceptional incidents that cause dust or air emissions.</li> </ul> </li> </ul>	
EMP 12  Emergency Response Plan	<p>To describe measures for the prevention of an environmental accident or incident and the response required to minimise the impact of such an event.</p>	<p><u>General</u>                      In the event of an environmental emergency, all personnel will react quickly and adhere to this procedure.                      All site personnel will be inducted in the provisions of the Emergency Response Plan.                      The following outlines some of the information, on the types of emergency, which must be communicated to site staff:</p> <ul style="list-style-type: none"> <li>• Release of hazardous substance – Fuel and oil spill.</li> <li>• Concrete spill or release of concrete or silt.</li> <li>• Flood event – extreme rainfall event.</li> <li>• Environmental buffers and exclusion zones breach.</li> <li>• Housekeeping of materials and waste storage areas breach.</li> <li>• Stop works order due to environmental issue or concern (threat to archaeological or ecological feature); and</li> </ul>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>• The Environmental Manager will prepare and finalise an Emergency Response Plan to be ready to respond to any incident.</li> <li>• All site personnel will report any spillages of oil or chemicals to the Environmental Manager and Construction Manager immediately.</li> <li>• As appropriate, the Environmental Manager will report the spillage to</li> </ul>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 12 (ctd)  Emergency Response Plan		<ul style="list-style-type: none"> <li>• Fire on-site (cross-reference site Safety Emergency Plan as appropriate). If any of the above situations occur; the Emergency Response Plan is activated. The Environmental Manager will most likely be responsible for overseeing the Emergency Response Plan (to be confirmed by the Appointed Contractor(s)) and will be prepared and ready to implement the plan at all times. The Environmental Manager will be immediately informed and report to the scene. He / she must be aware of the:                             <ul style="list-style-type: none"> <li>• Nature of the situation – brief description of what has happened.</li> <li>• Location of the incident.</li> <li>• Whether any spill has been released; and</li> <li>• Whether the situation is under control.</li> </ul> </li> </ul> <p><u>Oil Spillages</u></p> <p>The following list outlines issues likely to be appropriate for inclusion in the plan:</p> <ul style="list-style-type: none"> <li>• Site staff will report the spillage immediately to the Environmental Manager or Construction Manager.</li> <li>• Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Laois/Offaly County Council.</li> <li>• Where possible, the source of pollution will be identified.</li> <li>• Switch off all sources of ignition.</li> <li>• Stop the spillage spreading:</li> <li>• Use absorbent materials from the spill kit to mop up the spill (sand or absorbent materials should be used rather than detergents).</li> <li>• Place boom across watercourse or in nearby downstream existing drains as a precaution.</li> <li>• Do not wash spillage into drainage system. Washing will only make the situation worse and extend the pollution to other water bodies/drainage systems.</li> <li>• If the spill has already reached drains, block the inlet of the dirty water cross pipes in the nearby drainage outflow points on the roadside drains with oil absorbent booms, which will prevent oils flowing into the existing drains.</li> <li>• Shovel contaminated sand/earth/absorbent granules into sacks or skips; and</li> <li>• A specialist oil removal company should remove pooled oil.</li> </ul> <p><u>Concrete Spillages</u></p> <p>The following list outlines issues likely to be appropriate for inclusion in such a plan:</p>	Inland Fisheries Ireland, Laois/Offaly County Council and any other relevant authority.  <i>Details of Emergency Response Plans to be finalised by Appointed Contractor</i>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 12 (ctd)  Emergency Response Plan		<ul style="list-style-type: none"> <li>• Site staff will report the concrete spillage immediately to the Environmental Manager or Construction Manager.</li> <li>• Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Laois/Offaly County Council.</li> <li>• If there is a risk of concrete spreading into the drainage system, the inlet of the dirty water cross pipes in the nearby drainage outflow points on the roadside drains will be blocked using the absorbent booms, which will prevent concrete flowing into the existing drains.</li> <li>• Do not wash spillage into drainage system. Washing will only make the situation worse and extend the pollution to other water bodies/drainage systems.</li> <li>• If the spill has already reached drains, acid may be added to the drains by the Environmental Manager to neutralise the alkalinity of the concrete.</li> </ul> <p><u>Contacts</u>                      As an Environmental Control Measure, the Environmental Manager will append the relevant contact details to the Emergency Response Plan document. Examples of such contact details include:</p> <ul style="list-style-type: none"> <li>• Environmental Manager</li> <li>• Specialist oil removal company</li> <li>• Laois/Offaly County Council</li> <li>• Inland Fisheries Ireland</li> <li>• National Parks and Wildlife Service</li> </ul> <p><u>Location of Emergency Spill Kits</u></p> <ul style="list-style-type: none"> <li>• A map indicating the location of all emergency spill kits will be attached to the Emergency Response Plan document.</li> <li>• Emergency oil spill kits will also be carried in all site vehicles and machinery.</li> </ul>	
EMP 13  Site Environmental Training and Awareness	To describe measures for informing the public of restricted access to the construction-site and the training of all site personnel in the protection of the environment and the relevant controls.	<p><u>General</u>                      Site signage will be provided at the entrance to the site to inform the public that access to the site is restricted to those directly involved in the construction works.                      An initial site environmental induction and ongoing training will be provided to communicate the main provisions of the CEMP including this EMP to all site personnel.                      Two-way communication will be encouraged to promote a culture of environmental protection.                      The following outlines some of the information which will be communicated to site staff:</p>	<p><b>Responsibility</b></p> <ul style="list-style-type: none"> <li>• Construction Manager</li> <li>• Environmental Manager</li> <li>• All site personnel</li> </ul> <p><i>Details of Induction and Training to be finalised by Appointed Contractor</i></p>

Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
EMP 13 (ctd)	Site Environmental Training and Awareness	<ul style="list-style-type: none"> <li>Environmental procedures of the CEMP.</li> <li>Housekeeping of materials and waste storage areas.</li> <li>Environmental Emergency Response Plan.</li> </ul> <p><u>Housekeeping and Storage of Hazardous Material</u></p> <ul style="list-style-type: none"> <li>Hazardous materials marked with the following symbols will only be stored in a secure storage container in the temporary site construction compounds.</li> </ul>	
EMP 14	To describe measures for environmental monitoring during the construction works and audit of control measures to ensure environmental protection.	<p><u>General</u></p> <p>All mitigation measures, any planning conditions and relevant construction methods will be monitored on-site. The Contractor will nominate an Environmental Manager for the works. The Environmental Manager will provide Audit Checklists to ensure regular checks of the Site’s control measures for the ongoing protection of the environment. Monitoring will be carried to ensure adherence with the following EMPs. Checklists for daily, weekly or monthly site audits will be finalised by the Environmental Manager and the relevant personnel informed of their duties. Checklists will include (but are not limited to) confirmation that fuel is stored appropriately, waste management rules are adhered to, all environmental buffers are maintained, Surface water and run-off control measures are in place and functioning, and concrete chute wash-out procedure is being followed.</p> <p>All environmental records, including completed checklists, will be retained at the site office.</p>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>Project Manager</li> <li>Environmental Manager</li> <li>Construction Manager</li> </ul> <p><b><i>Details of Monitoring Procedure and Checklists to be finalised by Appointed Contractor’s Environmental Manager</i></b></p>



Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p><b>EMP 15</b></p> <p><b>Environmental Accidents, Incidents and Corrective Action</b></p>	<p>To describe measures for the recording, investigating and close-out of any environmental accidents or incidents on the Site.</p>	<ul style="list-style-type: none"> <li>The Environmental Manager or Construction Manager will be contacted as soon as possible where there is any incident that carries the possibility of negative environmental consequences (e.g. minor oil leakage or blockage of drainage pipe).</li> <li>The Emergency Response Plan and standard emergency procedures will be applied to get the incident under control and prevent injury or loss of life in the first instance.</li> <li>Work in the area will be halted and the Environmental Manager will be called to the scene to assess the situation and to decide on initial responses and remedial measures.</li> <li>Once the situation is under control, the environmental accident or incident will be recorded, and the cause investigated.</li> <li>Any remedial action required will be taken to mitigate any damage and prevent a reoccurrence.</li> <li>Corrective actions will be communicated to personnel and sub-contractors where relevant – particularly where it results to a change in procedure.</li> </ul> <p><u>Example list of environmental accidents &amp; incidents:</u></p> <ul style="list-style-type: none"> <li>Accidents involving large spill of fuel or concrete from delivery truck (emergency response required).</li> <li>Spills of fuel and oil (minor).</li> <li>Waste or rubbish left around the Site (not in dedicated waste areas).</li> <li>Breach of any buffers (ecological, watercourse).</li> <li>Failure of any control measures.</li> <li>Concrete chute wash out in a non-dedicated area.</li> <li>Unplanned vehicle movement off the access tracks; and</li> <li>Unplanned vehicle movement within a buffer zone.</li> </ul>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>Site staff will contact the Environmental Manager or Construction Manager as soon as possible where there is any incident that carries the possibility of negative environmental consequences.</li> <li>The Environmental Manager is responsible for alerting the relevant authorities.</li> </ul>
<p><b>EMP 16</b></p> <p><b>Environmental Complaints</b></p>	<p>To describe measures for the recording and resolving of complaints by third parties, including local residents or members of the public.</p>	<p><u>General</u></p> <p>A complaints procedure will be established for the duration of the construction phase. Any complaints received regarding alleged noise, or any other complaint will be investigated immediately. Details of the complainant, the complaint (time of occurrence and nature of noise/vibration/other) and follow up action will be logged in the complaints record. The project manager will develop and implement an appropriate queries/complaints procedure. Records will include full details of the concerns expressed and ensure that a formal assessment is commenced of the reported concern. The project manager will also discuss complaints with and oversee an initial response to the person who has submitted the complaint/concern confirming its receipt. The project</p>	<p><u>Responsibility</u></p> <ul style="list-style-type: none"> <li>Project Manager</li> <li>Environmental Manager</li> <li>Construction Manager</li> </ul>



Environmental Management Plan (EMP)	Purpose of EMP	Procedure	Responsibility
<p>EMP 16 (ctd)                      Environmental Complaints</p>		<p>manager will liaise with the environmental manager and an investigation to assess the issue of concern will be carried out and decisions made to see what corrective and/or preventive action, or further investigation is necessary. With overall responsibility for complaints, the project manager will respond within a reasonable timescale and maintain records of all correspondence. If significant corrective action and external stakeholder involvement is required, the site manager/project manager will oversee all elements of the process.</p> <p>Complaints that may be received will be logged, assessed and appropriate action taken as soon as practical. It will be critical to the success of the project that key issues are properly addressed from the outset to create a good working relationship and an integrated team approach to resolving potential issues before they arise.</p> <p>This procedure includes:</p> <ul style="list-style-type: none"> <li>• Recording of any complaints to a Site Log.</li> <li>• Follow up by the relevant site representative – Environmental Manager.</li> <li>• Remedial measures where required.</li> <li>• Ongoing communication with complainant to confirm resolution; and</li> <li>• Any required training or communication with site personnel and sub-contractors as a result.</li> </ul>	