TOBIN

# Ballincor Wind Farm
# RWE Renewables,
# Co. Offaly

## Volume 3
## Appendix 9-4
## Surface Water Management Plan

RWE

BUILT ON KNOWLEDGE

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# 1. SURFACE WATER MANAGEMENT PLAN

## 1.1 INTRODUCTION

The objective of this Surface Water Management Plan (SWMP) is to manage the movement of surface water during the construction, operation and decommissioning of the proposed Ballincor Wind Farm (proposed project). The specific objective of this SWMP is to provide methods for surface water management during the pre-construction, construction, operation and decommissioning phases of the proposed project.

The SWMP has been prepared taking into consideration the findings and conclusions within the Ballincor Wind Farm EIAR and Flood Risk Assessment (FRA). The SWMP and associated drainage strategy is a Planning Stage document and will be subject to further revision following Planning Permission and the Detailed Design Stage.

Several guidelines were also considered in the development of this management plan[1] , as listed:

- COFORD (2004) Forest Road Manual, Guidelines for the design, construction and management of forest roads
- CIRIA Document C811 'Environmental Good Practice on Site'
- CIRIA Document C532 – 'Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors'
- CIRIA Document C648 and C649 – 'Control of Water Pollution from Linear Construction Projects'
- The Irish Wind Energy Association (2012) Best Practice Guidelines
- 2006 Wind Energy Planning Guidelines, Department of Environment, Heritage and Local Government;
- Inland Fisheries Ireland, (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters;
- Scottish Natural Heritage (2010) A Report into Good Practice in Design, Construction and Use of Floating Roads on Peat with particular reference to Wind Farm Developments in Scotland;

[1] Accessed February 2026

# 2. PROJECT INFORMATION

## 2.1 SITE DESCRIPTION

The proposed wind farm is located approximately 5 km south of Birr and 4 km north of Shinrone in County Offaly, on the border between County Offaly and County Tipperary.

The site comprises cutover bog, grassland, mixed woodland and scrub. There is a low density of one-off residential developments in the area surrounding the site. The water courses of particular interest to the proposed wind farm site are the Little Brosna River and its tributaries. The Little Brosna River flows along the eastern boundary of the proposed wind farm in a north easterly direction towards Birr town and enters the River Shannon c.15 km northwest of the proposed wind farm site.

Three minor tributaries of the Little Brosna River transverse the northern section of the proposed wind farm site namely the North Cloonaheen and the Rath Beg, which join the Holy Well Clohaskin stream. The Holy Well Clohaskin stream merges with the Little Brosna River at the northeast corner of the proposed wind farm site. It is proposed to supply the power from the proposed project to the Irish electricity network via a 110 kV underground cables (approximately 12.23 km total cable length of which approximately 10 km is on the public road corridor) to the existing Dallow 110 kV substation in the townland of Clondallow. A summary of the GCR crossings is included in Table 2-1.

The proposed Grid Connection Route (GCR) crosses the Little Brosna River (EPA Code:25L02) at Croghan Bridge where it. The proposed GCR also crosses two small streams:

- The Ross 25 stream (EPA Code: 25R43), a tributary of the Little Brosna River, where it flows under the R439, west of Woodville Wood; and

The Woodfield_25 stream (EPA Code: 25W29), a tributary of the Little Brosna River, where it flows under the L-70152 local road, on the access road to Dallow 110 kV substation.

**Table 2-1 Summary of GCR stream crossings**

| TLI Reference Number [2] | EPA Name | Description | Proposed crossing method |
|---|---|---|---|
| W1 | Not applicable | Box culvert over drainage channel – L1071 | HDD in road |
| W2 | Not applicable | Culvert in road | Overcrossing of culvert in road |
| W3 | Little Brosna River | Croghan bridge, Birr | HDD to the north of Croghan Bridge |
| W6 | Not applicable | Culvert in road | Overcrossing of culvert in road |

[2] TLI (2025) TLI Construction Methodology, Note W4- W6 are storm drains

| TLI Reference Number [2] | EPA Name | Description | Proposed crossing method |
|---|---|---|---|
| W7 | Not applicable | Culvert in road | Overcrossing of culvert in road |
| W8 | Ross 25 stream | Culvert in road | Overcrossing of culvert in road |
| W9 | Woodfield 25 stream | Drainage channel- no space in local road | Proposed Dam and Flume of first order stream – catchment area <0.4 km$^2$ |

Limited excavations are required for the proposed TDR. Works comprise primarily of overrun areas near roundabouts and road marking works, with off-road excavations near Sharavogue crossroads. No new watercourse crossings or modification of existing culverts are required for the works along the proposed TDR.

## 2.2 Drainage Design Overview

The drainage measures described will be implemented for the construction phase of the proposed project and the majority of the measures will remain in place for the operational phase. The measures described within Section 3 apply to the proposed wind farm site.

The surface water drainage system takes into account the recommendations of sustainable urban drainage systems (SuDS) and uses SuDS measures. The principal behind SuDS is to reduce the quantity of discharge from developments to predevelopment flows and to also improve the quality of run-off from proposed projects. SUDS drainage system to be constructed during the early stages of the construction, prior to, or at the same time as the access tracks.

A drainage evaluation has been carried out for the proposed project using the HR Wallingford Website (http://geoservergisweb2.hrwallingford.co.uk/uksd/index.htm) to identify appropriate SuDS measures for use on the proposed wind farm site. Appropriate measures identified include the use of swales.

For the proposed wind farm site the drainage design will decrease the quantity of run-off by using permeable road construction for the access roads and on the hardstanding areas and by providing surface water sedimentation/storage ponds. The following SuDS features are included in the drainage design for the proposed wind farm site:

- **Swales/Check Dams:** Sloped channels with check dams will slow down water flow, improving water quality, infiltration and reducing erosion:
- **Filter strips:** a gently sloped, vegetated area designed to treat stormwater runoff by filtering pollutants and allowing water to infiltrate into the soil. Filter strips are utilised at the Substation/ BESS location:
- **Settlement Ponds:** Vegetated ponds designed to temporarily store surface water runoff, aiding in flood control; and
- **Hydrocarbon Interceptor:** a device designed to remove hydrocarbons, silt and other pollutants from surface water runoff before it enters the drainage system. The

hydrocarbon interceptor will be located at the substation and temporary construction compounds.

The layout of the proposed wind farm site has been designed to collect surface water runoff from hardstanding areas and discharge to settlement/storage ponds within the proposed wind farm site boundary. From here the water will discharge to the ground by means of finger drains in a fan arrangement at the appropriate greenfield run off rates. A drawing of the proposed settlement ponds is shown in Drawing 11333-2034, in Appendix A.

Check dams will be provided in drainage channels to reduce the velocity of surface water run-off and are depicted in Figure 2-1. Swales will be constructed adjacent to the access road (See Appendix A) to provide drainage as depicted in Figure 2-2.

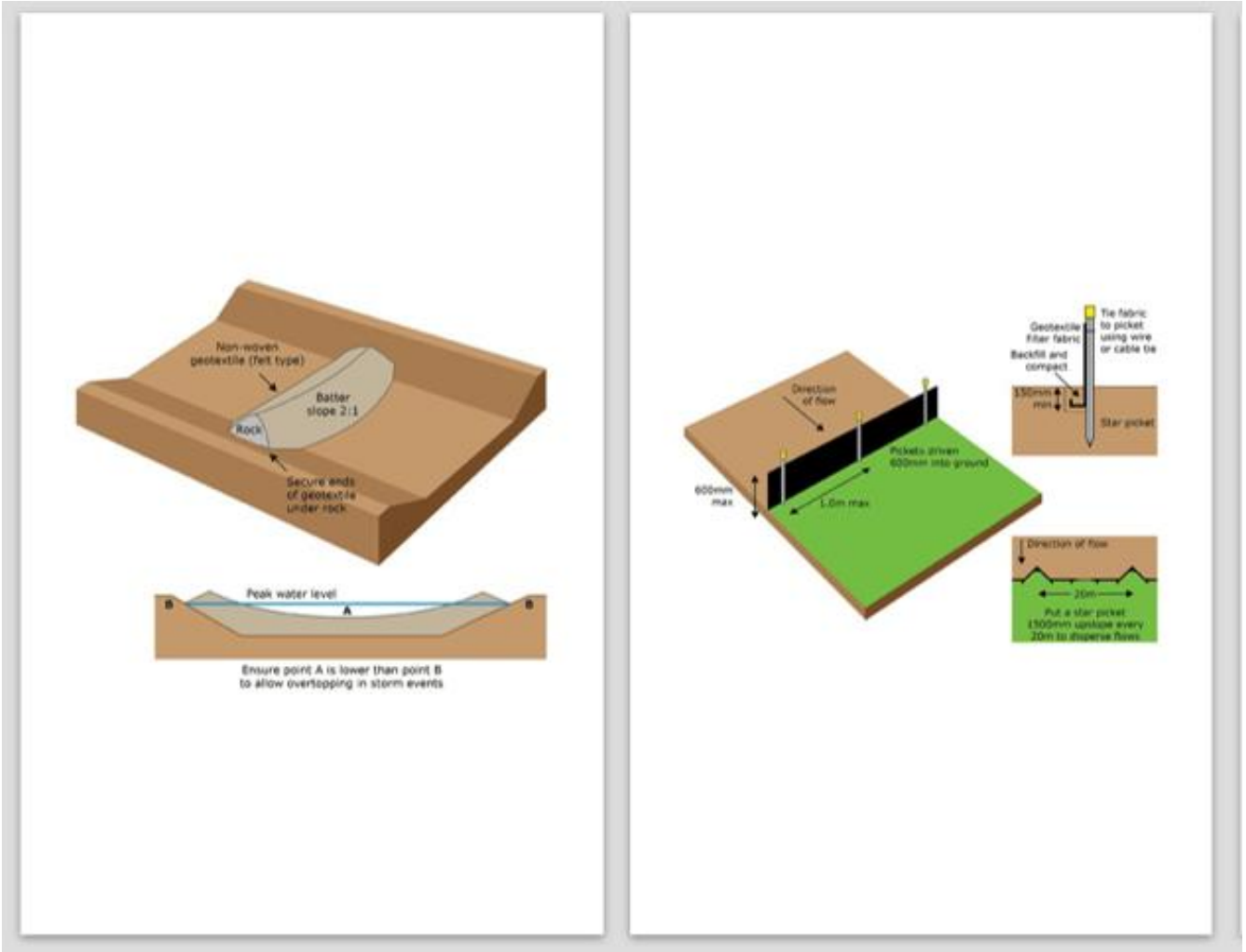


Figure 2-1 Check dam and silt fence examples (Source: Guidelines for Environmental Management, EPA Australia, 2004)

Figure 2-2 Vegetated swale

## 2.3 FORESTRY DRAINAGE

Forest felling will be undertaken during the initial phase of the construction works. The Felling and Reforestation Standards describe the universal standards that apply to all felling (thinning, clear felling) and reforestation projects on all proposed wind farm sites, will be implemented under a felling licence issued by the Department of Agriculture, Food & the Marine.

All associated tree felling will be undertaken using good working practices as outlined in the Forestry Report and Construction Environmental Management Plan (CEMP) (Appendices 2-8 and 2-3 of this EIAR), the Forest Service 'Forestry Harvesting and Environment Guidelines' (2000a), 'Forestry and Water Quality Guidelines '(2000b) and Standards for felling and reforestation (2019). The 2000b guidelines deal with sensitive areas, erosion, buffer zone guidelines for aquatic zones, ground preparation and drainage, chemicals, fuel and machine oils. Brash mats will also be used to support harvesting and forwarding machinery. The brash mats reduce erosion of the surface and will be renewed as they become used and worn over time.

Trees will be manually felled inside the 10m stream buffer. During the near stream construction work, silt traps and a double row silt fences will be placed immediately down-gradient of the construction area for the duration of the construction phase.

## 2.4 FLOOD RISK ATTENUATION

The creation of infrastructure such as roads, has the potential to increase rates of runoff and this may increase flood risk and flood severity downstream. The site is relatively flat with low permeability and will have limited potential to increase flows. Roadside drainage will have a capacity to manage and contain surface water runoff. Some areas of the flood plain in the vicinity of the subject site are removed due to the construction of the turbine hardstanding areas and roads, to compensate for the removed flood plain compensatory storage is proposed. The compensation storage has an area of approximately 14,000m$^2$. A project specific Flood Risk Assessment carried out for the proposed wind farm site (See Appendix 9-4 of the EIAR).

Residual risks at the proposed wind farm site and to the proposed wind farm site during an extreme flood event can be managed to an acceptable level, through a dedicated stormwater drainage system and effective landscaping and topography. The layout of the development will minimise the flood risk to people, property, the economy, and the environment. Flood compensation is provided to the south of the BESS and T2 access track.

It is proposed to provide temporary water storage within the drainage channels, by creating check dams at regular intervals. The spacing of the dams is every 50 metres on average but depends on the channel slope, with steeper channels requiring shorter intervals (30m). Runoff from the impermeable and gravel areas will be directed to swales and settlement ponds. The outflow from the settlement ponds will be released in a controlled and diffuse manner onto the vegetation and existing drains.

## 2.5 Turbine Delivery Route and Grid Connection Route

There will be limited construction activities required for the Grid Connection Route (GCR) and works areas of the proposed Turbine Delivery Route (TDR). Further details in relation to the grid connection cable route and road/junction accommodation works on the TDR are outlined in the CEMP in Appendix 2-3 of the EIAR.

No refuelling of machinery will take place within 50m of a watercourse on the wind farm site. No refuelling of machinery will take place within 10m of a watercourse on the GCR. Appropriate steps will be taken to prevent soil/dirt generated during the temporary upgrade works to the TDR from being transported on the public road. Road sweeping vehicles will be used as required, to ensure that the public road network remains free of soil/dirt from the location of the TDR works when required. This will reduce the potential for sedimentation of surface watercourses locally.

Silt fencing will be erected at the location of all stream crossings along the GCR. Where existing drainage ditches need to be realigned (e.g., around substation), new ditches will match profile of existing ditch in relation to width, existing side slope profile (or lower) and material at base of channel will be reused. The sizing of any new culverts will be designed to maintain existing flow characteristics and depth of flow. Within the proposed wind farm site, culverts will be assessed to ensure no barriers to fish migration occur. Where barriers occur, such culverts will be improved to increase fisheries potential. HDD will be utilised for the Little Brosna River crossing. Further details are included in Appendix 2-5 TLI Cable Methodology. Silt fencing will be installed at the launch and reception pits for the HDD crossing.

In-stream works is required for one small stream (Woodfield_25 stream) located near the Dallow 110 kV substation as there is insufficient cover/space in the existing local road – see photo 1. The stream is ephemeral(dry during the summer) due to the limited catchment area. As the stream is mapped on the EPA stream database, the proposed crossing is considered in-stream works. The flume is used to divert the stream temporarily (<1 week). A dam of sandbags and suitable clay material is constructed across the existing stream/riverbed to ensure all flow is diverted through the pipework. The water (if present) will be collected at the existing road culvert and diverted downgradient. Stream bed material will be reinstated post construction.

Photo 1 – Drainage pipes under local road near proposed GCR crossing location (March 2025)

# 3. WATER QUALITY MEASURES

The drainage design measures outlined in Section 2 will manage flow and quality within the proposed wind farm site and near the works areas of the proposed TDR and GCR. Specific water quality measures in relation to sediment, concrete and fuel management are detailed below.

## 3.1 CONCRETE

Concrete is required for the construction of the proposed turbine bases and foundations. After concrete is poured, the chutes of ready mixed concrete trucks must be washed out to remove the remaining concrete before it hardens. Wash out of the main concrete bottle will not be permitted within the proposed wind farm site and wash out is restricted only to chute wash out. Small quantities of concrete is required for the GCR. No concrete is required for the TDR works. Wash down and wash out of the concrete transporting vehicles will take place at an appropriate facility away from the proposed wind farm site i.e., at the premises of the concrete supplier. The collected concrete washout water and solids will be emptied on a regular basis.

## 3.2 FUELS, OILS AND CHEMICALS – SPILL CONTROL

The following will be employed on the proposed wind farm site:

- Fuels and chemicals will be stored within bunded areas as appropriate to guard against potential accidental spills or leakages. The bund area will have a volume of at least 110% of the volume of such materials stored;
- Store all containers of oil and fuel in a secure, bunded area.
- Regularly check tanks, containers and bunds for damage and leaks.
- Supervise all fuel and oil deliveries.

- Lock containers and tanks when not in use.
- Seek advice from a line manager before disposing of waste fuel or oil, or contaminated spill granules or absorbent mats – all contaminated materials to be disposed of in the appropriate manner.
- Liaise with a line manager to organise removal of contaminated water from bunds and trays by an appropriate contractor.
- Do not store fuel and oil, or carry out refuelling, within 50 m of a watercourse or drain.
- All on-site refuelling will be carried out by a trained competent operative. Use a funnel when refuelling small plant. Use an automatic shut off or pistol grip delivery system when refuelling plant.
- Clear up and report all spillages immediately.
- Place a drip tray or absorbent mat under all static plant and mobile plant during fuelling.
- Mobile measures such as drip trays and fuel absorbent mats kept with all plant and bowsers and will be used as required during all refuelling operations;
- A spill kit will be stored with the bowser and the person operating the bowser will be trained in their use;
- All equipment and machinery will have regular checking for leakages and quality of performance and will carry spill kits;
- Any servicing of vehicles will be confined to designated and suitably protected areas such as construction compounds; and
- Additional drip trays and spill kits will be kept available on the proposed wind farm site, to ensure that any spills from vehicles are contained and removed off-site.

### 3.2.1 Oil Interceptor

Surface runoff from the substation has the potential to have hydrocarbons due to vehicular activities. Therefore, an oil interceptor is proposed to prevent contamination.

A class I Bypass Separator, typically a NSBP003 (capacity for 1670m$^2$ drainage area – hardstand area within substation), is recommended due to the minimal risk of contamination expected at the site. The oil separator should comply with the requirements of EN-858-1 and 858-2 guidelines for oil separators.

| UNIT NOMINAL SIZE | FLOW (l/s) | PEAK FLOW RATE (l/s) | DRAINAGE AREA (m²) | STORAGE CAPACITY (litres) SILT | OIL | UNIT LENGTH (mm) | UNIT DIA. (mm) | ACCESS SHAFT DIA. (mm) | BASE TO INLET INVERT (mm) | BASE TO OUTLET INVERT | STANDARD FALL ACROSS (mm) | MIN. INLET INVERT (mm) | STANDARD PIPEWORK DIA. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NSBP003 | 3 | 30 | 1670 | 300 | 45 | 1700 | 1350 | 600 | 1420 | 1320 | 100 | 500 | 160 |
| NSBP004 | 4.5 | 45 | 2500 | 450 | 60 | 1700 | 1350 | 600 | 1420 | 1320 | 100 | 500 | 160 |
| NSBP006 | 6 | 60 | 3335 | 600 | 90 | 1700 | 1350 | 600 | 1420 | 1320 | 100 | 500 | 160 |
| NSBE010 | 10 | 100 | 5560 | 1000 | 150 | 2069 | 1220 | 750 | 1450 | 1350 | 100 | 700 | 315 |
| NSBE015 | 15 | 150 | 8335 | 1500 | 225 | 2947 | 1220 | 750 | 1450 | 1350 | 100 | 700 | 315 |
| NSBE020 | 20 | 200 | 11111 | 2000 | 300 | 3893 | 1220 | 750 | 1450 | 1350 | 100 | 700 | 375 |
| NSBE025 | 25 | 250 | 13890 | 2500 | 375 | 3575 | 1420 | 750 | 1680 | 1580 | 100 | 700 | 375 |
| NSBE030 | 30 | 300 | 16670 | 3000 | 450 | 4265 | 1420 | 750 | 1680 | 1580 | 100 | 700 | 450 |
| NSBE040 | 40 | 400 | 22222 | 4000 | 600 | 3230 | 1920 | 600 | 2185 | 2035 | 150 | 1000 | 500 |
| NSBE050 | 50 | 500 | 27778 | 5000 | 750 | 3960 | 1920 | 600 | 2185 | 2035 | 150 | 1000 | 600 |
| NSBE075 | 75 | 750 | 41667 | 7500 | 1125 | 5841 | 1920 | 600 | 2235 | 2035 | 200 | 950 | 675 |
| NSBE100 | 100 | 1000 | 55556 | 10000 | 1500 | 7661 | 1920 | 600 | 2235 | 2035 | 200 | 950 | 750 |
| NSBE125 | 125 | 1250 | 69444 | 12500 | 1875 | 9548 | 1920 | 600 | 2235 | 2035 | 200 | 950 | 750 |

Figure 3.1: Typical Sizes for Bypass Oil Interceptor

The oil interceptors are to be fitted with an oil level alarm system in accordance with BS EN 858-1. It will be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

## 3.3 Erosion and Sediment Control Measures

It is proposed, that during the ground clearance of the proposed project, the contractor will implement water control measures to limit the impact on water quality using standards measures. Suspended solid (silt) removal features will be implemented in accordance with the Construction Industry Research and Information Association (CIRIA) C697 SuDS Manual, and CIRIA C648 Control of water pollution from linear construction projects.

Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. These flows will discharge diffusely overland, within the buffer zone before entering any watercourse. Regular cross flow and energy dissipation devices will be installed to divert overland flows and prevent these flows from entering the borrow pits

All drainage from the proposed wind farm site shall be designed to have as a minimum three stages of treatment, as defined in the SuDS Manual. Management of runoff will include the following:

- Filtration of water through filter media (sand/stone check dam, silt fence);
- Detention/settlement in settlement ponds or behind check dam in swales; and
- Conveyance of shallow depths of water in vegetated swale.

All surface water run-off from the proposed wind farm site will pass through settlement ponds. It is proposed to locate settlement ponds downstream of borrow pits and associated stockpile areas, each hardstand and along all the proposed wind farm site access tracks. Drainage drawings are presented in Drawing 11333-2061 to 11333-2065 in Appendix A. Interceptor cut-off drains around the borrow pits will be provided to divert overland flows and prevent these flows from entering the borrow pits. These flows will discharge diffusely overland,creating a buffer before entering the surface water management infrastructure.

Water that accumulates in the borrow pits will be directed to a sump. Water from the sump will be pass through a silt bag prior to a settlement pond or a mobile Siltbuster system.

Where works are to be carried out such as the crossing of drainage ditches, the works area shall be isolated from surface water using a sufficiently large flume or other suitable containment methods. Water within the contained area contaminated with suspended solids or other potential pollutants shall not be released directly to the drainage ditch. It shall be pumped to a suitable sediment control structure (e.g. sediment control pond) to allow sediment removal before it re-enters the drainage ditch.

### 3.3.1 Forestry measures

Forest felling will be undertaken during the initial phase of the construction works. The Felling and Reforestation Standards describe the universal standards that apply to all felling (thinning, clear felling) and reforestation projects on all proposed wind farm sites, will be implemented under a felling licence issued by the Department of Agriculture, Food & the Marine.

All associated tree felling will be undertaken using good working practices as outlined in the Forestry Report and Construction Environmental Management Plan (CEMP) (Appendices 2-8 and 2-3 of this EIAR), the Forest Service 'Forestry Harvesting and Environment Guidelines' (2000a), 'Forestry and Water Quality Guidelines '(2000b) and Standards for felling and reforestation (2019). The 2000b guidelines deal with sensitive areas, erosion, buffer zone guidelines for aquatic zones, ground preparation and drainage, chemicals, fuel and machine oils. Brash mats will also be used to support harvesting and forwarding machinery. The brash mats reduce erosion of the surface and will be renewed as they become used and worn over time.

Trees will be manually felled inside the 10m stream buffer. During the near stream construction work, silt traps and a double row silt fences will be placed immediately down-gradient of the construction area for the duration of the construction phase.

All timber harvesting exclusion zones (DAFM, 2019) to be clearly marked on site maps and on the Proposed wind farm site before any works commence:

- 10 m-wide exclusion zone to be established from the edges of any aquatic zones or water hotspots.
- 5 m-wide exclusion zone to be established from the edges of any relevant watercourses.
- Appropriate exclusion zone (following consultation with the Ecological Clerk of Works (ECoW) or the Environmental Manager) to be established for any wildlife habitat present within the harvesting area, and the location of this exclusion zone to be well known by all harvesting operators on the site.

- Prior to harvesting works, silt traps to be installed within existing forest drains that connect with aquatic zones, either directly or indirectly through other relevant watercourses. Silt traps to be constructed along the length of drains and to be monitored and maintained throughout works.
- Temporary bridging points to be used where machinery routes must cross existing water features - direct crossing over a stream bed is not permitted. Water features to be crossed at a right angle to the flow of water and any crossing to be via an appropriate structure – see *Standards for Felling & Reforestation* (DAFM, 2019).

- Any drains crossed during the timber extraction phase to be kept clear of residues and debris to ensure no drainage issues arise for the remaining trees: this can be a major attributor to windblow.
- Maintenance, refuelling and storage areas to be sited in dry and sheltered locations, at least 50 m from aquatic zones and 20 m from relevant watercourses.
- No rinsing of fuel, chemical or oil containers to occur on the site.
- Harvesting machinery to be fitted with spill kits to mitigate against an accidental spillage.
- Dense mats of brash and branch wood to be laid along all machinery routes. Additional brash to be deployed on any sections of soft ground that are subject to high levels of machinery passage. Brash mats to be replaced as soon as they exhibit signs of wear.
- Stacking areas to be located at least 50 m from aquatic zones.
- On-site supervision to be present to ensure operations are carried out according to standards, and to confirm mitigation measures are effective. Regular visual monitoring of aquatic zones and relevant watercourses to occur to check for any silt/sediment discharge from harvesting works.
- Felling and extraction to cease during and after periods of rainfall that could result in the surface mobilisation of silt - until conditions improve.
- Harvesting works and haulage to adhere to the designated working hours as specified in Appendix 2-3 Construction Environmental Management Plan (CEMP).
- Harvesting machinery must not enter any exclusion zones: trees standing within an exclusion zone outside the reach of the harvester arm to be manually felled by an experienced chainsaw operator and removed by an extended harvester arm for processing and stacking outside of the exclusion zone.
- Trees to be directionally felled away from sensitive features. Hand felling within 10m of an EPA stream.
- Contractors to monitor machinery routes and to use extra brash (where available) to pre-empt the risk of soil damage. Where ground conditions begin to visibly deteriorate, a new track to be promptly established containing a new brash mat layer.
- Any waste or hazardous materials that accumulate throughout operations to be removed from the Proposed Development site once harvesting is complete.
- Temporary drain bridging points to be removed as no longer required and relevant areas restored to their original condition, with due care afforded to avoid the release of any sediment or harvesting residues.
- Any harvesting debris evident within drains or silt traps to be removed.

### 3.3.2 Check Dams/Silt Fences

Track edge drainage/swales are required to control run-off from the running surface to lower water levels in the subgrade, to control surface water and to carry this flow to outlet points.

Swales will be re-vegetated by hydro-seeding with indigenous seed mix as soon as is practicable following excavation. This will reduce the flow velocity, treat potential pollutants, increase filtration and silt retention.

Swales will be installed in advance of the main construction phase. Check dam/Silt fence are presented in Drawing 11333-2036 – Appendix A. On sections of track where there is <5% longitudinal gradient, regular surface water interception channels will be employed – these will typically be at 20m intervals to collect any surface water that is discharging as sheet flow along the track and discharge the flow into the trackside swale.

Check dams will have a minimum 0.2m freeboard (from top of check dam) to top of swale level, to prevent overtopping of flows onto the access track. All check dams, etc to be checked at least once weekly via a walkover survey during the period of construction. All excess silts will be removed. Where check dams have become fully blocked with silt, they will be replaced. The following measures will be implemented:

All stockpiled material will be battered back (Slope of 1:2 or less) to reduce the rainfall erosion potential. Silt fencing will be utilised as the base of stockpiles.

Silt fencing is to be installed in the path of sheet flow runoff to filter our heavy sediments. Silt fences are to be located at the toe of stockpiled areas to reduce sediment transport. Additional silt fencing and emergency spill kits will be kept on the proposed wind farm site for use in emergencies. All silt fencing on the proposed wind farm site will also require regular cleaning and maintenance in accordance with manufactures guidelines. The fence should be taut, with no sagging. No gaps should exist between the fence and the ground.

Silt build ups, within settlement ponds, check dams, silt fences are to be removed as required to ensure no carryover/breakthrough of suspended matter downstream in the drainage system. Any sediment removed will be disposed of so as to prevent any reintroduction into the drainage system.

### 3.3.3 Settlement ponds

Settlement ponds will be located downstream of road swale sections and at turbine/hardstand locations, to manage/buffer volumes of runoff discharging from the drainage system during periods of high rainfall, thereby reducing the hydraulic loading to watercourses. Settlement ponds are designed in consideration of the greenfield runoff rates. A longitudinal cross-section and plan of a settlement pond is presented in Drawing 11333-2034, in Appendix A. A total of 19 settlement ponds will be put in place across the Site (refer to Appendix A)

The proposed settlement pond design consists of a sediment forebay, which removes the majority of suspended solids from the inflow water. Inflow water enters the sediment forebay via an energy break, which removes energy from the incoming water resulting in a decrease in the incoming waters capacity to transport suspended solids and the deposition of material in the sediment forebay. The water then flows over a section of elevated channel bed into the flow control bay. Here the flow is controlled by a weir constructed of silt fencing or equivalent. Once the water has been filtered by the flow control device it then outfalls to an area of intact vegetation, which acts as a secondary filter. The outflow control from the settlement device is designed such that in an extreme event the device can overflow into adjacent vegetated areas.

Settlement ponds will be installed concurrently with the formation of the road. Additional settlement ponds will be constructed as required on the proposed wind farm site. Settlement

ponds are to be located as close to the source of sediment as possible with a buffer zone between the settlement pond outfall and any existing watercourse.

The settlement pond design (Drawing 11333-2036, Appendix A) is based on primary settling out of suspended solids from aqueous suspension. The theory behind the design of the settlement ponds is the application of Stoke's Law. The settlement ponds will be designed to provide sufficient retention time and a low velocity environment to allow suspended solids of small particle size to fall out of suspension prior to allowing the water to outfall to the receiving environment.

Runoff will be maintained at Greenfield (pre-development) runoff rates. The layout of the development has been designed to collect surface water runoff from hardstanding areas within the development and discharge to associated surface water attenuation lagoons adjacent to the proposed infrastructure. It will then be managed by gravity flow at Greenfield runoff rates.

### 3.3.4 Works near Watercourses

As mentioned above, where main drain crossings and stream crossings occur (i.e., access tracks), it is proposed to use a clear-span design bridge or bottomless culverts. Installation of such features will take place during dry periods to reduce the risk of sediment entering the watercourse. Smaller drains with be crossed using normal culverts.

One new clear span bridge is required to cross the Holy Well Clohaskin stream for access to T2 to T3, and a design has been developed in consultation with the Office of Public Works (OPW) and Inland Fisheries Ireland (IFI). A Section 50 Consent application will be prepared and submitted to the OPW prior to construction. No instream works are proposed.

As a further precaution, near-stream construction work will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works guidance document *"Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites"*.

Culverts will be designed to be of a size adequate to carry expected peak flows in accordance with CIRIA Culvert design and operation guide (C689). Culverts will be installed to conform, wherever possible, to the natural slope and alignment of the drainage line. Where required, culverts will be buried at an appropriate depth below the channel bed and the original bed material placed at the bottom of the culvert. The sizing of any new internal drainage crossings will maintain existing depth of flow and channel characteristics.

Culverts will be required at drain crossings along the access roads and to allow for cross drainage on the proposed windfarm. Precast concrete culverts or uPVC drainage pipes shall be provided for drain culverts, detail of which is shown in Drawing 11333-2035, in Appendix A. Earth embankments constructed for bridge approaches will be protected against erosion e.g., by re-vegetation or rock surfacing etc.

### 3.3.5 HDD crossings

As mentioned above, HDD crossings occur for the former railway cattle underpass and crossing of the Little Brosna River. Installation of such features will take place during dry periods to reduce the risk of sediment potential. The following procedure will be implemented:

- The Contractor will prepare a directional drilling Method Statement which will outline the standard approach for the construction. The Method Statement will include a contingency plan for frac-out and for excessive ground settlement;
- The Contractor will undertake the directional drilling in accordance with industry standards including British Standard EN 16191:2014 Tunnelling machinery, safety requirements and CIRIA C648 '*Control of water pollution from linear construction projects Technical Guidance*';
- The contractor will ensure that all personnel working on site are trained in pollution incident control response. A regular review of weather forecasts of heavy rainfall is required, with the Contractor required to prepare a contingency plan for before and after such events;
- Weather conditions will be considered when planning construction activities to minimise the risk of runoff from site;
- There will be no storage of fuels within 10 m of the watercourse; Provision of exclusion zones and barriers (silt fences) between any excavated material and any surface water features will be installed to prevent sediment washing into the receiving water environment. Silt fences will be installed and the contractor will ensure that silt fences are regularly inspected and maintained during the construction phase;
- If dewatering is required as part of the works (e.g., in trenches for underground cabling or in wet areas), water must be treated to remove sediment prior to discharge;
- To prevent loss of drilling fluid[3] or 'frac-out' from occurring, a series of actions will be implemented; the drill fluids operator will monitor drill fluid density, viscosity and solids content on an ongoing basis, to ensure that the fluid does not increase in viscosity, requiring additional pressure to maintain mobility;
- Viscometers will be used to measure drill fluid gel strength and shear strength. Filtrate can also be measured to calculate the amount of filter cake building up on the internal wall of the bore. Any increases in pump pressure experienced by the drill operator will be investigated immediately to prevent the risk of pressure build up within the annulus. In some circumstances, dependant on the drilling equipment used, the pilot drill borehole assembly will be fitted with a down hole pressure monitor to measure pressure in the annulus between the drill and the bore wall. This will give an early indication of pressure build up in the hole and allow the drill operator to prevent a 'frac-out'. If there is a risk of a 'frac-out' a number of measures will be implemented including:
    - pumping a pill of drilling fluid with a higher density to the higher risk zone; and
    - circulate and pump loss circulation material (typically cork or manufactured inert polymers) to the risk zone to seal the risk zone, grouting of the risk zone, and, or launch a packer before the risk zone.
- The Contractor will implement procedures to maximise the recirculation or reuse of drilling fluid to minimise waste disposal;

[3] Use of inert, biodegradable food grade polymers

- Disposal of drilling fluids will be the responsibility of the Contractor to an approved and licenced waste facility;
- Monitoring of the drilling operations will be undertaken at all times by the Contractor. The monitoring will include visual inspection of the pits and monitoring of the volume of returns flowing back to the entry pit. The monitoring personnel will be in constant communication with the drilling rig operator and thus will be able to immediately cease drilling if necessary;
- Buffer strips of natural uncleared vegetation shall be preserved between construction activity. Reception pits will be situated (<20 m) from streams.

### 3.3.6 Dam/Flume Works

The following sequence of works will be completed at the W9 location:

- No in-stream structures, strictly no temporary stream crossings or temporary culverting shall take place without the prior agreement of IFI;
- The flume pipe(s) will be set out on the bed of the existing stream;
- A dam will be constructed using sandbags and suitable clay material around the flume pipe(s) and across the stream so that all the flows are diverted through the pipe(s);
- Silt traps, such as geotextile membrane, straw bales etc. will be placed downstream of the in-stream trenching location prior to construction, to minimise silt loss;
- The ducting installation works will be carried out in the dry stream bed and under/around the flume pipe(s);
- If required, a temporary sump will be established and used to collect any additional water. This water will be removed by pumping to a percolation area if the soil is not saturated, otherwise a settlement tank will be used to remove any solids from the de-watering.
- Following the completion of works, the stream bed will be reinstated with original or similar material and the spawning gravels replaced under the supervision of an aquatic ecologist.
- Once the stream bed is appropriately re-instated the dam and the flume pipe(s) will be removed thus restoring the stream to its original condition.

## 3.4 Invasive Species

There may be a risk associated with the spread of, or introduction of invasive species via soil or other materials which will be imported to the site during construction work, or via machinery or equipment, the following mitigation shall be adhered to:

- Staff involved in the works shall be informed as to the presence of invasive species in the area. All staff working on the project shall be familiar with the sections within the

document ‘Guidelines on the Management of Noxious Weeds and Non-Native Plant Species on National Roads’ (NRA, 2008) which detail the treatment necessary for each of the aforementioned species, together with the required reporting procedure if encountered;

- All plant and equipment employed on the proposed construction site (e.g. excavator, footwear, etc.) will be thoroughly cleaned using a power washer unit prior to arrival on-site, and prior to leaving site, to prevent the spread of invasive aquatic / riparian species in accordance with the Office of Public Works (OPW) Environmental Standard Operating Procedures (2011) and IFI Biosecurity Protocols (IFI, 2010). A sign off sheet must be maintained to confirm cleaning; and
- If invasive species are found within the works area during the course of construction works, a buffer zone will be marked around the invasive species, and plant and equipment that could transport the species within the site will be excluded. This will be reported to the ECoW, who will develop a plan of action in association with the appointed contractor(s). The significance of the buffer will be explained to machinery operators.

# 4. Surface Water Monitoring

Details of the proposed surface water monitoring and maintenance activities are given in this section of the SWMP. No operational phase monitoring is required due to the low risk of contamination.

Records of all monitoring and maintenance activities will be retained by the Contractor for the construction phase.

## 4.1 Recording And Reporting

Inspections will be recorded for the proposed project. In the event that pollution indicators are observed, works will cease, and sampling will immediately be undertaken as described for the weekly monitoring, and an investigation of the potential cause will be undertaken by the appointed Contractor.

Where the construction works are identified as the source causing the exceedance, the following details will be recorded:

- Nature of the impacts and mechanism of pollution;
- Details of the activity identified as causing the incident or, in the event no clear pathway still exists, activities capable of causing the incident and an assessment undertaken as to the most likely source; and
- Details of measures proposed and implemented to ensure that such an incident does not re-occur.

This information will be shared with the Employer and the regulators. Through monitoring and this open and transparent reporting, there is a much reduced likelihood of a small incident becoming a serious one that may require regulator action; proactively providing this information gives the regulator and the Client comfort that these issues are taken seriously on the proposed wind farm site and addressed in a professional manner.

## 4.2 Details of Monitoring Locations On Site

There are 5 no. surface water monitoring locations (see Figure 4-1) to monitor surface water quality. These points are focussed on areas where turbines are located close to streams/rivers. The proposed monitoring schedule is robust and sufficient for the scale of the proposed wind farm site and in line with the relevant guidance. It is discussed below in detail.

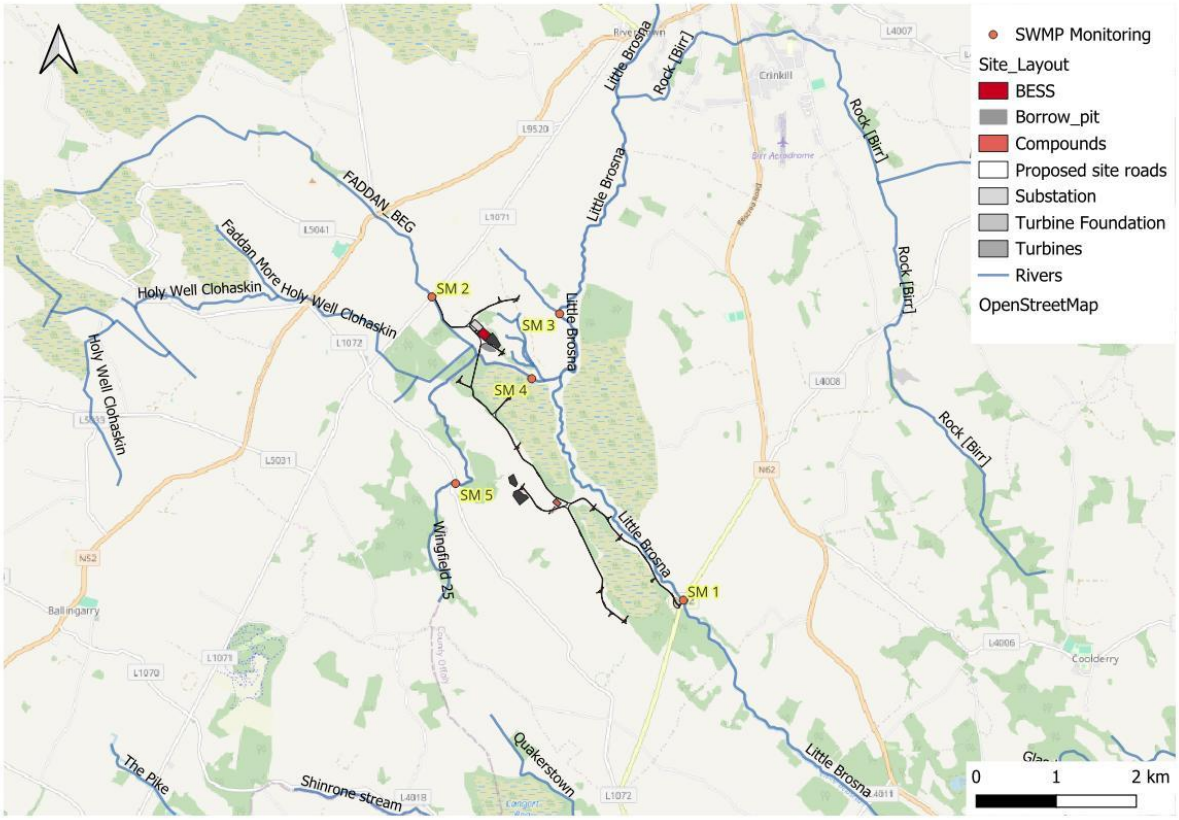


Figure 4-1 Surface Water Monitoring Locations for the SWMP

## 4.2.1 Surface Water Monitoring Schedule

All surface water control measures for the proposed project will be adhered to in accordance with the CEMP (Appendix 2-3 of the EIAR). A surface water monitoring schedule for the construction stage of the proposed wind farm site has been developed (See Table 4-1 below) and outlines the selected parameters with their associated trigger limits (See Table 4-2 below), as well as the frequency of monitoring to be completed prior to, during, and at the post construction phase of the project.

## 4.2.2 Schedule of Monitoring

The critical water parameters in terms of their potential to cause damage to aquatic life, ecosystems, human health and water quality in the receiving waters are outlined in the surface water monitoring schedule (see Table 4-1 below).

Table 4-1 Surface Water Monitoring Schedule for Ballincor Wind Farm

| Phase | Preconstruction | Construction | Post construction |
|---|---|---|---|
| Monitoring Period | 3 Months | 24 Months | 3 Months |
| Frequency | Continuous | | |
| Parameters | Turbidity | Turbidity | Turbidity |
| Surface Water Parameters | Turbidity monitoring | Turbidity and visual checks (examination of surface | Turbidity and visual checks (examination of surface |

| Phase | Preconstruction | Construction | Post construction |
|---|---|---|---|
| | | drainage/sediment control measures/watercourses) | drainage/sediment control measures/watercourses) |
| **Frequency** | Weekly | | |
| **Surface Water Parameters** | pH, Electrical Conductivity, Temperature (Handheld Meter) | pH, Electrical Conductivity, Temperature (Handheld Meter)<br>Monitoring during clearance phase and construction works at Turbines | N/A |
| **Frequency** | Monthly | | |
| **Surface Water Parameters** | Conductivity, Chloride, Dissolved Oxygen, Molybdate Reactive Phosphorus, Mineral Oil, pH, Total Ammonia, Total Phosphorus, Total Suspended Solids (Grab Samples) | Conductivity, Chloride, Dissolved Oxygen, Molybdate Reactive Phosphorus, Mineral Oil, pH, Total Ammonia, Total Phosphorus, Total Suspended Solids (Grab Samples) | Conductivity, Chloride, Dissolved Oxygen, Molybdate Reactive Phosphorus, Mineral Oil, pH, Total Ammonia, Total Phosphorus, Total Suspended Solids (Grab Samples) |
| **Frequency** | Quarterly | | |
| **Frequency** | Pre-Construction Report | Monthly and Quarterly Monitoring Report | Final Monitoring Report |
| **Surface Water Parameters** | Upgrade limits/trigger values for construction phase water monitoring | Results screened against construction phase surface water monitoring trigger levels | Results screened against construction phase surface water monitoring trigger levels |

### 4.2.3 Surface water Monitoring Trigger Values

Surface Water Quality Monitoring (SWQM) will be conducted by the appointed Contractor in accordance with the monitoring schedule proposed in Table 4-1 above. Prior to the commencement of construction, baseline preconstruction monitoring will be carried out. The results of this monitoring suite will determine the baseline and trigger values for the construction monitoring phase of the development. This will be completed in order to establish if local trigger values are required due to existing water quality exceedances. A pre-construction monitoring report will be issued, establishing the baseline trigger values for these parameters, which will then be appended to this SWMP.

The final details of the monitoring schedule will be agreed with the relevant authorities, prior to the commencement of construction. Construction and post construction sampling results will be screened against the agreed trigger values as proposed in Table 4-2, except where local triggers are required.

Table 4-2 Analysis and Proposed Trigger Values (Pre-Construction)

| Parameter | Proposed Limits | Units |
|---|---|---|
| **Conductivity** | 1,000 µS/cm or within preconstruction values | µS/cm |
| **Chloride** | 200 mg/l or lower. I.e. within trigger values established by preconstruction monitoring | mg/l |
| **Molybdate Reactive Phosphorus** | 0.035 mg/l annual average or within preconstruction values | mg/l |
| **Mineral Oil** | 10 µg/l or within preconstruction values | µg/l |
| **pH** | 6-9 | pH units |
| **Turbidity** | 50 NTU or within preconstruction values | Nephelometric Turbidity Unit (NTU) |
| **Total Ammonia** | 0.14 mg/l (95%ile) or within preconstruction values | mg/l |
| **Total Suspended Solids** | <25 mg/l or within preconstruction values | mg/l |

Field measurements will be taken by the contractor on a weekly basis during the main earthworks stage of the construction period. In addition, daily visual inspections of the surface drainage and sediment control measurements and the watercourses will be completed. Daily turbidity monitoring will also be undertaken on the proposed wind farm site. Indicators that show evidence of water quality issues include the following and will be noted.

- Changes in water quality; and
- Changes in water transparency.

In-situ field monitoring will also be conducted during major rainfall events i.e., 15 mm in a 6-hour period. The clerk of works will undertake monitoring during the rainfall events.

Laboratory samples will be taken on a monthly basis during construction as shown in Table 4-1.

### 4.2.4 Surface Water Quality Monitoring Locations

Monitoring will be undertaken at 5 no. locations around the proposed wind farm site (see Figure 4-1). The proposed monitoring for the construction phase will be completed at the following locations along the following streams.

- SM1 – Little Brosna River
- SM2 – Faddan Beg – upgradient (UG)
- SM3 – Little Brosna River
- SM4 – Holy Well Clohaskin stream
- SM5 – Windfield_25

Monitoring records should include the date and time of the monitoring period and relate to the relevant consent conditions, where applicable. A written log of the environmental performance of the works will be maintained. A monthly monitoring report on the findings of the monitoring

exercises will be prepared within two weeks of receipt of analytical results. The monthly monitoring reports will cover the construction and post construction works.

### 4.2.5 Proposed Monitoring Frequency and Parameters

#### *4.2.5.1 Pre-Construction Monitoring*

It is proposed that the surface water monitoring will be scheduled in conjunction with the pre-construction stage. Continuous turbidity monitoring will be undertaken downgradient on the Little Brosna River preconstruction and during construction.

#### *4.2.5.2 Construction Stage Monitoring*

Surface water monitoring will be undertaken by the Ecological Clerk of Works (ECoW) daily during the construction stage of the proposed project. The daily monitoring will include for a walk around the proposed wind farm site, visual inspection of the watercourses and field measurements for turbidity to be undertaken as required and, as a minimum, on a weekly basis. Weekly surface water monitoring will take place as per the daily surface water inspection and will include for a routine weekly measurement of turbidity at the surface water locations.

Monthly surface water samples will be collected during the construction stage of the proposed project and laboratory analysis will be undertaken for those monitoring parameters included in Table 4-2 of this SWMP.

#### *4.2.5.3 Post-Construction*

Immediately post-construction for three months, surface water samples will be collected, and laboratory analysis will be undertaken for those monitoring parameters included in Table 4-1 of this SWMP.

### 4.2.6 Trigger Values

The trigger values for the surface water monitoring programme are those listed in Table 4-3 of this SWMP and where relevant Surface Water Quality standards given in the Surface Water (Environmental Objectives) Regulations S.I. 272 of 2009 as amended, or as otherwise agreed with the Planning Authority in consultation with Inland Fisheries Ireland where required.

An Environmental Manager will be engaged for construction stage monitoring. Should the trigger values not be met, the Environmental Manager will have 'Stop Works Authority' to direct the contractor's construction manager to cease all works and activities on the proposed wind farm site pending further instruction.

Table 4-3 Proposed Surface Water Parameters and Trigger Values

| | | Proposed Trigger Values | SI No. 272 of 2009 EU Surface Water Environmental Objective Regulations (as amended) | SI No. 293 of 1988 EC Regulations (Quality of Salmonid Waters) |
|---|---|---|---|---|
| **Parameter** | Units | | | |
| **Electrical Conductivity (EC)** | µS/cm | 1,000 | | |
| **pH** | pH units | >4.5 and <9 | Soft Water 4.5< pH < 9.0 | >6 and <9 |
| **MRP** | mg/l | 0.025 (mean – high status)<br>0.035 (mean- good status) | 0.025 (mean – high status)<br>0.035 (mean- good status) | |
| **Dissolved Inorganic Nitrogen as N** | mg/l | 2.6 | 2.6 | |
| **Total Suspended Solids** | mg/l | 25 | | 25 |
| **BOD** | mg/l | <5 | <2.6 (95%ile) good status<br><2.2 (95%ile) high status | <5 |
| **COD** | mg/l | 40 | | |
| **Total Alkalinity as $CaCO_3$** | mg/l | No abnormal change | | No abnormal change |
| **Hydroxide Alkalinity as $CaCO_3$** | mg/l | No abnormal change | | No abnormal change |

## 4.3 MAINTENANCE ACTIVITIES

### 4.3.1 Construction Phase

Settlement ponds will be regularly cleaned/maintained to provide effective and successful operation throughout the works. Outfalls and ditches should be cleaned, when required, starting up stream with the outfalls blocked temporarily prior to cleaning. Settlement pond management will also include the following:

Sediment/silt removed via the contractor from ponds is to be disposed of at suitable locations on the proposed wind farm site, away from watercourses. Machine access is required to enable the accumulated sediment to be excavated. Settlement pond maintenance and/or cleaning will not take place during periods of extended heavy rain. Settlement ponds will be clearly marked for safety. Settlement ponds will be constructed on even ground and not on sloping ground and where possible will discharge into vegetation areas to aid dispersion. The settlement ponds will be monitored closely over the construction timeframe to ensure that they are operating effectively.

### 4.3.2 Operational Phase

During the operational phase impediments to flows can generally occur as a result from blockages to watercourse crossings, ditches and watercourses themselves, resulting from vegetation and erosion debris. The surface water infrastructure will be maintained by the operator through the lifetime of the planning permission.

### 4.3.3 Decommissioning Phase

A review of the relevant guidelines will be undertaken prior to the decommissioning phase. The operational phase surface water management infrastructure will be utilised for the decommissioning phase. The operational road layout will remain in place and therefore limit the potential for siltation during the decommissioning phase. Water quality measures as outlined in Section 3 will be implemented.

## 5. CONCLUSION

This Surface Water Management Plan as designed will ensure that all water within the construction works will be collected and treated before being released to the downstream watercourses. The attenuation system will ensure that water is treated and there will be no increase in flow rates downstream and consequently there will be no increase in flood risk downstream of the site as a result of the development.

# 6. REFERENCES


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# APPENDIX A

# DRAWINGS

11333-2034

11333-2035

11333-2036

11333-2060

11333-2061

11333-2062

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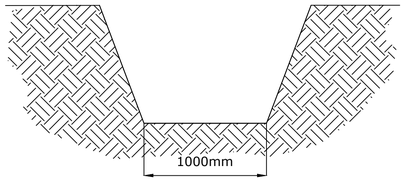
11333-2064

11333-2065

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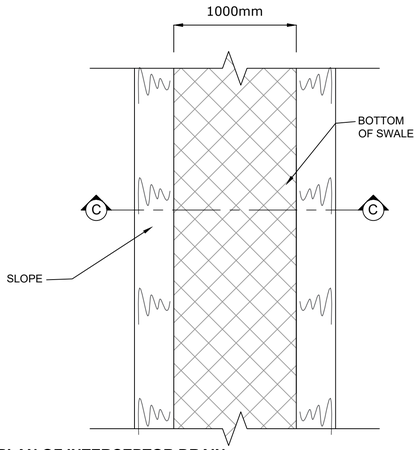


**PLAN OF INTERCEPTOR DRAIN**
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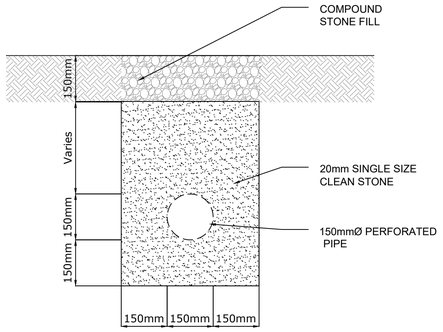


**FILTER DRAIN DETAIL**
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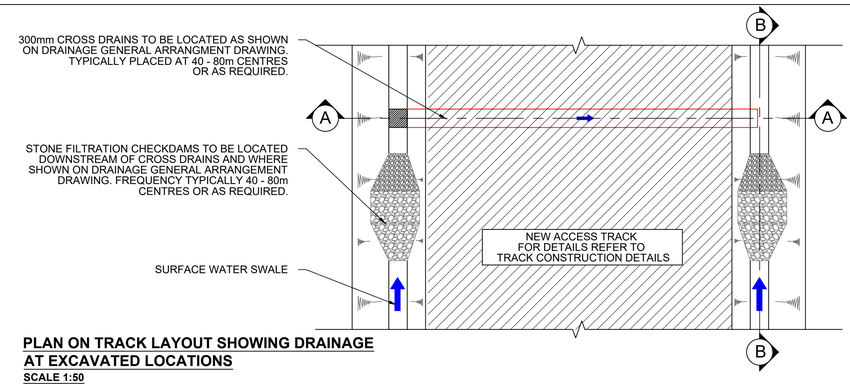


**PLAN ON TRACK LAYOUT SHOWING DRAINAGE AT EXCAVATED LOCATIONS**
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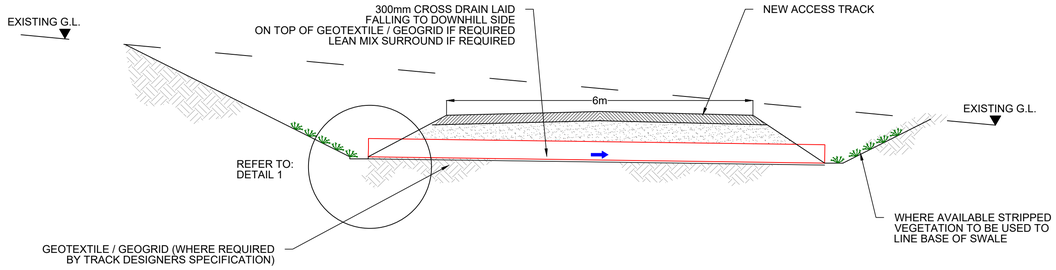


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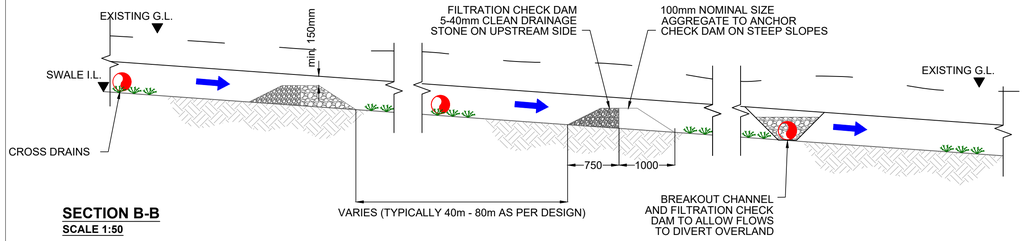


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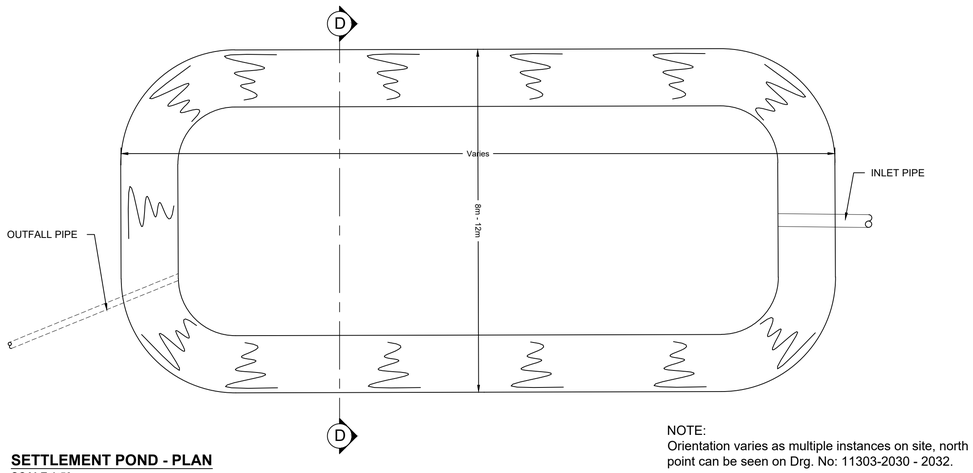
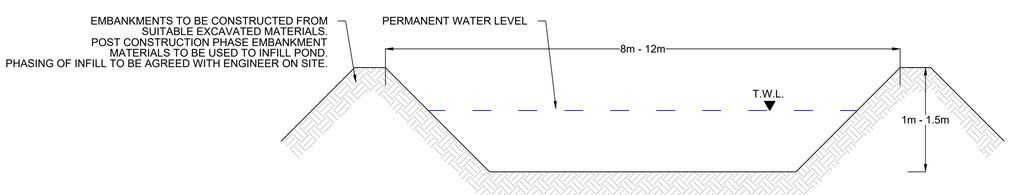



**SETTLEMENT POND - PLAN**
SCALE 1:50

NOTE:
Orientation varies as multiple instances on site, north point can be seen on Drg. No: 11303-2030 - 2032.

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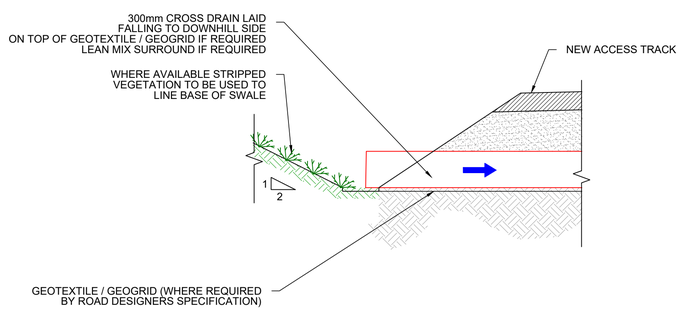


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|---|---|---|---|---|
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| | | | | |
| | | | | |
| A | 31.03.26 | PLANNING ISSUE | MN | JD |

Client: RWE

Project:
BALLINCOR WIND FARM
PLANNING APPLICATION

Title:
TRACK SWALES, DRAINS & SETTLEMENT POND DETAILS

Scale @ A1: As Shown

| Prepared by: | Checked by: | Date: |
|---|---|---|
| M. Nolan | J. Dillon | March 2026 |

Drawing Status: Planning

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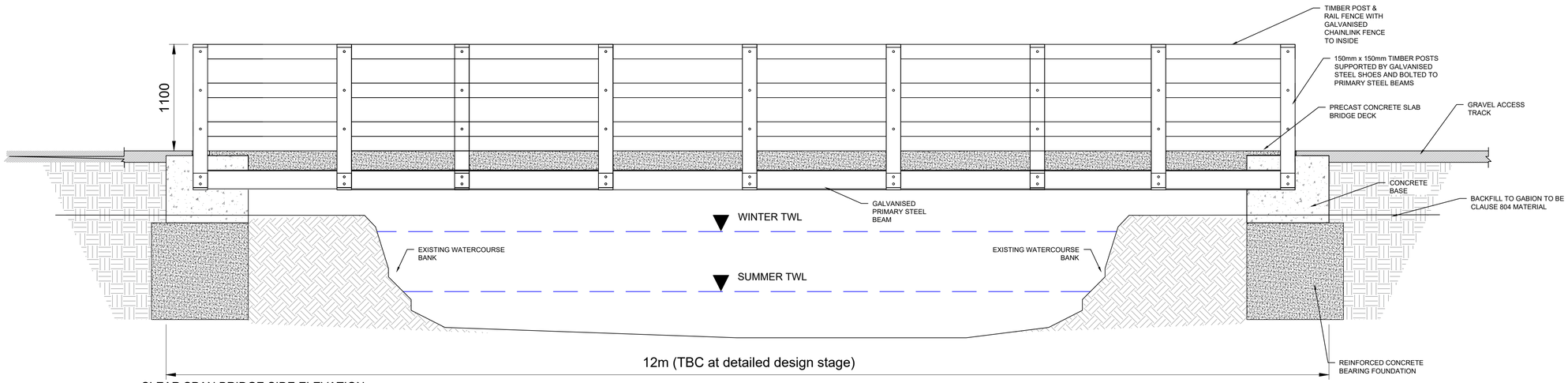
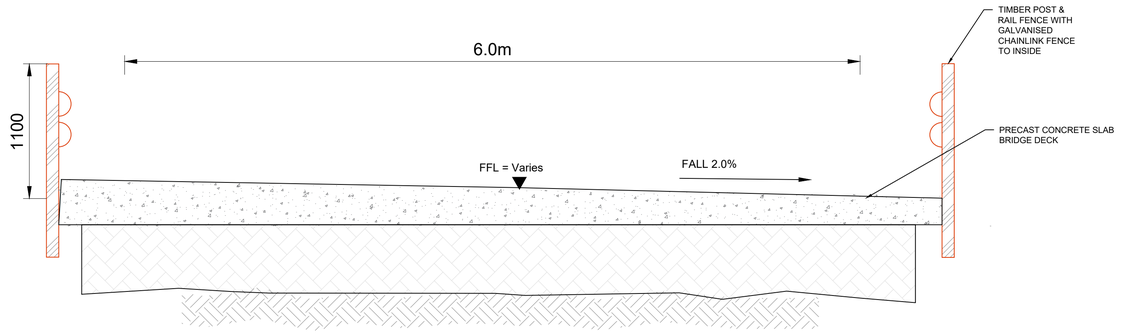
| Drawing No.: | Revision: |
|---|---|
| 11333-2034 | A |




CLEAR SPAN BRIDGE SIDE ELEVATION
1:25




CLEAR SPAN BRIDGE FRONT ELEVATION
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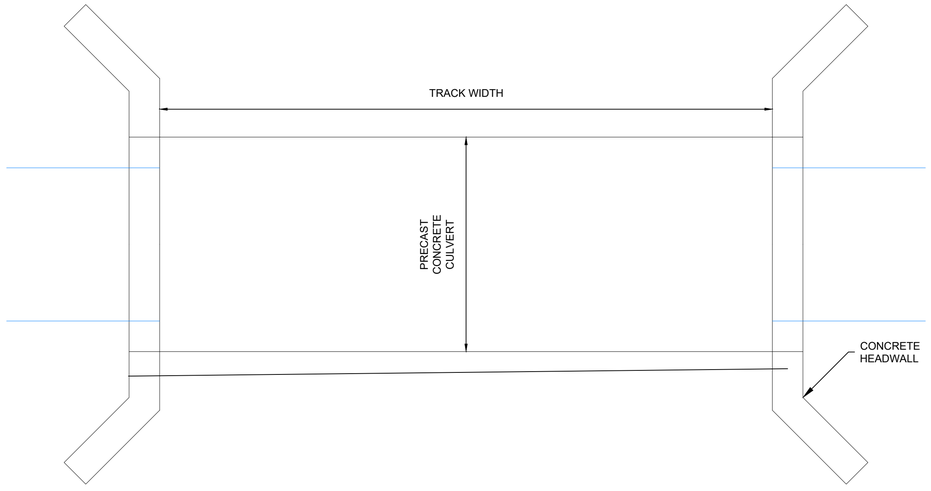
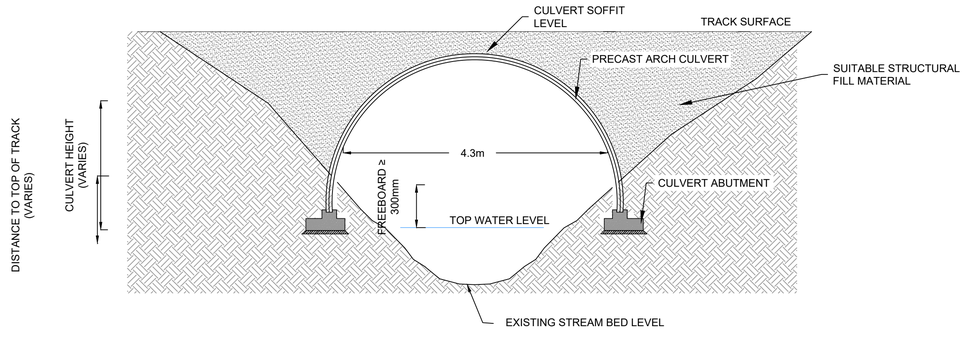



BOTTOMLESS CULVERT
PLAN 1:50




BOTTOMLESS CULVERT
ELEVATION 1:50

NOTE:
Orientation varies as multiple instances on site, north point can be seen on Drg. No: 11333-2003.

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|---|---|---|---|---|
| | | | | |
| | | | | |
| A | 31.03.26 | PLANNING ISSUE | MN | JD |

Client:

RWE

Project:

BALLINCOR WIND FARM
PLANNING APPLICATION

Title:

PROPOSED CLEAR SPAN BRIDGE & CULVERT DETAILS

Scale @ A1: As Shown

| Prepared by: | Checked by: | Date: |
|---|---|---|
| M. Nolan | J. Dillon | March 2026 |

Drawing Status: Planning

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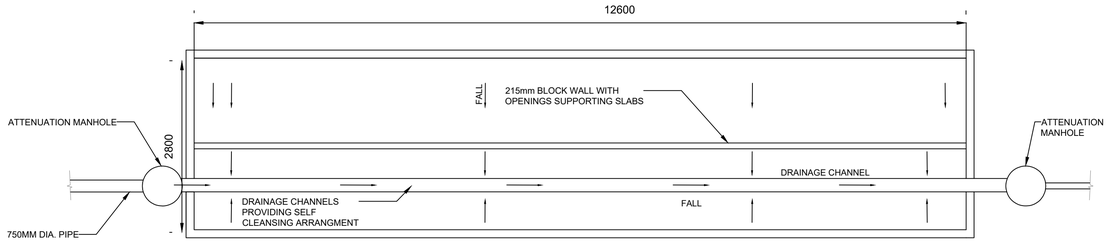
Drawing No.: 11333-2035

Revision: A




ATTENUATION TANK - FLOOR PLAN
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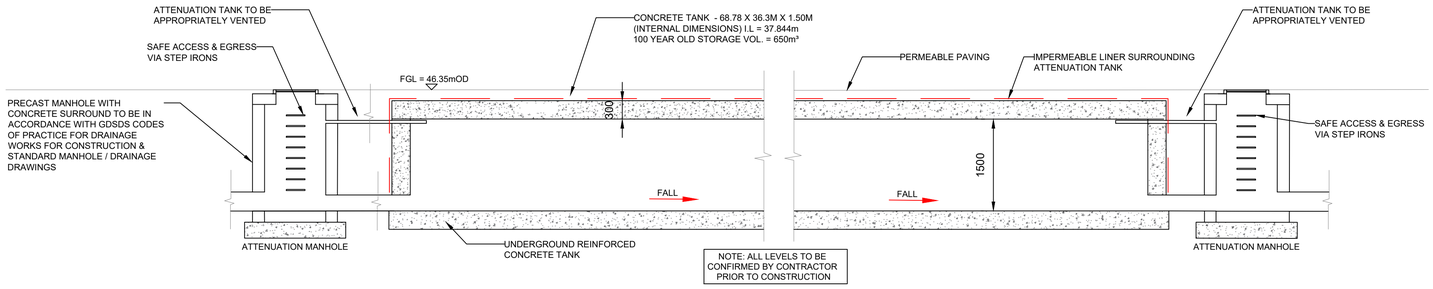
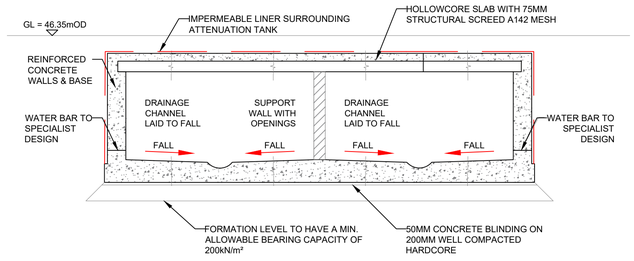



GENERAL SCHEMATIC OF CONCRETE TANK
1:50




SECTION THROUGH ATTENUATION TANK
1:50

| Rev | Date | Description | By | Chkd. |
|---|---|---|---|---|
| A | 31.03.26 | PLANNING ISSUE | JR | MN |

Client: RWE

Project:
BALLINCOR
WINDFARM

Title:
UNDERGROUND PRECAST
CONCRETE ATTENUATION
TANK DETAILS

Scale @ A1: As Shown

Prepared by: J.Ryan
Checked by: M. Nolan
Date: March 2026

Drawing Status: Planning

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www.tobin.ie



Drawing No.: 11333-2036
Revision: A

**Notes:**

1. Intercept drainage and SuDS measures to be constructed prior to access tracks.
2. Access tracks design and construction to Engineer's Specification.
3. Check dams will be installed within drainage ditches located within the proposed development site boundary. Check dams will be keyed 200mm into the drain. Well graded stone will be used to complete the check dam to a height of 500 to 750 mm above the invert of the swale/drain. Aggregate size for stone check dams will be between 10-40mm clean stone.
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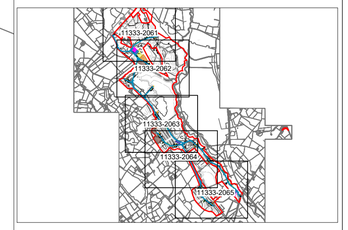
10. Siltbuster to be available on-site for use as required at borrow pit, substation or turbine bases.
11. Silt fences to be used also around spoil to mitigate silt runoff. silt fences may be removed when suitable vegetation cover is established



**GENERAL LEGEND**

- APPLICATION BOUNDARY
- PROPOSED ACCESS TRACK
- PROPOSED TURBINE HARDSTAND
- PROPOSED TURBINE LOCATION
- PROPOSED VEHICLE TURNING HEAD
- PROPOSED MET MAST
- PROPOSED BORROW PIT
- CONTRACTOR'S COMPOUND
- PROPOSED SUBSTATION
- PROPOSED BESS
- PROPOSED STORAGE AREA
- PROPOSED DRAINAGE POND
- PROPOSED SURFACE WATER DRAINAGE
- DRAINAGE CHANNELS
- INTERCEPTOR DITCH
- PROPOSED CULVERT

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2. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
3. GRID REFERENCES TO IRISH NATIONAL GRID.
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

50m 0 50m 100m 150m

| Rev | Date | Description | By | Chkd. |
|---|---|---|---|---|
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| A | 31.03.26 | PLANNING ISSUE | JK | JD |

Client: RWE

Project: BALLINCOR WIND FARM PLANNING APPLICATION

Title: DRAINAGE LAYOUT SHEET 1 OF 5

Scale @ A1: 1:2500

| Prepared by: | Checked by: | Date: |
|---|---|---|
| J. Kruk | J. Dillon | March 2026 |

Drawing Status: Planning

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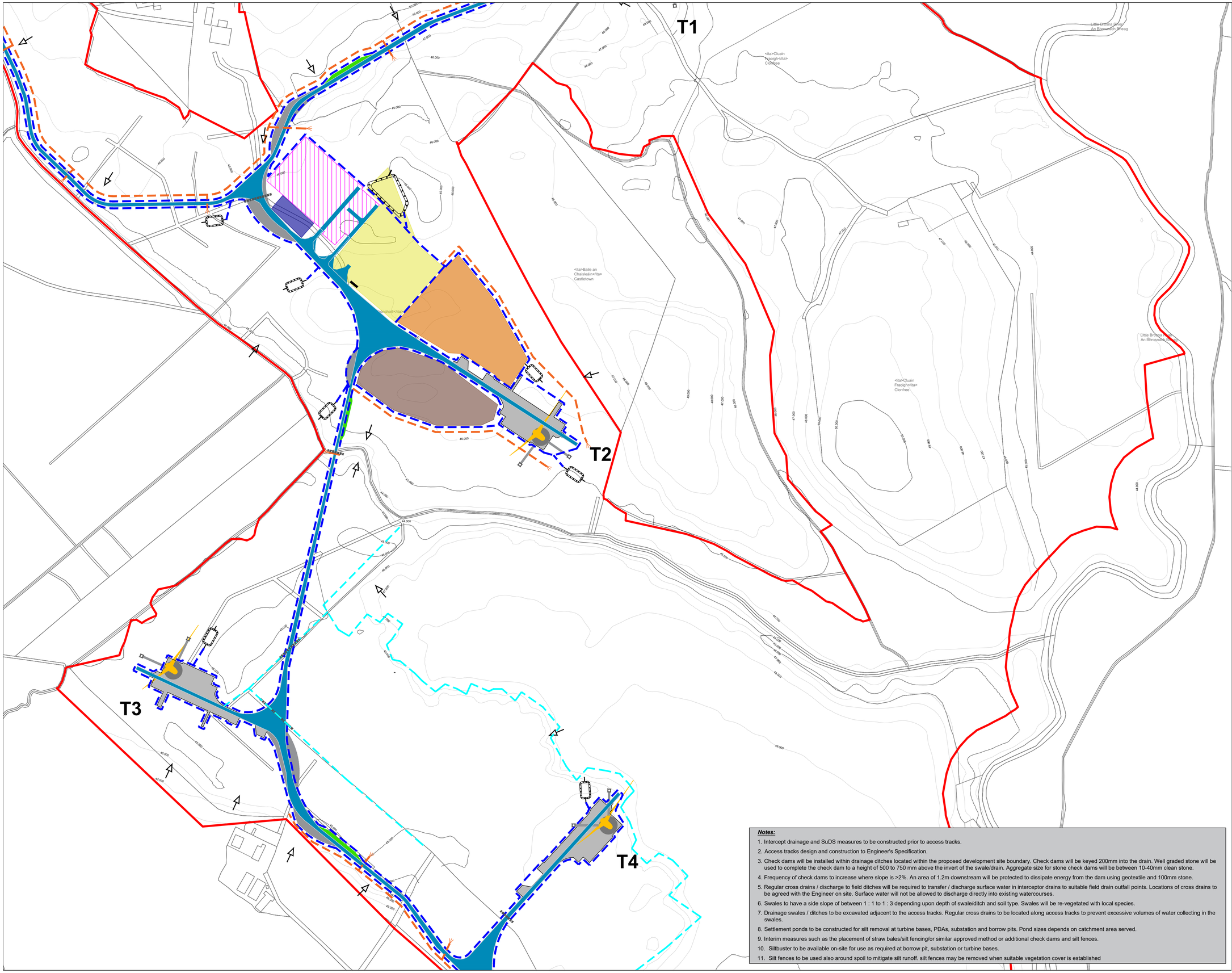
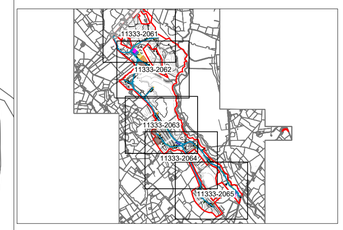
| Drawing No.: | Revision: |
|---|---|
| 11333-2061 | A |




**GENERAL LEGEND**

- APPLICATION BOUNDARY
- PROPOSED ACCESS TRACK
- PROPOSED TURBINE HARDSTAND
- PROPOSED TURBINE LOCATION
- PROPOSED VEHICLE TURNING HEAD
- PROPOSED MET MAST
- PROPOSED BORROW PIT
- CONTRACTOR'S COMPOUND
- PROPOSED SUBSTATION
- PROPOSED BESS
- PROPOSED STORAGE AREA
- PROPOSED DRAINAGE POND
- PROPOSED SURFACE WATER DRAINAGE
- DRAINAGE CHANNELS
- INTERCEPTOR DITCH
- PROPOSED CULVERT




N O T E S :

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3. GRID REFERENCES TO IRISH NATIONAL GRID.
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

50m 0 50m 100m 150m

| Rev | Date | Description | By | Chkd. |
|---|---|---|---|---|
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| | | | | |
| | | | | |
| A | 31.03.26 | PLANNING ISSUE | JK | JD |

***Notes:***

1. Intercept drainage and SuDS measures to be constructed prior to access tracks.
2. Access tracks design and construction to Engineer's Specification.
3. Check dams will be installed within drainage ditches located within the proposed development site boundary. Check dams will be keyed 200mm into the drain. Well graded stone will be used to complete the check dam to a height of 500 to 750 mm above the invert of the swale/drain. Aggregate size for stone check dams will be between 10-40mm clean stone.
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10. Siltbuster to be available on-site for use as required at borrow pit, substation or turbine bases.
11. Silt fences to be used also around spoil to mitigate silt runoff. silt fences may be removed when suitable vegetation cover is established

Client: RWE

Project:

BALLINCOR WIND FARM
PLANNING APPLICATION

Title:

DRAINAGE LAYOUT
SHEET 2 OF 5

Scale @ A1: 1:2500

| Prepared by: | Checked by: | Date: |
|---|---|---|
| J. Kruk | J. Dillon | March 2026 |

Drawing Status: Planning

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Drawing No.: 11333-2062

Revision: A

**Notes:**

1. Intercept drainage and SuDS measures to be constructed prior to access tracks.
2. Access tracks design and construction to Engineer's Specification.
3. Check dams will be installed within drainage ditches located within the proposed development site boundary. Check dams will be keyed 200mm into the drain. Well graded stone will be used to complete the check dam to a height of 500 to 750 mm above the invert of the swale/drain. Aggregate size for stone check dams will be between 10-40mm clean stone.
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T5

T6

T7

T8

**GENERAL LEGEND**

- APPLICATION BOUNDARY
- PROPOSED ACCESS TRACK
- PROPOSED TURBINE HARDSTAND
- PROPOSED TURBINE LOCATION
- PROPOSED VEHICLE TURNING HEAD
- PROPOSED MET MAST
- PROPOSED BORROW PIT
- CONTRACTOR'S COMPOUND
- PROPOSED SUBSTATION
- PROPOSED BESS
- PROPOSED STORAGE AREA
- PROPOSED DRAINAGE POND
- PROPOSED SURFACE WATER DRAINAGE
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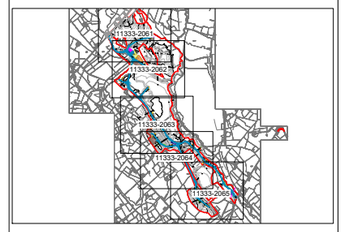
- INTERCEPTOR DITCH
- PROPOSED CULVERT




NOTES:

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2. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
3. GRID REFERENCES TO IRISH NATIONAL GRID.
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

50m 0 50m 100m 150m

| Rev | Date | Description | By | Chkd. |
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| A | 31.03.26 | PLANNING ISSUE | JK | JD |

Client: RWE

Project: BALLINCOR WIND FARM PLANNING APPLICATION

Title: DRAINAGE LAYOUT SHEET 3 OF 5

Scale @ A1: 1:2500

| Prepared by: | Checked by: | Date: |
|---|---|---|
| J. Kruk | J. Dillon | March 2026 |

Drawing Status: Planning

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Drawing No.: 11333-2063

Revision: A

T6

T7

T8

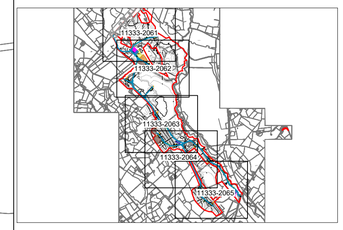
T9

T10

<ita>Baile an Churraigh<ita>
Ballincor Demesne

**GENERAL LEGEND**

- APPLICATION BOUNDARY
- PROPOSED ACCESS TRACK
- PROPOSED TURBINE HARDSTAND
- PROPOSED TURBINE LOCATION
- PROPOSED VEHICLE TURNING HEAD
- PROPOSED MET MAST
- PROPOSED BORROW PIT
- CONTRACTOR'S COMPOUND
- PROPOSED SUBSTATION
- PROPOSED BESS
- PROPOSED STORAGE AREA
- PROPOSED DRAINAGE POND
- PROPOSED SURFACE WATER DRAINAGE
- EXISTING DRAINAGE CHANNELS
- INTERCEPTOR DITCH
- PROPOSED CULVERT

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***Notes:***

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50m 0 50m 100m 150m

| Rev | Date | Description | By | Chkd. |
|---|---|---|---|---|
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| A | 31.03.26 | PLANNING ISSUE | JK | JD |

Client: RWE

Project:

BALLINCOR WIND FARM
PLANNING APPLICATION

Title:

DRAINAGE LAYOUT
SHEET 4 OF 5

Scale @ A1: 1:2500

| Prepared by: | Checked by: | Date: |
|---|---|---|
| J. Kruk | J. Dillon | March 2026 |

Drawing Status: Planning

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Drawing No.: 11333-2064

Revision: A

T9

T10

T11

<ita>Baile an Churraigh</ita>
Ballincor Demesne

**Notes:**

1. Intercept drainage and SuDS measures to be constructed prior to access tracks.
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**GENERAL LEGEND**

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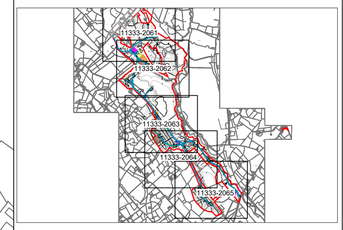


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50m 0 50m 100m 150m

| Rev | Date | Description | By | Chkd. |
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| A | 31.03.26 | PLANNING ISSUE | JK | JD |

Client: RWE

Project: BALLINCOR WIND FARM PLANNING APPLICATION

Title: DRAINAGE LAYOUT SHEET 5 OF 5

Scale @ A1: 1:2500

| Prepared by: | Checked by: | Date: |
|---|---|---|
| J. Kruk | J. Dillon | March 2026 |

Drawing Status: Planning

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Drawing No.: 11333-2065

Revision: A