4. DESCRIPTION OF THE PROSPECTIVE DEVELOPMENT

4.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) describes the Prospective Development and its component parts, which is part of an application to An Coimisiún Pleanála for Substitute Consent under Section 177E of the Planning and Development Act 2000 (as amended) ('the Act') by Planree Ltd. ('the Applicant'), for the Subject Development.

Substitute consent is being sought for the Subject Development. The substitute consent application seeks to regularise the Existing Development and seeks permission for the Prospective Development. The Prospective Development is addressed within this Environmental Impact Assessment Report (EIAR). The Existing Development is addressed within the remedial Environmental Impact Assessment Report (rEIAR), which accompanies this planning application.

This chapter of the EIAR describes the Prospective Development, which encompasses all works necessary to complete construction, operate, and ultimately decommission the Meenbog Wind Farm.

As detailed in Section 1.1.1 in Chapter 1 of this EIAR, the various development components are described and assessed using the following references: 'Subject Development', 'Existing Development', 'Prospective Development', 'Permitted Development', 'Site', 'Wind Farm Site', 'Grid Connection Site', 'BMEP Site', 'Grid Connection', ' November 2020 Peat Slide', '2017 EIAR' and 'proposed turbines' or 'proposed turbine locations'

For the purpose of this EIAR, the Prospective Development for which permission is being sought consists of the following:

1. *19 no. wind turbines, with an overall tip height of 156.5m, rotor diameter of 133m, and wind turbine hub height of 90m, and 1 no. meteorological mast with a height of 80m, and subsequent decommissioning of the wind turbines and meteorological mast, following a twenty five-year operational period from the date of full commissioning of the wind farm;*
2. *The completion of upgraded access junctions, tracks and roads, and construction of new site access roads;*
3. *The completion of construction of all 19 no. wind turbine foundations and hardstand areas, and the construction of a meteorological mast foundation;*
4. *Completion of internal wind farm underground ducting and cabling;*
5. *Continued use of and upgrade of 2no. temporary construction compounds (including 3 no. temporary site offices with a combined floor area of 121.5 sqm);*
6. *Continued use and extraction at the 3no. borrow pits;*
7. *Peat and spoil management, including site landscaping;*
8. *Forestry felling;*
9. *Site drainage and sediment control measures;*
10. *Biodiversity enhancement measures (including peatland habitat restoration and Hen Harrier habitat areas);*
11. *Recreation and amenity works (including carpark, play, picnic & amenity areas and pedestrian access paths to the wind farm roads);*
12. *Operational stage site signage; and*
13. *All associated site development works.*

This application seeks an operating period of 25 years from the date of commissioning of the wind farm. Current and future wind turbine generator technology will ensure that the wind turbine model,

chosen for the Prospective Development, will have an operational lifespan greater than the 25-year operational life that is being sought as part of the planning application.

All elements of the Prospective Development, as described in this chapter, have been assessed as part of this EIAR.

4.2 Site Location

The Site, which comprises three distinct elements – the Wind Farm Site, the Grid Connection Site, and the BMEP Site, measures approximately 1,018 hectares (ha) within the townlands of Meenbog, Croaghonagh, Ardinawark, Keadew Upper, Keadew Lower, Cullionboy, Cashelnavean, Tawnawully Mountains, Friarsbush and Tievecloghoge, as described in Chapter 1 Introduction of this EIAR, and briefly below. The Site location is illustrated on Figure 1-1 of Chapter 1 of this EIAR.

Construction work commenced at the Wind Farm Site and Grid Connection Site in November 2019. The majority of the civil engineering works, including wind farm access roads, turbine hardstands, turbine foundations, borrow pits and peat cells, were substantially completed over a 12-month period up to November 2020. Works on the electricity substation and associated underground cabling connection to the national grid continued until the second quarter of 2021. Construction work resumed briefly between July 2022 and September 2022, during which some additional works were carried out on site roads, internal site ducting, hardstanding areas, borrow pits, and peat cells.

4.2.1 Wind Farm Site

The Wind Farm Site, which refers to the area of the Site surrounding the wind turbines and associated infrastructure (including the onsite 110kV substation) from the Wind Farm Site entrance off the N15 National Road, is located in County Donegal, approximately 8 km southwest of the twin towns of Ballybofey and Stranorlar and approximately 12 km northeast of Donegal Town.

The Wind Farm Site covers an area of approximately 892 ha, within the townlands of Meenbog and Croaghonagh. The Wind Farm Site borders County Tyrone in Northern Ireland, specifically the administrative division of Omagh West, Barony of Termonamongan and the townlands of Slievdoo, Meenakeeran, and Sixth Corgary or Second Croagh along the Southeast of the Wind Farm Site boundary. The Wind Farm Site lies within four Electoral Divisions (EDs); Goland, Dooish, Tawnawully and Clogher, in County Donegal. Current land-use at the Wind Farm Site is comprised of the partially constructed Meenbog Wind Farm and areas of commercial forestry and blanket bog. The surrounding land-use predominantly comprises peat bogs, commercial forestry and other seminatural areas with limited residential use along local roads, as well as a quarry adjacent to the Wind Farm Site entrance off the N15 National Road.

The elevation of the Wind Farm Site is between approximately 180 metres above Ordnance Datum (mOD) and 313 mOD, with elevations on the Wind Farm Site generally decreasing and sloping in a north or north-westerly direction. A small section to the south of the Wind Farm Site slopes to the southeast. The Wind Farm Site is generally bordered on all sides by forestry plantations, with the southeastern boundary also being defined by the Northern Ireland border. The Wind Farm Site drains directly to the Bunadowen River and the Shruhangarve stream, which flow to the north, each of which are tributaries of the larger Mourne Beg River that proceeds to flow downstream into the River Derg. The Wind Farm Site also drains into the Glendergan River to the south-southeast, which is also a tributary of the River Derg.

Existing access is from the N15 National Road in the northwest of the Wind Farm Site and the L-6554 Local Road to the north of the Wind Farm Site. The N15 National Road runs south-west to north-east with the Wind Farm Site lying to the east of the road.

There are 3 no. habitable houses located within one kilometre of the proposed turbine locations, the closest being a holiday cottage located 750 metres (m) northwest of the nearest proposed turbine location.

4.2.2 Grid Connection Site

The Grid Connection Site has a total area of approximately 9 ha and extends from the Wind Farm Site entrance along the N15 National Road to the Clogher 110kV substation, approximately 6.5 km southwest of the onsite 110kV substation. Within the Grid Connection Site, the Grid Connection underground cabling route originates at the onsite 110kV substation within the Wind Farm Site and travels to the northwest along an existing wind farm access road. The Grid Connection then exits the Wind Farm Site entrance and follows the N15 southwest for approximately 6 km, before exiting the N15 National Road onto the L-2595 Local Road. It is then routed southeast along the L-1985 Local Road and through agricultural lands adjacent to the L-1985 Local Road before continuing along and adjacent to a private road to reach the Clogher 110kV substation.

The Grid Connection Site traverses the townlands of Ardinawark, Keadew Upper, Keadew Lower, Cullionboy, Cashelnavean, Tawnawully Mountains and Friarsbush.

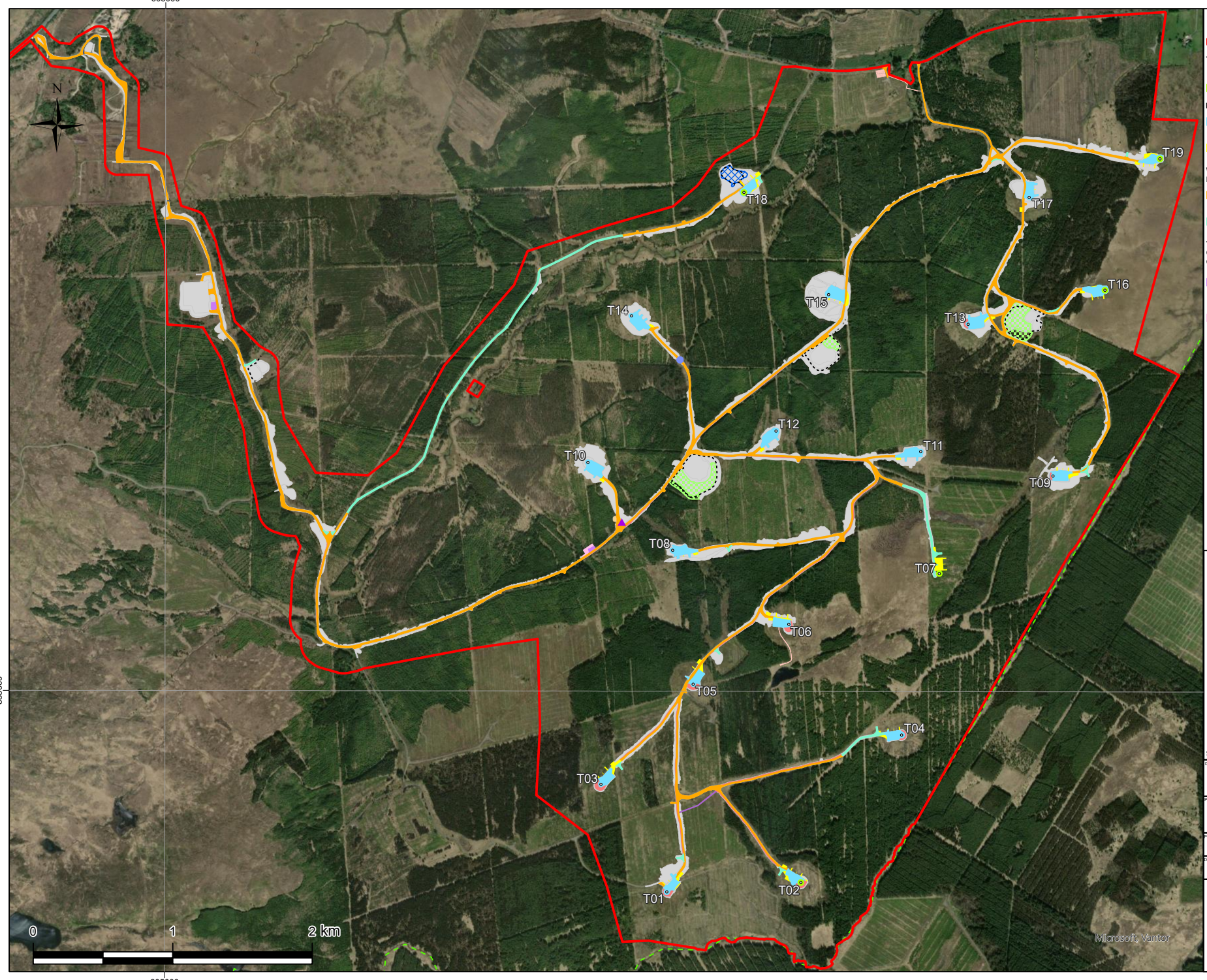
4.2.3 BMEP Site

The Biodiversity Management and Enhancement Site (BMEP Site) covers an area of approximately 117 ha. The BMEP Site is comprised of two parcels of land both contained entirely within the townland of Tievecloghoge, referred to as Parcel 1 (to the east) and Parcel 2 (to the west), which have a combined area of approximately 117 ha, ~108 ha of which are intended for enhancement. Land use on the BMEP Site within Parcel 1 and Parcel 2 currently comprises coniferous forestry and associated forestry access tracks, which is proposed to be felled and converted to peatland and scrub habitats. Site access to Parcel 1 is via a new access track located along the L-65242 Local Road, whilst site access to Parcel 2 is via an existing access track (to be extended and upgraded) located along the L-2974 Local Road. Parcel 2 is located approximately 2.3km east of the Wind Farm Site, and Parcel 1 is located approximately 4.2km east of the Wind Farm Site. There is an elevation difference of 4m (174 mOD elevation SW to 170 mOD elevation NE) on the BMEP Site.

A summary of the proposed enhancement/restoration measures to be undertaken at the BMEP Site is contained in Section 4.4.3 below, with full details provided in Appendix 6-4 Biodiversity Management and Enhancement Plan of this EIAR.

4.3 Prospective Development Layout

The Prospective Development layout is illustrated across Figures 4-1, Figure 4-2 and Figure 4-3. These figure shows the layout of the Wind Farm Site, Grid Connection Site, and BMEP Site respectively and illustrate the location of all elements of the Prospective Development, including the locations of the proposed wind turbines, wind turbine foundations and hardstand areas requiring upgrade or completion, meteorological (met) mast, internal access roads requiring both minor works and upgrades and more substantial works and upgrades, peat and spoil management areas (including landscaping and a peat cell at T18), borrow pits, temporary construction compounds, internal wind farm cabling and ducting, biodiversity enhancement measures, recreation and amenity areas, forestry felling areas, site drainage, existing grid infrastructure and the site entrance. Detailed site layout drawings of the Prospective Development are included in Appendix 4-1 of this EIAR.



Map Legend

- Planning Application Boundary

Turbines
- Turbine Layout
- Proposed Turbine Foundation

Hardstand
- Hardstand Minor Works & Upgrades
- Hardstand More Substantial Works & Upgrades

Wind Farm Site Roads
- Roads Minor Works & Upgrades
- Roads More Substantial Works & Upgrades

Temporary Construction Compound
- Temporary Construction Compound
- Proposed Extension to Temporary Construction Compound

Borrow Pit
- Borrow Pit

Peat
- Peat Cell
- Landscaping
- Proposed Berm

Amenity Area
- Proposed Amenity Infrastructure

Ancillary Infrastructure
- Proposed Met Mast
- Concrete Washout Area
- Proposed Fencing
- Field Gate
- Proposed Culvert Upgrade

Existing Development
- Existing Development Footprint
- Co. Donegal/ Northern Ireland Boundary

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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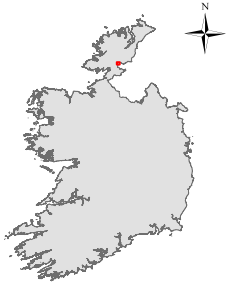


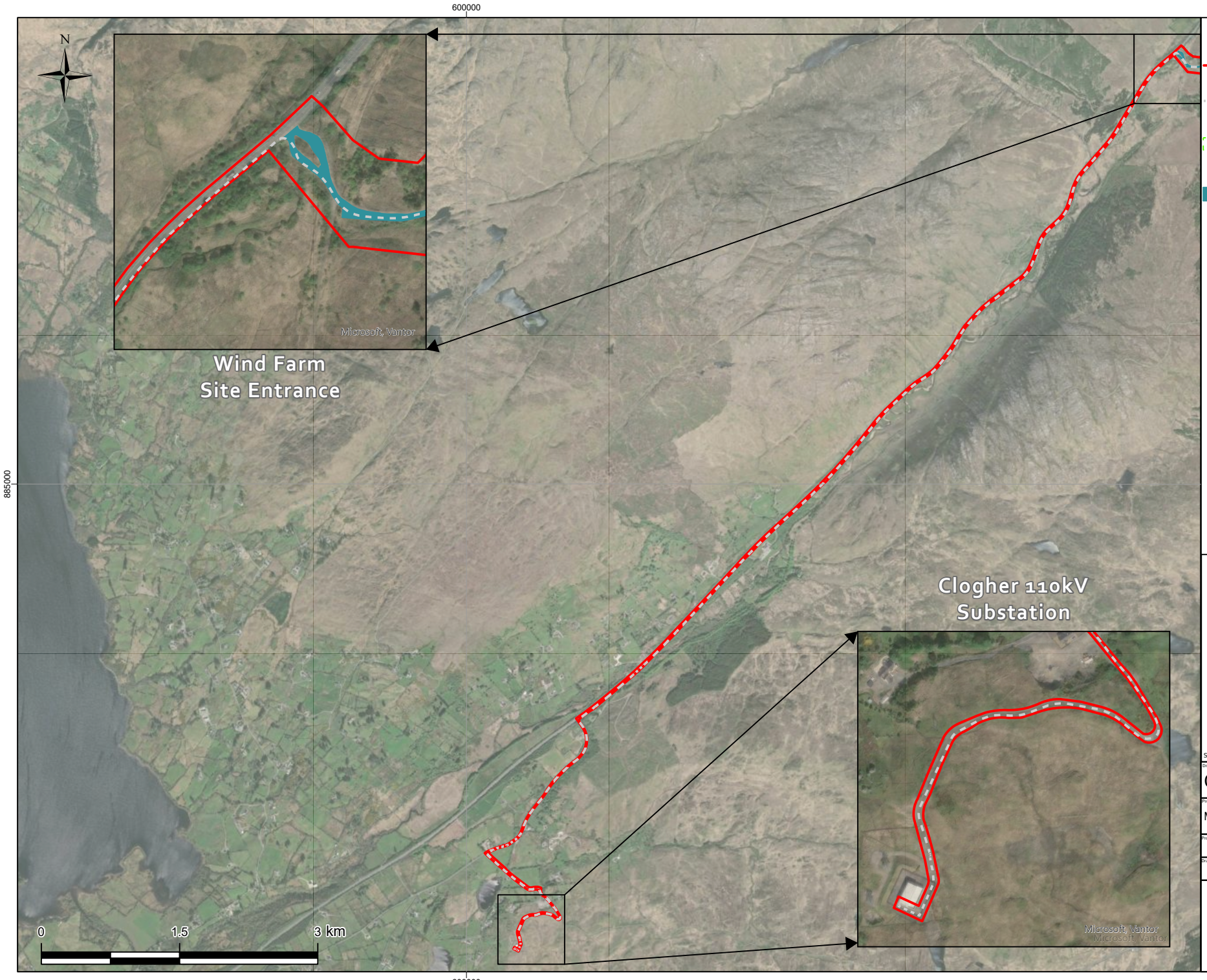
SITE LOCATION - NOT TO SCALE

Drawing Title
Wind Farm Site Layout

Project Title
Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-1	1:25,000
Drawn By	**Checked By**	**Date**
KB	RK	11/06/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie



Map Legend

- Planning Application Boundary
- Existing Development Grid Connection
- Co. Donegal/ Northern Ireland Boundary
- Prospective Development Footprint

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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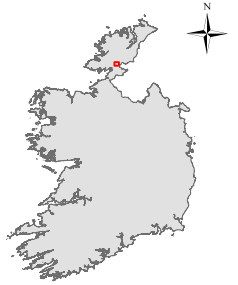


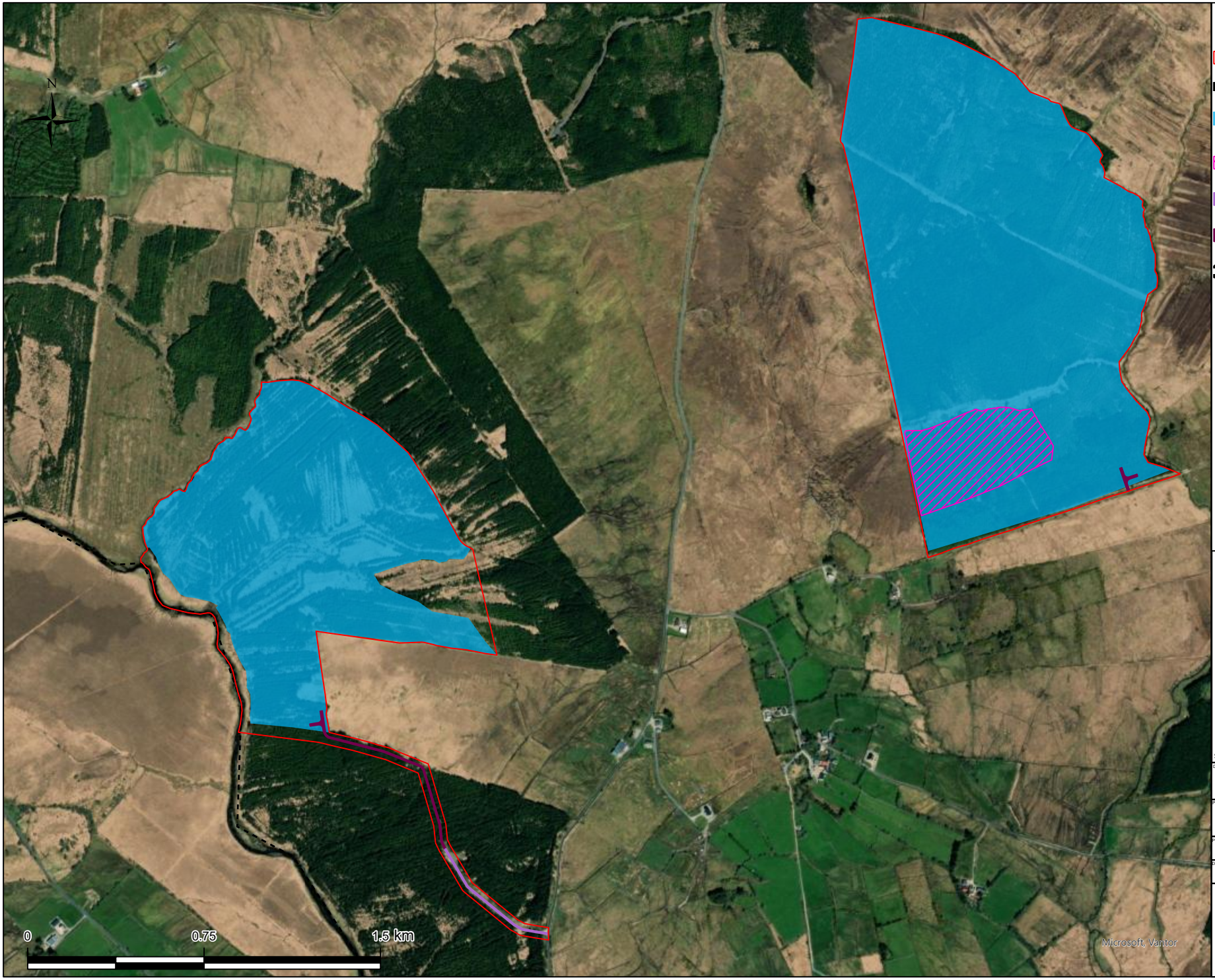
SITE LOCATION - NOT TO SCALE

Drawing Title: Grid Connection Site

Project Title: Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-2	1:37,500
Drawn By	Checked By	Date
KB	RK	01/07/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie



Map Legend

- Planning Application Boundary

BMEP Site

- Proposed Hen Harrier Habitat Enhancement Lands
- Proposed Peatland Restoration Area
- Existing Forestry Track Upgrade
- Proposed New Forestry Track
- Co. Donegal Boundary

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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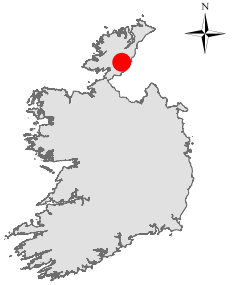


SITE LOCATION - NOT TO SCALE

Drawing Title: BMEP Site Layout

Project Title: Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-3	1:15,000
Drawn By	Checked By	Date
KB	RK	28/05/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

4.4 Components of the Prospective Development

This section of the EIAR describes the components of the Prospective Development, which refers to all works necessary to complete construction, operate, and ultimately decommission the Meenbog Wind Farm. This includes the completion of the construction of 19 no. wind turbines with a blade tip height of 156.5 metres and all associated works and apparatus.

Please refer to Table 8-1 in the Planning Report of the accompanying substitute consent planning application for a breakdown of the works associated with the Prospective Development and how these works differ from the Permitted Development works. This table identifies three categories of works associated with the Prospective Development in comparison to the Permitted Development:

- Remining works to be undertaken for Meenbog Wind Farm as part of the Prospective Development that were previously permitted as part of the Permitted Development;
- Remaining works to be undertaken for Meenbog Wind Farm as part of the Prospective Development that differ from those permitted as part of the Permitted Development; and,
- Works previously permitted under the Permitted Development that will not be undertaken as part of the Prospective Development.

Detailed planning drawings of the Permitted Development are provided in Appendix 7 of the Planning Report that accompanies this substitute consent planning application.

Further details regarding Site Activities (Section 4.5), Access and Transportation (Section 4.6), Site Drainage (Section 4.7), Construction Management (Section 4.8) and Construction Methodologies (Section 4.9) are provided subsequently in this chapter.

A summary of the main civil works required as part of the Subject Development are provided in Table 4-1 below.

Table 4-1 Summary of main civil works to be completed at the Wind Farm Site for the Prospective Development

Location	Details of Works
All site roads	Placement of finished road surface (~150mm thickness) onto existing founded and floating roads
T1-T2 Floating Road Barrage	The floating road will be reinforced by construction of berm downslope of the road. Berm to comprise a rockfill barrage founded on the glacial till below the peat.
T04 Road Replacement	Floating road section on approach to T4 to be removed and replaced with solid founded road.
Hardstand shaping and extension (all hardstands)	Works vary across different hardstands, mainly limited to construction of assist crane pads, blade storage areas and hardstand extensions.
T7	Excavation for hardstand and turbine foundation.
T7 Access Road	Removal of existing floated road section - floating road to be upgraded to solid. Road widening - Road bend to be widened to facilitate component deliveries. Layer of peat to be removed, rock to be placed. Coarse boulders (>0.5m) will be used in the base of the

	excavation and will be pushed into the base of the peat to the solid stratum below the peat. Roadside berm to be formed.
T18 Access Road	Existing road (approximately 1,750m in length) to be excavated to solid and replaced.
Borrow Pit 3 (east of T13)	Existing borrow pit to be modified for additional rock extraction and backfilled with peat. Section to West and South of existing borrow pit.
Main Spine Road (Temporary Construction Compound south of T10)	Area to be excavated and upfilled for construction site offices/material storage.
Main access road (off site entrance)	Road to be widened - Road bend to be widened to facilitate turbine component deliveries. Layer of peat to be removed, rock to be placed. Roadside berm to be formed.
Main access (at junction of road to T18)	Road bend to be constructed to facilitate turbine component deliveries. Layer of peat to be removed, rock to be placed. Roadside berm to be formed.

4.4.1.1 Wind Turbines

4.4.1.1.1 *Turbine Locations*

Within the Wind Farm Site, the proposed wind turbine layout is dictated by the infrastructure already in place, i.e. the Existing Development which includes 18 no. completed and partially completed wind turbine foundations and hardstand areas and 14 no. partially completed wind turbine foundations. Section 4.4.1.1.3 and Section 4.4.1.1.4 describe the outstanding works for turbine foundations and hardstand areas, respectively.

The grid reference coordinates of the proposed turbine locations are listed in Table 4-2 below.

Table 4-2 Wind Turbine Locations and top of foundation levels

Turbine	ITM Coordinates		Top of Foundation Elevation (mOD)
	Easting	Northing	
T1	607083	884169	287
T2	607639	884209	269
T3	606809	884614	316
T4	608056	884820	306
T5	607191	885029	305
T6	607587	885277	293
T7	608211	885488	258

Turbine	ITM Coordinates		Top of Foundation Elevation (mOD)
	Easting	Northing	
T8	607105	885583	252
T9	608682	885893	234
T10	606753	885946	214
T11	608133	885993	256
T12	607533	886077	225
T13	608329	886520	222
T14	606933	886553	185
T15	607750	886642	185
T16	608896	886662	214
T17	608581	887045	183
T18	607398	887064	169
T19	609123	887206	196

4.4.1.1.2 Turbine Type

Wind turbines use the energy from the wind to generate electricity. A wind turbine, as shown in Plate 4-1 below, consists of four main components:

- Foundation unit
- Tower
- Nacelle (turbine housing)
- Rotor

Plate 4-1 Wind turbine components

The turbine model to be installed on the Prospective Development will have the following dimensions:

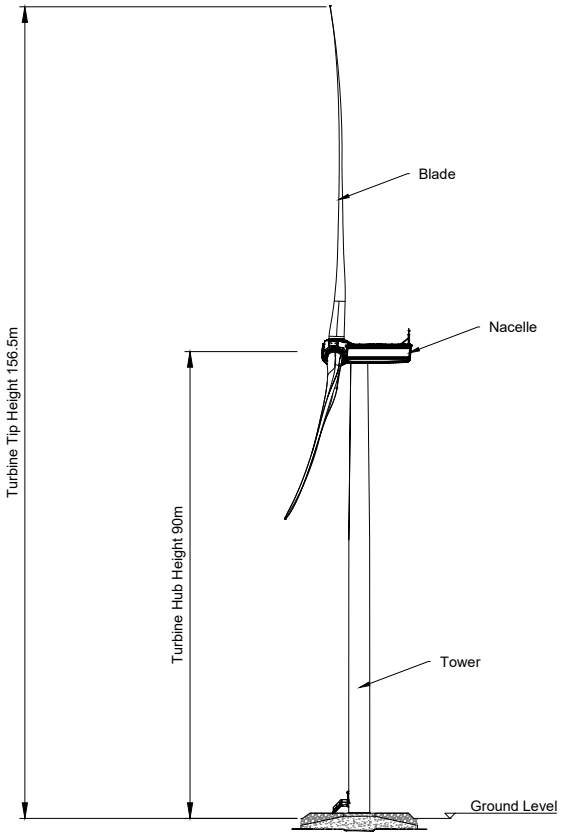
- Turbine tip height of 156.5 metres;
- Blade rotor diameter of 133 metres; and
- Hub height of 90 metres.

Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics, with only minor cosmetic differences differentiating one from another. The wind turbines that will be installed at the Wind Farm Site will be conventional three-blade turbines, that will be geared to ensure the rotors of all turbines rotate in the same direction at all times.

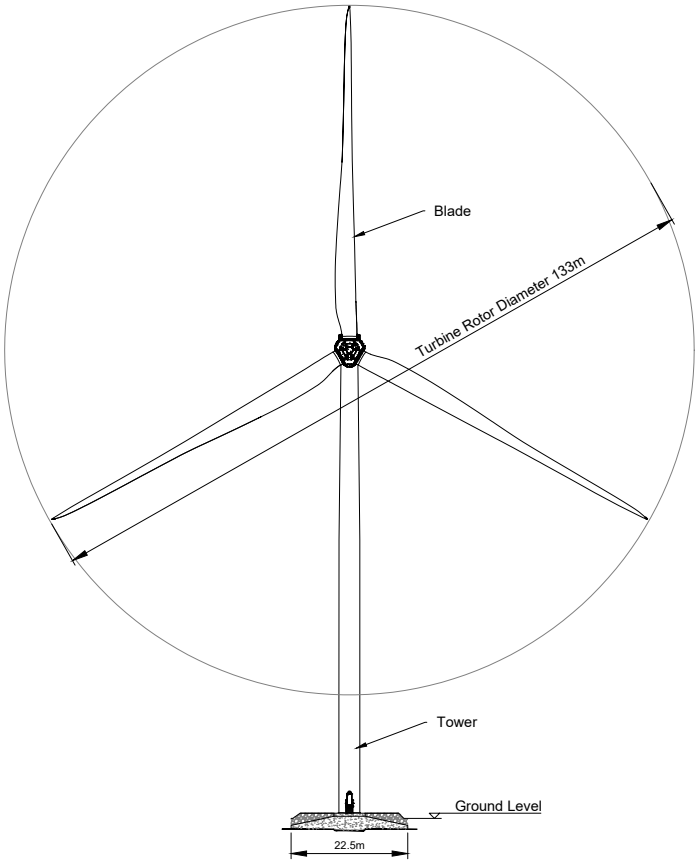
For the purposes of this EIAR, the above turbine dimensions have been selected and considered in the relevant sections of the EIAR. Turbine design parameters have a bearing on the assessment of shadow flicker, noise, visual impact, traffic and transport and ecology (specifically birds and bats), as addressed elsewhere in this EIAR.

The turbines will be multi-ply coated to protect against corrosion. The turbines will be of a light grey matt, non-reflective colour to minimise visual impact as recommended in '*Wind Energy Development Guidelines for Planning Authorities'* (Department of the Environment, Heritage and Local Government (DOEHLG), 2006), hereafter referred to as 'the Guidelines (DoEHLG, 2006)', and '*The Influence of Colour on the Aesthetics of Wind Turbine Generators*' (ETSU, 1999).

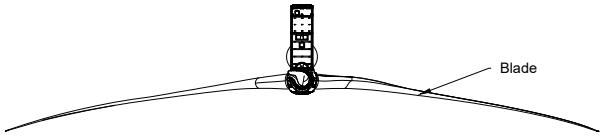
A drawing of the proposed wind turbine is shown in Figure 4-4. The individual components of a geared wind turbine nacelle and hub are shown in Figure 4-5 below.



Side/Sectional Elevation



Front/Sectional Elevation



Plan

REV	DATE	DRAWN BY	CHECKED BY	DETAILS
A	26/06/2026	M.B.	L.P.	FIRST ISSUE

ENGINEER: AFRY

AFRY Ireland Ltd.
The Hyde Building, The Park,
Carrickmines,
D18VC44
Ireland
Tel +353 (0) 1 845 5031

CLIENT:

PROJECT: MEENBOG WIND FARM

TITLE: NORDEX N133 ELEVATION & PLAN

REVISION: A

DRAWN BY	DATE	PAPER SIZE	SCALE
M. BROWNE	26/06/2026	A1	1:500

CHECKED AND APPROVED	DATE	STATUS	DRAWING NUMBER
L. POWER	26/06/2026	PROSPECTIVE	Figure 4-4

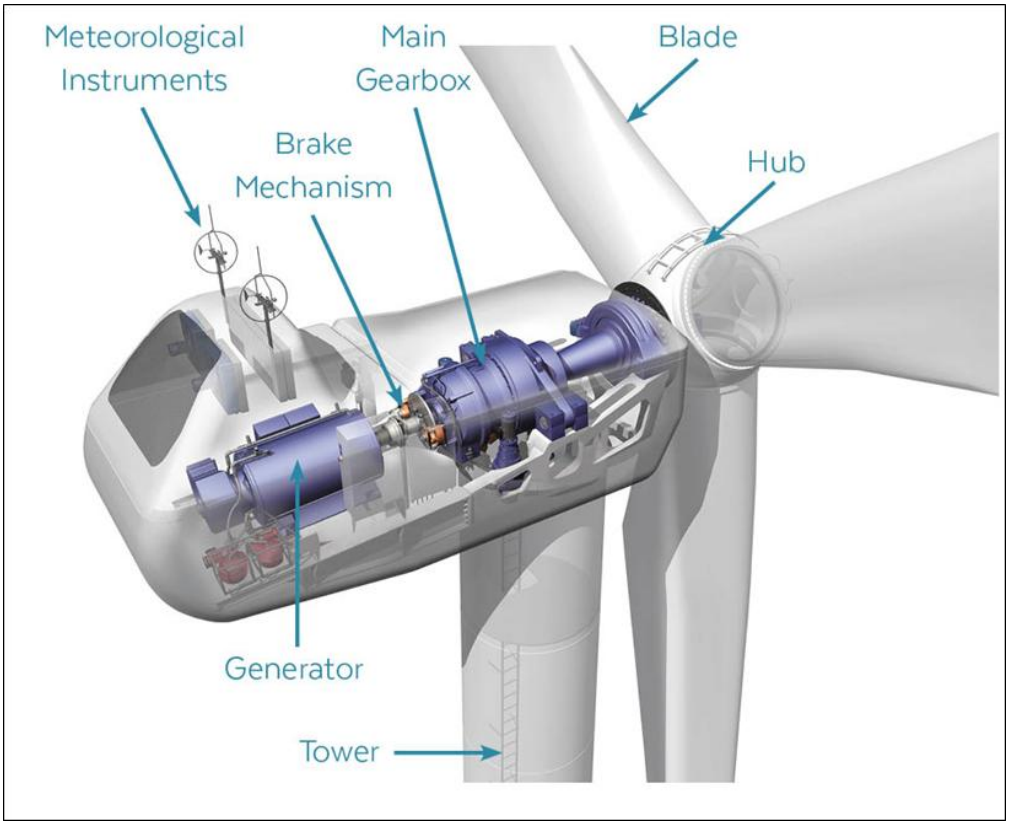


Figure 4-5 Turbine nacelle and hub components.

4.4.1.1.3 Turbine Foundations

A total of 14 no. wind turbine foundations have been completed or predominantly completed, where the foundation concrete pour has been completed and only partial backfilling and/or covering works are outstanding. As such, any remaining works required for the 14 no. turbine foundations will be completed as part of the Prospective Development. In the case of 5 no. turbine foundations where more substantial works (as detailed in Table 4-3) are required, these works are also proposed to be completed or constructed as part of the Prospective Development. The locations of the remaining foundations to be completed, and a brief description of the outstanding works are listed in Table 4-3 below.

Each wind turbine will be secured to a reinforced concrete foundation that is installed below the finished ground level. The turbine foundation transmits any load on the wind turbine into the ground. The horizontal and vertical extent of each turbine foundation will be 22.5m and ~3m respectively, which has been assessed in this EIAR. The gravity foundations to be constructed at the Wind Farm Site are shown on Figure 4-6 below.

After the foundation level of each turbine has been formed on competent stratum (i.e. bedrock or subsoil of sufficient load bearing capacity), the "Anchor Cage" is levelled and reinforcing steel is then built up around and through the anchor cage. The outside of the foundation is shuttered with formwork to allow the pouring of concrete and is backfilled accordingly with appropriate granular fill to the top of formwork level, to support the concrete pour (Plate 4-2 and 4-3 below).

Table 4-3 Incomplete turbine foundation locations

Corresponding Turbine No.	ITM Coordinates		Outstanding substantial foundation works to complete
	Easting	Northing	
T2	607639	884209	Steel reinforcement in place (potentially to be replaced following inspection). Concrete pour to be completed.
T7	608211	885488	All foundation works to be completed.
T16	608896	886662	Foundation area excavated. Installation of steel reinforcement and concrete pour to be completed.
T18	607398	887064	Foundation area excavated. Installation of steel reinforcement and concrete pour to be completed.
T19	609123	887206	Steel reinforcement in place (potentially to be replaced following inspection). Concrete pour to be completed.

Plate 4-2 Turbine 'Anchor Cage'

Plate 4-3 Predominantly finished turbine base with only backfill outstanding

4.4.1.1.4 Hardstanding Areas

The Prospective Development includes works to all 19 no. turbine hardstanding areas. The works required to complete each hardstand area are outlined in Table 4-4 below. Planning drawings of the hardstanding areas are included in Appendix 4-1 of this EIAR.

Of the 19 no. hardstanding areas required, 18 no. are partially constructed, whilst one hardstanding area at T7 requires all works to be completed.

The outstanding works at the turbine hardstanding areas have been broadly divided into two categories; (a) minor works and upgrades, and (b) more substantial works and upgrades. Minor works and upgrades comprise capping and/or grading and/or stockpile usage. More substantial works and upgrades include the construction of crane assist pads, blade fingers, hardstand extensions, as well as all civil works which are required at T7. The more substantial works and upgrades all require some level of groundworks and are therefore considered to be more substantial. A mixture of both categories is required at all 18 no. partially constructed hardstanding areas. The works at T7 all comprise more substantial works and upgrades.

Capping and grading material is a layer of material placed on top of other construction layers of materials, to provide a level running surface for cranes and delivery vehicles. Regarding stockpile usage, a stockpile of rock has been stored at several hardstands for later use. It is proposed that these stockpiles will be used for hardstand and road construction within the Wind Farm Site.

Hardstanding areas consisting of levelled and compacted hardcore are required around each turbine base to facilitate access, turbine assembly and turbine erection. Overall, the hardstanding areas are used to accommodate cranes used in the assembly and erection of the turbine, offloading and storage of turbine components, and provide a safe, level working area around each turbine position. Each hardstanding area includes crane assist pads which are required for smaller cranes to assist the main crane. The hardstanding areas are extended to cover the turbine foundations once the turbine foundation is in place. All crane hardstand areas have been designed taking account of the loadings provided by the turbine manufacturer and consist of a compacted stone structure. Blade storage fingers will provide temporary set-down or storage areas for turbine blades at each hardstanding area.

The proposed hardstanding areas are illustrated in the planning drawings included in Appendix 4-1 of this EIAR. The extent of the required areas at each turbine location are optimised on-site depending on topography, position of the site access road, the proposed turbine position and the turbine supplier's exact requirements.

Table 4-4 Remaining works at hardstanding locations

Corresponding Turbine No.	Minor works and upgrades			More substantial works and upgrades
	Capping	Grading	Stockpile Usage	Hardstand Upgrade/ Extension Works
T1	Required	Required	Not Required	Required
T2	Required	Required	Not Required	Required
T3	Required	Required	Required	Required
T4	Required	Required	Not Required	Required
T5	Required	Required	Required	Required
T6	Required	Required	Not Required	Required
T7*	Required*	Required*	Not Required*	Required*
T8	Required	Required	Not Required	Required
T9	Required	Required	Required	Required
T10	Required	Required	Required	Required
T11	Not Required	Required	Not Required	Required
T12	Not Required	Required	Not Required	Required
T13	Required	Required	Required	Required
T14	Required	Required	Required	Required
T15	Required	Required	Required	Required
T16	Required	Required	Required	Required
T17	Required	Required	Not Required	Required
T18	Required	Required	Required	Required
T19	Required	Required	Not Required	Required

*Full construction works are required at T07 location as only a minor level of construction work has been completed. Construction works at this location will be in accordance with the methodologies outlined in Section 4.9.1.2 below, and in Appendix 4-2: Peat and Spoil Management Plan and Appendix 8-4: Peat Stability Assessment Report, and Appendix 4-3 CEMP.

4.4.1.1.5 *Generating Capacity*

Modern wind turbine generators currently have a typical generating capacity in the 4 to 7 MW range, with the generating capacity continuing to evolve upwards as technology improvements are achieved by the turbine manufacturers. Turbines of the exact same make, model and dimensions can have different generating potential depending on the capacity of the electrical generator installed in the turbine nacelle. The exact generating capacity of the installed turbine will be determined by the selected manufacturer.

For the purposes of this EIAR, a rated output of 4.8 MW has been chosen to calculate the potential generating capacity of the proposed 19-turbine renewable energy development, which would result in an estimated installed capacity of 91.2MW.

Assuming an installed capacity of 91.2MW, the Prospective Development therefore has the potential to produce up to 263,641 MWh (megawatt hours) of electricity per year, based on the following calculation:

A x B x C = Megawatt Hours of electricity produced per year

where: A = ... The number of hours in a year: 8,760 hours

B = ... The capacity factor, which takes into account the intermittent nature of the wind, the availability of wind turbines and array losses etc. A capacity factor of 33%[1] is applied here.

C = ... Rated output of the wind turbines: 91.2 MW

The 263,641 MWh of potential electricity produced by the Prospective Development would be sufficient to supply over 62,000 Irish households with electricity per year, based on the average Irish household using 4.2 MWh of electricity[2] (this latest figure is available from the March 2017 CER Review of Typical Consumption Figures Decision Paper).

The 2022 Census of Ireland recorded a total of 68,021 occupied households in Co. Donegal. Per annum, based on a capacity factor of 33%, the Prospective Development would therefore produce sufficient electricity for the equivalent of over 90% of all households in Co. Donegal (including Donegal Town).

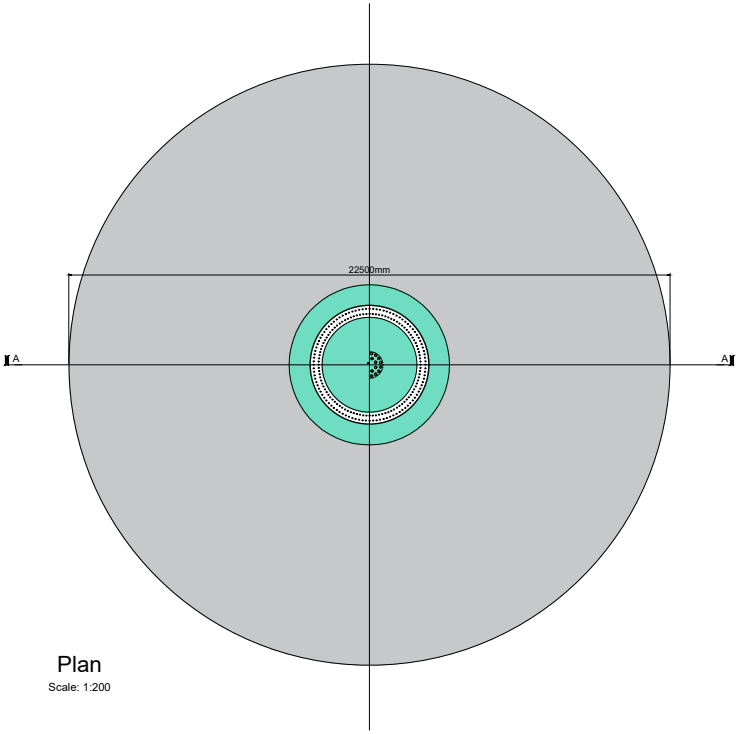
4.4.1.2 Meteorological Mast

One metrological (met) mast is proposed as part of the Prospective Development within the Wind Farm Site. The met mast will be equipped with wind monitoring equipment at various heights. The proposed met mast will be located at E 606894, N 885701 (ITM) as shown on the Wind Farm Site layout drawing in Figure 4-1. The mast will be a free-standing slender lattice structure 80 metres in height. The mast will be constructed on a hardstanding area sufficient to accommodate the equipment that will be used to erect the mast. The proposed meteorological mast is shown in Figure 4-7.

---

[1] *Enduring Connection Policy 2.4 Solar and Wind Constraints Report: Assumptions and Methodology < ECP-2.4-Solar-and-Wind-Constraints-Report-Assumptions-and-Methodology-v1.1.pdf > The Subject Development is located within the A wind region for Ireland with an associated capacity factor of 33%.*

[2] *March 2017 CER (CRU) Review of Typical Consumption Figures Decision Paper https://www.cru.ie/document_group/review-of-typical-consumption-figures-decision-paper/*



Plan

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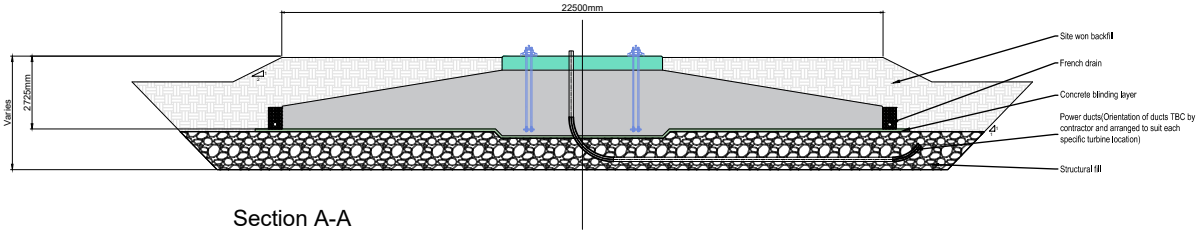

Section A-A

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NOTES

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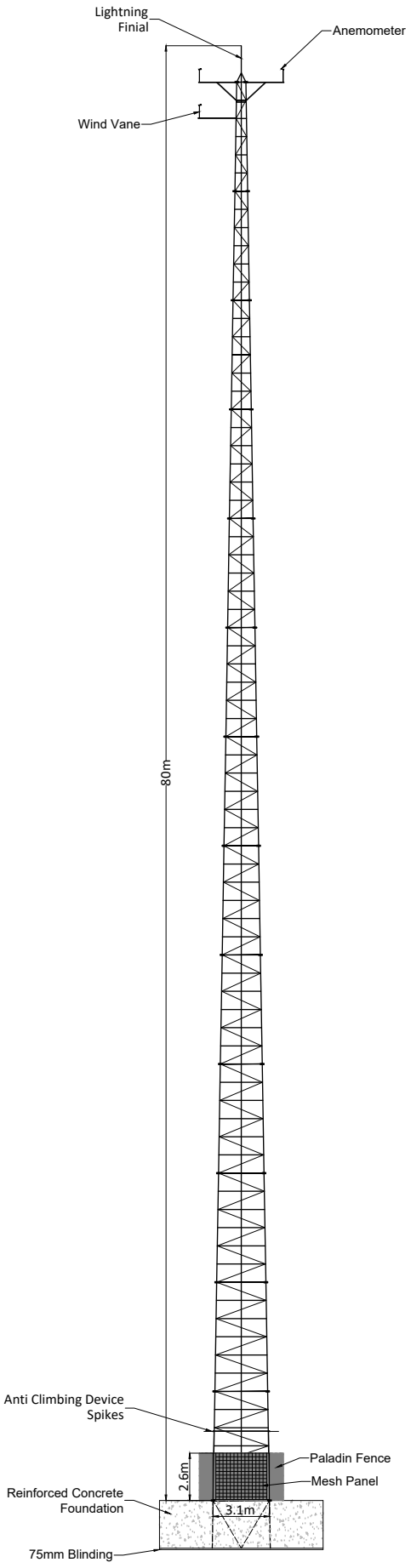
PROJECT: MEENBOG WIND FARM

TITLE: NORDEX N133 FOUNDATION ELEVATION & PLAN

REVISION: A

DRAWN BY	DATE	PAPER SIZE	SCALE
M. BROWNE	23/06/2026	A3	1:200

CHECKED AND APPROVED	DATE	STATUS	DRAWING NUMBER
L. POWER	23/06/2026	PROSPECTIVE	Figure 4-6



Front/Sectional Elevation

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LOCATION ON CONTEXT MAP

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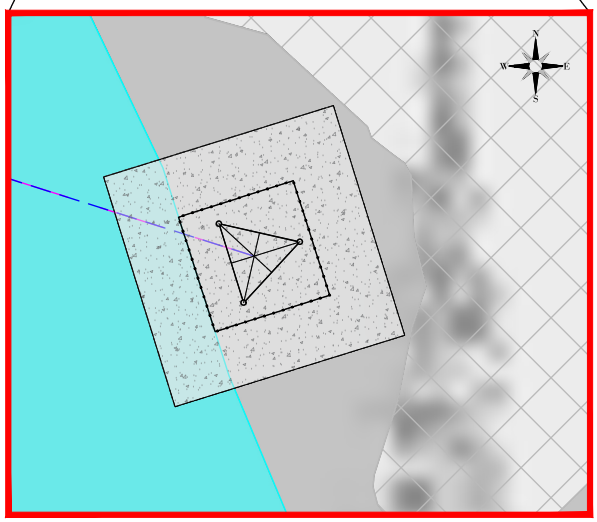

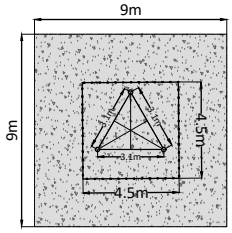

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PROJECT: MEENBOG WIND FARM

TITLE: MET MAST ELEVATION AND PLAN

REVISION: A

DRAWN BY	DATE	PAPER SIZE	SCALE
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CHECKED AND APPROVED	DATE	STATUS	DRAWING NUMBER
L. POWER	18/03/2026	PROSPECTIVE	Figure 4-7

4.4.1.3 Site Roads

4.4.1.3.1 *Road Construction*

To provide access within the Wind Farm Site and to connect the proposed turbines and associated infrastructure, existing site roads will need to be upgraded. The road construction preliminary design has taken into account the following key factors, as outlined in the *Peat and Spoil Management Plan* in Appendix 4-2 of this EIAR:

1. Buildability considerations
2. Maximising use of existing infrastructure
3. Minimising excavation arisings
4. Peat stability
5. Serviceability requirements for construction and wind turbine delivery and maintenance vehicles
6. Requirement to minimise disruption to peat hydrology

The above key factors are used to inform the road design which is determined by the prevailing ground conditions encountered along that length of road. Appendix 4-2 of this EIAR includes the most suitable type of road construction envisaged for each section of access road based on the ground/site conditions recorded during the site walkovers and intrusive site investigation works.

The Prospective Development includes for the operational use of the onsite roads (following completion), and regular maintenance of the roads over the operational period of the Subject Development.

The general road construction techniques for road upgrade works at the Wind Farm Site and BMEP Site are listed below, with further details provided in Appendix 4-2 Peat and Spoil Management Plan of this EIAR, and in Section 4.9.2 below:

- Upgrade of existing founded access roads (Wind Farm Site)
- Upgrade/replacement of existing floated road to founded road (Wind Farm Site)
- Upgrade of existing floated access road (Wind Farm Site)
- Upgrade of existing floated forestry track (BMEP Site)
- New floating forestry access track (BMEP Site)

4.4.1.3.2 *Wind Farm Site Roads*

Approximately 19 km of existing access roads are present across the Wind Farm Site and have been in operation for a number of years, some of which were pre-existing prior to construction of the Existing Development. The existing access roads have been constructed using both founded and floating construction techniques.

The outstanding works relating to site roads have been broadly divided into two categories, (a) minor works and upgrades, and (b) more substantial works and upgrades. Minor works and upgrades comprise grading and/or the laying of surface dressing, a degree of which is required along all existing site roads. The more substantial works and upgrades to access roads, requiring some level of groundwork, comprise the construction of new site roads including excavation and replacement of existing roads, widening or extension of existing roads, and construction of turning heads.

It is proposed to conduct more substantial works and upgrades along approximately 3 kilometres of site roads and tracks within the Wind Farm Site, which includes construction and upgrade works on sections of the access roads to turbines T18, T7 and T4, and widening at certain locations along the existing onsite roads. Table 4-1 above includes an overview of the main works required to complete the

Wind Farm Site access roads. It is also proposed to construct or complete 10 no. turning heads in the vicinity of a number of turbine locations, which comprise more substantial works and upgrades. The construction of turning heads is proposed in the vicinity of T01, T02, T03, T04, T05, T07, T09 and T18, and completion of partially constructed turning heads in the vicinity of T08 and T19, as shown in the planning drawing in Appendix 4-1 of this EIAR. The turning heads measure between approximately 16m x 6m and 30m x 6m depending on the access roads in the vicinity of each. It is proposed to construct passing bays along the access road to T18 in order to allow construction traffic to safely pass each other while travelling in opposite directions. Areas such as wide junctions and proposed hardstands will also be used as passing bays throughout the construction phase of the Prospective Development.

Proposed upgrade and road widening works within the Wind Farm Site will be founded on competent stratum. Cross section details of the proposed upgrade of existing roads at the Wind Farm Site are shown in Figures 4-8 and Figure 4-9.

It is proposed that all site roads have a minimum running width of 5 metres, with wider sections of up to 8m on bends and corners. As outlined within the rEIAR, the width of the constructed road (i.e. existing roads) varies between 5m and 10m.

Works to roads within the Wind Farm Site comprise upgrading existing founded access roads, replacing existing floating access roads with founded roads, and finishing of floating access roads which will be 'topped up' or finished with a thin layer of crushed rock, up to 0.15m in thickness. Drainage features along access roads are illustrated in Appendix 4-4 of this EIAR. Due to the ground conditions, and in line with the mitigation measures within 'Peat Stability Assessment of Meenbog Wind Farm Site' (FT, 2021), *'no further construction of floating roads is to be carried out [within the Wind Farm Site]. Given the potential risk associated with floating road construction alternative methods of construction shall be adopted.'* No new floating access roads are proposed within the Wind Farm Site, however some of the previously constructed floating roads will be used in the construction of the Prospective Development within both the Wind Farm Site and the BMEP Site (see Section 4.4.1.3.3 below). The types of roads to be constructed across the Site are based on available guidance, including '*Constructed Tracks in the Scottish Uplands'*[3](Scottish Natural Heritage, 2nd Edition, 2015), '*Floating Roads on Peat'*[4](Scottish Natural Heritage/Forestry Commission Scotland,(2010) and '*Dealing with Bearing Capacity Problems on Low Volume Roads Constructed on Peat'*[5](ROADEX II, 2004).

For the locations around the section of floating road at the T01 and T02/T04 junction, a stabilising berm will be constructed downslope of the road to act as a mitigation measure to provide additional resistance to peat movement. As detailed in the Peat Stability Assessment Report (Appendix 8-1), no peat instability is anticipated in this area as a result of the Prospective Works following these mitigation measures. Please note, Appendix 8-1: Peat Stability Assessment Report has been peer reviewed by Conor O'Donnell (BA, BAI, MS, FGS, CEng, MIEI, FConsEI) of AGL Consulting, which can be found in Appendix 4-7 of this EIAR.

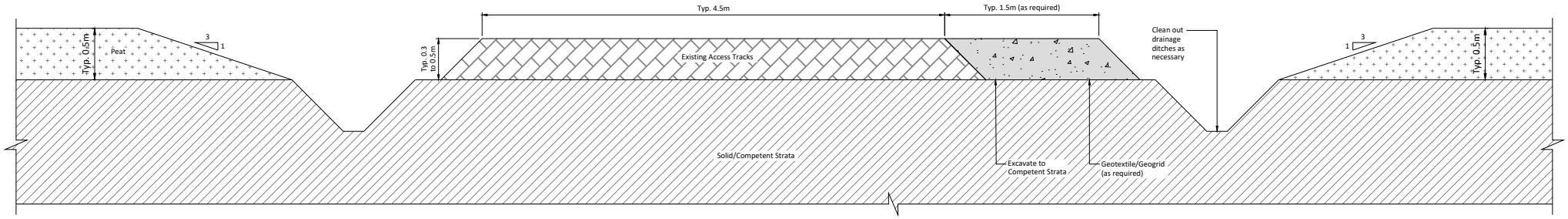
The construction methodologies adopted for the main road construction/upgrade works within the Wind Farm Site have been determined by the ground and site conditions identified during the site walkovers and intrusive site investigation works, and are described in the Peat and Spoil Management Plan in Appendix 4-2 of this EIAR, and summarised in Section 4.9.2 below.

[3] Constructed Tracks in the Scottish Uplands' (Scottish Natural Heritage, 2nd Edition, 2015) <https://www.nature.scot/doc/archive/constructed-tracks-scottish-uplands>
[4] Floating Roads on Peat (Scottish Natural Heritage/Forestry Commission Scotland (2010) <https://www.roadex.org/wp-content/uploads/2014/01/FCE-SNH-Floating-Roads-on-Peat-report.pdf>
[5] Munro, R, 2004. Dealing with bearing capacity problems on low volume roads constructed on peat. Roadex II Northern Periphery <https://www.roadex.org/wp-content/uploads/2014/01/2_5-Roads-on-Peat_1.pdf>

4.4.1.3.3 BMEP Site Tracks

As outlined in the BMEP (Appendix 6-4) and Section 4.2.3 above, access to Parcel 1 is via a new access track located along the L-65242 Local Road, whilst site access to Parcel 2 is via an existing access track (to be extended and upgraded) located along the L-2974 Local Road. The existing forestry track terminates after 350 m, and from this point it is proposed to construct approximately 550 m of new forest track to complete access to this parcel as part of the BMEP works. The existing forestry track will be upgraded by laying a new surface dressing on the existing section of roadway where necessary. A section of the proposed new road within the BMEP Site is provided in Figure 4-10 below and a section of the upgrade to the existing forestry track within the BMEP Site is provided in Figure 4-11 below. Please refer to Section 4.9.2 below for the construction methodologies to be adopted at the BMEP Site.

The existing forest track will be upgraded by laying a new surface dressing on the existing section of roadway where necessary. The new forest track will be designed as '*Build On-Top Embankment Roads*' in accordance with the COFORD (2004) '*Forest Road Manual – Guidelines for the Design, Construction and Management of Forest Roads*'. Floating roads minimise the impact on peat, particularly peat hydrology, and significantly reduce the volumes of peat requiring management as there is no excavation required and no peat arisings are generated. The methodology for the construction of the new floated forest track within the BMEP Site is outlined in Section 4.9.2.3.



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Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	07.04.26

PROJECT

MEENBOG WIND FARM
(PROSPECTIVE DEVELOPMENT)

CLIENT

MKO

SHEET

TYPE A - UPGRADE OF EXISTING FOUNDED ACCESS ROAD

Date 07.04.26

Drawn by POR

Checked by IH

Project number P24-234

Scale (@ A1) As Shown

Drawing Number Figure 4-8

(Sheet set subset P24/P Prospective)

Rev P01

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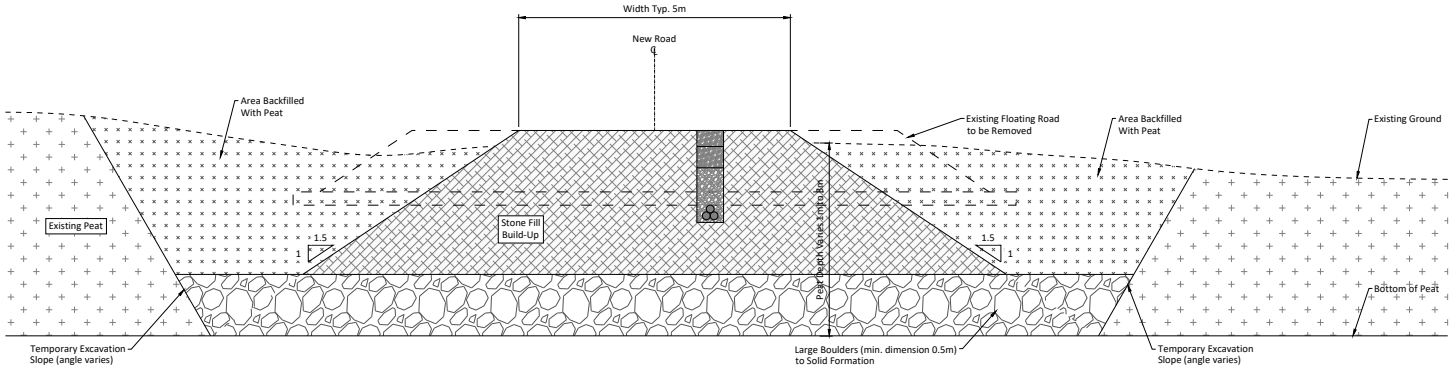

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PROJECT
MEENBOG WIND FARM
(PROSPECTIVE DEVELOPMENT)

CLIENT
MKO

SHEET
TYPE B - UPGRADE OF EXISTING FLOATING ACCESS TRACK TO FOUNDED ACCESS TRACK

Date 07.04.26
Drawn by POR
Checked by IH
Project number P24-234
Scale (@ A1) 1:50
Drawing Number Figure 4-9
(Sheet set subset P24eP Prospective)
Rev P01

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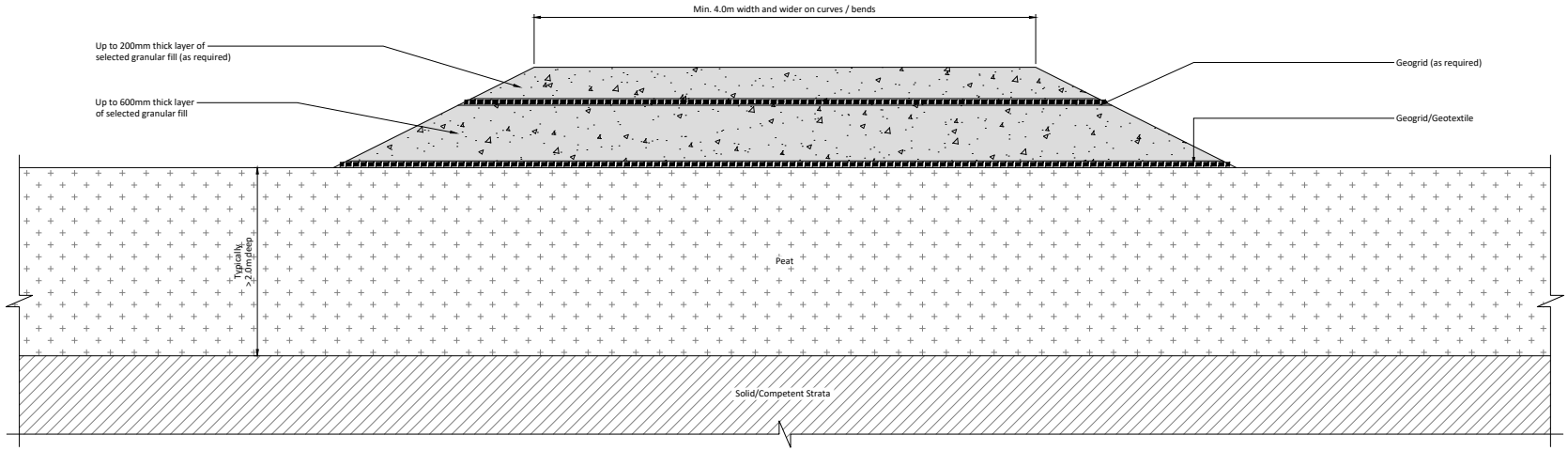
23 June 2026 (O:\ACAD\2024\P24-234\P24-234-0602-0003)



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PROJECT

MEENBOG WIND FARM
(PROSPECTIVE DEVELOPMENT)

CLIENT

MKO

SHEET

TYPE D - NEW FLOATED ACCESS TRACK

Date 07.04.26

Drawn by POR

Checked by IH

Project number P24-234

Scale (@ A1) As Shown

Drawing Number Figure 4-10

(Sheet set subset FSWP Prospective)

Rev P01

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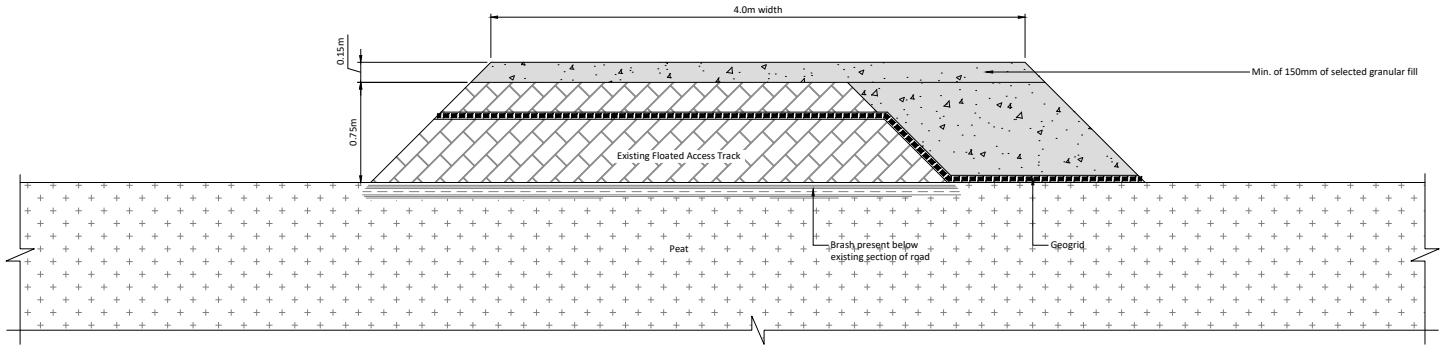
21 May 2026 (O:\ACAD\2024\Pw 2k4\P24-234-0602-0005)



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PROJECT

MEENBOG WIND FARM
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TYPE B1 - UPGRADE OF EXISTING FLOATED ACCESS ROAD

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Drawing Number Figure 4-11

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4.4.1.4 Borrow Pits

As outlined in the Peat and Spoil Management Plan in Appendix 4-2 of this EIAR, it is estimated that approximately 74,180m^3 of stone material will be required to complete construction of the Prospective Development. There are 3 no. partially excavated borrow pits within the Wind Farm Site which were established as part of the Existing Development. Continued use and/or extension of excavation works are proposed at these borrow pits as part of the Prospective Development. Table 4-5 below outlines the intended extent of use of the borrow pits. It is intended to obtain the majority of materials for the construction of the Prospective Development from the onsite borrow pits. However, engineer's specified material may be imported onto the Wind Farm Site for should suitable quality material not be encountered during borrow pit excavation for the Prospective Development. It is estimated that up to ~8,000m^3 of well-graded stone material (Cl804) for capping/finishing is required to complete the construction of the Prospective Development. Please note, this ~8,000m^3 of well-graded material to be imported is in addition to the ~74,180m^3 of stone material requirements for the Prospective Development outlined above. Access to each of these the borrow pits is already in place, via existing site roads. The borrow pits are described in more detail below, please note the area measurements provided below include the footprint of each borrow pit proposed as part of the Prospective Development in addition to the existing footprint (as illustrated in Figure 4-1 above), and as such will differ to the areas provided in Chapter 4 of the rEIAR.

4.4.1.4.1 *Borrow Pit 1 (BP1): East of Turbine T10*

Borrow Pit 1 is located approximately 395m east of T10. The ITM Coordinates of this borrow pit are X 607214, Y 885893. The total area of BP1 measures approximately 28,180m^2, where approximately 8,640m^2 of this is proposed to be utilised for extraction as part of the Prospective Development, within the existing pit extraction area/footprint. The remaining area measuring ~11,795m^2 has already been backfilled and thus will not be utilised during the Prospective Development works. Furthermore, no extension of the extraction area is proposed as part of the Prospective Development, however additional works to stabilise the slopes surrounding the existing borrow pit comprising tree removal, slope levelling, and fencing are proposed. The works area strip surrounding the borrow pit measures approximately 7,750m^2 with the proposed works along the southern/eastern edge of the existing borrow pit measures approximately 2,100m^2 and approximately 5,650m^2 which has already been built. Please see Figure 4-12 below for an illustration of the layout of BP1 proposed as part of the Prospective Development.

4.4.1.4.2 *Borrow Pit 2 (BP2): South of Turbine T15*

Borrow Pit 2 is located approximately 170m south of T15. The ITM Coordinates of this borrow pit are ITM X 607757, Y 886389. The total area of BP2 measures approximately 14,000m^2, where approximately 2,180m^2 of this is proposed to be utilised for extraction as part of the Prospective Development, within the existing pit extraction area/footprint. The remaining area measuring approximately 8,850m^2 has already been backfilled and thus will not be utilised during the Prospective Development works. The borrow pit working strip, which has been constructed as part of the Existing Development, measures approximately 2,980m^2. Please see Figure 4-13 below for an illustration of the layout of BP2 proposed as part of the Prospective Development.

4.4.1.4.3 *Borrow Pit 3 (BP3): East of Turbine T13*

Borrow Pit 3 is located approximately 175m east of T13. The ITM Coordinates of this borrow pit are ITM X 607757, Y 886389. The total area of Borrow Pit 3 measures approximately 19,000m^2, where approximately 6,000m^2 of this is proposed to be further utilised for extraction as part of the Prospective Development, within the existing pit extraction area/footprint. The remaining area measuring approximately 4,430m^2 has already been backfilled and thus will not be utilised during the Prospective Development works. In addition, it is proposed that this pit is extended to the west and south of its current footprint by an area of approximately 4,000m^2, meaning the total extraction area within BP3 for

the Prospective Development would be approximately 10,000m^2. The works area strip surrounding the borrow pit measures approximately 5,210m^2 with the proposed works along the western/southern edge of the borrow pit extension measures approximately 3,445m^2 and approximately 1,120m^2 of which has already been built to the northern/eastern edge. Please see Figure 4-14 below for an illustration of the layout of BP2 proposed as part of the Prospective Development.

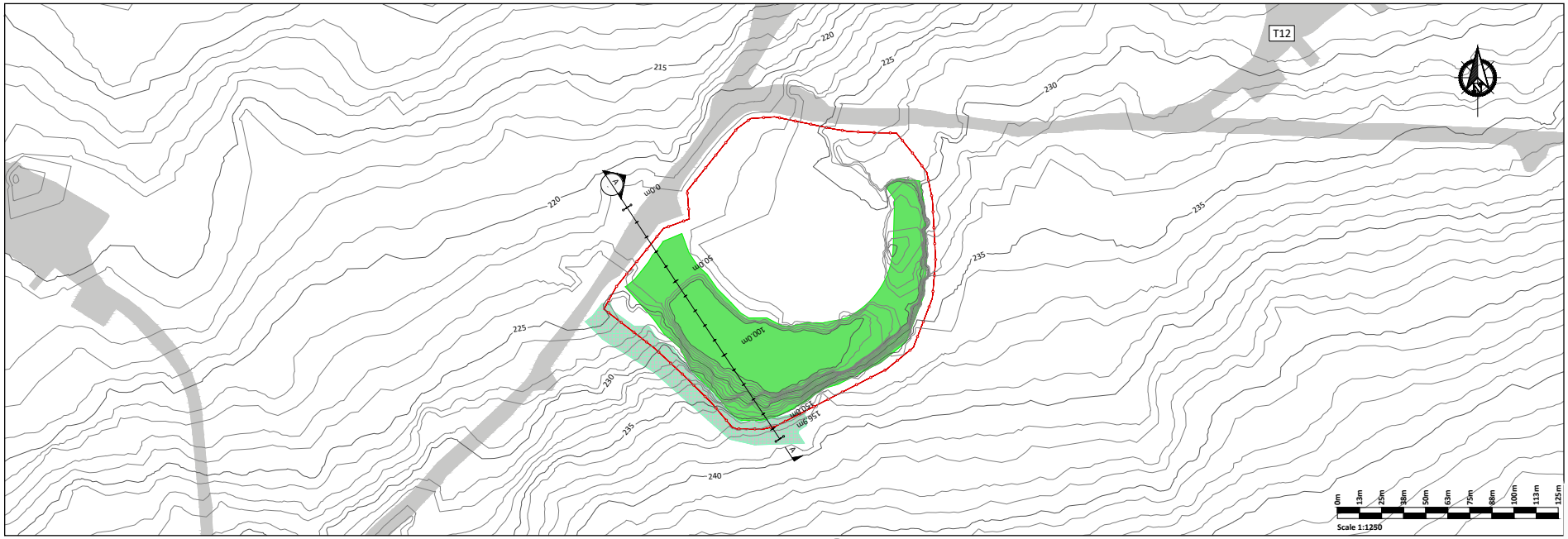
Table 4-5 Borrow Pit locations and proposed use

Borrow Pit (BP) No.	Location (ITM)		Proposed Use as part of the Prospective Development
	Easting	Northing	
BP1	607214	885893	8,640m^2 for continued use - extraction
BP2	607757	886389	2,180m^2 for continued use - extraction
BP3	607757	886389	6,000m^2 for continued use and 4,000m^2 extension - extraction

To prepare for extraction activities, water which has ponded at the borrow pit locations will be cleared through the use of pumping. The extraction of material from the borrow pits for the Prospective Development is a construction phase activity only and will be temporary and occur over a short period of time. Hardcore materials will be extracted from the borrow pit, by means of rock breaking or blasting. Depending on the hardcore volume, blasting may be used as a more effective rock extraction method, capable of producing significant volumes of rock in a matter of milliseconds. Both rock extraction methods are discussed below. The processing and crushing of boulders may be required to achieve the grading requirements for use in construction. The potential noise and vibration impact on sensitive receptors associated with the rock extraction measures, detailed below, are assessed in Chapter 12: Noise and Vibration, of this EIAR.

Upon removal of the rock from the borrow pits, it is proposed to reinstate the borrow pits using excavated peat and spoil. Once reinstatement is complete, the perimeter of the borrow pits will be permanently secured with a stock-proof fence erected around the borrow pit area to prevent access to these areas in the interest of health and safety. Appropriate health and safety signage will also be erected on this fencing and at locations around the fenced area.

At BP3, where an extension is proposed, the topsoil and subsoil stripping will be conducted in advance of excavation works within the extension area using standard tracked excavators. Any further material gathered during topsoil and subsoil stripping works will be stored within the existing borrow pit void. Two extraction methods have been assessed for breaking out the useful rock: rock breaking and blasting. Please see Section 4.4.1.4.4 and 4.4.1.4.5 below for a description of the rock extraction methods.



PLAN
1:1250
BP1
-

Plan Legend:

- Prospective Development
- Site Boundary
- Peat Cell
- Borrow Pit
- Extension to Borrow Pit
- Proposed Borrow Pit Working Strip
- Proposed Fence
- Existing Ground Contour - Major
- Existing Ground Contour - Minor

Construction Notes:

(1) Prior to the placement of any excavated peat and spoil, the existing perimeter buttress is to be inspected and widened if necessary.

(2) The finished surface of the stored peat/spoil will be at least 0.5m below the top of the perimeter buttress.

(3) An interceptor drain should also be installed upslope of the peat cell.

(4) A silting pond will be required at the lower side of the peat cell.

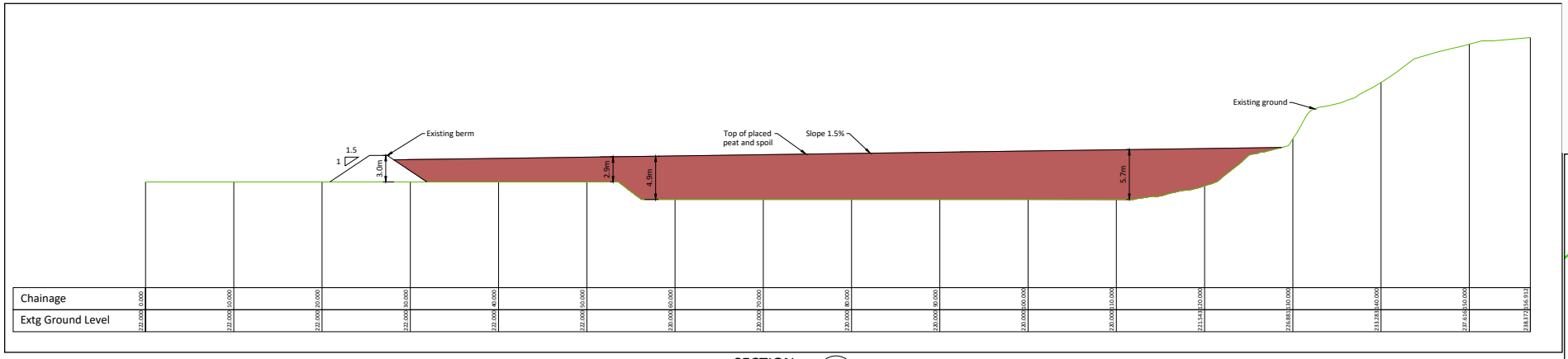
(5) The placement of the excavated spoil should commence at the back of the peat cell and work towards the perimeter buttress.

(6) It is important that the surface of the stored peat/spoil be shaped to allow efficient run-off of water from the stored peat/spoil.

(7) Supervision by a geotechnical engineer or appropriately competent person is recommended for the construction of the peat cell.

(8) All the above mentioned requirements should be confirmed by the designer prior to construction.

(9) Further guidelines on the construction of the peat cell are included within Section 5.5 of the Peat & Spoil Management Plan.



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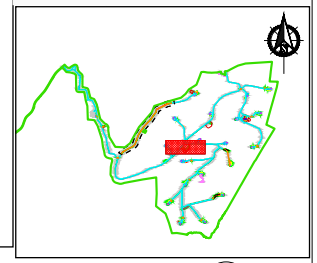

KEY PLAN
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Rev.	Description	App By	Date
P01	FOR INFORMATION	BDH	07.04.26

PROJECT
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)

CLIENT
MKO

SHEET
BORROW PIT 1 PLAN & SECTION

Date 07.04.26
Drawn by POR
Checked by IH

Project number P24-234
Scale (@ A1) As Shown
Drawing Number Figure 4-12
Rev **P01**

(Sheet set subset FEMP Prospective)

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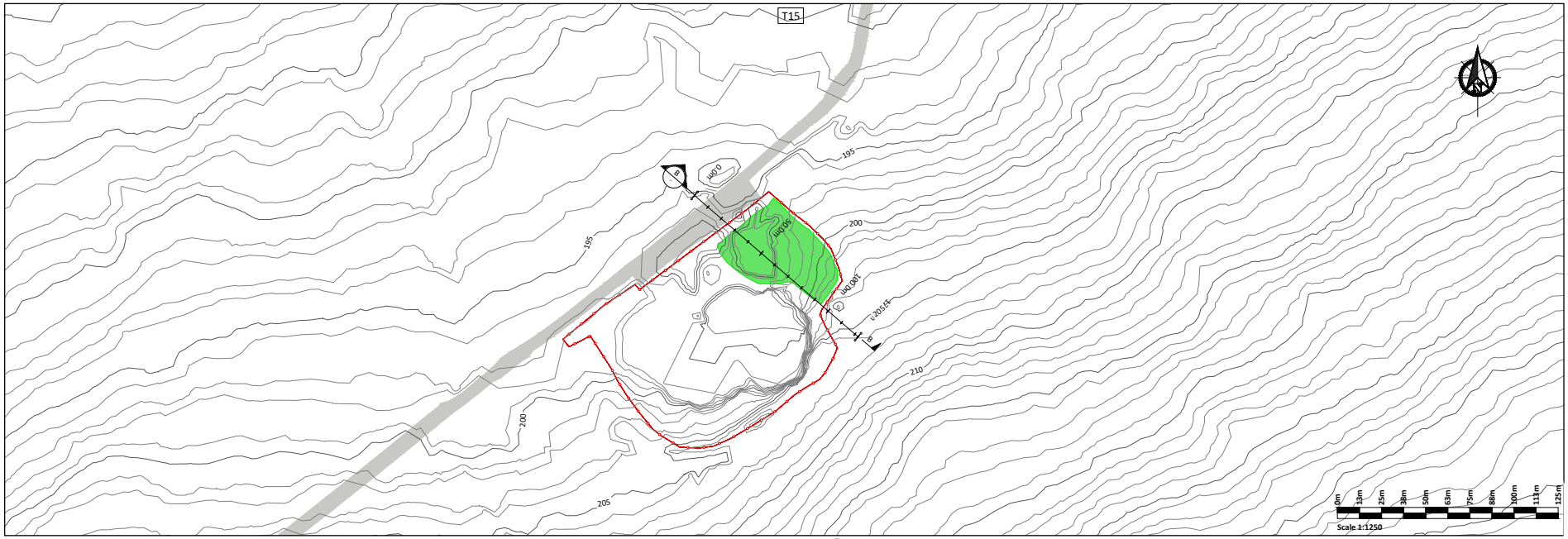
23 June 2026 (O:\ACAD\2024\P24-234\P24-234-0602-0007)



PLAN
1:1250
BP2
-

Plan Legend:

- Prospective Development
- Site Boundary
- Peat Cell
- Borrow Pit
- Extension to Borrow Pit
- Proposed Fence
- Existing Ground Contour - Major
- Existing Ground Contour - Minor

Construction Notes:

(1) Prior to the placement of any excavated peat and spoil, the existing perimeter buttress is to be inspected and widened if necessary.

(2) The finished surface of the stored peat/spoil will be at least 0.5m below the top of the perimeter buttress.

(3) An interceptor drain should also be installed upslope of the peat cell.

(4) A silting pond will be required at the lower side of the peat cell.

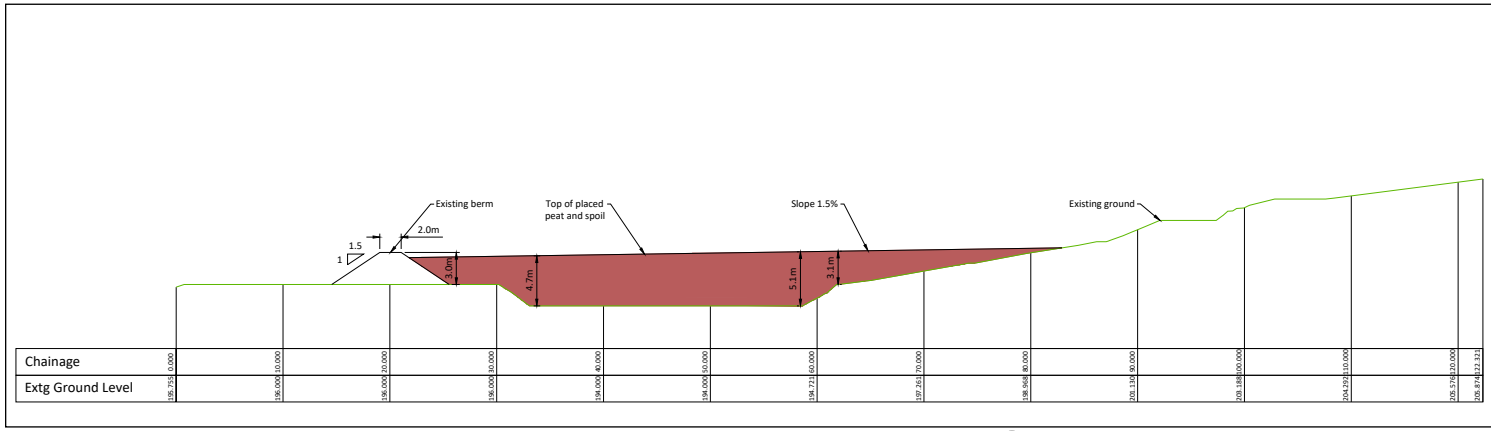
(5) The placement of the excavated spoil should commence at the back of the peat cell and work towards the perimeter buttress.

(6) It is important that the surface of the stored peat/spoil be shaped to allow efficient run-off of water from the stored peat/spoil.

(7) Supervision by a geotechnical engineer or appropriately competent person is recommended for the construction of the peat cell.

(8) All the above mentioned requirements should be confirmed by the designer prior to construction.

(9) Further guidelines on the construction of the peat cell are included within Section 5.5 of the Peat & Spoil Management Plan.



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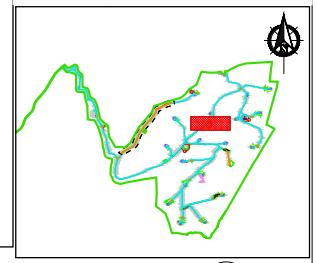

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P01	FOR INFORMATION	BDH	07.04.26

PROJECT
MEENBOG WIND FARM (PROSPECTIVE DEVELOPMENT)

CLIENT
MKO

SHEET
BORROW PIT 2 PLAN & SECTION

Date 07.04.26
Drawn by POR
Checked by IH
Project number P24-234
Scale (@ A1) As Shown
Drawing Number Figure 4-13
(Sheet set subset P24EP Prospective)
Rev P01

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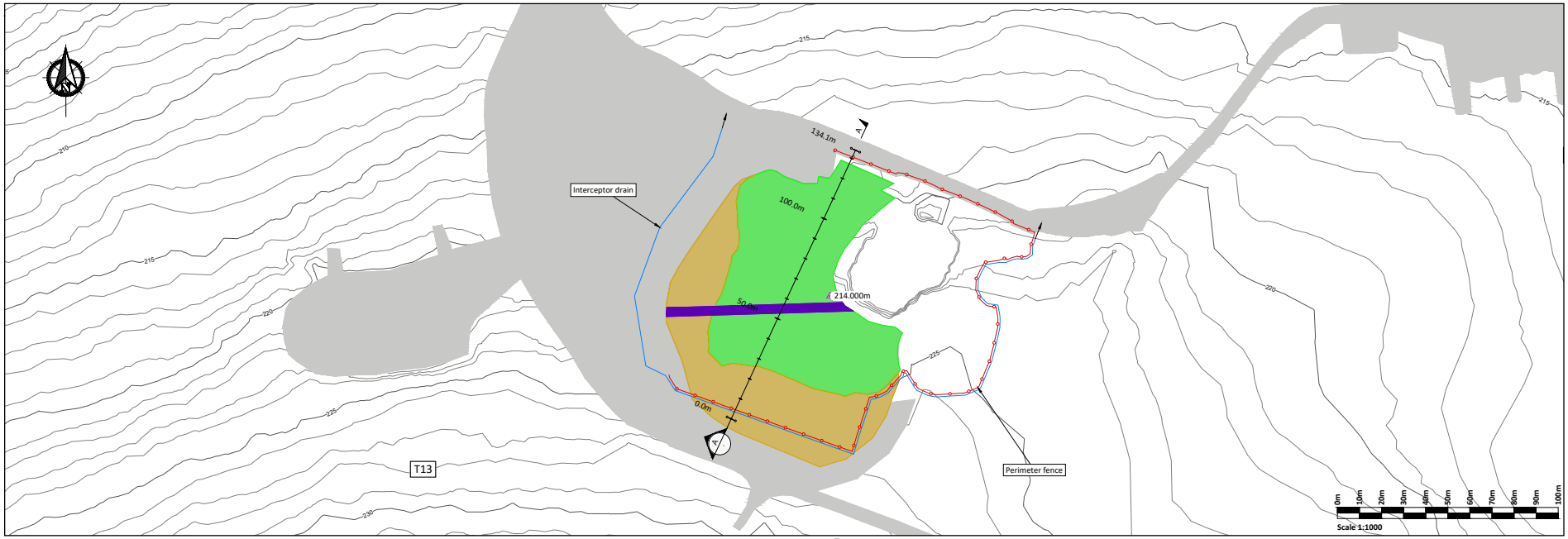
23 June 2026 (O:\ACAD\2024\P24-234\P24-234-0602-0008)



PLAN
1:1000
BP3
-

Plan Legend:

- Prospective Development
- Site Boundary
- Peat Cell
- Borrow Pit
- Extension to Borrow Pit
- In-Situ Rock Berm
- Proposed Borrow Pit Working Strip
- Proposed Fence
- Existing Ground Contour - Major
- Existing Ground Contour - Minor

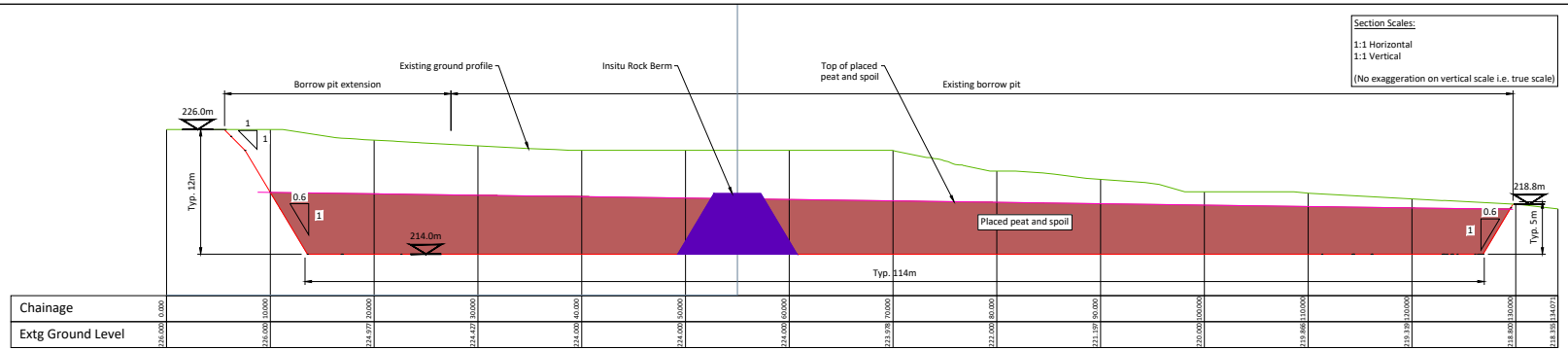
Construction Notes Borrow Pit:

(1) Slopes within the excavated rock around the perimeter of the borrow pit will be formed at stable inclinations to suit local in-situ rock conditions.

(2) Infilling of the peat & spoil will commence at the back edge of the borrow pit and will progress towards the borrow pit entrance. An internal buttress will be constructed to allow the borrow pit to be developed and infilled in cells.

(3) The surface of the placed peat & spoil will be shaped to allow efficient run-off of surface water from the placed arising's.

(4) Further guidelines on the construction of the borrow pit are included within Section 5.5 of the Peat & Spoil Management Plan



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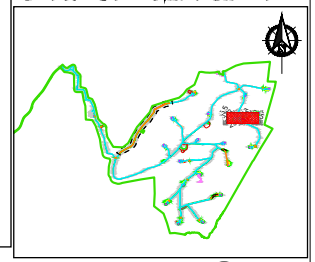

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PROJECT
MEENBOG WIND FARM
(PROSPECTIVE DEVELOPMENT)

CLIENT
MKO

SHEET
EXTENSION TO EXISTING BORROW PIT 3

Date 07.04.26
Project number P24-234
Scale (@ A1) As Shown -
Drawn by POR
Drawing Number Figure 4-14
(Sheet set subset P24P Prospective)
Rev P01
Checked by IH

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23 June 2026 (O:\ACAD\2024\P24-234\P24-234-0602-0006)

4.4.1.4.4 Rock Extraction

As outlined above, the estimated volume requirements to be extracted from the borrow pits for the construction of the Prospective Development is ~74,180m^3. The Prospective Development includes for the provision of ~82,000m^3 of rock material available on-site. This comprises existing material ready for rock breaking, existing stockpiled quarry rock, and rock to be extracted from the existing onsite borrow pits, i.e. BP1, BP2 and BP3.

The on-site borrow pits will continue to be excavated and backfilled, whilst BP3 is proposed to be extended west and south of its current footprint by an area of ~4,000m^2. Please see Section 4.9.5 below for the borrow pit construction methods. The two proposed borrow pit extraction methods (rock breaking and blasting) are detailed below.

4.4.1.4.5 Rock Breaking

Weathered or brittle rock can be extracted by means of a hydraulic excavator and a ripper attachment. This is a common extraction methodology where fragmented rock is encountered as it can be carefully excavated in layers. In areas where stronger rock is encountered and cannot be removed by means of excavating then a rock breaking methodology may be used. Rock breaking equipment comprises a large hydraulic 360-degree excavator with a rock breaker attachment. Given the power required to break out tight and compact stone at depth, the machines are generally large and in the 40-60 tonne size range. Even where rock might appear weathered or brittle at the surface, the extent of weathering can quickly diminish with depth resulting in strong rock requiring significant force to extract it at depths of only a few metres.

A large rock breaking excavator progressively breaks out the solid rock from the ground in the borrow pit area. A smaller rock breaker, in the 30-40 tonne size range, then breaks the rocks down to a size that can then be fed into a crusher.

The extracted, broken rock is loaded into a mobile crusher using a wheeled loading shovel and crushed down to the necessary size of graded stone required for the on-site civil works. The same wheeled loader takes the stone from the crusher conveyor stockpile and stockpiles it elsewhere within the borrow pit, away from the immediate area of the crusher, until it is required elsewhere within the Wind Farm Site.

4.4.1.4.6 Rock Blasting

Where blasting is used as an extraction method, a mobile drilling rig is used to drill vertical boreholes into the area of rock that is to be blasted. A drilling rig will drill the necessary number of boreholes required for a single blast in approximately 3 to 4 days. The locations, depth and number of boreholes are determined by the blast engineer. This is a specialist role fulfilled by the blasting contractor.

The blast engineer will arrange for the necessary quantity of explosive to be brought to site to undertake a single blast. The management of explosives on-site and the actual blasting operation will be agreed in advance with and supervised by An Gardaí Siochána. The blast engineer sets the explosives in place in the boreholes, sets the charges, and fires the blast.

A properly designed blast should generate rock of a size that can be loaded directly into a mobile crusher, using the same wheeled loader outlined above. The same method is used for processing the rock generated from a blast, as would be used to process rock generated by rock breaking. Generally, the drilling rig will recommence drilling blast holes for the next blast as soon one blast finished. The potential impacts and control measures associated with noise and vibration from this extraction method are assessed in Chapter 12: Noise and Vibration. Any blasting will be carried out in accordance with the *Guidance on the Safe Use of Explosives in Quarries* (Safety and Health Commission for the Mining

and Other Extractive Industries, 2002)[6] and the British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise*[7]. Blasting will only be carried out after notifying any potentially sensitive receptors.

4.4.1.4.7 Rock Processing

Rock extraction activities will generate various sized rocks, which may include large boulders. As such, large boulders will likely require breaking to enable them to undergo further processing and grading. Rock breaking typically occurs utilising an excavator with a hydraulic breaker. Rock breaking occurs in close proximity to the face to maximise the attenuation offered by the face to transmission of the sound. The rock is collected by either a front-end loader or dumper and transported to the semi-mobile crushing/screening unit or loaded directly to the semi mobile crushing/screening unit which follows the operational face within the void. This will break the rock into pre-selected sizes / grades, generating aggregate stockpiles of the graded rock within the borrow pits. This rock will then be transported to locations within the Wind Farm Site where it is required for construction.

4.4.1.4.8 Borrow Pit Decommissioning

Once extraction is complete, the borrow pits will be backfilled with excavated peat and spoil and reseeded or left to vegetate naturally, as outlined in Section 4.4.1.10.2.

4.4.1.5 Underground Electrical (33kV) and Communications Cabling

Underground 33 kV (kilovolt) electrical cabling and fibre-optic cabling, which will be laid within the cable ducting, will connect each wind turbine and the met mast to the onsite 110kV substation within the Wind Farm Site.

A substantial proportion of the underground cable ducting has been installed within the Wind Farm Site to date; however not all cabling has been installed within the existing ducts. As part of the Prospective Development, the existing installed cabling will be inspected, and following electrical testing, some sections may require replacement/upgrading. In parallel, several sections of new ducting are required. Please refer to Table 4-6 below for details of where ducting and/or cabling is to be installed and/or replaced following inspection as part of the Prospective Development. New ducting works also need to be completed in a number of locations, as described in Table 4-6 below.

Table 4-6 Sections of cabling to be completed

Location	Description
Between T1 and T2 (beneath the proposed berm)	Ducting and cabling to be installed
T2 access track	Ducting and cabling to be installed
T3 access track	Ducting and cabling to be installed
Between T3 and T5 along the access track	Ducting and cabling to be installed
T4 access track	Ducting to be replaced
Between T1 and T5, along the access track	Ducting and cabling to be installed

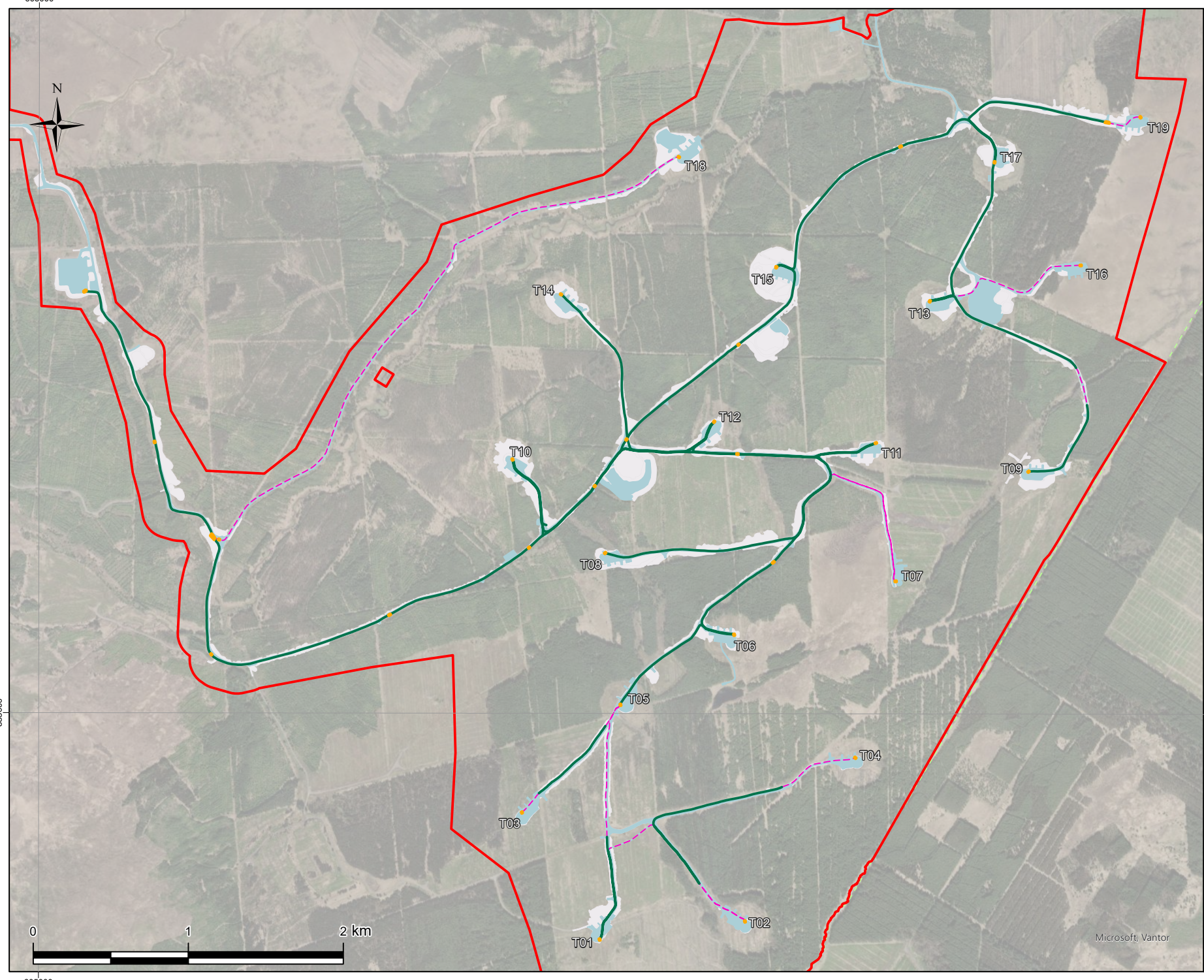
[6] https://www.hsa.ie/eng/Publications_and_Forms/Publications/Mines_and_Quarries/Guidance%20on%20the%20Safe%20Use%20of%20Explosives%20in%20Quarries.pdf
[7] https://www.thenbs.com/PublicationIndex/documents/details?Pub=BSI&DocID=305965

Location	Description
T7 access track	Ducting and cabling to be installed
T9 access track	Ducting to be replaced
T10 access track	Ducting and cabling to be installed
Between T13 and T16	Ducting and cabling to be installed
T18 access track	Ducting and cabling to be installed
T19 access track	Ducting and cabling to be installed

Once the cable ducting has been installed within the trench, clay plugs (water flow barrier) will be installed at regular intervals of not greater than 50 metres along the length of the trenches where required to prevent the trenches becoming conduits for runoff water. Backfill material will be compacted in layers with approved engineer's specified material.

The electricity and fibre-optic cabling connecting to the onsite substation compound will be installed in cable ducts approximately 1.2 metres beneath ground level, along the sides of roadways and/or under the roadways. The opening of new pull pits or utilisation of existing pull pits will be required for the instillation of cabling within the ducts. Cabling along existing floating roads will be installed at ground level and covered with a berm of aggregate to achieve the necessary cover on the ducting. The route of the cable ducts will follow the access tracks to each turbine location and are illustrated on the site layout drawings included as Appendix 4-1 of this EIAR, the exact number and configuration of cable ducting may vary within the cabling trench. Please refer to Figure 4-15 below which illustrates the proposed and existing ducting cabling on the Wind Farm Site, and Figure 4-16 for cross sections of the internal wind farm cable trench. The cabling may be placed on either side of the roads, on both sides of the road and/or within the road. The proposed configuration of the underground cabling will adhere to the requirements of the electrical designers.

The existing cable trenches run parallel to the access roads, therefore as part of the Prospective Development, cable laying works will be completed, and cable trench areas will be covered and/or reinstated to result in roads on site having a minimum running width of approximately 5 metres.



Map Legend

- Planning Application Boundary
- Turbine Layout

Internal Wind Farm Cabling

- Proposed Ducting & Cabling
- Ducting & Cabling
- Prospective Development Footprint
- Pull Pit

Existing Development

- Existing Development Footprint
- Co. Donegal/ Northern Ireland Boundary

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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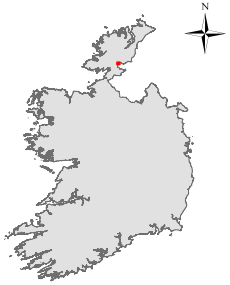

SITE LOCATION - NOT TO SCALE

Drawing Title: Ducting and Cabling

Project Title: Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-15	1:22,500
Drawn By	Checked By	Date
KB	RK	11/06/2026

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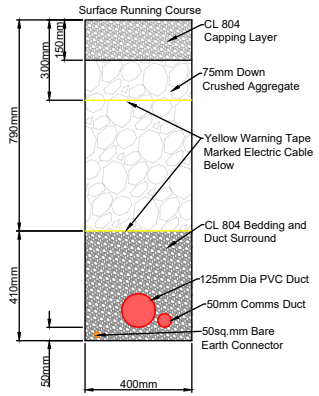
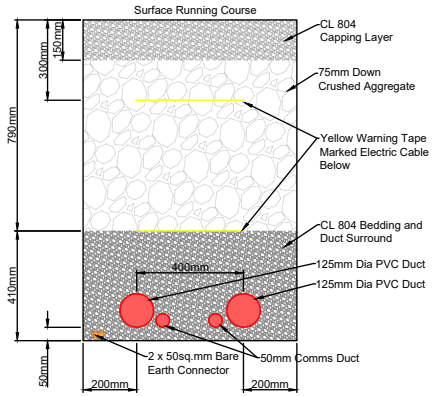


Cable Trench Cross-Section - Detail 1A
Refer to Drawings d024.8.5 to d024.8.10 for Locations
Scale: 1:20



Cable Trench Cross-Section - Detail 2A
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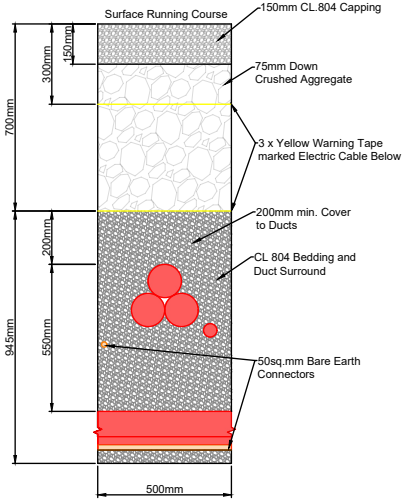

Cable Trench Cross-Section - Detail 3A
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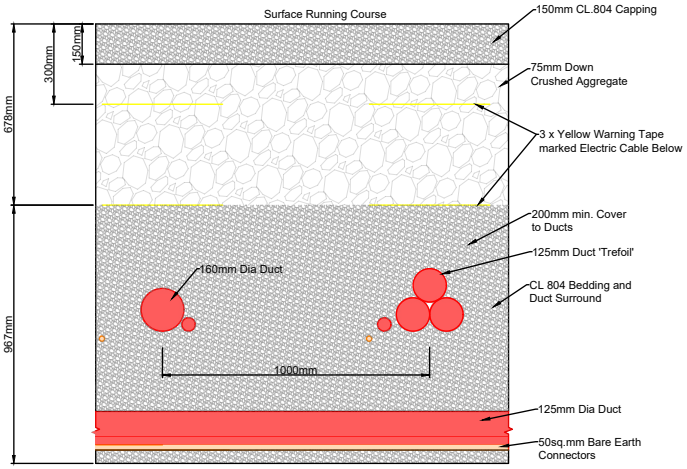
Scale: 1:20



Cable Trench Cross-Section - Detail 4A
Refer to Drawings d024.8.5 to d024.8.10 for Locations
Scale: 1:20

NOTES

REV	DATE	DRAWN BY	CHECKED BY	DETAILS
A	09/04/2026	M.B.	L.P.	FIRST ISSUE

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CLIENT

PROJECT: MEENBOG WIND FARM

TITLE: INTERNAL WIND FARM CABLE TRENCH
PROPOSED CROSS SECTIONS - SHEET 1

REVISION: A

DRAWN BY	DATE	PAPER SIZE	SCALE
M. BROWNE	09/04/2026	A3	1:20

CHECKED AND APPROVED	DATE	STATUS
L. POWER	09/04/2026	PROSPECTIVE

DRAWING NUMBER: Figure 4-16

Plotted: 16/04/2026 15:19:26
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4.4.1.6 Watercourse Crossings

The Wind Farm Site is drained by a network of natural watercourses and manmade land drains. These are described in Chapter 4: Description of the Existing Development of the rEIAR.

There are a total of 18 no. crossings located over EPA mapped watercourses within the Wind Farm Site. 14 no. of these crossings were upgraded/constructed as part of the Existing Development and no works will be required at these locations other than the minor upgrades to the existing roads.

There are 2 no. EPA mapped watercourses within the BMEP Site. Please refer to Section 4.4.3.1.2 below for further details in relation to the temporary crossings that will be used at these locations as part of the BMEP proposals.

More significant works are required at the following watercourse crossings within the Wind Farm Site:

- More substantial road upgrades and works are required on the access road to T18 and this section of road is mapped to cross 3 no. EPA mapped watercourses (unnamed tributaries of the Bunadaowen River). Existing culverts already exist at these locations and the Prospective Development includes the upgrades of these culverts. Please note, these crossings are labelled as NR 102 (EC18), NR 14 (EC12) and NR15 (EC19) on the drainage drawings included in Appendix 4-4 of this EIAR.
- As part of the Existing Development, a culvert was installed in a temporary configuration along the access road to T14 (labelled as NR. 48 (PC2) on the drainage drawings included in Appendix 4-4 of this EIAR). As part of the Prospective Development, it is proposed to upgrade this culvert into its final design configuration, via a new box culvert. This will be constructed to the specifications of the Office of Public Work (OPW) bridge design guidelines '*Construction, Replacement or Alteration of Bridges and Culverts - A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945*'.
- The proposed amenity track is mapped to cross the Bunadaowen River in the north of the Wind Farm Site. This will serve pedestrians only. The proposed crossing will comprise a clear-span steel and timber footbridge. No permanent structures will be located within the watercourse channel and the existing bed and banks will remain undisturbed.
- A culvert extension may also be required on the EPA mapped watercourse located to the east of the temporary construction compound to the south of T10, where it is proposed to extend the hardstand. Note that the watercourse is already culverted beneath the existing hardstand (labelled as NR. 37 (EC8) on the drainage drawings).

Please refer to Section 9.5.2.8 of Chapter 9 of this EIAR for further details on the above watercourse crossings.

4.4.1.6.1 *Culvert Crossings*

Some culverts may be installed to manage drainage waters from works areas of the Prospective Development, particularly where the waters have to be taken from one side of an existing roadway to the other for discharge.

All new proposed culverts and proposed culvert upgrades at field drain crossings required for the Prospective Development will be suitably sized for the expected peak flows in the relevant drain. Some culverts may be installed to manage drainage waters from works areas of the Prospective Development, particularly where the waters have to be taken from one side of an existing roadway to the other for discharge. The size of culverts will be influenced by the depth of the track or road sub-base. In all cases, culverts will be oversized to allow mammals to pass through the culvert. All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance. Please refer to Chapter 9: Hydrology and Hydrogeology for further details.

4.4.1.7 Temporary Construction Compound

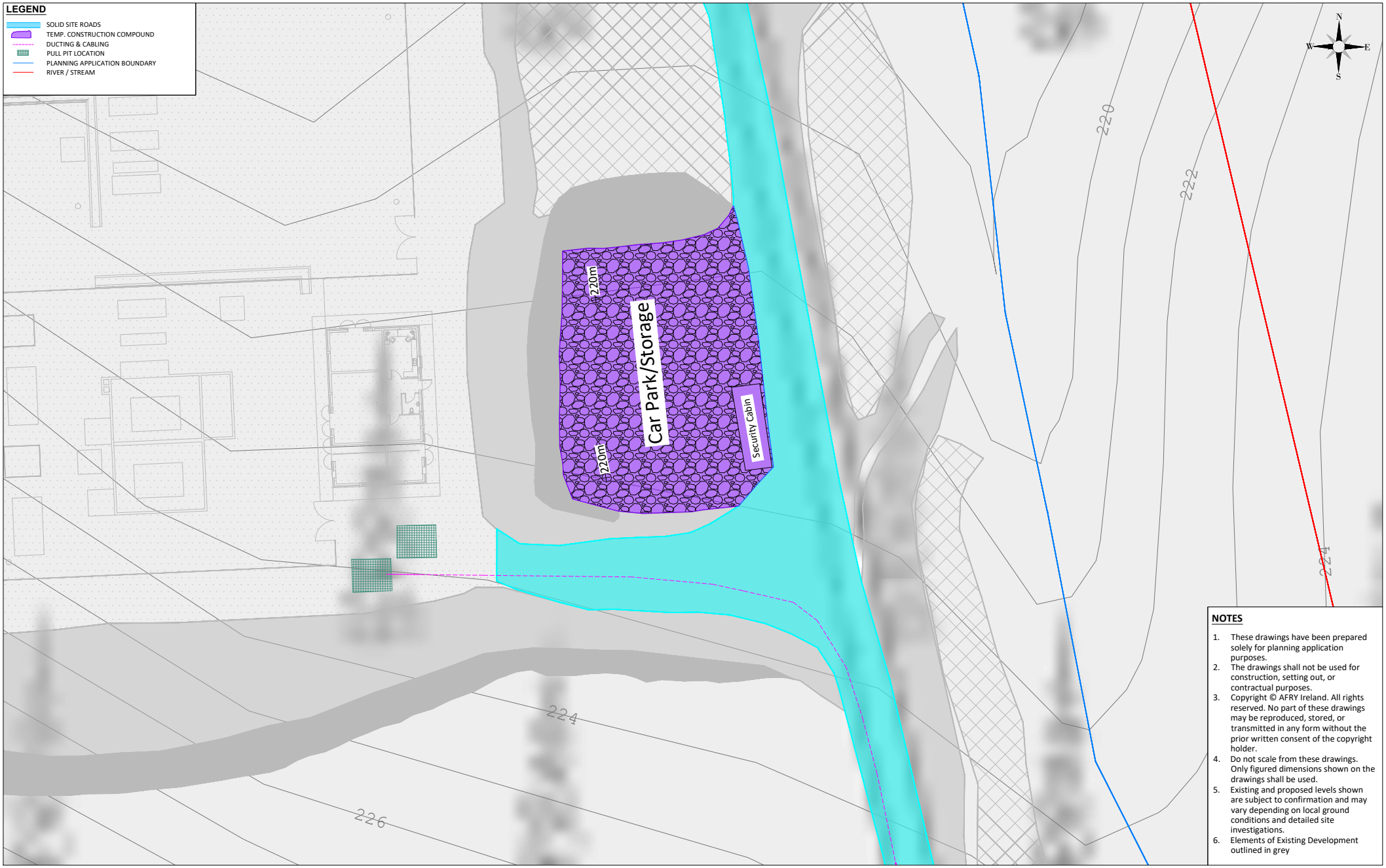
There are two existing temporary construction compounds within the Wind Farm Site. One of the compounds is located in the vicinity of the existing 110kV on-site substation. This compound is proposed for continued use during the construction phase of the Prospective Development.

The second temporary construction compound is located along the access track just south of T10. It is proposed that this compound will continue to be used and will be extended by approximately 800m^2 as part of the Prospective Development works, to accommodate the turbine manufacturer's welfare requirements. During the construction of the Prospective Development, this compound will comprise temporary site offices, staff facilities and car-parking areas for staff and visitors. Temporary port-a-loo toilets and toilets located within a staff portacabin will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply on site for hygiene purposes, by way of a temporary storage tank. The temporary construction compound will include a bunded refuelling and containment area for the storage of oil, lubricants and site generators etc, and full retention oil interceptor.

The layout of the temporary construction compounds are shown in Figure 4-17 and Figure 4-18.

4.4.1.8 Temporary Security Cabin

A temporary security cabin is located beside the onsite 110kV substation, within the temporary construction compound. It is proposed that the security cabin will be operated during the construction phase of the prospective development.



NOTES

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4. Do not scale from these drawings. Only figured dimensions shown on the drawings shall be used.
5. Existing and proposed levels shown are subject to confirmation and may vary depending on local ground conditions and detailed site investigations.
6. Elements of Existing Development outlined in grey

NOTES

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Sheet No.'s: 0451,0452,0453,0479,0480,0481,0507, 0508

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A	23/06/2026	M.B.	L.P.	FIRST ISSUE

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CLIENT

PROJECT: MEENBOG WIND FARM

TITLE: TEMPORARY CONSTRUCTION COMPOUND 1

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5. Existing and proposed levels shown are subject to confirmation and may vary depending on local ground conditions and detailed site investigations.
6. Elements of Existing Development outlined in grey

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MEENBOG WIND FARM

TITLE
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Figure 4-18

4.4.1.9 Tree Felling/ Replanting

Much of the felling works to accommodate the Meenbog Wind Farm was completed during the construction of the Existing Development, however additional felling of commercial forestry (conifer plantation (WD4)) is required within the Wind Farm Site as part of the Prospective Development. Furthermore, tree felling is also required within the BMEP Site to facilitate the conversion of these areas to peatland and scrub habitats.

Both permanent and temporary felling is proposed as part of the Prospective Development. Within the Wind Farm Site, ~8.6ha of permanent felling and ~3.5ha of temporary felling is required, whilst the felling required within the BMEP Site totals ~109.4ha of permanent felling (note, this comprises the ~108.4 ha to be felled for hen harrier habitat enhancement, and additional felling to facilitate the access to the BMEP Site). Therefore, there will be the permanent removal of ~118 ha of commercial forestry at the Site (~121.5 ha when temporary felling is included). Figure 4-19 shows the extent of the commercial forestry to be felled as part of the Wind Farm Site. The felling required for the BMEP Site is illustrated in the planning drawings in Appendix 4-1 of this EIAR.

The forestry felling activities required as part of the Prospective Development will be the subject of a Limited Felling Licence (LFL) application to the Forest Service in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. The policy requires that a copy of the planning permission for the Subject Development be submitted with the felling licence application; therefore, the felling licence cannot be applied for until such time as planning permission is obtained for the Subject Devlopment.

4.4.1.9.1 *Tree Replanting*

In line with the Forest Service's published policy on granting felling licences for wind farm developments, areas cleared of forestry for access roads, and any other wind farm-related uses will have to be replaced by replanting at an alternative site or sites. The Forest Service policy requires replacement or replanting on a hectare for hectare basis for the felling carried out as part of the Prospective Development.

The identified ~8.6 hectares (ha) of conifer plantation that will be permanently felled for the Prospective Development within the Wind Farm Site will be replaced or replanted on a hectare for hectare basis as a condition of any felling licence that will be issued in respect of the Prospective Development felling. Replanting is a requirement of the Forestry Act and is primarily a matter for the statutory licensing processes that are under the control of the Forest service. The replacement of the felled forestry as part of the Prospective Development may occur on any lands, within the State benefitting from Forest Service Technical Approval[8] for afforestation, should the Subject Development receive planning permission. Under the Forestry Regulations 2017, all applications for licences for afforestation require the prior written approval (technical approval) of the Minister for Agriculture, Food and the Marine. Before the Minister can grant approval, he/she must first determine if the project is likely to have significant effects on the environment (for EIA purposes) and assess if the development, individually or in combination with other plans or projects is likely to have a significant effect on a European site (for Appropriate Assessment purposes).

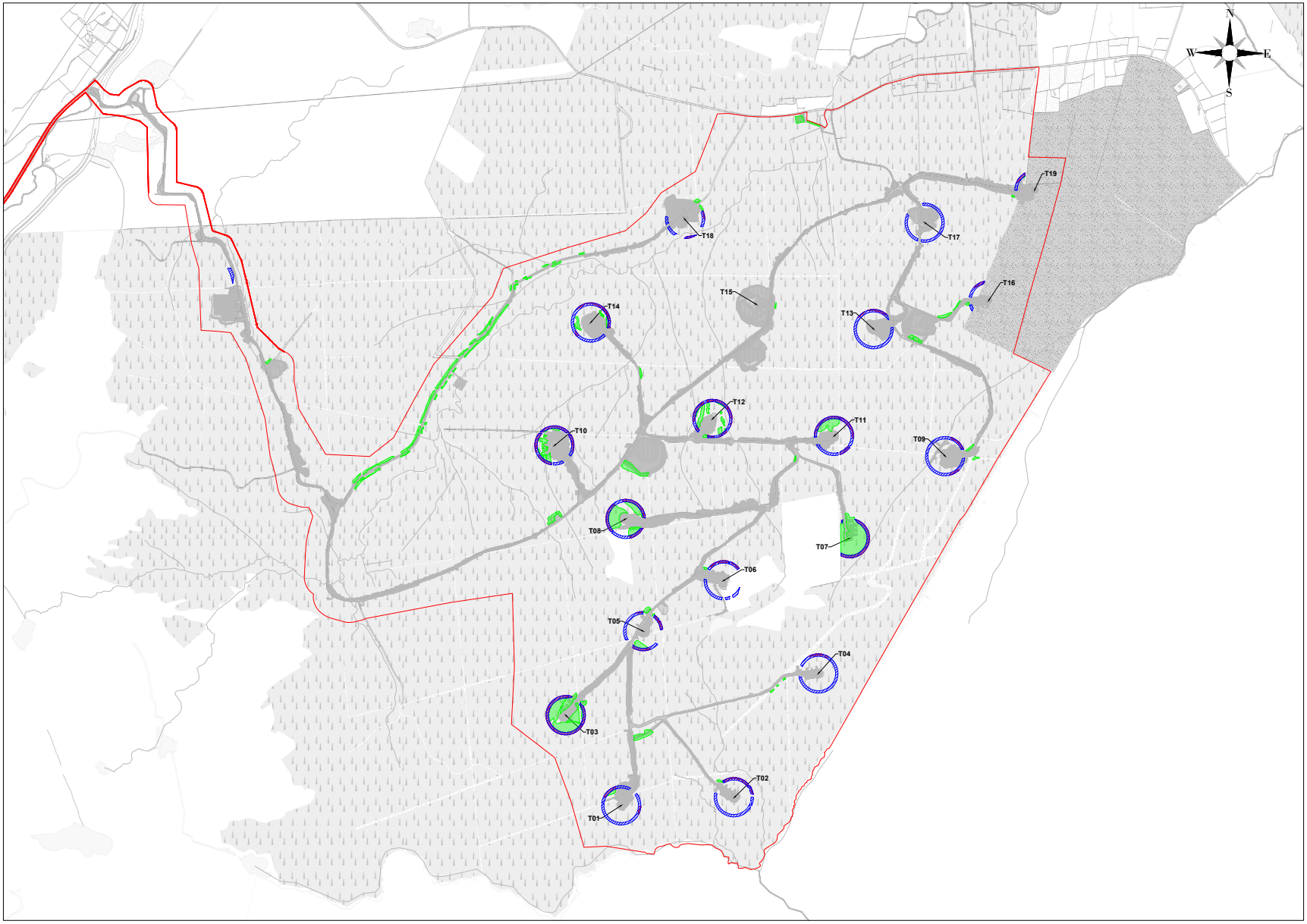
In addition to the ~8.6 ha of permanent felling, ~3.5 ha of temporary felling is also required within the Wind Farm Site to facilitate the Prospective Development.

[8] *All proposed forestry developments where the area involved is greater than 0.1 hectare must receive the prior written approval of the Forest Service. The application for approval is known as Pre-Planting Approval – Form 1.*

The applicant commits to replanting the ~8.6 ha of conifer forestry outside the hydrological catchment within which the Prospective Development is located. On this basis, it is concluded that there will be no cumulative effects associated with the replanting of ~8.6 ha of conifer forestry. Therefore, the conifer forestry replanting is not considered further in the impact assessment chapters of this EIAR. In addition, the applicant commits to not commencing the Prospective Development until both a felling and afforestation licence(s) is in place and, therefore, this ensures the afforested lands are identified, assessed and licenced appropriately by the relevant consenting authority.

As part of the Prospective Development, ~9.1 ha of the combined ~3.5 ha of temporary felled coniferous forestry (outlined above) and the 6.76 temporary felling that has already been undertaken as part of the Existing Development (as outlined in Section 4.4.1.9 of the rEIAR) will be replanted within the Wind Farm Site. The remaining ~1.2 ha of temporary felling will be replanted outside the hydrological catchment within which the Prospective Development is located, as these areas are no longer suitable for replanting within the Wind Farm Site due to existing and proposed infrastructure. The proposed replanting of temporary felled areas will occur within the suitable areas shown on Figure 4-19 below.

A derogation will be sought in relation to the felling requirements at the BMEP Site, and if obtained, no replanting will be required for the felling that is undertaken to facilitate the BMEP Site. In the event that this derogation is not obtained, the replanting obligation for the felling undertaken at the BMEP Site will be replanted on a hectare for hectare basis outside the hydrological catchment within which the Prospective Development is located.



LEGEND

- PROPOSED PERMANENT FELLING
- PROPOSED TEMPORARY FELLING
- PROPOSED REPLANTING OF TEMPORARY FELLING
- PLANNING APPLICATION BOUNDARY

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TITLE: PROSPECTIVE DEVELOPMENT FELLING / PLANTING - SHEET 1

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4.4.1.10 Peat, Spoil & Stone Management

4.4.1.10.1 *Quantities of Peat and Spoil*

The Prospective Development will require the excavation of peat and spoil. The quantities of peat and spoil generated and requiring management as part of the Prospective Development has been estimated, as presented in Table 4-7 below. The quantities below are presented as part of the *Peat and Spoil Management Plan* included in Appendix 4-2 of this EIAR.

Table 4-7 Summary of Excavated Peat and Spoil Volumes on Site

Infrastructure Element	Proposed Dimensions	Peat Volume (m^3) (approx.)(1)	Spoil Volume (m^3) (approx.)(1), (2)	Comment
Turbines and Hardstands	27m diameter excavation footprint for turbine foundation with 50 x 30m hardstand area.	29,100	500	Hardstanding area and foundation footprint. Allowance included for mini-crane pads and blade finger hardstands associated with the main hardstand.
Access Roads	Assumed 5m running surface with 6-8m wide development footprint.	27,300	-	Allowance includes for widening on bends, at junctions, laybys, and tie-ins to hardstands
Borrow Pits		14,700	1,500	Stripping of peat/spoil
Berm at T01/T02		3,900	500	
Temporary Compounds		1,350		
Amenity Area		250		
	Total	**76,600m^3**	**2,500m^3**	**Total = 79,100m^3 (peat and spoil volume)**

Note (1) Tree felling and stump flipping is proposed at various locations within the BMEP Site, however the proposed access track at this location is a floated track and as such this does not affect the excavation volumes, as no stump flipping will be undertaken below the footprint of the floating track.
Note (2) It should be noted that the excavated rock volume to be from the borrow pit is not included in the total volume quoted above in Table 4-7. It is assumed that the excavated rock volume will be re-used as part of the construction works for the Prospective Development and hence will not require reinstatement on the Wind Farm Site.

The surplus peat and spoil material generated will all be managed locally within the Wind Farm Site in dedicated peat and spoil management areas. Further details are provided below.

4.4.1.10.2 *Peat and Spoil Management Areas*

It is proposed to manage any excess overburden generated through construction activities locally within the Wind Farm Site, in identified peat and spoil management areas, as shown in Figure 4-1, outlined in Table 4-8, and detailed in Appendix 4-2 Peat and Spoil Management Plan of the EIAR.

Once the construction of the Prospective Development has been completed, it is proposed that sections of the existing borrow pits, as described in Section 4.4.1.4, as well as a dedicated peat cell at T18, are

backfilled with excavated material, and remaining peat to be used for landscaping within the Wind Farm Site.

Detailed planning drawings of the peat and spoil management areas are provided in Appendix 4-1 of this EIAR. Further details on construction methodologies, including recommendations and best practice guidelines for the placement of peat and spoil in borrow pits, are detailed in Section 4.9.5 below, and in FTC's Peat & Spoil Management Plan in Appendix 4-2 of this EIAR.

The total estimated volume of peat and spoil to be managed following excavations during the construction phase of the Prospective Development is ~79,100 m^3. It is proposed to manage any excess overburden generated through construction activities locally within the Wind Farm Site. The total capacity of the identified spoil management areas within the Wind Farm Site is ~150,000 m^3; thus there is more than enough capacity to manage the total volume of spoil requiring management for the Prospective Development. The peat and spoil management areas have been selected based on the locations of peat and spoil generation, areas suitable for peat and spoil management and avoiding environmentally constrained areas.

A summary of the proposed peat and spoil management areas within the Wind Farm Site is provided in Table 4-8 below.

Table 4-8 Summary of Peat and Spoil Management Areas within the Wind Farm Site

Location	Peat and Spoil Volume (m^3) (approx.)	Comment
Peat Cell at T18	8,700	Backfilling of existing excavation in bedrock
Existing Borrow Pit (BP1)	31,700	Backfilling of existing excavation in bedrock
Existing Borrow Pit (BP2)	5,500	Backfilling of existing excavation in bedrock
Borrow Pit (BP3)	99,500	See Figure 4-14 above for details. The material to be placed in the borrow pit will be a mixture of peat and spoil.
Landscaping (1)	4,600	Landscaping around the development footprint including the cabling corridor adjacent to the roads.
Total	150,000m^3	

Note (1) Some of the acrotelm (upper layer of the peat) excavated during construction will be used for landscaping purposes.

4.4.1.10.3 Crushed Stone

The quantity of crushed stone required for the construction of the Prospective Development has been calculated as part of the PSMP in Appendix 4-2 of this EIAR, and is presented in Table 4-9 below. This excludes the final binding layer which will come from an external source, which is estimated to be 8,000m^3.

Table 4-8 Summary of Stone Volume Requirements

Infrastructure Element	Typical Dimensions	Stone Volume (m^3) (approx.)(1)	Comment
Turbines and Hardstands	27m diameter excavation footprint for turbine foundation with 50 x 30m finished hardstand surface.	25,950	Hardstanding area and foundation footprint. Allowance included for mini-crane pads and blade finger hardstands associated with the main hardstand, plus allowance for side slopes in areas of fill.
Access Roads (including cabling)	Assumed 5m running surface with 6-8m wide development footprint. Typical stone depth of 0.3-0.5m.	33,350	Allowance includes for widening on bends, at junctions, laybys, and tie-ins to hardstands.
Meteorological Mast	12.5 x 14.5m hardstanding area	280	
Berm at road to T01/T02		5,500	
T04 floating road replacement		5,000	Floating road section on approach to T4 to be removed and replaced with solid founded road.
T07 Access Road		1,700	Removal of existing floated road section - floating road to be upgraded to solid founded road.
Floating Forestry Access Track to BMEP Site	3m running width with 4m footprint	2,400	Includes upgrade of section of existing floating road and turning head.
	Total	**74,180m^3**	

Note (1) contingency factor of 10% has been applied to the volumes to allow for expected bulking upon excavation and to allow for a variation in ground conditions across the Wind Farm Site.

4.4.1.11 On-Site Amenity Facilities

As part of the Prospective Development, on-site amenity facilities are proposed in the form of a community garden/picnic area and play area, as well as amenity trails with pedestrian paths linking up with the wind farm access roads within the Wind Farm Site, which will be open for public use. Figure 4-20 illustrates the amenity facilities which are proposed as part of the Prospective Development within the Wind Farm Site.

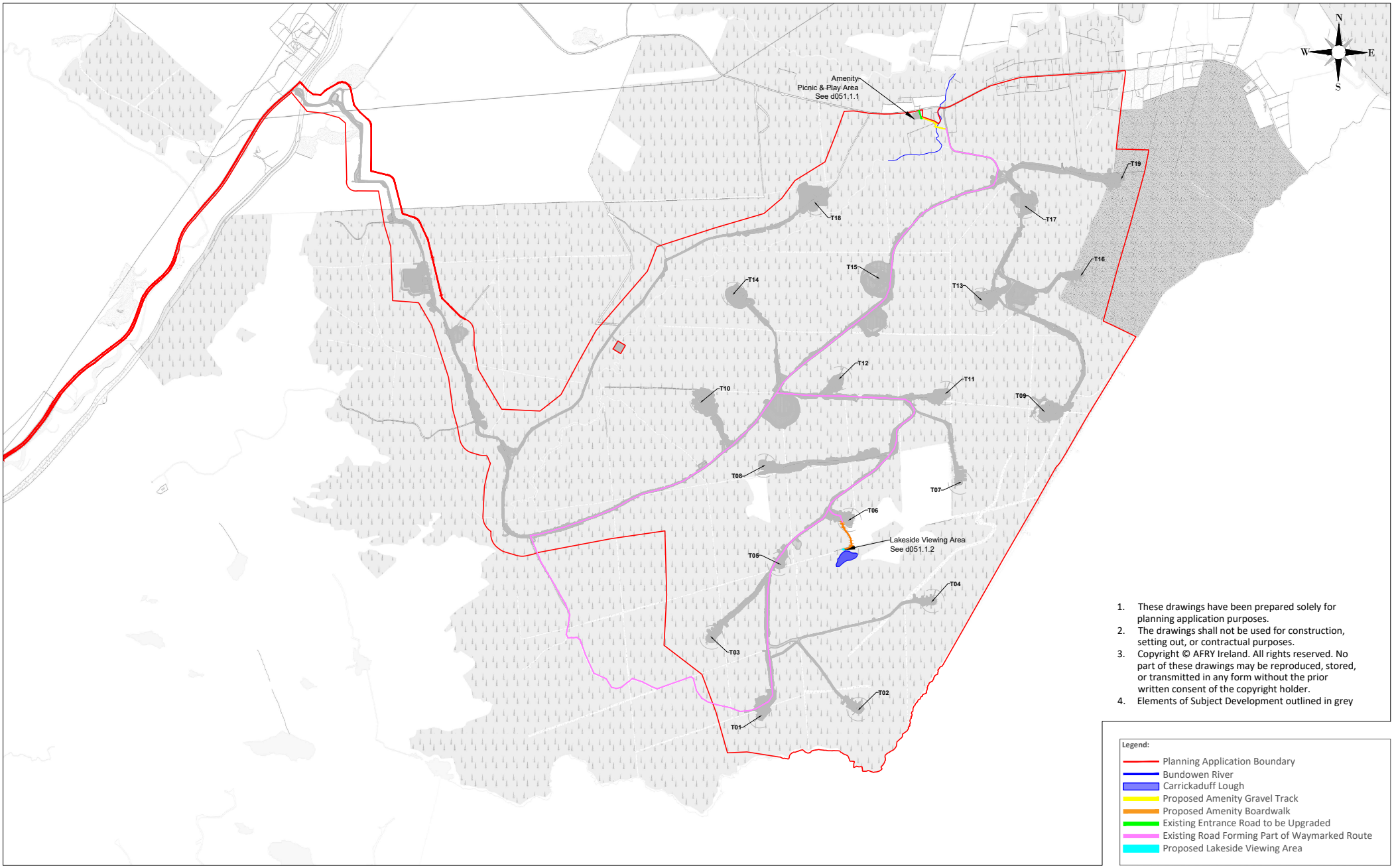
A timber boardwalk will be constructed to the south of T6 that leads to a viewpoint point overlooking Carrickaduff Lough. Construction will be non-invasive and will take the form of a wooden boardwalk – please see Section 4.9.7 below for further details on construction methodologies. The boardwalk will be constructed by driving large timber poles vertically before mounting a frame and the walking platform. The lakeside viewing point will be a timber platform with railings and signage. The board walk and viewing platform will be approximately 200m in length from where it starts at T6. An image of a typical boardwalk similar to what will be constructed at the Wind Farm Site is illustrated in Plate 4-4 below.

It is proposed that a small picnic area, playground and wild garden, with adjacent carparking will be constructed along the northern boundary of the Wind Farm Site, with access to the area from the L-6554 Local Road via an existing forestry access road. The playground will be surrounded with weld mesh fencing and have sprung access gates. The combined area of the car park and amenity area will be approximately 930m^2. The community park will have gates installed to prevent access during adverse weather events, timber harvest etc. This will be maintained by the wind farm developer or other nominated entity. A pedestrian access track will be constructed to link the amenity park in the north of the Wind Farm Site to the wind farm site access roads, and will include a steel and timber footbridge to facilitate crossing of the Bunadowen river. An image of a typical bridge structure similar to what will be constructed at the Wind Farm Site is illustrated in Plate 4-5 below. The gravel trail will be surfaced with gravel, similar to the surfacing used on the wind farm access roads. Please refer to Section 4.9.7 below for construction methodologies for this gravel trail.

The existing wind farm access roads will be open for public use, with approximately 9km of waymarked trails available as part of the amenity proposals. There will be specific trails which will be indicated by on-site signage and notice boards. Trails are broken into differing distances with walkers able to choose a route to suit their ability. Rest benches and waypoint signage will be provided along the marked routes. All trails will be accessible from the aforementioned community area car park.

Plate 4-4 Typical completed boardwalk

Plate 4-5 Typical bridge structure



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4. Elements of Subject Development outlined in grey

Legend:
- Planning Application Boundary
- Bundowen River
- Carrickaduff Lough
- Proposed Amenity Gravel Track
- Proposed Amenity Boardwalk
- Existing Entrance Road to be Upgraded
- Existing Road Forming Part of Waymarked Route
- Proposed Lakeside Viewing Area

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X:\I-MUIE\Dublin\Projects\Ireland\Meenbog MN&G\Drawings\MN&G 2026\ Amenity Facilities\MN&G 2026 1 Proposed Amenity Facilities

4.4.2 Grid Connection Site

There are no works associated with the Grid Connection Site proposed as part of the Prospective Development. Occasional maintenance works may be required on an ad-hoc basis during the operational phase of the Subject Development. Although the level of activity required for the maintenance of the Grid Connection infrastructure is minimal, the impacts associated with traffic volumes for this period are assessed in Ch. 15: Material Assets: Traffic and Transport of the EIAR.

4.4.3 BMEP Site

A Biodiversity Management and Enhancement Plan (BMEP) has been prepared for the Prospective Development and is included as Appendix 6-4 of this EIAR. The BMEP contains proposed measures to ensure that there is no net habitat loss for hen harrier due to the Prospective Development. The comprehensive BMEP is first and foremost a deforestation plan, as commercial forestry is a key threat/pressure of *High Importance* acting on hen harrier nationally. A description of the road construction works within the BMEP Site is provided in Section 4.4.1.3.3 above.

4.4.3.1.1 *Enhancement Measures*

Two different types of enhancement areas within the BMEP Site have been selected for habitat restoration measures as part of the Prospective Development.

Peatland Habitat Restoration

As part of the BMEP, it is proposed to restore 6.2 ha of peat habitat. The location of the proposed peatland enhancement area was chosen specifically because it supports poorly grown forestry on deep peat habitat with blanket bog vegetation persisting over much of the ground layer. It has a flat topography and is accessible from existing roads to the south of the parcel. There is an elevation difference of 4m (174m elevation south-west to 170m elevation north-east). The topography on site is therefore suitably flat for surface smoothing and furrow blocking or the effective installation of peat dams where required, which is the preferred drain blocking solution in line with NatureScot best practice guidance.

The proposed enhancement of 6.2ha of peatland habitat through the measures described in the BMEP in Appendix 6-4 of this EIAR will restore approximately twice as much peatland habitat than was lost or damaged as a result of the Existing Development.

Hen Harrier Habitat Restoration

The main objective of the hen harrier habitat enhancement measures is to create, maintain and improve habitats for the benefit of foraging hen harrier. Hen harrier habitat enhancement will be undertaken across approximately 108.41 hectares of currently conifer plantation on peatland. The target condition for this habitat will be open heathland, with pockets of willow and birch scrub throughout, covering a maximum of 30% of the enhancement area in total.

Parcel 1 of the BMEP Site is 70.5ha of commercial forestry that was planted in 1995 and is all unenclosed ground. The majority of tree species are Sitka Spruce with some Lodgepole Pine and Japanese Larch. There is one ridelane through the plantation, as well as a stream located along the eastern boundary and there is an internal stream crossing the plantation. The canopy of the trees is closed. Sections within Parcel 1 include firebreaks with species compositions characteristic of upland blanket bog (PB2).

Parcel 2 of the BMEP Site is a 45.7ha parcel of conifer commercial forestry. Parcel 2 includes forestry, which did not take well to the wet, peaty soils, resulting in patchy mosaics of conifer plantations (WD4)

and areas in which the species composition is characteristic of upland blanket bogs (PB2) and wet heath (HH3). There is one access road which has become largely overgrown.

The BMEP Site is currently forested and of low ecological value to foraging hen harrier. Forestry is a net negative for hen harrier, as highlighted in Article 12 reporting. Although commercial forestry can provide suitable hunting habitat for hen harrier in the first ten years of tree growth, before a thicket forms, the trees are typically harvested every 40-45 years, therefore the parcels are likely to be unsuitable for up to 35 years (or 75% of the lifetime).

Permanent felling to waste will be undertaken as set out in the BMEP in Appendix 6-4 of this EIAR. Timber and brash will be gathered and removed from the parcel in line with best practice. Windrow is not considered suitable for the blanket bog enhancement area, as best practice guidance recommends that brash recovery is particularly important in water quality sensitive catchments. Brash mats may be left in place to facilitate access for enhancement activities.

A full description of the enhancement measures and methodologies (including monitoring measures) to be employed at the BMEP Site is provided in Appendix 6-4 of this EIAR.

4.4.3.1.2 Temporary Watercourse Crossings within the BMEP Site

There are 2 no. EPA mapped watercourses within the BMEP Site. In Parcel 1, one stream runs from west to east and bisects the parcel. This watercourse will need to be crossed to facilitate the proposed works. In Parcel 2, a watercourse runs in a south westerly direction in the southern section of the western parcel for approximately 250 m. The crossing of these watercourses will be avoided wherever possible. However, where temporary crossings cannot be avoided, the following measures will be applied:

- No instream works will be undertaken.
- No watercourse will be interfered with and temporary bridge construction will ensure that water flow will not be impeded and conveyance of increased water flow resulting from above normal rainfall.
- Movement of fish will not be impeded.
- Crossings points will be constructed at right angles to the water flow.
- On sloping ground, temporary bridges to be constructed in a 'Hump Back' fashion. This will reduce the risk of silt flowing down the wheel ruts and directly entering the stream/drain being crossed.
- Any run-off will be diverted onto a buffer strip at a suitable point well above the stream.
- The machine track leading to the bridge will be very well brashed and ruts that can act as water channels down to the stream will not be allowed to develop
- Bridging logs will be placed from top of bank to top of bank to ensure that the natural stream banks are left intact.
- The temporary watercourse crossings will be removed following the completion of the works.

4.4.3.1.3 Summary

The BMEP sets out the measures to manage and enhance the biodiversity in the locality of the Prospective Development. Specifically, proposed peatland restoration will result in enhancement of peatland habitat on the BMEP Site, while also offsetting the losses of degraded wet heath to facilitate the wind farm and result in habitat of higher suitability for hen harrier, alongside the establishment of areas of patchy willow-dominated scrub.

The BMEP has set out measures to be implemented during establishment and management phases to ensure that the targets of this BMEP are successful. It also provides for monitoring of the target habitats by an ecologist to ensure the success of the measures outlined in the BMEP.

Full details of the enhancement measures outlined above are outlined in Appendix 6-4: BMEP of this EIAR.

4.5 Site Drainage

4.5.1 Introduction

The drainage design for the Prospective Development has been prepared by Hydro Environmental Services Ltd. (HES) and is included in Appendix 4-4 of this EIAR. The drainage design has been prepared based on experience of the project team of other wind farm sites, and the number of best practice guidance documents referred to in the Bibliography section of the EIAR. Please refer to the rEIAR for further detail on existing site drainage features.

The protection of groundwater and surface water within and surrounding the Wind Farm Site, and downstream catchments that they feed has been of utmost importance in considering the most appropriate drainage proposals for the Wind Farm Site.

The Wind Farm Site drainage design has therefore been proposed specifically and ensures minimal impact with regards the existing flow regime across the Site, in particular having no negative impact on the water quality of the Site and consequently no impact on downstream catchments and ecological ecosystems. No routes of any natural drainage features will be altered as part of the Prospective Development and turbine locations and associated new roadways were originally selected to avoid natural watercourses, and existing roads are to be used wherever possible. There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows. All discharges from the proposed works areas will be made over vegetation filters at a minimum of 50m and 100m distance from streams and lakes respectively. Buffer zones around the existing natural drainage features have constrained the layout of the Prospective Development.

4.5.2 Drainage Design Principles

The key principles of drainage design that will be implemented and adhered to as part of the Prospective Development are as follows:

- Keep clean water clean by intercepting it where possible, upgradient of works areas, and divert it around the works areas for discharge/recharge to ground.
- Collect potentially silt-laden runoff from works areas via downgradient collector drains and manage via series of avoidance, source, in-line treatment and discharge to ground via infiltration drains and infiltration areas.
- There is no direct hydraulic connectivity from proposed construction areas to natural watercourses or drains connecting to downstream watercourses.
- Maintain the existing hydrology/hydrogeology of the Site.
- Re-routing existing local drainage pathways as required.
- Daily inspection and recording of surface water management system by on-site clerk of works and immediate remedial measures to be carried out as required and works temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the Site.

The protection of groundwater and surface water within and surrounding the Site, and downstream catchments that they feed has been of utmost importance in considering the most appropriate drainage proposals for the Site.

The Prospective Development drainage design has therefore been proposed specifically and ensures minimal impact with regards the existing flow regime across the Site, in particular having no negative impact on the water quality of the site and consequently no impact on downstream catchments and ecological ecosystems. No routes of any natural drainage features will be altered as part of the Prospective Development. Turbine locations and associated roadways were originally selected to avoid natural watercourses. Existing roads are to be used wherever possible as part of the Prospective

Development. There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows or into existing field drains.

Two distinct methods will be employed to manage drainage water within the Site. The first method involves keeping clean water clean by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage waters from works areas within the site that might carry silt or sediment, to allow attenuation and settlement prior to controlled diffuse release.

The drainage design is intended to maximise erosion control, which is more effective than having to control sediment during high rainfall. Such a system also requires less maintenance. The area of exposed ground will be minimised. The drainage measures will prevent runoff from entering the works areas of the site from adjacent ground, to minimise the volume of sediment-laden water that has to be managed. Run-off from any construction area will be isolated from natural clean run-off.

The drainage measures associated with the Prospective Development are proportionate to the scale and nature of the proposed works. Much of the existing wind farm drainage infrastructure remains effects in protecting downstream water quality and will continue to perform this function during the construction of the Prospective Development. More significant drainage measures are proposed in locations where the more substantial works are proposed (i.e. BP2, BP3, access track to T18, T18, access track to T2, T2 and T11).

The Prospective Development drainage strategy replicates the proven approach which was successfully implemented for the Existing Development including the use of interceptor/collector drains, silt fencing, silt traps, settlement ponds and routing treated drainage downstream via the existing forestry drainage network.

Chapter 9 of the rEIAR for the Existing Development demonstrates that the construction activities did not result in any significant effects on surface water (quality and flows) and groundwater (quality and quantity), with the exception of the November 2020 Peat Slide which resulted in a at worst, short-term significant effect. The drainage measures proposed for the Prospective Development are comparable to those successfully employed previously and are proportionate to the scale of the proposed works. Therefore, the proposed drainage measures are considered effective in protecting the hydrological and hydrogeological environment.

A schematic line drawing of the proposed drainage design is presented in Figure 4-21 below.

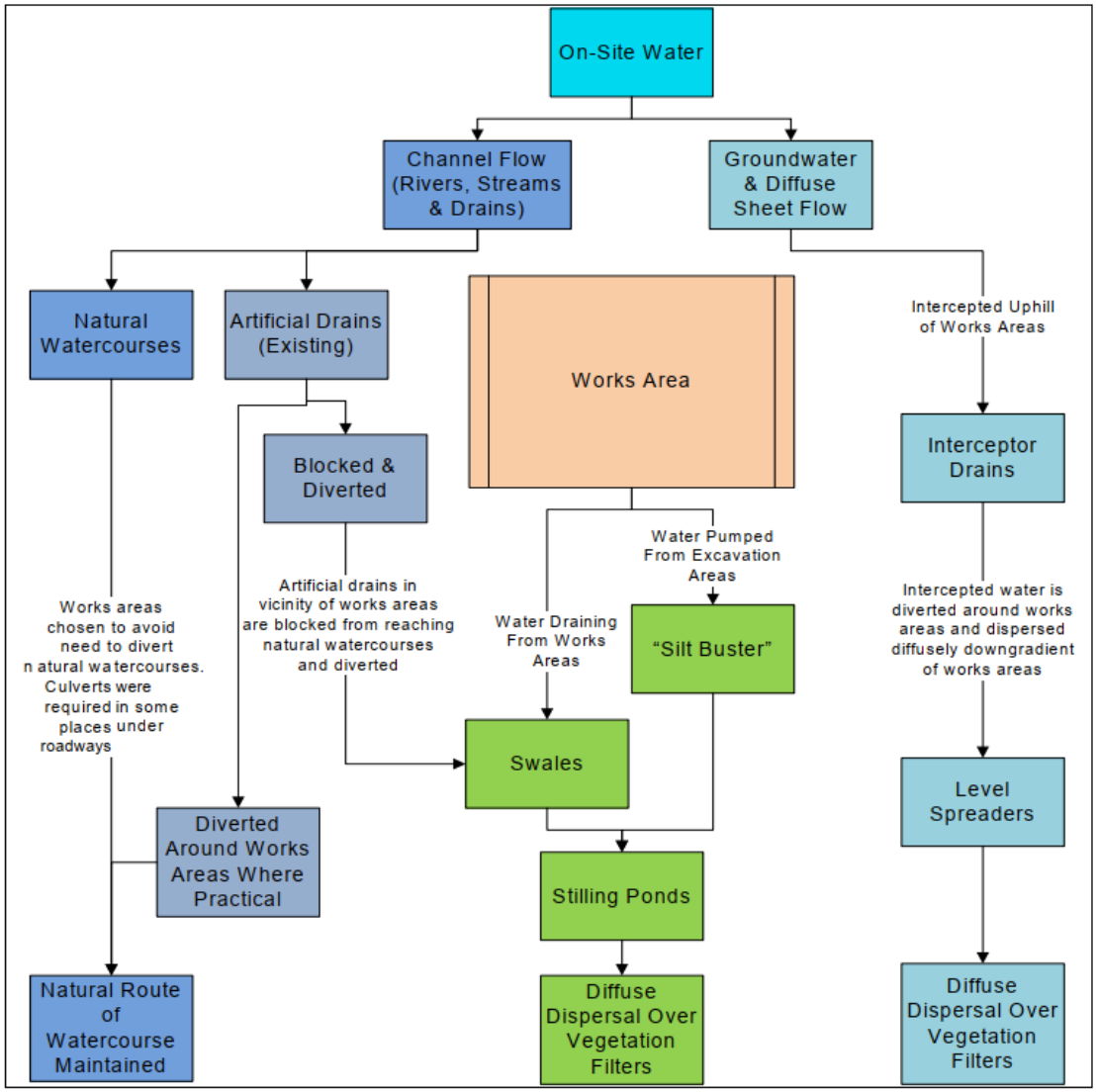


Figure 4-21 Site Drainage Process Flow

4.5.3 Drainage Design

A drainage design for the Prospective Development, incorporating all principles and measures outlined in this drainage design description, has been prepared, and is included in Appendix 4-4 of this EIAR. Existing drainage structures are described in the rEIAR, however the detail below applies to any new drainage and/or upgrade works required as part of the Prospective Development. The drainage design employs the various measures further described below.

4.5.3.1 Interceptor Drains

Interceptor drains will be installed upgradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the Site where it might otherwise have come into contact with exposed surfaces and picked up silt and sediment. The drains will be used to divert upslope runoff around the works area to a location where it can be redistributed over the ground surface as sheet flow. This will minimise the volume of potentially silty runoff to be managed within the construction area.

The interceptor drains will be installed in advance of any main construction works commencing. The material excavated to make the drain will be compacted on the downslope edge of the drain to form a

diversion dike. On completion of the construction phase works, it is envisaged that the majority of the interceptor drains could be removed. At that stage, there will be no open excavations or large areas of exposed ground that are likely to give rise to large volumes of potentially silt-laden run off. Any areas in which works were carried out to construct roads, turbines or hardstands, will have been built up with large grade hardcore, which even when compacted in place, will retain sufficient void space to allow water to infiltrate the subsurface of these constructed areas. It is not anticipated that roadways or other installed Site infrastructure will intercept ground-conveyed surface water runoff to any significant extent that would result in scouring or over-topping or spill over. Where the drains are to be removed, they will be backfilled with the material from the diversion dike. Interceptor drains may have to be retained in certain locations, for example where roadways are to be installed on slopes, to prevent the roadways acting as conduits for water that might infiltrate the roadway sub-base. In these cases, interceptor drains would be maintained in localised areas along the roadway with culverts under the roadway, which would allow the intercepted water to be discharged to vegetation filters downgradient of the roadway. Similarly, in localised hollows where water is likely to be funnelled at greater concentrations than on broader slopes, interceptor drains and culverts may be left in situ following construction. Figure 4-22 below shows an illustrative drawing of an interceptor drain.

The velocity of flow in the interceptor will be controlled by check dams (see Section 4.5.3.3 below), which will be installed at regular intervals along the drains to ensure flow in the channel is non-erosive. On steeper sections where erosion risks are greater, a geotextile membrane will be added to the channel. Interceptor drains will be installed horizontally across slopes to run in parallel with the natural contour line of the slope. Intercepted water will travel along the interceptor drains to areas downgradient of works areas, where the drain will terminate at a level spreader (see Section 4.5.3.4 below). Across the entire length of the interceptor drains, the design elevation of the water surface along the route of the drains will not be lower than the design elevation of the water surface in the outlet at the level spreader

4.5.3.2 Swales

Drainage swales are shallow drains that will be used to intercept and collect run off from construction areas of the Site during the construction phase. Drainage swales will remain in place to collect runoff from roads and hardstanding areas of the Wind Farm Site during the operational phase. A swale is an excavated drainage channel located along the downgradient perimeter of construction areas, used to collect and carry any sediment-laden runoff to a sediment-trapping facility and stabilised outlet. Swales are proven to be most effective when a dike is installed on the downhill side. They are similar in design to interceptor drains and collector drains described above. Figure 4-22 below, shows an illustrative example of a drainage swale.

Drainage swales will be installed downgradient of any works areas to collect surface flow runoff where it might have come into contact with exposed surfaces and picked up silt and sediment. Swales will intercept the potentially silt-laden water from the excavations and construction areas of the Site and prevent it reaching natural watercourses.

4.5.3.3 Check Dams

The velocity of flow in the interceptor drains and drainage swales, particularly on sloped sections of the channel, will be controlled by check dams, which will be installed at regular intervals along the drains to ensure flow in the swale is non-erosive.

Check dams will restrict flow velocity, minimise channel erosion and promote sedimentation behind the dam. The check dams will be installed as the interceptor drains are being excavated. Check dams may also be installed in some of the existing artificial drainage channels on the Site, downstream of where drainage swales connect in.

The check dams will be made up of straw bales or stone, or a combination of both depending on the size of the drainage swale it is being installed in. Where straw bales are to be used, they will be secured to the bottom of the drainage swale with stakes. Clean 4–6-inch stone will be built up on either side and over the straw bale to a maximum height of 600mm over the bottom of the interceptor drain. In smaller channels, a stone check dam will be installed and pressed down into place in the bottom of the drainage swale with the bucket of an excavator. Figure 4-22 shows illustrative examples of check dams.

The check dams will be installed at regular intervals along the interceptor drains to ensure the bottom elevation of the upper check dam is at the same level as the top elevation of the next down-gradient check dam in the drain. The centre of the check dam will be approximately 150mm lower than the edges to allow excess water to overtop the dam in flood conditions rather than cause upstream flooding or scouring around the dams.

Check dams will not be used in any natural watercourses, only artificial drainage channels and interceptor drains. The check dams will be left in place at the end of the construction phase to limit erosive linear flow in the drainage swales during extreme rainfall events.

Check dams are designed to reduce velocity and control erosion and are not specifically designed or intended to trap sediment, although sediment is likely to build up. If necessary, any excess sediment build up behind the dams will be removed. For this reason, check dams will be inspected and maintained regularly to insure adequate performance. Maintenance checks will also ensure the centre elevation of the dam remains lower than the sides of the dam.

4.5.3.4 Level Spreaders

A level spreader will be constructed at the end of each interceptor drain to convert concentrated flows in the drain, into diffuse sheet flow on areas of vegetated ground. The levels spreaders will be located downgradient of any proposed works areas in locations where they are not likely to contribute further to water ingress to construction areas of the Site.

The water carried in interceptor drains will not have come in contact with works areas of the Site, and therefore should be free of silt and sediment. The level spreaders will distribute clean drainage water onto vegetated areas where the water will not be reconcentrated into a flow channel immediately below the point of discharge. The discharge point will be on level or only very gently sloping ground rather than on a steep slope in order to prevent erosion. Figure 4-22 below shows an illustrative example of a level spreader.

The slope in the channel leading into the spreader will be less than or equal to 1%. The slope downgradient of the spreader onto which the water will dissipate will have a grade of less than 6%. The availability of slopes with a grade of 6% or less will determine the locations of level spreaders. If a slope grade of less than 6% is not available in the immediate area downgradient of a works area at the end of a diversion drain, a piped slope drain will be used to transfer the water to a suitable location.

The spreader lip over which the water will spill will be made of a concrete kerb, wooden board, pipe, or other similar piece of material that can create a level edge similar in effect to a weir. The spreader will be level across the top and bottom to prevent channelised flow leaving the spreader or ponding occurring behind the spreader. The top of the spreader lip will be 150mm above the ground behind it. The length of the spreader will be a minimum of 4m and a maximum length of 25m, with the actual length of each spreader to be determined by the size of the contributing catchment, slope and ground conditions.

Clean four-inch stone can be placed on the outside of the spreader lip and pressed into the ground mechanically to further dissipate the flow leaving the level spreader over a larger area.

4.5.3.5 Piped Slope Drains

Piped slope drains will be used to convey surface runoff from diversion drains safely down slopes to flat areas without causing erosion. Once the runoff reaches the flat areas it will be reconverted to diffuse sheet flow. Level spreaders will only be established on slopes of less than 6% in grade. Piped slope drains will be used to transfer water away from areas where slopes are too steep to use level spreaders.

The piped slope drains will be semi-rigid corrugated pipes with a stabilised entrance and a rock apron at the outlet to trap sediment and dissipate the energy of the water. The base of drains leading into the top of the piped slope drain will be compacted and concavely formed to channel the water into the corrugated pipe. The entrance at the top of the pipe will be stabilised with sandbags if necessary. The pipe will be anchored in place by staking at approximately 3-4 metre intervals or by weighing down with compacted soil. The bottom of the pipe will be placed on a slope with a grade of less than 1% for a length of 1.5m, before outflowing onto a rock apron.

The rock apron at the outlet will consist of 6-inch stone to a depth equal to the diameter of the pipe, a length six times the diameter of the pipe. The width of the rock apron will be three times the diameter of the pipe where the pipe opens onto the apron and will fan out to six times the diameter of the pipe over its length. Figure 4-22 below shows a diagrammatic example of a piped slope drain and rock apron.

Piped slope drains will only remain in place for the duration of the construction phase of the Prospective Development. On completion of the works, the pipes and rock aprons will be removed, and all channels backfilled with the material that was originally excavated from them.

Piped slope drains will be inspected weekly and following rainfall events. Inlet and outlets will be checked for sediment accumulation and blockages. Stake anchors or fill over the pipe will be checked for settlement, cracking, and stability. Any seepage holes where pipe emerges from the drain at the top of the pipe will be repaired promptly.

4.5.3.6 Vegetation Filters

Vegetation filters are existing vegetated areas of land that were used to accept surface water runoff from upgradient areas. The selection of suitable areas to use as vegetation filters was determined by the size of the contributing catchment, slope, and ground conditions.

Vegetation filters carry outflow from the level spreaders as overland sheet flow, removing any suspended solids and discharging to the groundwater system by diffuse infiltration.

Vegetation filters are not used in isolation for waters that were likely to have higher silt loadings. In such cases, silt-bearing water had already passed through stilling ponds prior to diffuse discharge to the vegetation filters via a level spreader.

4.5.3.7 Stilling Ponds (Settlement Ponds)

Stilling ponds were constructed as part of the Existing Development. Stilling ponds will be used to attenuate runoff from works areas of the Prospective Development during the construction phase and will remain in place to handle runoff from roads and hardstanding areas of the Prospective Development during the operational phase. The purpose of the stilling ponds is to intercept runoff potentially laden with sediment and to reduce the amount of sediment leaving the disturbed area by reducing runoff velocity. Reducing runoff velocity will allow larger particles to settle out in the stilling ponds, before the run-off water is redistributed as diffuse sheet flow in filter strips downgradient of any works areas.

Stilling ponds will be excavated/constructed at each required location as two separate ponds in sequence, a primary pond and a secondary pond. The points at which water enters and exits the stilling ponds will be stabilised with rock aprons, which will trap sediment, dissipate the energy of the water flowing through the stilling pond system, and prevent erosion. The primary stilling pond will reduce the velocity of flows to less than 0.5 metres per second to allow settlement of silt to occur. Water will then pass from the primary pond to the secondary pond via another rock apron. The secondary stilling pond will reduce the velocity of flows to less than 0.3 metres per second. Water will flow out of the secondary stilling pond through a stone dam, partially wrapped in geo-textile membrane, which will control flow velocities and trap any sediment that has not settled out. Figure 4-22 below shows an illustrative example of a stilling pond system.

Water will flow by gravity through the stilling pond system. The stilling ponds will be sized according to the size of the area they will be receiving water from but will be sufficiently large to accommodate peak flows storm events. The stilling ponds will be dimensioned so that the length to width ratio will be greater than 2:1, where the length is the distance between the inlet and the outlet. Where ground conditions allow, stilling ponds will be constructed in a wedge shape, with the inlet located at the narrow end of the wedge. Each stilling pond will be a minimum of 1-1.5 metres in depth. Deeper ponds will be used to minimise the excavation area needed for the required volume.

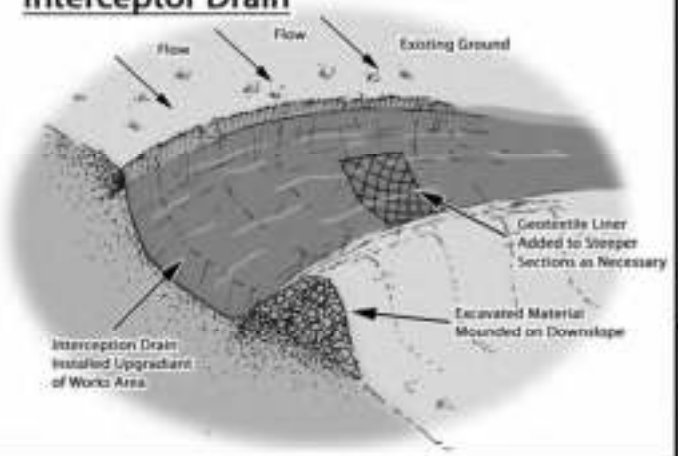
The embankment that forms the sloped sides of the stilling ponds will be stabilised with vegetated turves, which will have been removed during the excavation of the stilling ponds area. All material excavated during pond construction will be used locally for landscaping and berm construction around these ponds.

Stilling ponds will be located towards the end of swales, close to where the water will be reconverted to diffuse sheet flow. Upon exiting the stilling pond system, water will be immediately reconverted to diffuse flow via a fan-shaped rock apron if there is adequate space and ground conditions allow. Otherwise, a swale will be used to carry water exiting the stilling pond system to a level spreader to reconvert the flow to diffuse sheet flow.

Stilling ponds will be inspected weekly and following rainfall events. Inlet and outlets will be checked for sediment accumulation and anything else that might interfere with flows.

Drainage Design Measures

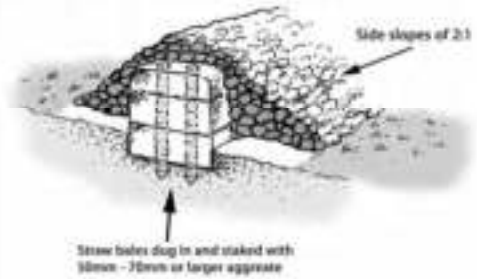
Interceptor Drain



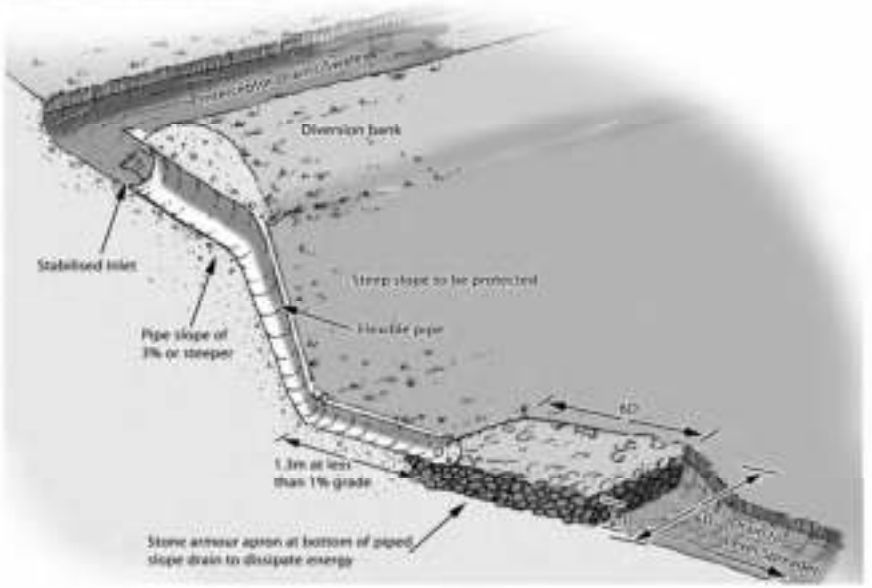
Check Dam (Stone Dam in Drain)

Check Dam

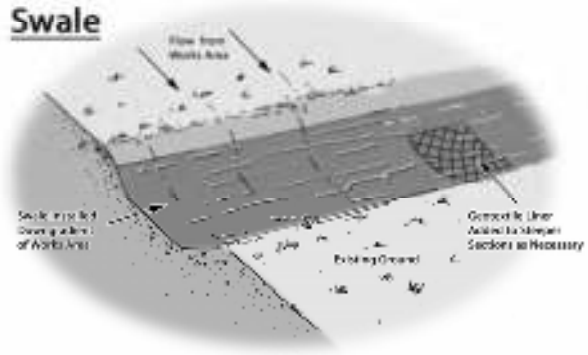
(Straw Bale & Stone Dam - Cross Section)



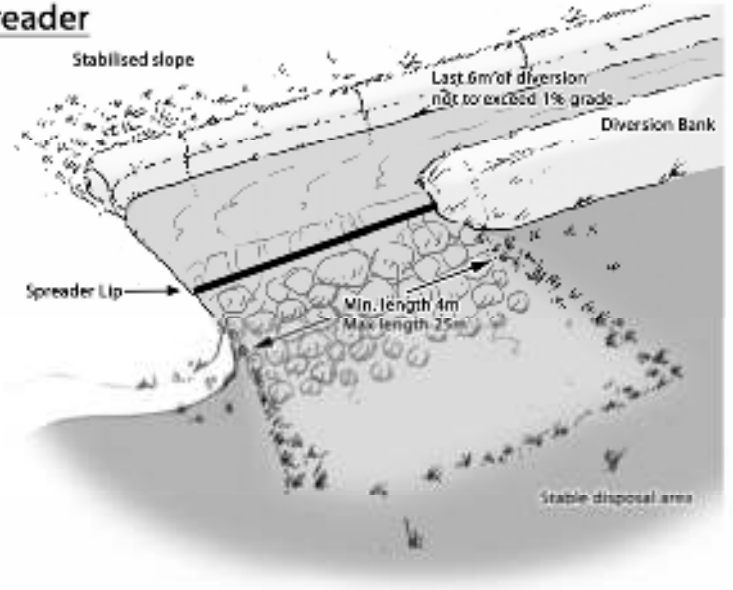
Slope Pipe Drain



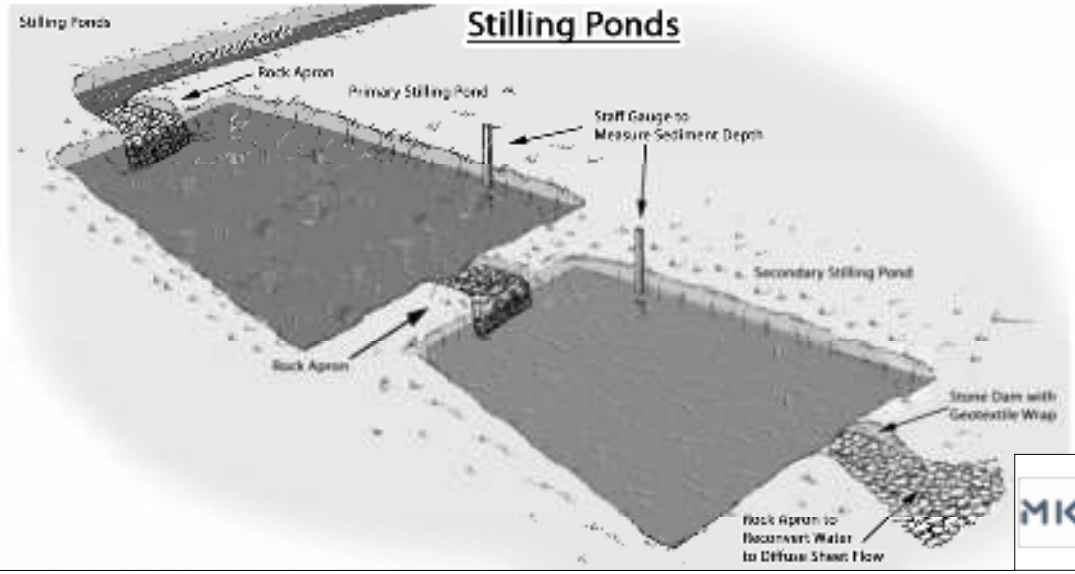
Swale



Level Spreader



Stilling Ponds



MAP TITLE: **Drainage Design Illustrations**		MAP NO.: **Figure 4-22**	SCALE: **NTS**
PROJECT TITLE: **Meenbog Wind Farm, Co. Donegal**			DATE: **26.06.2026**
DRAWING BY: **Keelin Bourke**	CHECKED BY: **Robert Kennedy**	ISSUE NO.: **240505 - 2026.06.26 - F**	

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4.5.3.8 Siltbuster

A "siltbuster" or similar equivalent piece of equipment will be available to filter any water pumped out of excavation areas, if necessary, prior to its discharge to stilling ponds or swales.

Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction sites.

The unit stills the incoming water/solids mix and routes it upwards between a set of inclined plates for separation. Fine particles settle onto the plates and slide down to the base for collection, whilst treated water flows to an outlet weir after passing below a scum board to retain any floating material. The inclined plates dramatically increase the effective settling area of the unit giving it a very small footprint onsite and making it highly mobile. Figure 4-23 shows an illustrative diagram of the Siltbuster.

The Siltbuster units are now considered best practice for the management of dirty water pumped from construction sites. The UK Environment Agency and the Scottish Environmental Protection Agency have all recommended/specified the use of Siltbuster units on construction projects.

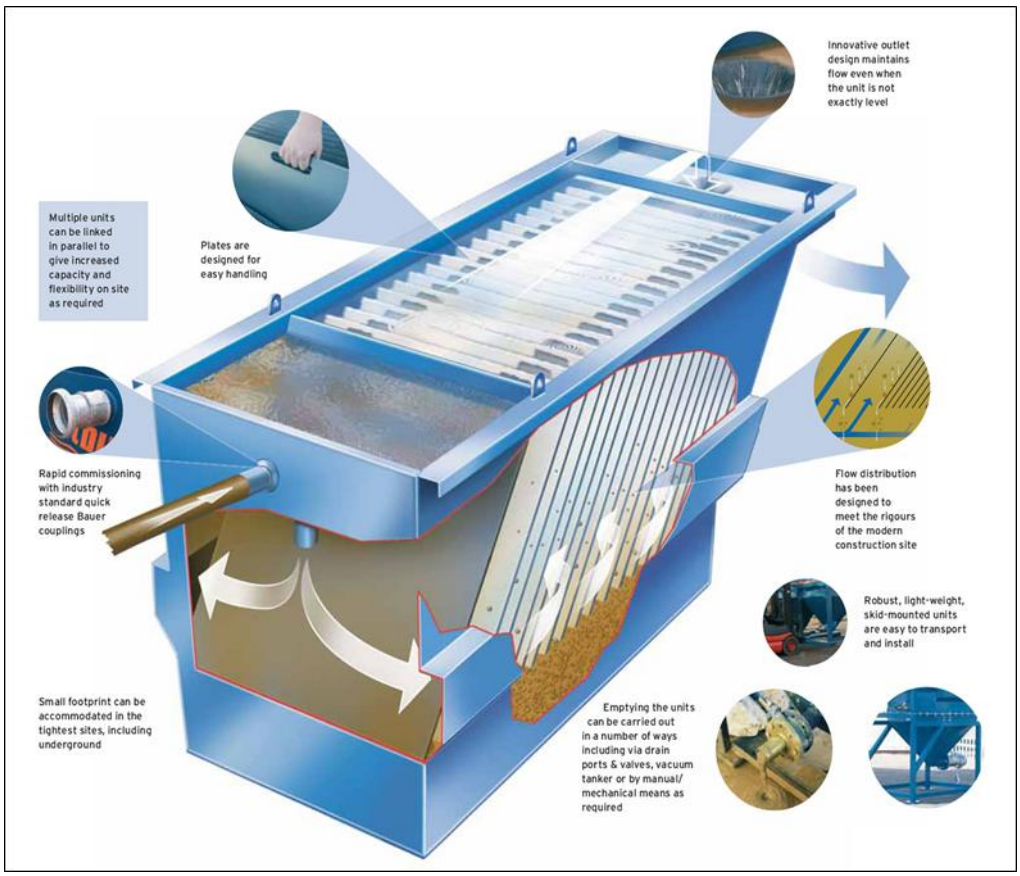


Figure 4-23 Siltbuster (Source: https://www.siltbuster.co.uk/sb_prod/siltbuster-fb50-settlement-unit/)

4.5.3.9 Silt Bags

Dewatering silt bags allow the flow of water through them while trapping any silt or sediment suspended in the water. The silt bags provide a passive non-mechanical method of removing any remaining silt contained in the potentially silt-laden water collected from works areas within the Site.

Dewatering silt bags are an additional drainage measure that can be used downgradient of the stilling ponds at the end of the drainage swale channels and will be located, wherever it is deemed appropriate, throughout the Site. The water will flow, via a pipe, from the stilling ponds into the silt bag. The silt bag will allow the water to flow through the geotextile fabric and will trap any of the finer silt and sediment remaining in the water after it has gone through the previous drainage measures. The dewatering silt bags will ensure that there will be no loss of silt into the stream. The dewatering silt bag, when full (approximately four tonnes of silt), will be removed from Site by a waste contractor with the necessary waste collection permit, who will then transport the silt bag to an appropriate, fully licensed waste facility.

4.5.3.10 Sedimats

Sediment entrapment mats, consisting of coir or jute matting, will be placed at the outlet of the silt bag to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to the ground surface using stakes/pegs. The sedimat will extend to the full width of the outfall to ensure all water passes through this additional treatment measure.

4.5.3.11 Culverts

All new proposed culverts and proposed culvert upgrades will be suitably sized for the expected peak flows in the watercourse.

Some culverts may be installed to manage drainage waters from works areas of the Prospective Development, particularly where the waters have to be taken from one side of an existing roadway to the other for discharge. The size of culverts will be influenced by the depth of the track or road sub-base. In all cases, culverts will be oversized to allow mammals to pass through the culvert.

Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.

All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance.

4.5.3.12 Silt Fences

Silt fences will be installed as an additional water protection measure around existing watercourses in certain locations, particularly where works are proposed within the 50m buffer zone of a stream, which is inevitable where existing roads in proximity to watercourses are to be upgraded as part of the Prospective Development. These areas include around existing culverts, around the headwaters of watercourses, and the proposed locations are indicated on the drainage design drawings included in Appendix 4-4.

Silt fences will be installed as single, double or a series of triple silt fences, depending on the space available and the anticipated sediment loading. The silt fence designs follow the technical guidance document '*Control of Water Pollution from Linear Construction Projects'* published by Construction Industry Research and Information Association (CIRIA, No. C648, 1996). Up to three silt fences may be deployed in series.

All silt fencing will be formed using Terrastop Premium or equivalent silt fence product.

Silt fences will be inspected regularly to ensure water is continuing to flow through the fabric, and the fence is not coming under strain from water backing up behind it.

4.5.3.13 Hydrocarbon Interceptor

A hydrocarbon (or petrol) interceptor is a trap used to filter out hydrocarbons from surface water runoff. A suitably sized hydrocarbon interceptor will be installed wherever it is intended to store hydrocarbons and oils (i.e., construction compounds and substation compound) or where it is proposed to park vehicles during the construction and operational phases of the Prospective Development (i.e., construction compounds and substation compound).

4.5.3.14 Tree Felling Drainage

Tree felling will be required within and around Prospective Development footprint to allow for the construction of the proposed turbines, access roads, underground cabling, and the other ancillary infrastructure. Felling is also required to facilitate the proposed enhancement measures within the BMEP Site. Keyhole felling to facilitate construction works will take place prior to groundworks commencing. A Harvest Management Plan is included as Appendix 4-5 of this EIAR.

During tree felling there is a potential to generate silts and sediments in surface water runoff due to tracking of machinery and disturbance of the ground surface etc, however mitigation is provided in Ch. 9: Hydrology and Hydrogeology with regard surface water quality protection for this activity which is summarised below. Also, prior to the commencement of tree felling for subsequent road construction the following key temporary drainage measures will be installed:

- All existing dry forestry drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using forestry check dams/silt traps;
- Clean water diversion drains will be installed upgradient of the works areas;
- Check dams/silt fence arrangements (silt traps) will be placed in all existing forestry drains that have surface water flows and also along existing forestry roadside drains; and,
- A double silt fence perimeter will be placed down-slope of works areas that are located inside the watercourse 50m buffer zone.

Before the commencement of any felling works, an Environmental Clerk of Works (ECoW) shall be appointed to oversee the keyhole and extraction works. The ECoW shall be experienced and competent, and shall have the following functions and operate their record using a Schedule of Works Operation Record (SOWOR), as proposed in the planning application:

- Attend the Site for the setup period when drainage protection works are being installed and be present onsite during the remainder of the forestry keyhole felling works.
- Prior to the commencement of works, review and agreement of the positioning by the Operator of the required Aquatic Buffer Zones (ABZs), silt traps, silt fencing (see below), water crossings and onsite storage facilities for fuel, oil and chemicals (see further below).
- Be responsible for preparing and delivering the Environmental Tool Box Talk (TBT) to all relevant parties involved in Site operations, prior to the commencement of the works.
- Conduct daily and weekly inspections of all water protection measures and visually assess their integrity and effectiveness.
- Take representative photographs showing the progress of operation onsite, and the integrity and effectiveness of the water protection measures.
- Collect water samples for analysis by a 3rd party accredited laboratory, adhering to the following requirements:

- Surface water samples shall be collected upstream and downstream of the keyhole felling at suitable sampling locations.
- Sampling shall be taken from the stream / riverbank, with no in-stream access permitted.
- The following minimum analytical suite shall be used: pH, EC, TSS, BOD, Total P, Ortho-P, Total N, and Ammonia.
- Review of operator's records for plant inspections, evidence of contamination and leaks, and drainage checks made after extreme weather conditions.
- Prepare and maintain a contingency plan.
- Suspend work where potential risk to water from siltation and pollution is identified, or where operational methods and mitigation measures are not specified or agreed.
- Prepare and maintain a Water Protection Measure Register. This document is to be updated weekly by the ECoW.

To protect watercourses, the following measures will be adhered to during all keyhole/tree felling activities.

- All relevant measures, best practice methods and requirements set out in Ch. 9: Hydrology and Hydrogeology of the EIAR will be adhered to including Forestry & Water Quality Guidelines, Forest Harvesting & the Environment Guidelines and the Forest Protection Guidelines.
- The extent of all necessary tree felling will be identified and demarcated with markings on the ground in advance of any felling commencing.
- All roads and culverts will be inspected prior to any machinery being brought on Site to commence the felling operation. No tracking of vehicles through watercourses will occur. Vehicles will only use existing road infrastructure and established watercourse crossings.
- Existing drains that drain an area to be felled towards surface watercourses will be blocked, and temporary silt traps will be constructed to ensure collection of all silt within felling areas. These temporary silt traps will be cleaned out and backfilled once felling works are complete. This ensures there is no residual collected silt remaining in blocked drains after felling works are completed. No direct discharge of such drains to watercourses will occur from within felling areas.
- New collector drains and sediment traps will be installed during ground preparation to intercept water upgradient of felling areas and divert it away. Collector drains will be excavated at an acute angle to the contour (0.3% - 3% gradient), to minimise flow velocities.
- All silt traps will be sited outside of buffer zones and have no direct outflow into the aquatic zone. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of away from all aquatic zones.
- All new collector drains will taper out before entering the aquatic buffer zone to ensures the discharging water gently fans out over the buffer zone before entering the aquatic zone.
- Machine combinations, such as mechanical harvesters or chainsaw felling will be chosen which are most suitable for ground conditions at the time of felling, and which will minimise soils disturbance.
- Mechanised operations will be suspended during and immediately after heavy rainfall.
- Where brash is required to form brash mats, it is to be laid out at harvesting stage to prevent soil disturbance by machine movement.
- Brash which has not been pushed into the soil may be moved within the Site to facilitate the creation of mats in more demanding locations.
- Felling of trees will be pointed directionally away from watercourses.
- Felling will be planned to minimise the number of machine passes in any one area.
- Extraction routes, and hence brash mats, will be aligned parallel to the ground contours where possible.

- Harvested timber will be stacked in dry areas, and outside any 50m watercourse buffer zone. Straw bales and check dams to be emplaced on the down gradient side of timber storage sites.
- Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but removing of natural debris deflectors will be avoided.

4.5.3.15 Transverse Drains (Grips)

On sections of access road, transverse drains ('grips') are constructed within the surface layer to divert runoff into swales or roadside drains. These drains can run perpendicularly from edge to edge of the road and are most commonly used on steeper gradients to prevent surface water from flowing down the centreline, thereby reducing the risk of erosion and protecting the road structure.

4.5.4 Cable Trench Drainage

Cable trenches are typically constructed in short, controlled sections, thereby minimising the amount of ground disturbed at any one time and minimising the potential for drainage runoff to pick up silt or suspended solids. Each short section of trench is excavated, ducting installed and bedded, and backfilled with the appropriate materials, before work on the next section commences. This approach will also be adopted where new cable trenching sections are required, and replacement/upgrade of cable trenching is required.

To efficiently control drainage runoff from cable trench works areas, excavated material is stored on the up-gradient side of the trench and is temporarily sealed/smoothed over, using the back of the excavator bucket. Should any rainfall cause runoff from the excavated material, the material is therefore collected and contained in the downgradient cable trench. Excess subsoil is removed from the cable trench works area immediately upon excavation, and in the case of the Prospective Development, would be transported to one of the on-site designated peat and spoil management areas or used for landscaping and reinstatement of other areas elsewhere on-site.

On steeper slopes, silt fences, as detailed in Section 4.5.3.12, above, will be installed temporarily downgradient of the cable trench works area, or on the downhill slope below where excavated material is being temporarily stored to control run-off.

4.5.5 Site Drainage Management

4.5.5.1 Preparative Site Drainage Management

All materials and equipment necessary to implement the drainage measures detailed above, will be brought on-site in phases as they are required during the construction phase. A sufficient number of straw bales, clean drainage stone, terram, stakes, etc. will be kept on-site at all times to implement the drainage design measures as necessary. The drainage measures detailed in the above will be installed prior to, or at the same time as the works they are intended to drain.

4.5.5.2 Pre-emptive Site Drainage Management

The works programme for the groundworks part of the construction phase of the Prospective Development will also take account of weather forecasts, and predicted rainfall. Large excavations, large movements of overburden or large-scale overburden or soil stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

4.5.5.3 Reactive Site Drainage Management

The final drainage design prepared for the Prospective Development prior to commencement of construction will provide for reactive management of drainage measures. The effectiveness of drainage measures designed to minimise runoff entering works areas and capture and treat silt-laden water from the works areas, will be monitored continuously by the ECoW or supervising hydrologist on-site. The ECoW or supervising hydrologist will respond to changing weather, ground or drainage conditions on the ground as the project proceeds, to ensure the effectiveness of the drainage design is maintained in so far as is possible. This may require the installation of additional check dams, interceptor drains or swales as deemed necessary on-site. The drainage design may have to be modified on the ground as necessary, and the modifications will draw on the various features outlined above in whatever combinations are deemed to be most appropriate to situation on the ground as a particular time.

In the event that works are giving rise to siltation of watercourses, the ECoW or supervising hydrologist will stop all works in the immediate area around where the siltation is evident. The source of the siltation will be identified and additional drainage measures such as those outlined above will be installed in advance of works recommencing.

4.5.6 Drainage Maintenance

An inspection and maintenance plan for the drainage system on-site will be prepared in advance of commencement of any works on the Prospective Development. Regular inspections of all installed drainage features will be necessary, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the ECoW or the Project Hydrologist. The drainage inspection and maintenance plan are included in the CEMP in Appendix 4-3 of this EIAR.

If necessary, any excess sediment build up behind check dams will be removed. For this reason, check dams will be inspected and maintained weekly during the construction phase of the Prospective Development to insure adequate performance. Maintenance checks will also ensure the centre elevation of the dam remains lower than the sides of the dam.

Check dams will also be inspected weekly during the construction phase of the Prospective Development and following rainfall events to ensure the structure of the dam is still effective in controlling flow. Any scouring around the edges of the check dams or overtopping of the dam in normal flow conditions will be rectified by reinforcement of the check dam.

Drainage swales will be regularly inspected for evidence of erosion along the length of the swale. If any evidence of erosion is detected, additional check dams will be installed to limit the velocity of flow in the channel and reduce the likelihood of erosion occurring in the future.

Silt traps will be inspected weekly during the construction phase of the Prospective Development and following rainfall events. Inlet and outlets will be checked for sediment accumulation and anything else that might interfere with flows.
The frequency of drainage system inspections will be reduced following completion of the construction phase of the Prospective Development. The Project Hydrologist will inspect and review the drainage system after construction has been completed to provide guidance on the requirements of an operational phase drainage system.

4.6 Site Access and Transportation

4.6.1 Site Entrances

4.6.1.1 Wind Farm Site

The Prospective Development will continue to be accessed via the existing site entrance off the N15 National Road to the west of the Wind Farm Site. This entrance will facilitate general construction access and delivery of abnormal loads to the Wind Farm Site. Appropriate sightlines have been established to the north and south of the entrance for the safe egress of traffic. On completion of the construction phase, this site entrance will be reduced in size and an earthen berm will be constructed and allowed to vegetate naturally in order to reinstate this entrance. A planning drawing of the reinstated site entrance is provided in Appendix 4-1 of this EIAR. The entrance will be gated for security and will be used for maintenance and monitoring activities, as well as the delivery of abnormal loads on an as-needed basis during the operational phase.

There is a secondary entrance to the Wind Farm Site off the L-6554 Local Road to the north of the Wind Farm Site, which is proposed as a staff entrance for workers accessing the northern portion of the Wind Farm Site during the construction phase and for maintenance access during the operational phase, as well as vehicles travelling to and from the BMEP Sie. The proposed site entrance to the proposed amenity area is located on an existing forestry track, off the L-6554 Local Road, approximately 220 m west of the aforementioned secondar (northern) site entrance to the Wind Fram Site.

4.6.1.2 BMEP Site

Access to the BMEP Site will be via a new access track located along the L-65242 Local Road to Parcel 1, whilst site access to Parcel 2 is via an existing access track (to be extended and upgraded) located along the L-2974 Local Road. Parcel 1 will be accessed from the existing public road to the south of the parcel, with a turning area to facilitate the safe turning of forestry vehicles and machinery proposed within this parcel off the L-65242 Local Road. Parcel 2 will be accessed via an existing forestry track and a proposed new forestry track. The existing forest track terminates after approximately 350 m, and from there it is proposed to extend the existing forestry track by constructing approximately 550 m of new forest road to complete access to this parcel as part of the BMEP. The existing forestry tracks will be upgraded by laying a new surface dressing on the existing section of roadway where necessary, as described in Section 4.9.2 below.

4.6.2 Construction Materials Transport Route (Haul Route)

Construction materials such as concrete, and steel will follow the same transport route as the wind farm turbines components from the National Road network to the Wind Farm Site and BMEP Site, as well as the additional delivery routes as identified in Section 15.1 of Chapter 15 of this EIAR (please refer to Figure 15-1). All construction vehicles entering the Wind Farm Site will enter from the south and north, via the existing Wind Farm Site entrance junction on the N15 National Road as indicated on Figure 15-1 of Appendix 15-1 of this EIAR.

All concrete required for each of the remaining 5 no. turbine foundations will be delivered to the Wind Farm Site in one day per foundation for a total of 5 days. All concrete and other deliveries provided by local quarries will access the Wind Farm Site via the existing Wind Farm Site entrance junction off the N15 National Road, at the location shown in Figure 15-1 of Appendix 15-1.

A Traffic Management Plan is included in Chapter 15 and the CEMP in Appendix 4-3 of this EIAR. Wind Farm Site access off the N15 National Road was subject to Autotrack assessment to identify the

turning area required for turbine delivery, as described in Section 15.1 of the Traffic and Transport Assessment. In the event planning permission is granted for the Prospective Development, the final Traffic Management Plan will address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned.

All traffic travelling to and from the BMEP Site will gain access to the N15 National Road by accessing the Wind Farm Site via the short section of the L-6554 local road and the site access to the northwest of T17, travelling through the Wind Farm Site on the internal road network and accessing / exiting the Wind Farm Site via the main site access junction on the N15 National Road. Traffic control measures are outlined in Section 15.1 of Chapter 15 of this EIAR.

4.6.3 Turbine Component Transport Route

It is proposed that the large wind turbine components will be delivered to the Wind Farm Site, from Killybegs Port, as shown on Figure 4-24. The turbines will be transported from Killybegs, northeast on the R263 Regional Road, before turning right on to the N56 National Road, continuing east, then turning left onto the N15 National Road, and continuing northeast towards the entrance to the Wind Farm Site off the N15 National Road.

All deliveries of turbine components and construction materials to the Wind Farm Site will only be by way of the proposed transport route outlined in Figure 4-24. The number of construction vehicles that will be generated during the construction phase of the Prospective Development are outlined as part of the Traffic and Transport Assessment in Section 15.1 of this EIAR.

Construction materials such as concrete, and steel, and stone material in the event that the sufficient grade cannot be sourced onsite will follow the same transport route as the wind turbines from the National Road network to the Wind Farm Site. All employees entering the Wind Farm Site will enter from the north and west, via the existing access roads as indicated on Figure 4-25.

The construction traffic that will be generated during the construction phase of the Prospective Development is outlined as part of the Traffic and Transport Assessment in Section 15.1 of this EIAR.

4.6.3.1 Turbine Delivery Route Pinch Points

Works such as road widening are sometimes required along proposed turbine transport routes to accommodate the large turbine components and associated vehicles seeking to access wind farm sites. The proposed transport route for the Prospective Development, as shown on Figure 4-24, has been the subject of a route assessment to determine if any works are required along its length. Full details of the assessment are included as part of the traffic impact assessment set out in Section 15.1 of this EIAR

There are sections or ‘pinch points’ on the route where the vertical alignment may require specialist transport vehicles. These sections will be further considered by the appointed transport company following the turbine procurement process. A detailed route assessment was undertaken of the TDR with a swept path analysis of the turning requirements of the blade transport vehicles undertaken at all potential pinch point, as detailed in Section 15.1 of Chapter 15 of this EIAR. For these locations, road and junction alignments based on topographical surveys or aerial/OS mapping were used for the assessment. In addition to the assessment and in line with best practice, it is recommended that a dry-run assessment is undertaken prior to construction.

The pinch point locations along the TDR, as assessed in Chapter 15 of the EIAR, are as follows:

Location 1 – Bend on N56 National Road east of Straleeney

The swept path analysis undertaken for this location demonstrates that the existing geometry will accommodate the proposed turbine vehicles.

Location 2 – Bend on N56 National Road north of Castlereagh

The swept path analysis undertaken for this location demonstrates that the existing geometry will accommodate the proposed turbine vehicles.

Location 3 – Bend on N56 National Road through Bruckless

The assessment shows that the existing bend through Bruckless will accommodate the proposed turbine vehicles.

Location 4 – Bend on N56 National Road east of Bruckless

This location has undergone recent improvement works and the swept path analysis demonstrates that the improved alignment will accommodate the proposed turbine vehicles.

Location 5 – Bend on N56 National Road between Bruckless and Beaugreen

The assessment indicates that the blade will require to overhang the carriageway edge and boundary on the western side of the N56 National Road, and minor overhang of the body of the blade of the carriageway edge will take place on the northeast corner, although this should not impact on the boundary. The assessment shows that the vehicle wheels will be accommodated within the existing carriageway. As is the case for all pinch points on the TDR, a 'dry run' will be undertaken by the selected turbine manufacturer prior to the delivery stage.

Locations 6 and 7 – Bends on N56 National Road west and east sides of Dunkineely

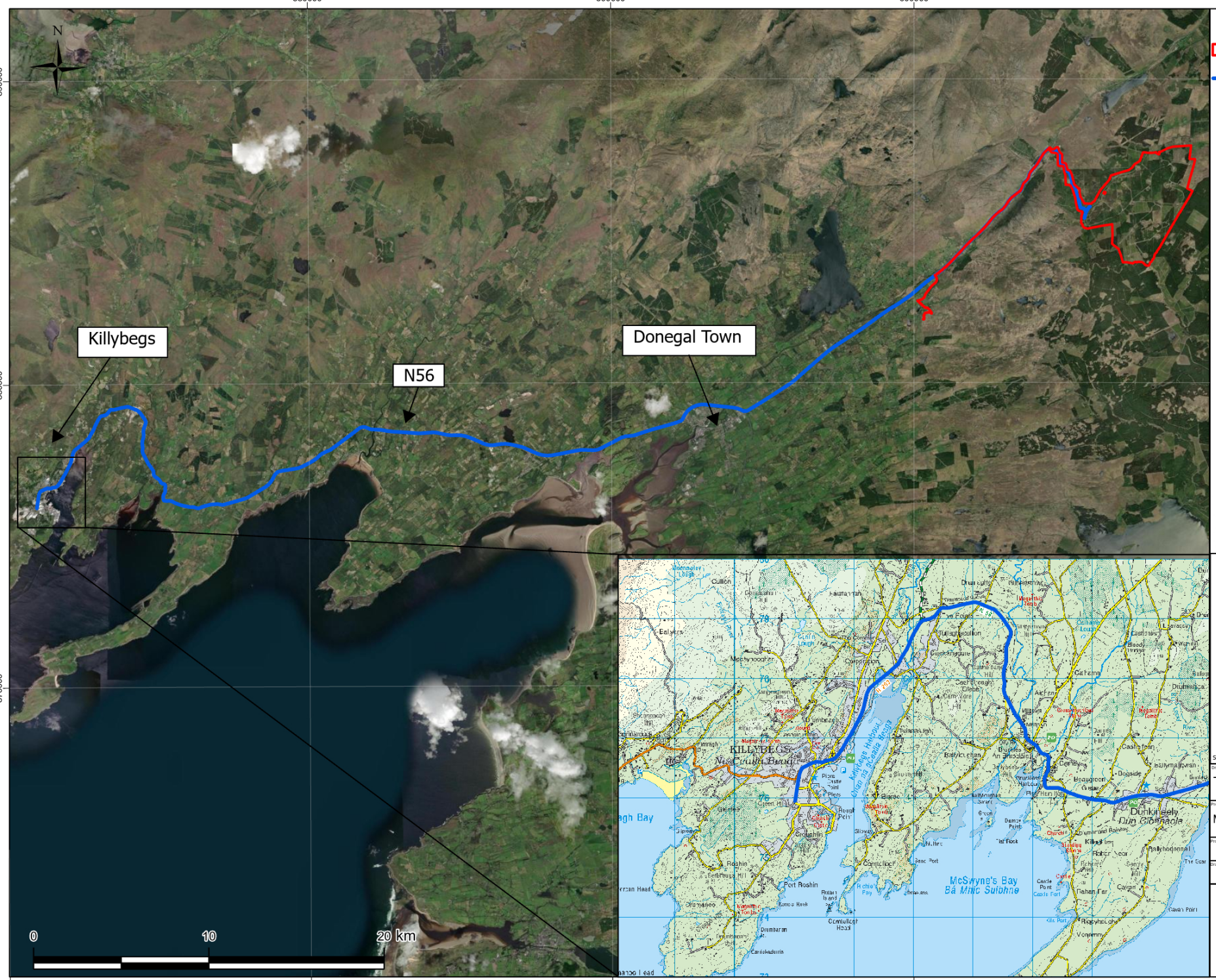
The assessment shows that the existing bends on the west and east sides of Dunkineely will accommodate the proposed turbine vehicles.

Locations 8 and 9 – N56 / R925 roundabout & N15 Drumlonagher Roundabout

The swept path analysis undertaken for the 2 roundabouts either side of Donegal Town, as set out in Figures 15.12 and 15.13, show that both roundabouts will accommodate the proposed turbine vehicle, with minor overhang and oversail required only.

Location 10 – N15 / Wind Farm Access road junction

The N15 National Road / Wind Farm Access road junction is shown in Figure 15-14 of Appendix 15-1 of this EIAR. The existing hardcore area for the access road is shaded in light blue and accommodated the abnormally sized turbine components already delivered to the site It is proposed that this area will be retained for the delivery phase of the abnormally sized loads for the Prospective Development.



Map Legend

- Site Boundary
- Turbine Delivery Route

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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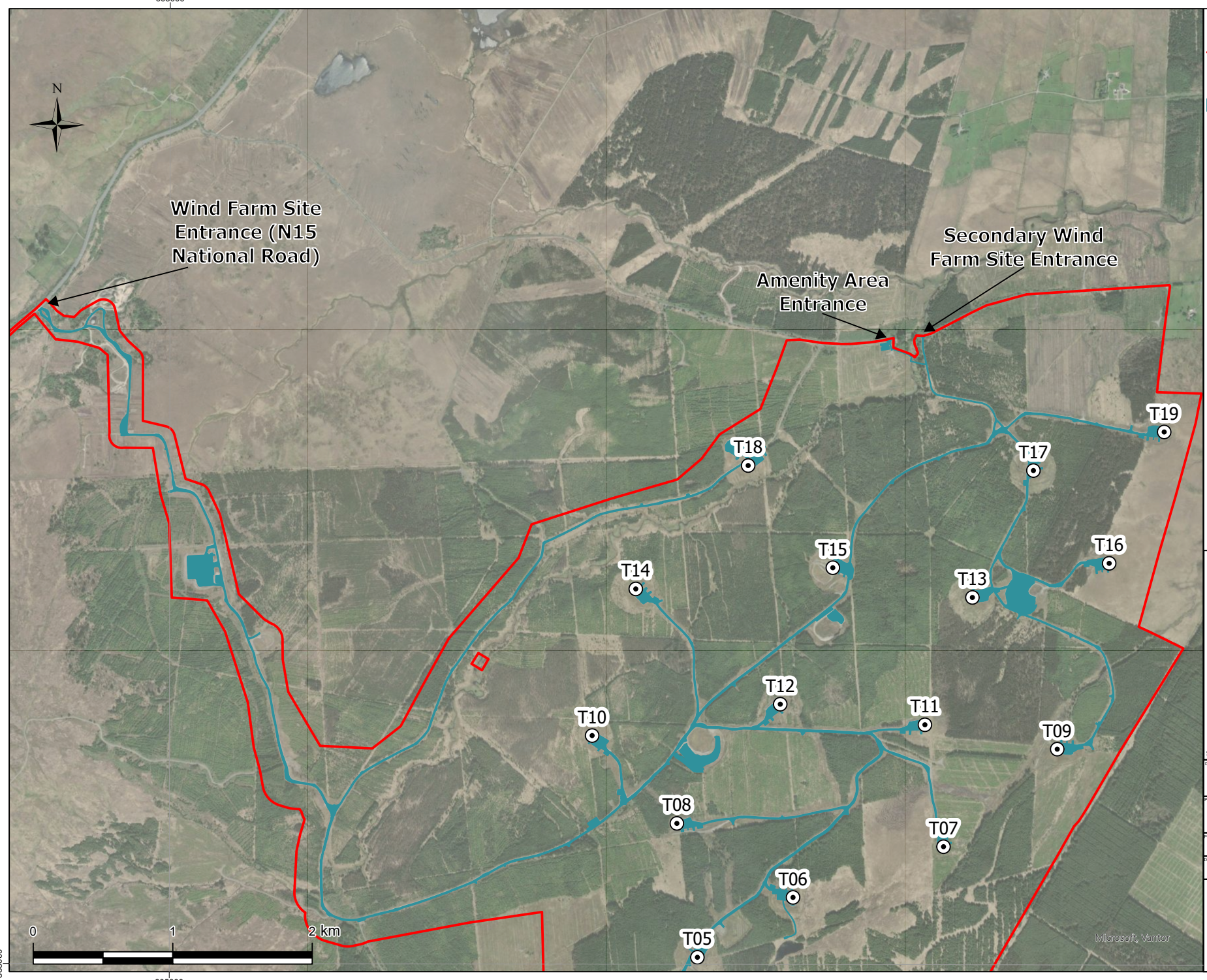
SITE LOCATION - NOT TO SCALE

Drawing Title: **Turbine Delivery Route**

Project Title: Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-24	1:200,000
Drawn By	Checked By	Date
SOR	RK	25/06/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie



Map Legend

- Planning Application Boundary
- Proposed Turbine Layout
- Prospective Development Footprint

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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SITE LOCATION - NOT TO SCALE

Drawing Title: Wind Farm Site Entrances

Project Title: Meenbog Wind Farm, Co. Donegal

Project No.	Drawing No.	Scale
240505g	4-25	1:25,000
Drawn By	Checked By	Date
KB	RK	01/07/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

4.6.4 Traffic Management

A turbine with a length of 65.2 metres (m) has been used in assessing the traffic impact of the Prospective Development. The blade transporter for such a turbine blade would have a total vehicle length of 71.2m, including the blade which overhangs the back of the vehicle. The vehicles used to transport the tower sections and the turbine nacelles will be shorter in length compared to the blade transporters.

The vehicles used to transport the nacelles will be similar to the tower transporter. All other vehicles requiring access to the Wind Farm Site will be smaller than the design test vehicles. The turbine delivery vehicles have been modelled accurately in the Autotrack assessments for the relevant access junctions, as detailed in Section 15.1 of this EIAR.

The need to transport turbine components on the public roads is not an everyday occurrence in the vicinity of the Wind Farm Site. However, the procedures for transporting abnormal size loads on the country's roads are well established. While every operation to transport abnormal loads is different and requires careful consideration and planning, escort vehicles, traffic management plans, drive tests, road marshals and convoy escorts from the Garda Traffic Corps are all measures that are regularly employed to deliver oversized loads from origin to destination. With just under 400 No. wind farms already built and operating in Ireland (Republic and Northern Ireland combined, as per latest available figures on www.windenergyireland.com), transport challenges are something the wind energy industry and specialist transport sector has become particularly adept in finding solutions to.

As an alternative solution for transport of turbine blades, alternative delivery systems are available. For example, delivery vehicles fitted with blade adapters may be used in order to navigate the existing roads along the turbine delivery route. Blade adaptors allow the turbine blade to be transported at a suitable angle in order to navigate tight bends or obstacles along the delivery route. Plate 4-6 below shows an example of a blade adapter.

Plate 4-6 Blade adaptor transport system

A preliminary Traffic Management Plan has been prepared as set out in the CEMP in Appendix 4-3 of this EIAR. Prior to the construction of the Prospective Development, a detailed traffic management plan will be prepared by the haulage company and submitted to Donegal County Council for approval. The plan will include:

- A delivery schedule.
- Details of works or any other minor alteration identified.
- A dry run of the route using vehicles with similar dimensions.

The deliveries of turbine components to the Wind Farm Site may be made in convoys of three to five vehicles at a time, and at night when roads are quietest. Convoys will be accompanied by escorts at the front and rear operating a "stop and go" system. Although the turbine delivery vehicles are large, they will not prevent other road users or emergency vehicles passing, should the need arise. The delivery escort vehicles will ensure the turbine transport is carried out in a safe and efficient manner with minimal delay or inconvenience for other road users.

It is not anticipated that any section of the public road network will be closed during transport of turbines, although there will be some delays to local traffic at pinch points. During these periods it may be necessary to operate local diversions for through traffic. All deliveries comprising abnormally large loads where required will be made outside the normal peak traffic periods, usually at night, to avoid disruption to work and school-related traffic.

Prior to the Traffic Management Plan being finalised, a full dry run of the transport operation along the potential routes will be completed using vehicles with attachments to simulate the dimensions of the wind turbine transportation vehicles. This dry run will inform the Traffic Management Plan for agreement with the relevant Authorities. All turbine deliveries will be provided for in a Traffic Management Plan which will be finalised in advance of oversized load deliveries, when the exact transport arrangements are known, delivery dates confirmed and escort proposals in place. Such a Traffic Management Plan is typically submitted to the relevant Authorities for agreement in advance of any abnormal loads using the local roads, and will provide for all necessary safety measures, including a convoy and Garda escort as required, off-peak turning/reversing movements and any necessary safety controls.

4.7 Site Activities

4.7.1 Environmental Management

All proposed activities of the Prospective Development will be provided for in an environmental management plan. A Construction and Environmental Management Plan (CEMP) has been prepared for the Prospective Development and is included in Appendix 4-3 of this EIAR.

The CEMP sets out the key environmental considerations to be managed by the contractor during construction of the Prospective Development. The CEMP includes details of drainage, peat & spoil management and waste management, and outlines clearly the mitigation measures and monitoring proposals that are required to be adhered to in order to comply with the environmental commitments outlined in the EIAR. In the event planning permission is granted for the Prospective Development, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for approval.

4.7.2 Refuelling

Wherever possible, vehicles will be refuelled off-site, particularly for regular road-going vehicles. On-site refuelling of machinery will be carried out at designated refuelling areas throughout the Wind Farm Site. Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Wind Farm Site as required on a scheduled and organised basis. Other refuelling will be carried out using mobile double skinned fuel bowser. The fuel bowser will be parked on a level area on-site when not in use. All refuelling will be carried out outside designated watercourse buffer zones. Only designated trained and competent operatives will be authorised to refuel plant on-site. Mobile measures such as drip trays and fuel absorbent mats will used during refuelling operations as required. All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage.

4.7.3 Concrete Deliveries

Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in concrete delivery trucks. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks of on-site batching.

Before leaving the Site, washing of the delivery truck will be minimised and restricted to designated wash out areas. There is an existing wash-out area on site, located southeast of T10, along the site access road, as shown in the drainage design drawings in Appendix 4-4 of this EIAR. This wash-out area is proposed for continued use during the construction of the Prospective Development. Wash out will be restricted to the concrete lorry's chute only. The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a temporary lined impermeable containment area. Concrete lorries will be washed out fully at the off-site batching plant, where facilities are already in place.

Concrete wash-out areas are covered when not in use to prevent rainwater collecting. In periods of dry weather, the areas can be uncovered to allow much of the water to be lost to evaporation. At the end of the concrete pours, any of the remaining liquid contents will be tankered off-site to an appropriately authorised facility as necessary. Any residual solid contents that will have been cleaned down from the chute will have solidified and can be broken up and disposed of along with other construction waste by an appropriately authorised waste collector for disposal at an authorised waste facility.

Alternatively, a Siltbuster-type concrete wash unit or equivalent[9] may be used. This type of Siltbuster unit catches the solid concrete and filters and holds wash liquid for pH adjustment and further solids separation. The residual liquids and solids can be disposed of off-site at an appropriate licensed waste facility.

The risks of pollution arising from concrete deliveries will be further reduced by the following:

- Concrete trucks will not be washed out on-site but will be directed back to their batching plant for washout.
- Remaining site roads will initially be constructed with a subgrade and compacted with the use of a roller to allow concrete delivery trucks access all areas where the concrete will be needed. The final wearing course for the roads will not be provided until all turbine foundations have been poured. No concrete will be transported around the Wind Farm Site in open trailers or dumpers so as to avoid spillage while in transport. All concrete used in the construction of turbine foundations will be pumped directly into the shuttered formwork from the delivery truck. If this is not practical, the concrete will be pumped from the delivery truck into a hydraulic concrete pump or into the bucket of an excavator, which will transfer the concrete to the location where it is needed.
- The arrangements for concrete deliveries to the Wind Farm Site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout and discussing emergency procedures.
- Clearly visible signage will be placed in prominent locations close to concrete pour areas specifically stating washout of concrete lorries is not permitted on the Wind Farm Site.

4.7.4 Concrete Pouring

Due to the volume of concrete required for the remaining turbine foundations, and the requirement for the concrete pours to be continuous, deliveries are often carried out outside normal working hours in

[9] (https://www.siltbuster.co.uk/sb_prod/siltbuster-roadside-concrete-washout-rcw/)

order to limit the traffic impact on other road users, particularly peak period school and work commuter traffic. Such activities are limited to the day of turbine foundation concrete pours, which are normally complete in a single day per turbine. The main pours will be planned days or weeks in advance.

Specific procedures will be adopted in advance of and during all concrete pours to minimise the risk of pollution. These will include:

- Using weather forecasting to assist in planning large concrete pours and avoiding large pours where prolonged periods of heavy rain is forecast.
- Restricting concrete pumps and machine buckets from slewing over watercourses while placing concrete.
- Ensuring that excavations are sufficiently dewatered before concreting begins and that dewatering continues while concrete sets.
- Ensuring that covers are available for freshly placed concrete to avoid the surface washing away in heavy rain.
- The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a temporary lined impermeable containment area, or a Siltbuster-type concrete wash unit (https://www.siltbuster.co.uk/sb_prod/siltbuster-roadside-concrete-washout-rcw/) or equivalent.

4.7.5 Dust Suppression

In periods of extended dry weather, dust suppression may be necessary within the Wind Farm Site, along haul roads, proposed new site roads, and proposed upgrades to existing site roads, to prevent dust from becoming a nuisance. If necessary, water will be taken from stilling/settlement ponds in the Wind Farm Site drainage system and will be pumped into a bowser or water spreader to dampen down haul roads and temporary construction compounds to prevent the generation of dust. Silty or oily water will not be used for dust suppression, because this would transfer the pollutants to the haul roads and generate polluted runoff or more dust. Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.

4.7.6 Vehicle Washing

Wheels or vehicle underbodies are often washed before leaving sites to prevent the build-up of mud on public (and site) roads. It is not anticipated that vehicle or wheel washing facilities will be required as part of the construction phase of the Prospective Development as the majority of site roads are existing facilitating regular or frequent deliveries to the Wind Farm Site (e.g. with steel or concrete). Site roads are well finished with compacted hardcore, hence public road-going vehicles will not be travelling over soft or muddy ground where they might pick up mud or dirt.

A road sweeper will be available if any section of the public roads requires cleaning due to construction traffic associated with the Prospective Development.

4.7.7 Waste Management

The CEMP, Appendix 4-3 of this EIAR, provides a waste management plan (WMP) which outlines the best practice procedures during the construction phase. The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Prospective Development. Disposal of waste will be a last resort. The WMP was updated in line with the EPA's 2021 document '*Best Practice Guidelines for the Preparation of Resource & Waste*

Management Plans for Construction & Demolition Projects' (EPA, 2021)[10]. The WMP has been prepared to outline the main objectives that are to be adhered to facilitate the preparation of a more detailed WMP prior to the construction phase of the Prospective Development. The WMP will be in place throughout the construction and decommissioning phases of the Subject Development and will be in line with all relevant legislation detailed in Appendix 4-3 of the EIAR.

The Waste Management Act 1996 and its subsequent amendments provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Waste Management Act requires that any waste related activity must have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the Site to ensure that all contractors hired to remove waste from the Site have valid Waste Collection Permits to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

The WMP will provide systems that will enable all arisings, movements and treatments of construction waste to be recorded. This system will enable the contractor to measure and record the quantity of waste being generated. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The WMP can then be adapted with changes that are seen through record keeping.

Prior to the re-commencement of construction work at the Site, a Construction Waste Manager will be appointed by the Contractor. The Construction Waste Manager will be in charge of the implementation of the objectives of the plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated must have sufficient authority so that they can ensure everyone working on the development adheres to the management plan.

4.8 Construction Management

4.8.1 Construction Timing

It is estimated that the construction phase of the Prospective Development will take approximately 12 months from commencement of civil works to the full commissioning of the wind turbines. The commencement of works where the removal of vegetation is required, or where works take place in sensitive breeding habitats will be scheduled to occur outside the bird breeding season (1st March to 31st August) to avoid any potentially significant effects on nesting birds. Construction may commence from September to March so that construction activities are ongoing by the time the next bird breeding season comes around and can continue throughout the bird breeding season.

Construction activities will be carried out during normal daytime working hours (i.e., 0700 – 1900hrs Monday to Saturday). However, to ensure that optimal use is made of good weather period or at critical periods within the programme (i.e., concrete pours) or to accommodate delivery of large turbine components along public routes it could be necessary on occasion to work outside of these hours. Any such out of hours working will be notified in advance to the Local Authority.

[10] *EPA 2021 Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects. Available at: https://www.epa.ie/publications/circular economy/resources/CDWasteGuidelines.pdf*

4.8.2 Construction Sequencing

The construction phase can be broken down into four main phases, which overlap partially and will take approximately 12 months to complete: 1) civil engineering works - 9 months, 2) electrical works - 6 months, and 3) turbine erection and commissioning - 9 months. The main task items under each of the three phases are outlined below.

Civil Engineering Works:

- Erect all necessary up to date safety signage.
- Continue construction of and upgrade works to site roads, hard-standings and crane pads.
- Where necessary, construct and/or upgrade drainage ditches, culverts etc. integral to road construction.
- Excavate/pile for turbine bases where required. Place blinding concrete to turbine bases. Fix reinforcing steel and anchorage system for tower section. Construct shuttering. Fix any ducts etc. to be cast in. Pour concrete bases. Cure concrete. Remove shutters after 3-5 days.
- Backfill tower foundations and cover with previously stored granular material.
- Excavate trenches for site cables, lay cables and backfill. Provide ducts at road crossings.
- Complete site works, reinstate site.
- Remove temporary site offices. Provide any gates, landscaping, signs etc. which may be required.

Electrical Works:

- Establish the temporary construction compound.
- Excavate trench for ducting & place ducting, backfill with graded granular fill material, reinstate temporary surface.
- Install and/or replace cabling and ducting.

Turbine and Met Mast Erection and Commissioning:

- Set up erection crane(s) and deliver components to hardstands.
- Erect towers, nacelles and blades.
- Complete electrical installation.
- Install meteorological mast.
- Commission and test turbines.
- Complete site works and reinstate site.
- Provide any gates, landscaping, signs etc. which may be required.
- Remove temporary site features.

All relevant Site Health & Safety procedures, in accordance with the relevant Health and Safety Legislation and guidance (listed in Section 5.4.2.2.1 of this EIAR), including the preparation of the Health & Safety Plan, erection of the relevant and appropriate signage on-site, inductions and toolbox talks will take place prior to and throughout the construction phase of the Prospective Development. Further details of on-site health, safety and welfare are included in Chapter 5 of this EIAR.

The phasing and scheduling of the main construction task items are outlined in Figure 4-26 below, where 1st January has been selected as an arbitrary start date for construction activities.

		Year 1			
ID	Task Name	Q1	Q2	Q3	Q4
1	Site Health and Safety				
2	Site Compounds				
3	Borrow Pits/ Peat Cell Works				
4	Construction of Remaining Site Roads				
5	Turbine Hardstands & Foundation Works				
6	Internal Wind Farm Ducting & Cabling Installation				
7	Backfilling and Landscaping				
8	Turbine Delivery and Erection				
9	Turbine Commissioning				

Figure 4-26 Indicative Construction Schedule

4.8.3 Construction Phase Monitoring and Oversight

The requirement for a CEMP to be prepared in advance of any construction works commencing on any wind farm development site and submitted for agreement to the Planning Authority is now well-established. The procedures for the implementation of the mitigation measures outlined in the CEMP and their completion is audited by way of a CEMP Audit Report.

The CEMP Audit Report will list all mitigation measures prescribed in any of the planning documentation and all conditions attached to the grant of planning permission and allows them to be audited on a systematic and regular basis. The first assessment is a simply Yes/No question, has the mitigation measure been employed on-site or not? Following confirmation that the mitigation measure has been implemented, the adherence to mitigation measures must be the subject of regular review and audit during the full construction stage of the project. If remedial actions are needed to improve the effectiveness of the mitigation measure, then these are notified to the site staff immediately during the audit site visit, and in writing by way of the circulation of the audit report. Depending on the importance and urgency of rectifying the issue, the construction site manager is given a timeframe by when the remedial works need to be completed.

A CEMP has been prepared for the Prospective Development and is included in Appendix 4-3 of this EIAR. The CEMP includes details of drainage, overburden management, waste management etc, and describes how the above-mentioned Audit Report will function and be presented. In the event planning permission is granted for the Subject Development, the CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions,

including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for written approval.

The on-site construction staff will be responsible for implementing the mitigation measures specified in the EIAR and the CEMP and compiled in the Audit Report. Their implementation will be overseen by the ECoW or supervising hydrogeologists, environmental scientists, ecologists or geotechnical engineers, depending on who is best placed to advise on the implementation. The system of auditing referred to above ensures that the mitigation measures are maintained for the duration of the construction phase, and into the operational phase where necessary.

4.9 Construction Methodologies

Following the November 2020 Peat Slide, a comprehensive review of the construction methodologies being employed on-site was undertaken by Fehily Timony as part of the response to the EPA investigation of the peat slide. Following this review a document *entitled 'Construction Responses to Fehily Timony Mitigation Measures'*, was prepared by the contractor (MCE Ltd.) in August 2021 (MCE, 2021) to accompany the Fehily Timoney report *'Peat Stability Assessment of Meenbog Wind Farm Site'* (FT, 2021). The MCE (2021) document outlined additional mitigation measures and revised construction methodologies to be utilised during the construction of the outstanding elements required to complete the wind farm. These measures and methodologies were implemented for all construction activities undertaken on-site since the publication of the MCE (2021) document and have been applied to the construction methodologies for the Prospective Development outlined below and within Appendix 4-3: CEMP of this EIAR. A copy of *'Peat Stability Assessment of Meenbog Wind Farm Site'* (FT, 2021) is included as Appendix 8-2 of this EIAR.

Table 4-10 Lessons learned and accompanying mitigation measures (Table 20 of 'Construction Responses to Fehily Timony Mitigation Measures' (2021))

Peat Stability - Lessons learned	Mitigation Measures
Excessive loading of insitu peat	› No further construction of floating roads on the Wind Farm Site is to be carried out. Given the potential risk associated with floating road construction alternative methods of construction shall be adopted. › No loading of insitu peat. The instability recorded on site in all cases can be contributed to various degrees to excessive placed construction loading onto the insitu peat surface.
Identifying body of weak peat in proximity to proposed works	› Confirmatory re-testing and assessment in zone of influence in advance of construction works. The peat failure of 12 November 2020 occurred due to an unforeseen body of very weak peat adjacent to the working area. Further confirmatory re-testing to be completed immediately prior to works recommencing in each area of site to ensure no change in ground conditions.
Accidental excessive loading of insitu peat during construction	› Site supervision and permit to work with respect to peat stability. All construction on site shall be managed and controlled by the construction management team to ensure that all activities have been appropriately assessed with respect to peat stability and related health and safety.
Identifying areas of potential weak peat in advance of works completion of works	› Monitoring of ground movement and constructed works. In order to monitor the performance of the constructed works within the peat areas, and any further construction works to be

Peat Stability - Lessons learned	Mitigation Measures
	carried out, a series of monitoring points shall be established throughout the site. › Proof testing of floating roads. Full-scale proof load tests to be carried out on floating roads to verify their capacity under the design loads for the construction traffic and for largest loading to be experienced by the road.
Degradation of work due to inclement weather	› Construction and weather conditions. Restrictions on work during or after periods of heavy or sustained rainfall. Heavy intense rainfall can result in degradation of the works resulting in localised instability, and in extreme cases can trigger large-scale peat failure.

4.9.1 Turbine and Met Mast Foundations

Each of the turbines to be erected onsite will have a reinforced concrete base that are installed below the finished ground level, some of which are already in place. As detailed in Appendix 8-1: Peat Stability Assessment Report of this EIAR, numerous intrusive site investigations were undertaken across the Wind Farm Site, to provide detail and clarity on the nature and extent of subsoils and bedrock as a means of characterising the Wind Farm Site. This assisted in providing additional information to inform the appropriate design of the Prospective Development.

Where required, the turbine base will be founded on competent founding strata which will require excavation through peat and any soft subsoils. Overburden will be stripped off the foundation area to a suitable formation using a 360º excavator and will be placed across the Site as close to the excavation as practical. A five-metre-wide working area will be required around each turbine base, with the sides of the excavated areas sloped sufficiently to ensure that slippage does not occur. Material excavated to create the working area will be stored locally for later reuse in backfilling the working area around the turbine foundation. The excavated material will be sealed using the back of the excavator bucket and surrounded by silt fences to ensure sediment-laden run-off does not occur.

The formation material will have to be approved by an engineer as meeting the turbine manufacturer's requirements. If the formation level is reached at a depth greater than the depth of the foundation, the ground level will be raised with Clause 804 (Cl804) or similar hardcore material, compacted in 250 millimetres (mm) layers, with sufficient compacted effort (i.e. compacted with seven passes using 12 tonne roller). Drainage measures will be installed to protect the formation by forming an interceptor drain around the perimeter of the base which will be pumped to an adjacent settlement pond.

A berm approximately 600 mm high will be constructed around the perimeter of turbine bases requiring excavation works, and a fence will be erected to prevent construction traffic from driving into the excavated hole and to demarcate the working area. All necessary health and safety signage will be erected to warn of deep excavations etc. Access to and from excavated bases will be formed by excavating a pedestrian walkway to 1:12 grade.

There will be a minimum of 100 mm of blinding concrete laid on the formation material positioned using concrete skip and 360º excavator to protect ground formation and to give a safe working platform.

Anchor cages, where required, will be delivered to the Wind Farm Site in two or more parts depending on the turbine type. A 360º excavator or crane with suitable approved lifting equipment will be used to unload sections of the anchor cage and reinforcing steel. The anchor cage is positioned in the middle of the turbine base and is assembled accordingly. When the anchor cage is in final position it is checked and levelled by using an appropriate instrument. The anchor cage is positioned 250mm – 300mm from

formation level by use of adjustable legs. Reinforcement bars are then placed around the anchor cage, first radial bars, then concentric bars, shear bars and finally the superior group of bars. Earthing material is attached during the steel foundation build up. The level of the anchor cage will be checked again prior to the concrete pour and during the concrete pour.

Formwork to concrete bases will be propped/supported sufficiently so as to prevent failure. Concrete for bases will be poured using a concrete pump. Each base will be poured in three stages. Stage 1 will see the concrete being poured and vibrated in the centre of the anchor cage to bring the concrete up to the required level inside the cage. Stage 2 will see the centre of the steel foundation being poured and vibrated to the required level. Stage 3 will see the remaining concrete being poured around the steel foundation to bring it up to the required finished level. After a period of time when the concrete has set sufficiently the top surface of the concrete surface is to be finished with a power float.

Once the base has sufficient curing time it will be filled with suitable fill up to existing ground level. The working area around the perimeter of the foundation will be backfilled with the original material that was excavated.

With respect to minimising any adverse impacts on peat stability, the following procedures will be followed during construction of turbine bases, hardstanding areas and met mast foundation in relation to excavations in peat:

1. *With respect to placement of arisings from excavations the commitments given in Section 4 are to be followed. All excavated peat and spoil to be stored in appropriately designed locations, such as within the existing borrow pits and the proposed extension to the borrow pit. No material will be sidecast on the peat slopes.*
2. *(All excavations within peat will be adequately supported through the use of a stone cofferdam around the perimeter of the T7 hardstand. This will involve the excavation of peat in a trench and the backfill with crushed rock from the borrow pit, which will provide support to the in-situ peat. Excavation will commence on the northern side of the hardstand, from the existing berm, and progress along the western side of the hardstand.*
3. *Excavations will be kept reasonably free from water at all times. Water will be prevented from being impounded within excavations by either using drainage channels cut into the excavation face or by pumping.*
4. *Where water is channelled or pumped from an excavation then this water will be fed into an established watercourse or drainage ditch following suitable treatment, as described in Chapter 9 of the EIAR*

4.9.2 Site Roads

4.9.2.1 Wind Farm Site Roads

4.9.2.1.1 *Upgrading of Existing Founded Access Roads*

This methodology includes procedures that will be included in the construction phase to minimise any adverse impact on peat stability. The methodology is not intended to cover all aspects of construction such as drainage and environmental considerations, which are discussed in Section 4.5 above and in Chapter 9 of the EIAR. Please see Figure 4-8 above for sectional details of this road upgrade type.

1. *Access road construction will be to the line and level requirements as per design/planning conditions.*
2. *For upgrading of all existing founded access roads the following will apply:*
    a. *Excavation of the access road will take place to a competent stratum beneath the peat, removing all peat and soft clay and backfilled with suitable granular fill.*

b. *Benching of the excavation will be required between the existing section of access road and the widened section of access road where the depth of excavation exceeds 500mm.*
c. *Access roads will be finished with a layer of capping/surfacing material across the full width of the road.*
d. *For excavations in peat, side slopes will be not greater than 1 (v): 3 (h). This slope inclination will be reviewed during construction, as appropriate. Where areas of weaker peat are encountered then slacker slopes will be required to ensure stability*

4.9.2.1.2 Upgrade of Existing Floating Access Roads to Founded

As part of the Prospective Development, sections of existing floating access roads will be upgraded to founded roads, as illustrated in Figure 4-9 above. These are described below. A section of the existing floating access road to T04 (comprising the final 210 m to the hardstand), as well as the section of existing floating access road to T07, will be excavated and replaced with a founded road. The existing floating forestry road to T18 will be excavated and replaced with a founded road. For the locations around the section of floating road at the T01 and T02/T04 junction, a stabilising berm will be constructed downslope of the road to act as a mitigation measure to provide additional resistance to peat movement, as described in the Peat Stability Assessment Report in Appendix 8-1 of this EIAR. Monitoring posts will be installed upslope and downslope of this area prior to construction works commencing, as detailed in Section 7 of Appendix 4-2: Peat and Spoil Management Plan of this EIAR.

1. *For upgrading of existing floating access roads previously constructed using a floated construction technique, the following will apply:*
   a) *Daily monitoring of these monitoring posts will be undertaken while works are ongoing in specific areas.*
   b) *The existing floating roads will be incrementally removed by pulling back the engineering fill material and base layer, before constructing the new road using the excavate and replace/partial displacement method.*
   c) *The roads will be built incrementally, with peat removed before being backfilled with coarse rock sourced from the borrow pit where the peat is relatively shallow (<2m). The lateral extent of excavation will be limited to 3m (effective reach of an excavator) before being backfilled. The excavator will work from the road at all times and will not track or operate directly on the peat surface.*
   d) *Rock fill from the borrow pit will be transported to the roads and berm using A25 dumpers, with the coarse rock tipped onto the constructed section of road before being used to backfill the excavation. Rock will not be end tipped directly from dumpers into the excavation.*
   e) *Where areas of deeper or weaker peat are encountered , the partial displacement method is proposed. This removes the peat down to the stable depth of excavation but will leave a layer of peat in place at the base of the excavation.*
   f) *Coarse boulders (>0.5m, with no fine material) will be used in the base of the excavation and will be pushed into the base of the weaker peat to the solid stratum below the peat. This displaces the peat upwards, filling the voids between the coarse boulder fill.*
2. *The finished road will have a minimum running width of 5m, with wider sections on bends and corners.*
3. *The construction of access roads in areas of deep peat (greater than 3m) will be inspected on a daily basis (by the Site Manager/Ecological Clerk of Works/Project Geotechnical Engineer) during the works, particularly before/following trafficking by heavy vehicular loads.*

4.9.2.1.3 Upgrading Floating Access Roads

The existing floating access roads to T01, T02, T03 and T04 will be used for the construction of the Prospective Development. In these locations the existing roads will be 'topped up' with a thin layer of crushed rock, up to 150mm in thickness finished with a layer of selected granular fill. Monitoring posts

will be installed upslope and downslope of this area prior to construction works commencing, as detailed in Section 7 of Appendix 4-2: Peat and Spoil Management Plan of this EIAR.

1. *Prior to any upgrading works, peat probing, hand shear vane testing and full-scale proof load testing will be carried out along each of the existing floating roads. See 'Peat Stability Assessment Report' in Appendix 8-1 of this EIAR for details.*
2. *Prior to commencing upgrade works movement monitoring posts will be installed in areas where the peat depth is greater than 2m and will be placed at 10m intervals along these sections.*
3. *The surface of the existing access road will be graded/tidied up prior to the placement any additional material.*
4. *Stone delivered to the floating road construction will be end-tipped onto the constructed floating road. To avoid excessive impact loading on the peat due to concentrated end-tipping all stone delivered to the floating road will be tipped over at least a 10m length of constructed floating road.*
5. *The construction of these access roads will be inspected on a daily basis (by the Site Manager/Ecological Clerk of Works/Project Geotechnical Engineer) during the works, particularly before/following trafficking by heavy vehicular loads.*

4.9.2.1 BMEP Site Roads

4.9.2.1.1 *Upgrade of Existing Floating Forestry Access Track*

A single section of floating forestry access track on the BMEP Site will be widened and upgraded as a floating road to allow for forestry felling operations. The proposed location is shown on drawing P24-234-0602-0001 within Appendix 4-2: Peat and Spoil Management Plan of this EIAR and details shown on Figure 4-11 above. The existing track comprises coarse crushed rock fill on a layer of tree brash. Peat depth in this area is less than 2m and the slope angle is less than 5 degrees. Monitoring posts will be installed upslope and downslope of this area prior to construction works commencing, as detailed in Section 7 Appendix 4-2: Peat and Spoil Management Plan of this EIAR. Peat probing and hand shear vanes testing will also be undertaken in advance of construction works commencing.

1. *Prior to commencing floating access road construction movement monitoring posts will be installed and will be placed at 10m intervals along this track.*
2. *The surface of the existing access road will be scraped back to a depth of 250mm, and a layer of geogrid placed across the existing road and the widened section of the road.*
3. *The existing section of road will be overlain with a 150mm layer of selected granular fill.*
4. *The basal geogrid on the widened section will be overlaid with an average of 800mm of selected granular fill.*
5. *The finished road width will be approximately 4m, with wider sections on bends.*
6. *Additional geogrid and granular fill may be required in certain sections of the works, such as where excessive rutting is noted in the existing road.*
7. *Stone delivered to the floating road construction will be end-tipped onto the constructed floating road. Direct tipping of stone onto the peat will not be carried out.*
8. *To avoid excessive impact loading on the peat due to concentrated end-tipping all stone delivered to the floating road will be tipped over at least a 10m length of constructed floating road.*
9. *Following end-tipping suitable machinery will be employed to spread and place the tipped stone over the base geogrid along the line of the road.*

4.9.2.1.2 *New Forestry Access Track*

A new floating forestry access track, approximately 550m in length, will be constructed in a single area on the BMEP Site. The proposed location is shown on drawing P24-234-0602-0001 within Appendix 4-2: Peat and Spoil Management Plan of this EIAR and details are shown on Figure 4-10 above. Peat depth

in this this area is less than 2m and the slope angle is less than 5 degrees. Monitoring posts will be installed upslope and downslope of this area prior to construction works commencing, as detailed in Section 7 Appendix 4-2: Peat and Spoil Management Plan of this EIAR.

This methodology includes procedures that are to be included in the construction to minimise any adverse impact on peat stability. The methodology is not intended to cover all aspects of construction such as drainage and environmental considerations, which are considered in Section 4.5 above and Chapter 9 of this EIAR.

1. *Prior to commencing floating track construction movement monitoring posts will be installed in areas where the peat depth is greater than 2m.*
2. *Prior to any upgrading works, peat probing and hand shear vane testing will be undertaken along the route of the track.*
3. *Base geogrid will be laid directly onto the existing peat surface along the line of the track in accordance with geogrid provider's requirements.*
4. *The make-up of the new floated access track will be an average of 800mm of selected granular fill with 2 no. layers of geogrid with possibly the inclusion of a geotextile separator (Figure 4-10 above).*
5. *Granular fill to be placed and compacted in layers in accordance with the TII Specification for Road Works, Series 600 (2024).*
6. *The finished trackwidth will be approximately 4m, with wider sections on bends.*
7. *Stone delivered to the floating track construction will be end-tipped onto the constructed floating track. Direct tipping of stone onto the peat will not be carried out.*
8. *To avoid excessive impact loading on the peat due to concentrated end-tipping all stone delivered to the floating track will be tipped over at least a 10m length of constructed floating road.*
9. *Where it is not possible to end-tip over a 10m length of constructed floating road then dumpers delivering stone to the floating track will carry a reduced stone load (not greater than half full) until such time as end-tipping can be carried out over a 10m length of constructed floating road.*
10. *Following end-tipping suitable machinery will be employed to spread and place the tipped stone over the base geogrid along the line of the track.*
11. *A final surface layer will be placed over the full width of the floating track, as per design requirements, and graded to accommodate wind turbine construction and delivery traffic.*

4.9.2.2 Temporary Construction Compound

There are two existing 2 no. temporary construction compounds within the Wind Farm Site. It is proposed to be extend the existing temporary construction compound south of T10 as part of the Prospective Development. No works are proposed at the second temporary construction compound adjacent to the onsite 110kV substation. The extension to the temporary construction compound will be constructed as follows:

- The area to be used as the compound will be marked out at the corners using ranging rods or timber posts. Drainage runs and associated settlement ponds will be installed around the perimeter;
- A layer of geo-grid will be installed where deemed necessary by the designer and compacted layers of well graded granular material will be spread and lightly compacted to provide a hard area for Site offices and storage containers;
- Areas within the compound will be constructed as site roads and used as vehicle hardstanding's during deliveries and for parking;
- A bunded containment area will be provided within the compound for the storage of lubricants, oils and site generators etc;
- A waste storage area will be provided within the compound;
- The compound will be fenced and secured with locked gates if necessary; and,

- Upon completion of the construction phase of the Prospective Development, the temporary construction compound will be decommissioned and allowed to vegetate naturally.

4.9.3 Underground Electrical and Communication Cabling

As outlined in Section 4.4.1.5 above, a large portion of the onsite underground cabling ducting work has been completed to date, with some sections of existing cable ducting to be replaced, and several sections of new cable ducting required to connect the wind turbines to the existing onsite substation.

The transformer in each turbine will be connected to the onsite 110kV substation through a network of buried electrical cables. The ground is trenched typically using a mechanical excavator. The top layer of soil is removed and saved so that it is replaced on completion. The cables are bedded with suitable material unless the ground conditions are such that no bedding is required. The cables will be laid at a depth that meets relevant national and international requirements and will generally be approximately 1.2m below ground level; a suitable marking tape is installed between the cables and the surface. Please see Plate 4-7 below illustrating an example of a single 33kV cable trench and Plate 4-8 below illustrates an example of a trefoil 33kV cable trench.

On completion of the outstanding cabling and ducting upgrade works, the ground will be reinstated. The route of the cable ducts will follow the access track to each turbine location and are shown on the site layout drawings included as Appendix 4-1 of the EIAR. The cabling may be located on either side of the road and/or within the road footprint.

Plate 4-7 Typical Single Cable Trench View

Plate 4-8 Typical Trefoil Cable Trench View

4.9.3.1.1 Trenching and Ducting

The proposed cable will be installed in a series of ducts in an excavated trench. Where new sections of duct are required, once the required depth and width is achieved, the trench base will be re-graded and smoothed. A layer of bedding material will be placed and compacted to the required specification on the trench floor prior to laying the ducts in trefoil formation.

The ducting surrounds will be carefully backfilled and compacted in accordance with the required specification. Cable protection strips will be placed on compacted material directly above the ducting. A secure cap will be placed at the end of each duct to prevent the ingress of dirt or water.

Ground water and surface water accumulating in the base of trenches where ducting is being replaced will not be pumped directly to roadside drains or watercourses unless it is clean and free from solids. Contaminated water will be either treated onsite prior to discharge or tankered offsite to a suitably licensed disposal facility.

Where ducts are within the internal site road network, surfacing will be reinstated for use during the operational phase. In areas where ducts are laid in unsurfaced/grass sections, trenches will be backfilled with suitable excavated material to ground level leaving at least 100 mm topsoil or match existing level at the top to allow for seeding.

Ducting will be cleaned and tested in accordance with the specification by pulling through a brush and mandrel. A draw rope will be installed in each duct in preparation for cable installation at a later date.

Where these ducts are currently exposed within the Wind Farm Site adjacent to existing access roads, stone will be backfilled over these ducts followed by soil and reseeding.

Please refer to the planning drawings in Appendix 4-1 of this EIAR for cross-sectional and longitudinal drawings showing the typical cable trench arrangement at culvert crossings.

4.9.3.1.2 *Underground Electrical (33kV) and Communication Cabling in Floated Roads*

Some sections of the 33kV cabling will be installed and/or replaced in floating roads. Upgrading of the floating access roads will be completed prior to installation of the 33 kV electrical cabling. Prior to cable installation, the route will be inspected to identify drainage infrastructure and culvert crossings. The ducting arrangement will be designed to maintain appropriate separation distances from drainage infrastructure, with lean mix concrete protection provided where required.

Cable trenches will be excavated within the floating roads to the top of the existing combi-grid base layer. Cable ducts, including power, communications and earthing infrastructure, will be installed within the trench on a suitable granular bedding layer. Required separation distances between ducts will be maintained.

Following duct installation, the trench will be backfilled with suitable granular material and compacted in layers. The floating road structure, including the geogrid reinforcement, will be reinstated to maintain the integrity and performance of the road.

4.9.4 Watercourse Crossings

4.9.4.1 Culvert Crossings

As described in Section 4.4.1.6.2 above, culverts may be installed to manage drainage waters from works areas of the Prospective Development, particularly where the waters have to be taken from one side of an existing roadway to the other for discharge. All proposed culvert upgrades at field drain crossings required for the Wind Farm Site will be suitably sized for the expected peak flows in the watercourse. The size of culverts will be influenced by the depth of the track or road sub-base but will have a minimum 900m diameter. In all cases, culverts will be oversized to allow mammals to pass through the culvert.

Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.

All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance. Sectional drawings of culvert crossings within the Wind Fram Site are provided in Appendix 4-1 of this EIAR.

4.9.5 Construction and Reinstatement of Borrow Pits

The location of the existing borrow pits is shown on Figure 4-1 above, with the locations being: southwest of T12 (BP1), southeast of T15 (BP2) and adjacent to T13/T16 (BP3). Continued use and/or extension of excavation works at these locations are proposed as part of the Prospective Development The peat depth within the development footprint of the borrow pit extension (BP3) ranges from 0.6 to 3.0m. BP1 and BP2 will continue to be worked, however the footprint of the borrow pits will not be extended, and as such these will not generate any additional peat/spoil to be managed. Bedrock (Psammite) will be excavated, processed and used across the Site as granular fill for roads and hardstands.

Upon removal of the rock from within the borrow pits, it is proposed to reinstate the borrow pits using excavated peat and spoil. The excavated rock from the borrow pits will be used in the construction of the infrastructure elements (turbine bases, roads, etc.) at the Wind Farm Site. The Contractor will be required to develop the borrow pits in a way which will allow the excavated peat and spoil to be placed safely. It is proposed to construct cells within the borrow pit (BP3) for the placement of the excavated peat and spoil. This is to allow for the safe placement and grading of the peat and spoil using dumper trucks and excavators. It also eliminates the need to construct above ground retaining structures which may have an unnecessary visual impact and increase the development footprint of the Prospective Development. The text below provides design and construction commitments for the borrow pits.

It should be noted that there are significant excavation works required in order to develop the extension to the existing borrow pit (BP3) at the Wind Farm Site. Excavation works will be undertaken and supervised by an experienced contractor and the Project Geotechnical Engineer. The text below provides design and construction guidelines for the borrow pit.

Figures 4-12 to 4-14 above show plan and cross sections of the borrow pits.

The text below provides design and construction commitments for the borrow pits:

1. *Peat and overburden will be removed and stored within the void at the existing borrow pits. The rock within the proposed borrow pit footprint will be removed by breaking and blasting.*
2. *It is proposed to construct the borrow pits so that the base of the borrow pits are below the level of the adjacent section of access road.*
3. *Slopes within the excavated rock formed around the perimeter of the borrow pits will be formed at stable inclinations to suit local in-situ rock conditions. Exposed sections of the rock slopes will be left with irregular faces and declivities to promote re-vegetation and provide a naturalistic appearance.*
4. *The stability of the rock faces within the borrow pits will be inspected by the Project Geotechnical Engineer upon excavation to ensure stability during construction works and in the long term. This inspection will allow unfavourable rock conditions to be identified and suitable mitigation measures to be applied such as removal of loose rock, in line with best practice guidelines.*
5. *It will be necessary to construct rock buttresses within BP3 to create individual cells (up to 3 no. as required). The cells will be opened in sequence and filled as needed.*
6. *A rock buttress to form cells with the borrow pit will be required to ensure access for trucks and excavators can be achieved. This will be formed by leaving in place an upstand of intact rock as the borrow pit excavation is progressed. See Figure 4-14 above for the location of the rock buttress. The location of the rock buttress shown on Figure 4-14 for the borrow pit is indicative only and may change subject to local conditions encountered on the Wind Farm Site during construction. The rock buttress will be wide enough (up to 4m) to allow construction traffic access for tipping and grading during the placement of the excavated peat and spoil. The permanent side slopes of the internal rock buttress will be constructed at 45 degrees.*

7. *Infilling of the peat and spoil will commence at the back edge of the borrow pit and progress towards the borrow pit entrance/rock buttress. The contractor excavating the rock will be required to develop the borrow pit in a way which will allow the excavated peat and spoil to be reinstated safely.*
8. *The use of temporary access ramps and long reach excavators during the placement of the excavated peat and spoil will be required.*
9. *The surface of the placed peat and spoil will be shaped to allow efficient run-off of surface water from the placed arisings towards the perimeter of the borrow pit.*
10. *An interceptor drain will also be installed around the perimeter of the borrow pit. This drain will divert any surface water away from the borrow pit and hence prevent water from ponding and lodging during construction, and also when reinstated*
11. *Temporary control of groundwater within the borrow pit will be required. A temporary pump and suitable outfall locations will be required during construction.*
12. *A settlement pond will be constructed at the lower side/outfall location of the borrow pit and is shown on the drainage drawings.*
13. *The acrotelm will be placed with the vegetation part of the sod facing the right way up (where practicable) to encourage growth of plants and vegetation at the surface of the peat and spoil within the borrow pit.*
14. *Supervision by the Project Geotechnical Engineer is required for the development of the borrow pit.*
15. *All the above-mentioned requirements will be implemented by the Contractor during construction.*

4.9.6 Excavation and Management of Peat and Spoil

This methodology includes procedures that are to be included in the construction phase to minimise any adverse impact on peat stability:

1. *All excavated peat and spoil will be transported immediately on excavation to the designated storage areas. No material is to be side cast or stored on the in-situ peat on the downslope side of the access roads/hardstands.*
2. *Further details on the construction and reinstatement of the borrow pit and management areas are given in Section 4.9.5 above.*
3. *Some of the peat, in particular the acrotelm (upper layer of the peat), excavated during construction will be used for landscaping purposes around the turbine bases, hardstands and underground cabling corridor.*
4. *Sufficient space has been identified across the Wind Farm Site for the volume of peat and spoil that will be excavated as part of the Prospective Development.*

4.9.6.1 Dedicated Peat Storage Cell (T18)

A designated storage cell is proposed adjacent to T18, within an existing worked area. The location of this is shown on Figure 4-1 and a plan and cross section is shown in the planning drawings in Appendix 4-1 of this EIAR.

1. *The placement of peat within the peat cell will require the use of long reach excavators.*
2. *The existing perimeter buttress will be inspected prior to filling commencing and widened/strengthened where necessary.*
3. *The surface of the placed peat will be shaped to allow efficient run-off of surface water. Shaping of the surface of the peat/spoil will be carried out as placement of peat within the peat cell progresses. This will reduce the likelihood of debris run-off and reduce the risk of instability of the placed peat.*
4. *The acrotelm will be placed on the finished surface with the vegetation part of the sod facing the right way up (where practicable) to encourage growth of plants and vegetation at the surface of the placed peat and spoil within the placement areas.*

5. *Supervision by the Project Geotechnical Engineer is required for the development of the peat cell.*

4.9.7 Wind Farm Site Amenity Areas

4.9.7.1 Timber Boardwalk

As part of the proposed amenity proposal, a timber boardwalk will be constructed between T6 and Carrickaduff Lough, with a viewing platform proposed in the vicinity of Carrickaduff Lough. The boardwalk will be approximately 190m long and 3m wide, with a viewing platform of approximately 15m by 6m. The construction methodology for the boardwalk will also apply to the viewing platform. Boardwalks provide a low-impact form of access infrastructure, enabling pedestrian movement across sensitive habitats while maintaining existing drainage patterns and minimising ground disturbance when compared to conventional path construction methods.

The construction methodology will be as follows:

- The boardwalk alignment will be set out in accordance with approved drawings and ecological constraints, ensuring avoidance of sensitive habitats and minimisation of the construction footprint.
- Low-ground-pressure plant shall be used, and where necessary bog mats/track systems shall be deployed.
- No excavation, removal, or replacement of peat material will be undertaken.
- A timber pile system will be adopted to avoid disturbance to underlying peat soils, in accordance with best practice for peatland environments.
- Piles will be installed using low-impact methods, including hydraulic-driven timber piles to competent bearing stratum or refusal as required.
- Pile caps/head beams and longitudinal members will be installed using corrosion-resistant fixings suitable for wet environments.
- Timber joists and decking will be installed above the substructure, maintaining existing hydrological flow, with drainage gaps provided between boards.
- All timber will be pressure-treated or otherwise suitable for external exposure and ground-contact conditions.
- The construction of this timber boardwalk will be inspected on a daily basis (by the Site Manager/Ecological Clerk of Works/Project Geotechnical Engineer) during the works.

4.9.7.2 Pedestrian Gravel Track

The proposed gravel track forms part of the amenity access network and will provide a permeable, low-impact pedestrian route. The gravel track will be approximately 165m long and 3m wide.

The construction methodology will be as follows:

- The path alignment will be set out in accordance with approved drawings and ecological constraints, avoiding sensitive habitats where practicable.
- Topsoil and vegetation will be carefully stripped and stored separately for reuse in reinstatement where appropriate.
- A geotextile membrane will be installed where required to separate subgrade soils, followed by a compacted granular fill layer forming the structural base and a gravel wearing course to provide the finished surface.

4.10 Community Gain Proposal

4.10.1 Background

The Prospective Development has the potential to have significant benefits for the local economy, by means of job creation, landowner payments and commercial rate payments. An important part of a renewable energy development, which Meenbog Ltd. has been at the forefront of developing, is its Community Benefit Package. The concept of directing benefits from wind farms to the local community is promoted by the National Economic and Social Council (NESC) and the Wind Energy Ireland (WEI) among others. While it may be simpler and easier to put a total fund aside for a wider community area, Meenbog Ltd. is endeavouring to develop new ways to direct increased gain towards the local community with particular focus on those living closest to the Subject Development.

The applicant company has given careful consideration to the issue of community gain arising from the Subject Development, if permitted and constructed. Community gain from significant development proposals, including wind farms, whilst a relatively recent approach, is now a common consideration for developers and, indeed, planning authorities. This approach recognises that, with any significant wind farm proposal, the locality in which the Subject Development is situated is making a significant contribution towards helping achieve national renewable energy and climate change targets, and the local community should derive some benefit from accommodating such a development in their locality.

Community gain proposals can take a number of forms, generally depending on the nature and location of the Subject Development and the nature and make-up of the local community. The nature of the community gain proposal will be subject to discussions with and input from the local community. In some instances, funds are paid by the developer, either annually or as a one-off payment, to a community fund that is administered as agreed by the community. These funds may then be used for a variety of projects, such as environmental improvements, local amenities and facilities, voluntary and sporting groups and clubs, educational projects, energy efficiency improvement works and direct payments to nearby households.

A Community Report is included as Appendix 2-3 of this EIAR, which sets out further detail on the proposals for the Community Benefit Fund.

4.10.2 Renewable Energy Support Scheme

The Renewable Electricity Support Scheme (RESS) is a Government of Ireland initiative that provides support to renewable electricity projects in Ireland. RESS is a pivotal component of the Programme for Government and Climate Action Plans 2021, 2023, 2024 and 2025, and is a major step in achieving Ireland's target of at least 80% renewable electricity by 2030. One of the key objectives of RESS is to provide an Enabling Framework for Community Participation through the provision of pathways and supports for communities to participate in renewable energy projects.

The current RESS 5 Terms and Conditions[11], published by the Department of Climate, Energy and Environment in August 2025, make some high-level provisions for how this type of benefit fund will work.

Should the Prospective Development secure support under the Renewable Electricity Support Scheme (RESS), a Community Benefit Fund would be established in accordance with the applicable RESS Terms and Conditions and Community Benefit Fund Rulebook. The Fund would receive a minimum contribution of €2/MWh of electricity generated and would provide annual payments to eligible households within 2 km of the nearest turbine, together with funding for community projects and

[11] https://assets.gov.ie/static/documents/RESS_5_Terms_and_Conditions.pdf

initiatives. At least 40% of the Fund would be allocated through a public application process to eligible community initiatives, while administration costs would be limited in accordance with the Rulebook.

4.10.3 Community Benefit Fund

The applicant committing to a community benefit scheme based on a contribution of €1/MWh per annum over the lifespan of the project based on the current estimated generating capacity (91.2 MW) and an average capacity factor across 25-year lifespan. This will equate to potential funding of over €6 million to the local community which is a substantial contribution.

The community benefit fund is intended to provide long-term and locally focused benefits to communities surrounding the Meenbog Wind Farm. The fund is intended to support projects and initiatives that provide tangible and lasting benefits within the local area.

It is envisaged that governance arrangements for the fund will be developed through engagement with local community representatives, including the establishment of an appropriately representative structure to assist in the administration and distribution of funding. This may include the formation of a community benefit fund working group representing both neighbouring residents and the wider local community.

The fund may support a range of community, amenity, recreational, educational, and accessibility initiatives within the Meenbog area and the wider locality. This may include support for local sports and recreational facilities, community buildings, accessibility improvements, local voluntary and community organisations, and educational resources for local schools, including supports for sensory and additional needs provision and physical education resources.

The fund can also be used to encourage energy efficiency upgrades within Meenbog area and the wider locality. Examples of energy efficiency upgrades include the installation of heat pumps, retrofitting of insulation, fitting of triple-glaze windows, retrofitting of boilers, fitting of advanced ventilation, and the installation of Solar PV panels.

4.11 Operation

The Subject Development is expected to have an operating period of approximately 25 years. As part of the planning application for the Subject Development, permission is being sought for a 25-year operation period commencing from the date of full operational commissioning of the Prospective Development. During the operating period, on a day-to-day basis the wind turbines will operate automatically, responding by means of meteorological equipment and control systems to changes in wind speed and direction.

The wind turbines will be connected together and data relayed from the wind turbines to a central control unit at the on-site 110kV substation which will facilitate off-site remote monitoring of the wind farm. Each turbine will be monitored off-site by the appointed Operations and Maintenance contractor (typically the wind turbine manufacturer) and also a wind farm operations management company. The monitoring of turbine output, performance, wind speeds, and responses to any key alarms will be monitored off-site by both parties 24-hours per day. Regular on-site visual inspections will also be carried out by the wind farm operations management company.

4.11.1 Maintenance

Each turbine will be subject to a routine maintenance programme involving several checks and changing of consumables, including oil changes. In addition, there is often a requirement for unscheduled maintenance, which could vary between resetting alarms to major component changes requiring a crane. Typically, maintenance traffic will consist of four-wheel drive vehicles or vans. The

site roads will also require periodic maintenance. Maintenance of the site roads will involve filling potholes and maintaining road edge markers. Drainage maintenance will typically involve cleaning of drainage ditches when required to prevent water backing up.

The onsite 110kV substation and site tracks will also require periodic maintenance. The onsite 110kV substation is operational 24 hours per day, 7 days a week throughout the year. Substations can be operated remotely and manually. Supervisory operational and monitoring activities will be carried out remotely using a SCADA system, with the aid of computers connected via a telephone modem link. The following maintenance procedures will also be adhered.

1. Periodic service and maintenance works which include some vehicle movement.
2. For operational and inspection purposes, substation access is required.
3. Servicing of the substation equipment will be carried out in accordance with the manufacturer's specifications, which would be expected to entail the following:
    - Six-month service – three-week visit
    - Annual service – six-week visit
    - Weekly visits as required.

Occasional technical problems may require maintenance visits by technical staff. During the six-month and annual service visits, some waste (lubricating and cooling oils, packaging from spare parts or equipment, unused paint, etc.) will arise. This will be recorded and removed from the Site and reused, recycled or disposed of in accordance with the relevant legislation in an authorised facility.

It is estimated that 1-2 daily visits will be made to the Wind Farm Site for authorised persons and vehicles to undertake minor routine maintenance and inspection, if and when required. Although the level of activity required for the maintenance of the both the Wind Farm Site and existing Grid Connection infrastructure is minimal, the impacts associated with traffic volumes for this period are assessed in Chapter 15 Material Assets as part of Traffic and Transport.

4.11.2 Monitoring

Section 8 of the CEMP sets out a programme of monitoring required for the operational phase of the project. The CEMP should be consulted for detailed information on the monitoring requirements during the operational phase, however a brief summary of the key information is provided below:

- Monthly water sampling and laboratory analysis will be undertaken for the first six months during the operational phase.
- The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.
- Post-construction bird monitoring will be carried out in accordance with the Bird Monitoring Plan provided in Appendix 7-7 of this EIAR.
- Post-construction bat monitoring will be carried out in accordance with the Bat Report recommendations in Appendix 6-1 of this EIAR.
- Post construction monitoring at the BMEP Site will be carried out in accordance with the BMEP provided in Appendix 6-4 of this EIAR.
- Post-construction linear habitat restoration monitoring following the main growing season (i.e. in September) in a given year for the first five years of growth.
- Monitoring for shadow flicker at sensitive receptors where any exceedance of the shadow flicker limit has been predicted as outlined in Chapter 5.
- Post turbine commissioning noise monitoring will be commenced within 6 months of commissioning the wind farm.

4.12 Decommissioning

The wind turbines proposed as part of the Prospective Development are expected to have an operating period of approximately 25 years. At the end of the proposed 25-year operating period, should it not be considered appropriate to continue the operation of a wind farm at this location (subject to planning permission being obtained), the wind farm will be decommissioned.

In decommissioning the Meenbog Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. The turbines will be disassembled with a similar model of crane that was used for their erection. The turbine components will be separated and removed offsite. The turbine materials will be transferred to a suitable recycling or recovery facility. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in unnecessary environmental emissions such as noise, dust and/or vibration.

The underground electrical cabling connecting the turbines to the onsite 110kV substation will be removed from the cable ducts. The cabling will be pulled from the cable ducts using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at the original cable jointing pits which will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.

Site roadways will be in use for purposes other than the operation of the wind farm by the time the decommissioning of the Meenbog Wind Farm is to be considered, and therefore it will be more appropriate to leave the site roads in situ for continued use. It is envisaged that the roads will serve as agricultural or forestry access roads.

The Grid Connection underground cabling route and onsite 110kV substation will remain in place as it will be under the ownership and control of the ESBN and Eirgrid and will have permanent permission in accordance with this application.

A Decommissioning Plan has been prepared (Appendix 4-6). As noted in the Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013) reinstatement proposals for a wind farm are made approximately 30 years in advance, so within the lifespan of the Prospective Development, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore:

> *"best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm".*

The Decommissioning Plan will be updated prior to the end of the operating period in line with decommissioning methodologies that may exist at that time and will be agreed with the competent authority prior to the commencement of decommissioning of the wind farm. The potential for effects during the decommissioning phase of the Meenbog Wind Farm has been fully assessed in the EIAR.