MWP

Environmental Impact Assessment Report (EIAR)

Chapter 02 Development Description

Dernacart Wind Farm
110kV Substation and Grid Connection

Statkraft Ireland

October 2024

Contents

Tables

Figures

Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
23268	6011	A	01/10/2024	CF,PC	RoB	CF	Final

MWP, Engineering and Environmental Consultants
Address: Reen Point, Blennerville, Tralee, Co. Kerry, V92 X2TK, Ireland
www.mwp.ie

2. Development Description

2.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes and presents information on the proposed Dernacart Wind Farm Substation and Grid Connection project. The description includes details on the proposed development for which planning permission is being sought (The Proposed Development), and all other associated project components which do not constitute part of the subject planning application. The purpose is to present an appropriate level of detail to form the basis for the Environmental Impact Assessment (EIA).

The details of the proposed development and entire project are further supported by the following documents:

- Construction Environmental Management Plan (CEMP) (EIAR Volume 3, Appendix 2)
- Planning Application Drawings accompanying the planning application
- Dernacart Wind Farm EIAR (Planning Ref 20/78, ABP-310312-21)

2.2 Development Overview

2.2.1 Development Background

The proposed development relates to the consented Dernacart Wind Farm (Laois County Council Planning Reference 20/78, An Bord Pleanála Planning Reference ABP-310312-21). The wind farm development has planning permission for the construction of 8 no. wind turbines with a tip height of up to 185m, turbine foundations, hardstanding areas, new access tracks and upgrading of existing access tracks, 1 no. substation including control buildings, meteorological mast, electrical and grid services equipment, underground electrical and communications cabling, drainage, sediment controls, temporary site compound, tree felling, roads, hardstands and associated works. An EIAR was submitted with the planning application and the consenting authority conducted an EIA on the proposal and determined that the development would accord with the relevant provisions of European, National, Regional and Local planning policy, would be acceptable in respects of its likely effects on the environmental and would constitute an appropriate from and scale of use at this location. The proposed development would therefore be in accordance with the proper planning and sustainable development of the area.

A grid connection did not form part of the planning application, however an indicative grid connection option was included as part of the supporting planning documents and assessed within the EIAR. The proposed Grid Connection option considered at the time consisted of a c. 16.5km underground grid connection route from the on-site substation to the permitted Bracklone 110kV substation, crossing the townlands of Forest Lower, Ballymorris, Coolnacarnoge, Coolaghy, Doolough, Kilbride, Cooltederry, Bracklone and Lea, County Laois and Annamoe, Garryhinch and Barranaghs in County Offaly.

Due to changes in EirGrid requirements since the submission of the original wind farm planning application, the sizing of substation compound for which permission had been sought and approved is no longer adequate and therefore a revised substation with a larger footprint is required.

2.2.2 Proposed Development

To facilitate the connection of the consented Dernacart Wind Farm (Laois County Council Planning Reference 20/78, An Bord Pleanála Planning Reference ABP-310312-21) to the National Grid, Statkraft Ireland (the Applicant) is applying to An Bord Pleanála for permission to construct a 110kV substation in place of the permitted (but not yet constructed) Dernacart Wind Farm 110kV substation, construct and install associated access track and underground electrical cabling from the Dernacart Wind Farm to the relocated substation, and install a 110kV underground electrical cable from the proposed relocated Dernacart Wind Farm substation to the consented Bracklone 110kV Substation (Planning Ref. 20/638) in Portarlington Co. Laois.

Table 2.1 sets out the characteristics of the project elements for which development consent is being sought and all other associated project components.

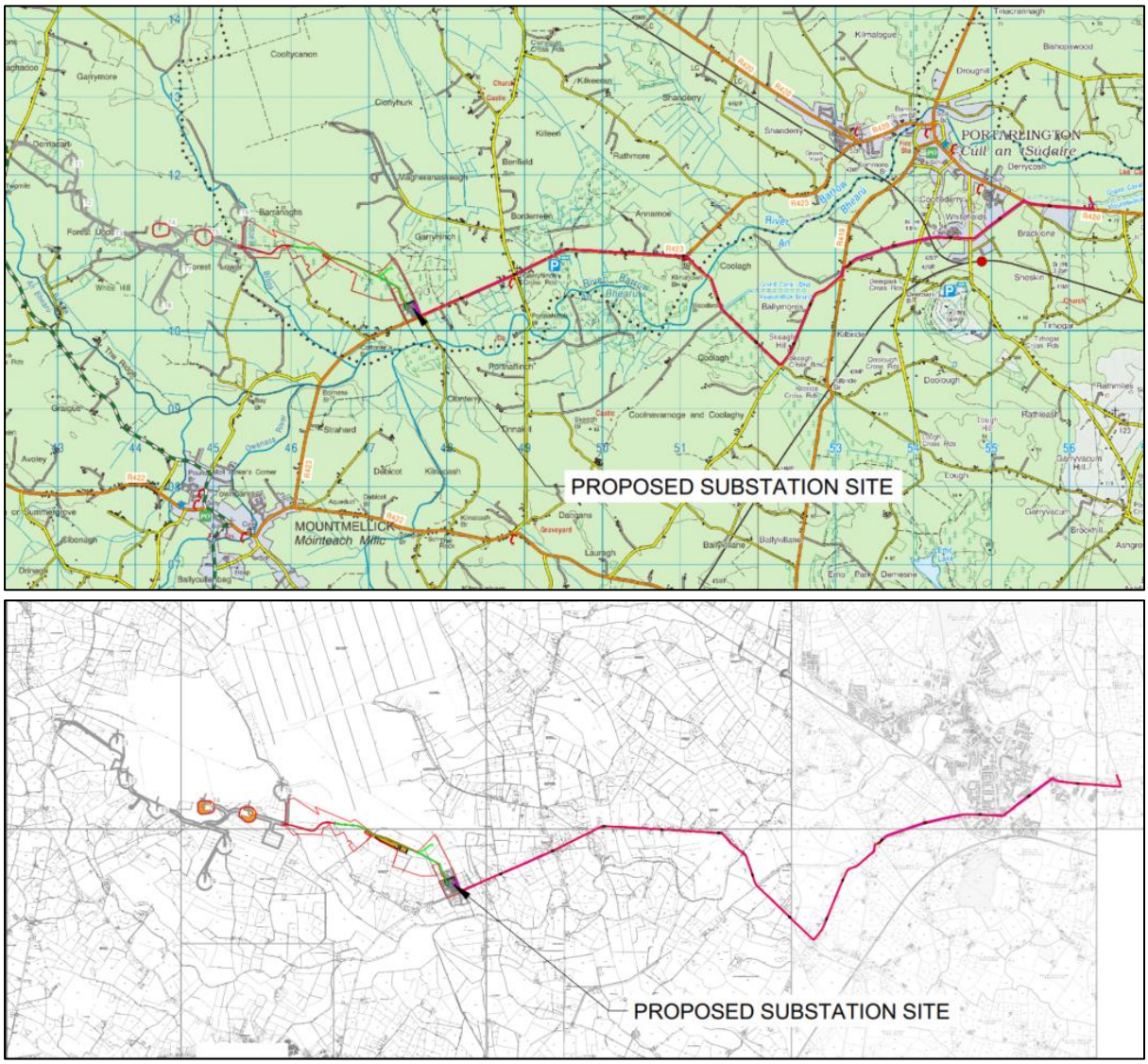
Table 2.1 Characteristics of the Project Project

Proposed Development for which consent is sought	• One (1) 110kV substation with associated compound, including Two (2) single storey control and operational buildings, electrical plant, equipment, cabling, lighting, CCTV, lightning masts, diesel generator and diesel tank, security palisade fencing, • 2.45km underground electric cabling systems between the wind farm site and the proposed 110kV substation overlain with 5.5m wide stone access track • 10.85km of 110kV underground electrical cabling from the proposed 110kV substation to the consented Bracklone 110kV substation including enabling works, services diversions, joint bays, along the grid route • New entrance and access road to substation site from the R423. • New clear span and box culvert/piped water course crossings • Peat/spoil deposition areas • and all associated felling, drainage and ancillary works necessary to facilitate the development
Other Associated and/or potential project Components	• 1 No. temporary construction site compound • Future EirGrid expansion area at the substation site • Consented Dernacart Wind Farm

2.3 Development Site Location and Context

The proposed development is located within south east Co. Offaly and north east Co. Laois. **Figure 2.1** shows the proposed development site boundary included in the planning application. The area within this boundary is 90.8ha.

Figure 2.1 Site Location



2.3.1 110kV Substation

The proposed substation development site is located in County Offaly within the townland of Barranaghs. The site is situated in a rural lightly populated area approximately 1.3km southwest of Garryhinch village, approximately 3km northeast of Mountmellick town and approximately 6km southwest of Portarlington town. The site of the proposed 110kV substation currently comprises greenfield lands comprising a mix of agricultural grasslands, scrub and marginal lands with mature and semi mature trees. The site is bound on all sides by existing mature

hedgerows. Immediately beyond the site to the west is a private access road and agricultural lands. A private access also flanks the eastern boundary with a conifer plantation to its east. A Coillte conifer plantation lies immediately to the north of the site while the R423 runs immediately to the south of the site. The consented Dernacart windfarm is located on lands approximately 2.3km to the northwest of the site.

2.3.2 Underground Wind Farm Collector Cable and Access track

The proposed access track and underground electrical cabling from the Dernacart windfarm to the relocated substation is also to be sited entirely within the townland of Barranaghs and traverses through commercial forestry plantation, scrub and peatland.

2.3.3 Underground Grid Connection Cable

The proposed underground 110kV grid connection cable will connect the proposed 110kV Dernacart Wind Farm substation at Barranaghs to the consented 110kV substation at Brackalone, Co. Laois. The grid connection cable is to be installed solely within the public road network, and will have a length of c. 10.85km that crosses over the administrative areas of Offaly County Council and Laois County Council passing through townlands of Barranaghs, Garryhinch, Annamore in County Offaly and Coolnavarnoga, Coolaghy, Kilbride, Ballymorris, Cooltederry and Bracklone Co. Laois. The physical environment along the majority of the route is characterised with sections of ribbon development and dispersed detached housing before entering the more urban and built up environment of Portarlington town. The landscape along the rural sections of the route primarily consists of patchwork farmland, with fields enclosed by hedgerows, along with boglands and conifer plantations.

2.4 Characteristics and Scale of the Proposed Development

2.4.1 110kV Substation

2.4.1.1 Substation Compound

Figure 2.2 shows the proposed substation development footprint and illustrates the positions of the proposed plant and infrastructure, including internal access/service roads within the development boundary, future expansion area and a new site entrance from the R423. See also Planning Drawing No 23268-MWP-00-00-DR-C-5200.

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

Each section will contain a control building and an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning

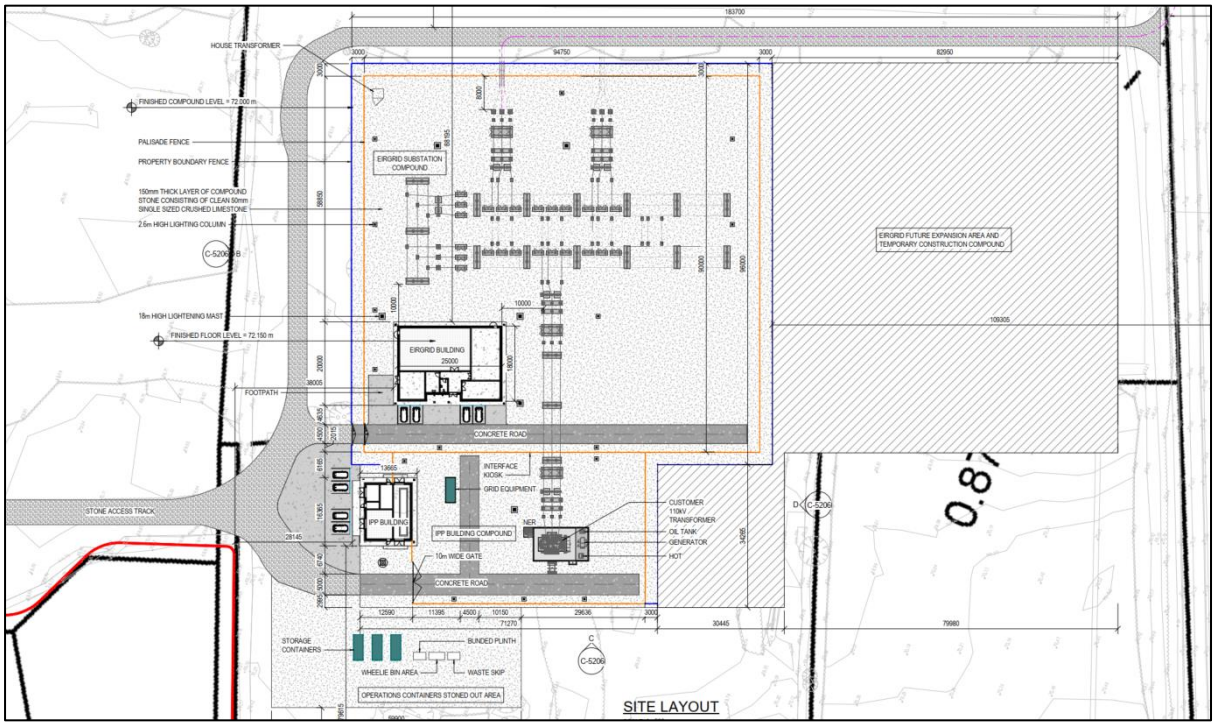
and lighting masts. The IPP section will also contain one grid transformer within a bunded enclosure with back up emergency diesel generator and tank.

The EirGrid control building will be c440.2m^2 in area and contain a control room, battery room, generator room, meeting room, welfare facilities and workshop/store. The IPP control building will be c160.2m^2 in area and contain a control room, switchgear room, welfare facilities and store room. Both buildings will be a block built single storey building approximately 5.85m in height, with pitched roof and an external blockwork and plastered finish.

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

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

Figure 2.2 Proposed Substation Layout



2.4.1.2 Access

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

2.4.1.3 Fencing, CCTV, Lighting

It is proposed to enclose and separate each compound with 2.6m high galvanised palisade (EirGrid Specification fencing coloured green) security fences/gates. The access/security gates will remain locked except when being visited for maintenance.

A 1.4m high property fence consisting of post and rail fencing is proposed around the overall perimeter of the EirGrid compound.

A CCTV system will be operational internally and externally around the development for security.

Site lighting will comprise standard, single down lights positioned around the substation compound and mounted to the substation building and will be motion activated by vehicles or personnel that enter the site. The lighting units will be hooded to minimise light impacts/ spillage.

2.4.1.4 Operations Welfare and Material Storage Units

The proposed operations welfare and storage units will comprise 3 No. steel containers. These units as seen in Figure 2.3 will provide essential amenities including changing, drying and storage facilities for the IPP maintenance and operative personnel when on-site and will also be used for material storage including oils, lubricants and other hazardous liquids. The units will have a built-in spill containment sump to prevent any liquid spills from escaping the container.

A dedicated waste storage area will be provided adjacent to the welfare and material storage units.

Figure 2.3 Welfare/Storage units

2.4.1.5 Landscaping

It is proposed to construct an earthen berm along the southern boundary of the substation site using some excavated materials from the footprint of the substation and new access road. Where feasible any suitable existing hedgerows that will be removed to accommodate the development will be replanted (translocated) on the earthen berm along with new planting using native tree species.

2.4.2 Wind Farm Collector Cable to Substation

Figure 2.4 shows the proposed route of the underground electrical cabling (UGC) from the Wind Farm to the proposed substation. See also Planning Drawings No. 23268-MWP-00-00-DR-C-5102 and 5103. The length of the route is approximately 2.45km with an overall development footprint of approximately 1.5ha. A 5.5m wide access track of open stone finish will be laid over the underground collector cable to facilitate access between the wind farm and the substation.

There are 4 no water crossings required along this route (See Section 2.4.4 for details). Tree felling (c.2.8ha) and hedgerow removal (approximately 320m) will also be required to accommodate this access road.

2.4.2.1 Route Description

Commencing at the Forest Lower Road the underground low voltage collection cabling system and access track from the consented Dernacart wind farm will travel south eastward crossing a watercourse referred to as Cottoners Brook via a new clear span bridge (see Section 2.4.4 for details)

Continuing east/southeast for approx. 350m (chainage 0-350) the UG cable and access track passes through an area of scrub, dense bracken and conifer plantation before reaching an existing forestry track.

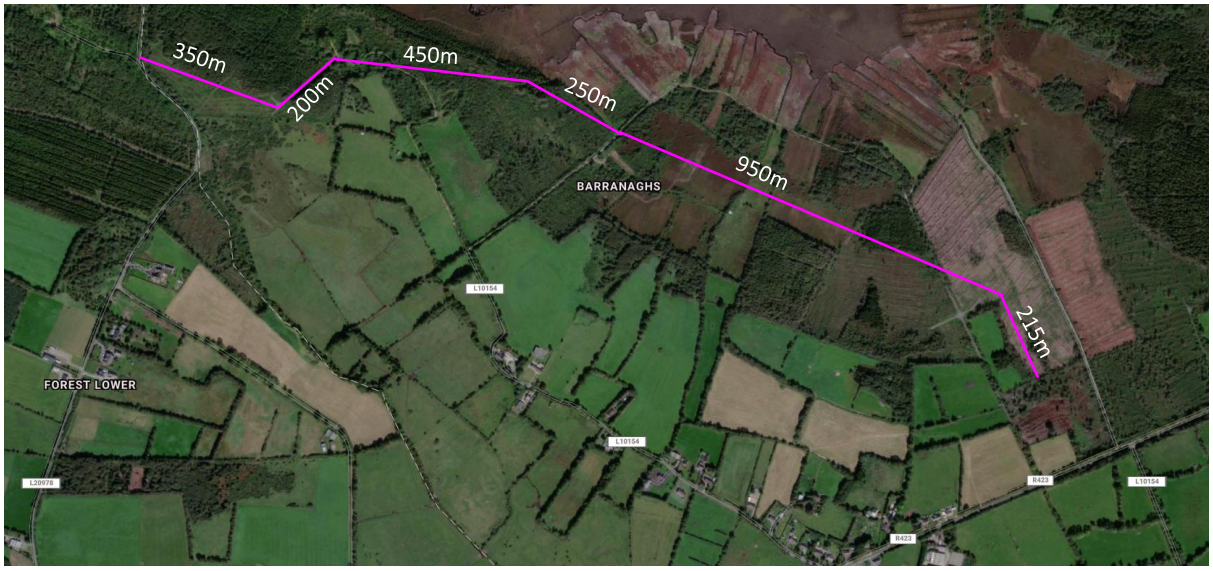
The collector cable route then continues northeast for approx. 200m (chainage 350-550) along an existing forestry track with conifer plantation on either side before reaching a clearing surrounded by a mixed broadleaf/conifer wooded area

For the next approx. 450m (chainage 550-1000) the route heads eastwards intersecting with a forestry track a couple of times and mixed wooded area before entering a densely populated conifer plantation with some areas of deciduous trees. The route passes out of the plantation and on to an area of cutover bog (recolonising).

For the next approx. 1.2km (chainage 1000-2200) the route heads in a southeasterly direction. For the first 250m the route follows along a rough track within cutover bog and through an area of scrub, crossing a drainage ditch and a concrete road. For the next approx. 950m the route crosses a mosaic of cutover bog (recolonising)/wet grassland/scrub/dense bracken) before entering a conifer plantation, crossing another drain and concrete road and re-entering into a young conifer plantation.

For the next approx. 215m (chainage 2200-2415) the route veers southwards though the conifer planation and then into scrub and dense bracken before passing a boundary hedgerow into northern area of the substation site.

Figure 2.4 Collector Cable Route



2.4.3 110kV Underground Grid Cable Route

The proposed route for the installation of an underground grid cable (UGC) from the proposed 110kV Dernacart Wind Farm substation compound in Barranaghs townland to the consented Bracklone 110kV substation in Portarlington, Co. Laois is shown in Planning Application drawings 23268-MWP-GR-XXDR-C-5103-to 5108.

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

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

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

2.4.3.1 Grid Route Description

2.4.3.1.1 Section 1- Substation to R423 (Chainage 0m-170m)

The proposed 110kV underground cable route commences within the boundaries of the Proposed 110kV substation compound situated in the townland of Barranaghs, Co. Offaly. The cable route will exit the substation compound in a southerly direction, for approximately 170m to join the R423 regional road.

2.4.3.1.2 Section 2- R423 to L-50183 (Chainage 170m-3800m)

The route then travels eastward on the R423 for approximately 3.63km to the intersection with the L-50183 passing through the townlands of Garryhinch and Annamoe.

There are 6 water crossings along this section of the route.

The first (Water Crossing No. 5) is encountered immediately at the intersection with the R423. This is an unmapped watercourse.

The second water crossing (Water Crossing No. 6) is encountered a further 285m along the route (Chainage 455m). This is an also unmapped watercourse.

The third water crossing (Water Crossing No. 7) is encountered a further 1.3km along the route (Chainage 1755m). This is an also unmapped watercourse.

The fourth water crossing (Water Crossing No. 8) is encountered a further 245m (Chainage 2000). This is an EPA mapped watercourse known as Clonygowan (IE_SE_14C510940) with a single stone arch bridge crossing.

The fifth water crossing (Water Crossing No. 9) is encountered a further 350m (Chainage 2350) on the route. This is an EPA mapped watercourse (1st order unnamed stream IE_SE_14B010700) with a single stone arch bridge crossing.

The sixth water crossing (Water Crossing No. 10) is encountered a further 360m (Chainage 2710) on the route. This is an EPA mapped watercourse known as Rathmore 14 (IE_SE_14B010700) with a single stone arch bridge crossing.

Water course crossing details are outlined in Section 2.4.4

2.4.3.1.3 Section 3- L-50183 to L-7161 (Chainage 3800m-4160m)

At the intersection of the R423 and the L-50183 the UGC proceeds in a southerly direction along the L-50183 for approximately 360m passing through the townlands of Garryhinch and Annamoe and crossing over the River Barrow (IE_SE_14B010700) (Water Crossing No.11) at Kilnahown Bridge into Co. Laois.

2.4.3.1.4 Section 4- L-7161 to L-3152 (Chainage 4160m-5680m)

The route continues south east passing through the townlands of Coolnavarnoga, Coolaghy, and Kilbride, for approximately 1.52km using the L-7161 until the intersection with the L-3152.

There are three water crossings along this section of the route. All three of these water crossings are minor drains.

Water Crossing No. 12 is encountered at chainage 4650m on the route.
Water Crossing No. 13 is encountered at chainage 4850m on the route.
Water Crossing No. 14 is encountered at chainage 5130m on the route.

2.4.3.1.5 Section 5 L-3152 to R419 (Chainage 5680m-7120m)

The route then turns left to the L-3152 and continues north on this road network for approximately 1.44km until its intersection with the R419 passing through the townlands of Kilbride and Ballymorris.

2.4.3.1.6 Section 6- R419 to L-3158 (Chainage 7120m-7240m)

At the R419 the route turns left and travels north for approx. 120m and then turns east on to the L-3158.

2.4.3.1.7 Section 7- L-3158 to R420 (Chainage 7240m-9800m)

The route continues north east passing through the townlands of Ballymorris, Cooltederry and Bracklone using the L-3158 for approximately 2.56km until its intersection with the R420.

There is one water crossing (Water Crossing No.15) on this section of the route. This is an unmapped water feature.

2.4.3.1.8 Section 8- R420 to Bracklone Substation (Chainage 9800m-10855m)

The route then turns right onto the R420 and continues east on the R420 for approximately 900m and then diverts north onto the access road that leads to the Bracklone substation.

There is one water crossing (Water Crossing No.16) on this section of the route. This is 900 diameter pipe which links to an abandoned canal.

2.4.4 Water Crossings

There are a total of sixteen (16) no. water crossings required to facilitate the proposed development. Four (4) are located along the route of the wind farm collector cable and access road, one (1) at the new site entrance to the proposed substation, and the remaining eleven (11) are located along the route of the 110kV underground grid cable.

Details of each water crossing is provided in Table 2.2 below. There will be no instream works with any watercourse.

Two (2) water crossings will be achieved by the addition of new clear span structures so as to leave the natural bed and banks undisturbed. Details of these crossings are shown on Planning Drawing 23268-MWP-ZZ-00-DR-S-1101.

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

Table 2.2 Grid Route Water Crossing Locations

Updated Water Crossing Number	ITM (X) easting	ITM (Y) northing	Crossing Type, Diameter and Span	EPA listed river waterbody	Anticipated options for UGC crossing method*
1	645343	711091	New crossing over Cottoners Brook for access track and wind farm collector cable	Yes	New clear span structure
2	646457	710961	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
3	647178	647405	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
4	647405	710380	New crossing over minor drain for access road and wind farm collector cable	No	Box Culvert or Pipe
5	647596	710217	New crossing over land drain for access road to substation	No	New clear span structure
6	647878	710339	Minor drain crossing	No	1, 2 or 3
7	649059	710868	Minor drain crossing	No	1, 2 or 3
8	649268	710973	Single stone arch	Yes	4
9	649582	711066	Single stone arch	Yes	4
10	649950	711046	Single stone arch	Yes	4
11	651294	710128	Stone Arch Bridge. Kilnahown Bridge over the river Barrow	Yes	4
12	651480	710296	Minor drain crossing	No	1, 2 or 3
13	651622	710161	Minor drain crossing	No	1, 2 or 3
14	651830	709960	Minor drain crossing	No	1, 2 or 3
15	653082	710849	Minor drain crossing	No	1, 2 or 3
16	656227	711672	900 diameter pipe which links to abandoned canal	No	1, 2 or 3

***Potential Crossing Methods;**
1.Standard trefoil/flatbed formation under piped culvert crossings via open trench.
2. Flatbed formation over bridges/culverts or under a pipe. UGC laid in existing road make up above the bridge/culvert or under an existing pipe.
3. Horizontal Directional Drill under the bridge/culvert.

2.4.5 Surface Water Management and Drainage Systems

A site surface water management system will be constructed on the site so as to attenuate run-off, guard against soil erosion and safeguard downstream water quality. The drainage system will be implemented along all works areas including all internal site access roads, storage areas, substation and temporary construction compound.

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

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

A separate surface water run-off drainage system will be implemented along all internal access roads, to separate and collect 'dirty water' run-off from the roadway and to intercept clean over land surface water flows from crossing internal roadways. To achieve separation, clean water drains will be positioned on the upslope and dirty water drains positioned on the downslope of road sides, with road surfaces sloped towards dirty drains. Clean water will be piped under both the access roads and downslope collection drains to avoid contamination. Piping the clean water under the service road allows the clean water to follow the course it would have taken before construction thus mimicking the existing surface water over land flow pattern of the site and thus not altering the natural existing hydrological regime on site.

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

2.4.6 Material Storage Areas

It is estimated that approximately 60,175m³ of excavated soils and peats will be generated during the construction of the substation and wind farm collector cable route. It is proposed that this excavated material will be retain on site.

There are 3 proposed storage areas excavated material. Figures 2.5 and Figure 2.6 below shows the location of the material storage areas. The principal storage area will be located along a section of the proposed wind farm collector cable and access road in an area of cutover bog and disturbed wet grassland. The other two areas are within the Dernacart wind farm adjacent to T4 and T5, in areas proposed to be clearfelled.

All proposed areas were selected taking account of flat topography, good containment given local ground conditions, no risk of slippage due the flat topography and the avoidance of any natural drains. These areas will require preparation which includes the construction of natural stone berms to manage the location of stored materials. The material storage areas will be graded and vegetated with locally occurring vegetation feedstock. The deposition areas will be fenced in for a period of 12 months post construction to allow for revegetation.

Table 2.3 Material Storage Area Capacity

Deposition Area	Area (hectares)	Storage Volume (m^3)
Deposition Area 1 (Along collector cable access road)	1.1	21540
Deposition Area 2 (T4)	1.2	23518
Deposition Area 3 (T5)	2.2	43632

Figure 2.5 Excavated Materials Storage Areas along Wind Farm Collector Cable Route

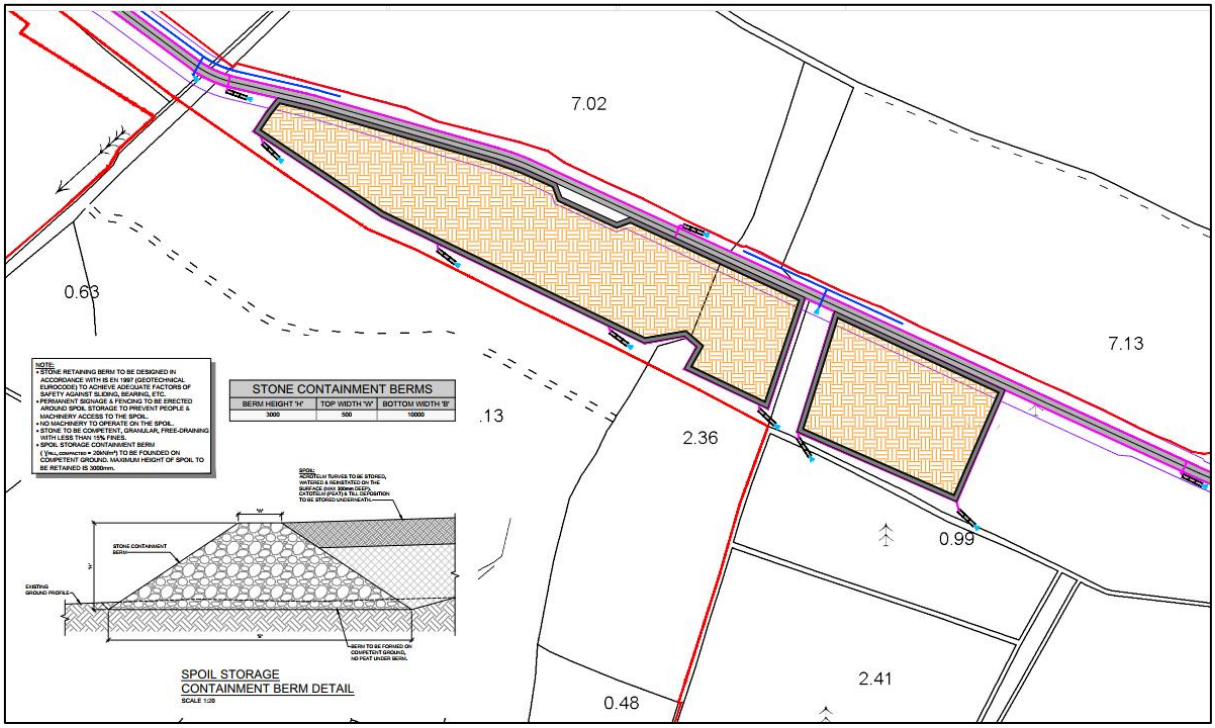
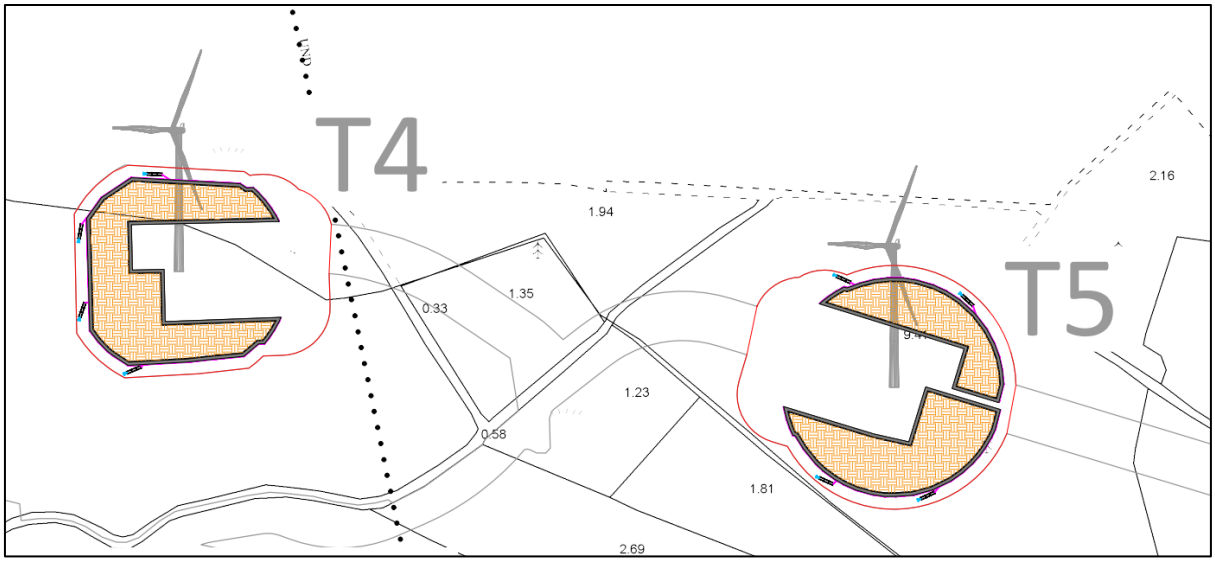


Figure 2.6 Material Storage areas within Wind Farm



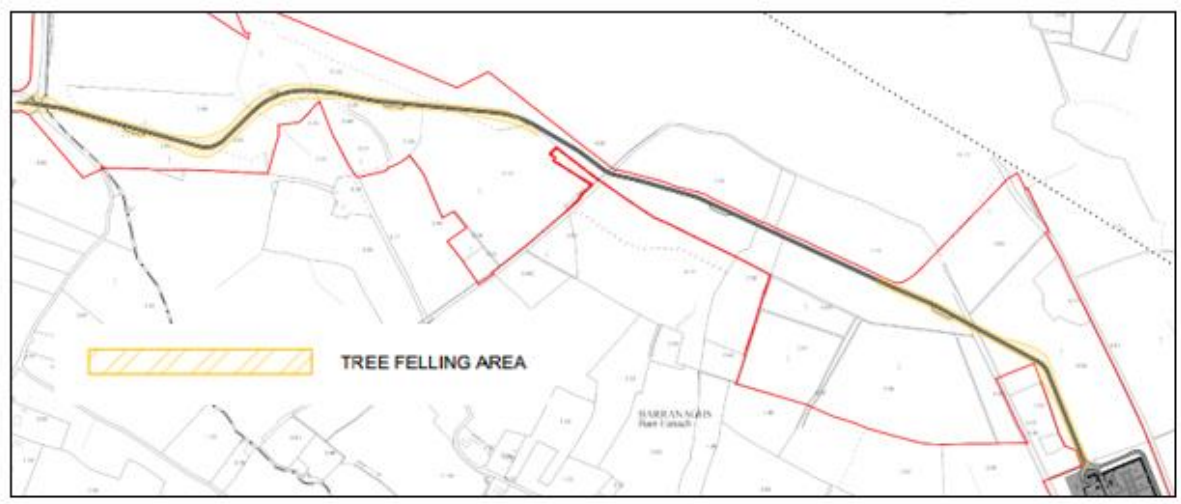
2.4.7 Conifer Felling

Felling of commercial conifer forestry is required to accommodate the construction of the underground collector cable and new access/service road from the windfarm to the 110kV substation. Overall felling of approximately 2.8ha of forestry will be required.

All tree felling will be undertaken in accordance with a tree felling licence, using good working practices as outlined by the Department of Agriculture, Food and the Marine (DAFM) Standards for Felling and Reforestation (2019). These standards deal with sensitive areas, buffer zone guidelines for aquatic zones, ground preparation and drainage, chemicals, fuel and machine oils. All conditions associated with a proposed felling licence will be complied with.

To allow for the forestry removed as part of the project, replacement forestry will be planted at off-site approved lands.

Figure 2.7 Conifer Felling Areas



2.4.8 Temporary Facilities

During the construction phase, it will be necessary to provide temporary facilities for construction operatives.

The temporary construction will have a footprint of approximately 5000m^2 (0.5ha) and be located adjacent to the proposed substation site on the lands identified for future potential expansion area of the EirGrid substation. This temporary compound will have a hard-standing surface and will be secured by an outer perimeter fence.

The compound will be used for construction phase car parking, a secure storage area for construction materials, waste materials and also contain temporary site accommodation units to provide welfare facilities for site personnel. Facilities will include offices, meeting rooms, a canteen and a drying room.

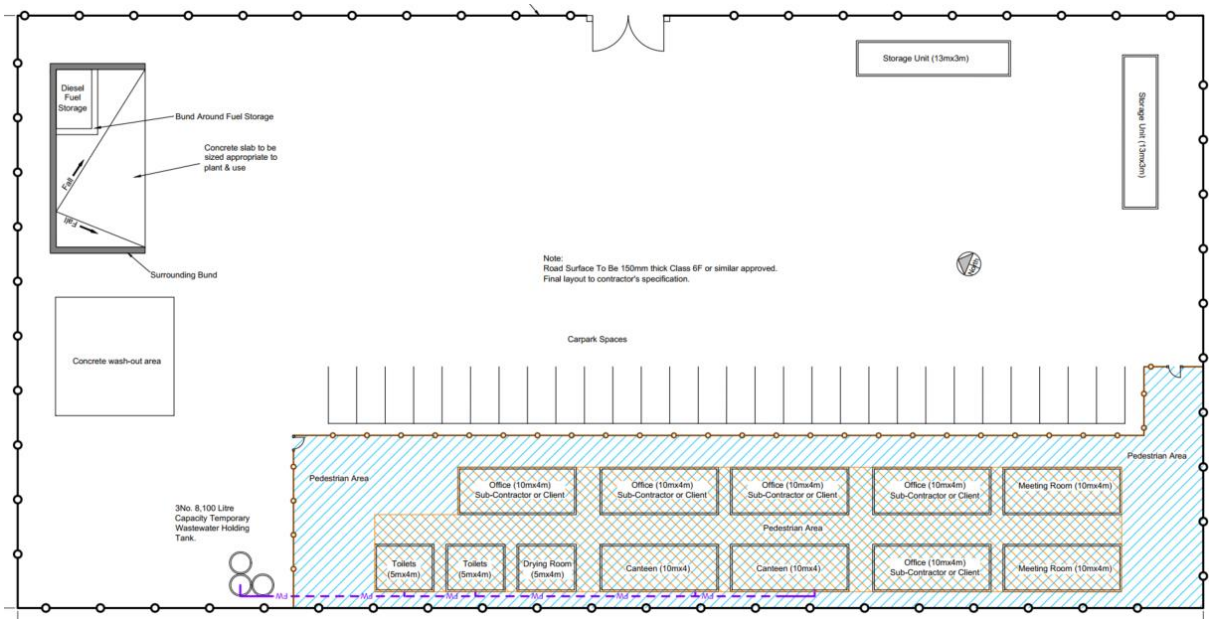
A bunded containment area will be provided within the construction compounds for the storage of lubricants, oils and site generators etc.

A designated lined concrete wash-out area will be installed within the temporary compounds to facilitate washing of concrete mixer chutes only. Washing of concrete mixer barrels will not be permitted.

A self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the Contractor on a regular basis and will be removed from the site on completion of the construction phase.

Upon completion of the project the compound will be decommissioned by backfilling the area with the material / peat arising during excavation and landscaping with topsoil.

Figure 2.8 Temporary Construction Compound



2.4.9 Health and Safety

The Proposed Development will not be a Seveso/COMAH facility. The only substance stored on site controlled under Seveso/COMAH will be diesel for a single back-up generator (tank capacity 1m^3) and the transformers (tank capacity 36m^3) and the amounts proposed do not exceed the relevant thresholds of the Seveso directive.

2.4.10 Fire Risk

Fire risk assessments undertaken at other similar substations indicate these facilities would be considered a Low fire risk. While the risks associated with a fire involving electrical equipment cannot be completely eliminated, the level of monitoring and controls proposed for this facility provide a level of safety that reduces the potential for the outbreak of a fire to a level that would be considered to be as low as reasonably practicable. In the event of an electrical anomaly within the compound, the control systems will provide measures to reduce the chance of fire ignition. Should a fire develop within the compound, the limited combustibility of the structure and its contents would reduce the risk of fire spread to adjacent units, surrounding vegetation or adjacent properties.

2.5 Construction Overview

Key elements of the civil works and activities associated with the construction phase of the proposed development are outlined in the following subsections. Further details are provided in the CEMP.

2.5.1 Wind Farm Collector Cable and Access Track

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

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

2.5.2 110kV Substation

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

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

2.5.3 110kV Grid Route

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

Table 2.4 Overview of Key Construction Activities

Element	Construction Techniques
New Site Entrance	Formation of junction with public road R423. Works includes tree/hedgerow removal and construction of new clear span drain crossing.
Substation access road and Internal roadways/access tracks	Works includes vegetation removal, topsoil stripping, excavation, grading, aggregate placement and compaction.
Substation Compound	Works includes vegetation/tree removal, topsoil stripping, excavation, grading, foundation construction, building construction, final grading and landscaping of temporary works area.
Wind farm collector cable and access road	Underground cable installation construction activities include tree felling, topsoil stripping and excavation, trenching, installing ducting and electrical cables, grading, aggregate placement and compaction.
Water crossings along collector cable route	Vegetation removal and construction of new clear span crossing over Cottoners Brook. Installation of box or piped culvert at 3 drainage channels
Grid Cable (Public Road)	Works consist of the trenching, ducting, cabling and reinstatement of the road surface.
Water crossings along grid cable route	No in-stream works. All stream crossings will be achieved by HDD method.
Temporary Construction compounds	Construction includes tree / hedgerow removal, topsoil stripping, excavation, grading, aggregate placement, compaction and landscaping.

2.5.4 Construction Working Hours

Working hours will be.
7:00am – 7:00pm* (Monday – Friday inclusive)
7:00am – 1:00pm* (Saturday)

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

2.5.5 Construction Duration and Schedule of Construction Works

The total construction time frame for the proposed development is a period of approximately 16 months. The 16 month construction time frame consists of the following;

- The construction time frame for the Substation and Windfarm Collector Cable and associated access road is approximately 16 months. It is anticipated that these works will be undertaken in parallel.
- The grid route is approximately 10.85km long with an expected 75m of works to be completed each day. The overall construction time frame for the UGC is approximately 30 weeks (6 months) to allow for installation of jointing bay, communication chambers, HDD and cable installation.

It is also anticipated that works could be undertaken in tandem with the Dernacart wind farm construction works.

It is envisaged that the proposed development will commence in 2025 with a 16 month construction period. The start date is dependent on planning being granted, receipt of a grid connection offer from EirGrid, funding and all permits being in place.

A framework programme of works is outlined in Table 2.5 and Table 2.6.

Table 2.5 Outline Substation and Windfarm Collector Cable Construction Programme

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

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

Table 2.6 Outline Grid Route Construction Programme

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

Note: Phases are likely to overlap and will not be completed in isolation resulting in estimated total programme duration of approximately 6 months.

2.5.6 Major Temporary Features

Temporary features on site include the construction compound facility, plant and equipment along with safety fencing and building materials. Large excavators and transformer lifting cranes are also a temporary feature on site during the construction phase. There will be some temporary stockpiling of peat or soils at the substation site. This material will be removed and will be placed within the designated material deposition areas.

2.5.7 Typical Plant

Mechanical machinery and electrical equipment typically used for construction projects will be required to facilitate the proposed development. The following is a non-exhaustive list of plant that is typically used for civil engineering work:

- 30-50T Excavators;
- 15-30T Excavator;
- Rubber Tired 15-20T Excavator;
- 3-10T Mini Diggers;
- Low Ground Pressure Excavators (Bog master);
- Mobile Crane for construction;
- Rebar/shuttering/precast units/conc. pipes/box culverts etc;
- Telescopic Handler;
- Tractors and trailers;
- Road grader;
- Double contained fuel bowsers;
- 12T Rollers;
- Diesel powered generators; and
- Water bowsers.

2.5.8 Construction Personnel

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

2.5.9 Construction Environmental Management Plan (CEMP)

An outline CEMP has been produced in order to manage the construction process. Refer to Appendix 2 of EIAR Volume 3. The primary objective of this CEMP is to provide a framework for actions, responsibilities and protocols associated with environmental management with which the Appointed Contractor(s) are required to adhere in order to construct the proposed development in accordance with regulatory requirements and to reduce and/or avoid any adverse environmental impacts. The CEMP will be a 'live' document under ownership of the Developer and managed by the Principal Contractor once appointed up to and throughout the period of construction.

The outline version presented sets out the fundamental work practices, construction management procedures, management responsibilities, mitigation measures and monitoring proposals that are required to be adhered to. The CEMP includes the following minimum site management control:

a) Temporary Construction Compound

- Drainage within the temporary site compound will be directed to an oil interceptor to prevent pollution if any spillages occur.
- No domestic wastewater discharges to the environment. Temporary toilet facilities will include an integrated wastewater holding tank which will be emptied routinely by a licence waste contractor.
- A bunded containment area will be provided within the compound for the storage of fuels, lubricants, oils etc.
- The compound will be in place for the duration of the construction phase and will be removed once commissioning is complete.

b) Soil Stripping

- The timing of the construction phase soil stripping and excavation works will take account of predicted weather, particularly rainfall.
- Soil stripping activities will be suspended during periods of prolonged rainfall events.
- The area of exposed ground will be kept to a minimum by maintaining where possible existing vegetation that would otherwise be subject to erosion in the vicinity of the infrastructure.
- The clearing of peat will be delayed until just before construction begins rather than stripping the entire site months in advance particularly during road construction.

c) Excavation Works

- Earth movement activities will be suspended during periods of prolonged rainfall events
- The earthworks material will be placed and compacted in layers to prevent water ingress and degradation of the material.
- Drainage and associated pollution control measures will be implemented on site before the main body of construction activity commences.

d) Storage and Stockpiles

- Stockpiles of stripped topsoil will be in locations with minimum trafficking to prevent damage and dusting
- Reusable excavated sub-soils and aggregate will be stored in temporary stockpiles at suitably sheltered areas to prevent erosion or weathering and shall be shaped to ensure rainfall does not degrade the stored material
- Where unsuitable material is encountered this will be removed to the designated deposition area for permanent storage.
- Stockpiled materials will be located 50m away from drainage systems and silt retaining measures (silt fence, / silt curtain or other suitable materials) to reduce risk of silt run-off shall be installed along the downgradient edges of stockpiled earth materials.

e) Refuelling of Construction Plant On-site

- Refuelling will be carried out using 110% capacity double bunded mobile bowsers. The refuelling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using.
- Plant nappies or absorbent mats to be placed under refuelling point during all refuelling to absorb drips.
- Mobile bowsers, tanks and drums should be stored in secure, impermeable storage area, 50m away from drains and open water.
- Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits, all oil and any contaminated material will be removed and properly disposed of in a licensed facility.
- Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery.
- Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction.
- In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery.

f) Materials Handling, Fuels and Oil Storage

- Storage of fuels/oil will be located 50m for watercourses.
- Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores.
- Collision with oil stores will be prevented by locating oils within a steel container in a designated area of the site compound away from vehicle movements.
- Leakages of fuel/ oil from stores will be prevented by storing these materials in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Taps, nozzles or valves will be fitted with a lock system.
- Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers and removed from the site for disposal or re-cycling by an approved service provider.
- On-site washing of concrete truck barrels will not be allowed. The washing of the chutes at the rear of the trucks may be permitted. A designated chute wash down area, which will retain the washout water, will be located within the construction compound and there will be no other chute wash down activity on any other part of the wind farm site.

g) Construction Wheel Wash

A Construction Wheel Wash will be used to wash truck tyres leaving the construction site. Water residue from the wheel wash will be fed through a settlement pond, interceptor and then discharged to a vegetated area of low ecological value. The wheel wash area will be cleaned regularly so as to avoid the buildup of residue.

h) Traffic Management

Reasonable efforts will be made to minimise the impact of the works on local residences and users of the public road networks. A Traffic Management Plan (TMP) outlining the required traffic management procedures to be implemented on the public roads during the construction of the proposed development is included as **Appendix 3** of EIAR Volume 3. In the event An Bord Pleanála (the Board) decides to grant approval for the proposed development, the final TMP will address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned by the Board. The Traffic Management Plan will be updated at the construction stage (or the update commenced during planning compliance stage) to ensure controls are in place with all suppliers coming to the project site.

i) Inspection and Maintenance

A programme of inspection and maintenance will be designed and dedicated construction personnel assigned to manage this programme. A checklist of the inspection and maintenance control measures will be developed and records kept of inspections and maintenance works.

2.6 Description of Operation

2.6.1 Substation Maintenance

During the operation, the Developer or a service company will carry out regular maintenance of the substation. During the life of the project, it is envisaged that at least two permanent jobs will be created in the form of an operator or maintenance personnel. In addition, operation and monitoring activities may be carried out remotely with the aid of computers connected via a telephone broadband link. However, routine inspection and preventive maintenance visits will be necessary to ensure the smooth and efficient running of the substation and require a minimal presence.

2.6.2 Grid Connection Maintenance

It is unlikely that the underground 110Kv grid cable will require much maintenance during its operation but in the event a fault does occur, inspection of the fault can be carried out to determine what works to the ducting may be required.

2.7 Decommissioning

The grid cable and substation will remain a permanent part of the national grid infrastructure and therefore decommissioning is not foreseen.

In the event that the development is to be decommissioned, decommissioning is typically in the reverse order of construction. The general decommissioning activities are outlined below:

2.7.1 Wind farm collector cable and access road

The underground electrical collector cable from the wind farm to the substation would be disconnected and remain in place. The access roads will be left for use by the landowners. Environmental impacts are minimised by leaving underground cables in place. The cables contain no materials that are harmful to the environment. The cable installation would include warning tape and tracer cable that would warn anyone that could be digging in the area of the cables both during and after project operation.

2.7.2 110kV Substation

All aboveground components including buildings, structures and equipment will be removed during decommissioning.

Disassembly of the substation would include the removal of the steel, transformers, switches, conductors, and other materials that could be reconditioned and reused or sold as scrap. All underground electrical collector cables coming to the substation from the wind turbines would be cut at the perimeter of the substation; with any cables less than 1m deep removed. Any hazardous material such as oils or lubricants will be removed in accordance with Waste Management standards.

In addition to steel structures, the control building will be disassembled and removed from the site.

The O&M containers would also be removed, relocated or reconditioned. All equipment, furniture, and materials within the O&M containers will be removed prior to removal.

All fencing around the substation compound will be dismantled, removed and reused or sold as scrap.

All foundations will be removed to a depth of at least 1meter below ground surface, backfilled, graded and then covered with topsoil. Based on discussions with landowners, access roads no longer needed will be removed and the disturbed land areas subsequently graded and reseeded.

2.7.3 110kV UGC

The underground electrical 11kV cable would be disconnected and remain in place. All other underground elements (junction boxes, joint bay, cable ducts etc) would also remain insitu.

2.8 Use of Natural Resources

2.8.1 Land take

The 110kV substation development and wind farm collector cable and access track will require a permanent land take of circa 4ha. The removal of some trees and hedgerows will also be required to facilitate the development.

All of the 110kV grid line connection will run within public roads. All works within the public road network will be fully reinstated.

The temporary construction compound will require a temporary land take of approximately 0.5ha. This area will be reinstated once the construction works have been completed.

2.8.2 Aggregate

Large amounts of aggregates and concrete will be used during construction. Materials required will mainly consist of higher grade materials not available to be won on site, eg stone material for roads and foundations, and concrete for the construction of the hardstanding areas.

Table 2.7 Summary of Approximate Aggregate Quantities

Stone/Aggregate	Approx Quantity
Substation compound	86,950m^3
Wind Farm collector cable and access road	26410m^3
110kV Grid Route	3260m^3
Temporary Construction compound	2500m^3
Concrete	**Quantity**
Substation compound	120m^3
Wind Farm collector cable and access road	1050m^3
110kV Grid Route	3260m^3
Temporary Construction compound	20 m^3
Paving Material (asphalt/tarmadam)	**Quantity**
110kV Grid Route	8145m^3

Concrete and aggregate materials will be sourced from authorised facilities. The following quarries in County Laois and County Offaly are in proximity to the proposed site and are potential source to be used, but this will be confirmed by the appointed contractors:

Table 2.8 Potential Material Sources

Quarry Name	Product Type	Distance from site (km)
Kisaran Portlaoise	Concrete	14km south
Carroll Quarry	Aggregates, sand and gravel	24km southwest
Arkil Ltd	Sand and gravel	25km northeast
Callan Sand and Gravel Ltd	Sand and gravel	26km northeast
Flanagan Concrete Limited	Concrete	26.5km northeast
Roadstone Ltd, Allen Quarry	Aggregates for concrete, hardcore, earthworks / fill	29.7km northeast
Hanlon Concrete Products	Concrete	33km northeast
Roadstone Ballyadams	Readymix concrete	24km southeast
Kerwin Limestone Ltd., Killeaney Quarry	Farm drainage, earthworks/ fill	25km southwest
Boley Pit, Shiel sand and gravel Ltd.	Fine sand, coarse sand, pebble, natural gravel, graded aggregate	25.5km southwest
Ballysaxhills Pit, Kilsaran The Curragh	Ready-mix concrete and aggregates. Fine sand, coarse sand, pebble, natural gravel, crushed gravel, graded aggregate	33km east
Ballinaguilsha Quarry, Loughnane Concrete (Birr) Ltd.	Aggregates for concrete, hardcore, farm drainage, earthworks/ fill	38km west
Lisduff Quarry, Dowling Quarry Ltd.	Aggregates for concrete, hardcore, farm drainage, earthworks/fill	43km southwest

2.8.3 Water

2.8.3.1 Construction Phase

Water needs for construction activities will be limited to concrete truck chute washing, wheel wash, dust suppression and sanitary facilities. This water requirement will be sourced from on-site rainwater collection systems and settlement ponds

Potable water will be required for the construction employees (30 to 40 personnel). The average requirement is estimated at approximately 50 litres per person per day which equates to 1,500 to 2,000 litres per day during peak construction. It is proposed to import all water to the site during the construction phase.

2.8.3.2 Operational Phase

There will a minimal water requirement during the operational phase. No watermain connection is required for the proposed development. A rainwater harvesting system including filtration and UV-sterilisation systems is

proposed to provide the water required at the 110kV substation compound and operational welfare units. This system will allow for rainwater to be re-used in toilets/sinks.

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

2.9 Production of Wastes

2.9.1 Excavated Materials

It has been calculated that there will be approximately 60,175m³ of material excavated generated during the construction of the substation, the access track and underground electrical cabling from the Wind Farm to the substation, the access road from the substation to the local road and the temporary construction compound. All soils, subsoils, peat and stone generated from excavation works will be retained on site within the development boundary and reused in bunding, landscaping and reinstatement of the temporary construction compound. Excess spoil material will be stored on site in designated peat deposition areas.

Spoil excavated from the public road associated with the placement of the underground 110kV cable to the grid connection point at the Bracklone substation, is estimated to be approximately 15,305m^3. Of this approximately 8145m^3 will be surface paving material. This will be removed to a suitable approved waste facility. Table 2.9 outlines currently licensed/permitted waste facilities which are approved to accept this waste stream and may be utilised.

2.9.2 Domestic Wastewater Effluent

During the construction period, wastewater production is estimated to be 1,500-2,000 litres per day.

Wastewater from welfare facilities at the temporary construction compound will drain to integrated wastewater holding tanks associated with the toilet units.

During the operational phase, although primarily controlled remotely, maintenance personnel will visit the substation building on a regular basis. The daily average wastewater production during the operational phase is estimated from the average number of workers on site, which is expected to be 1-2 workers, resulting in a typical wastewater production rate of 100 litres per day. The wastewater generated during the operational phase will be managed by a holding tank which is of twin-hull design and fitted with an alarm to indicate levels and when it is due for empty. The stored effluent will then be collected on a regular basis from site by a permitted waste contractor and removed to a licensed/permitted waste facility for treatment and disposal. Table 2.9 outlines some known waste facilities which are approved to accept this waste stream and may be utilised.

2.9.3 General Wastes

Construction phase waste may consist of surplus hardcore, stone, concrete, ducting, electrical wiring, spare steel reinforcement, metal off-cuts shuttering timber, plastic waste, packaging, and unused oil, diesel. This waste will be stored in the construction compound and collected at intervals and taken off site to be reused, recycled and

disposed of in accordance with best practice procedures. All waste to be taken off-site will be collected an approved contractor and recycled or disposed at an approved facility.

Domestic refuse waste generated by contractors will be collected on site, stored in an enclosed skip at the construction compounds and disposed of at a licensed landfill facility.

The types of wastes to be generated will be similar to established construction waste streams and will not require unusual or new treatment options.

The operational aspect of the proposed development would produce a minimal amount of waste. Wastes arising from the general operation and maintenance would principally include residual lubricating oils, cooling oils, packaging from spare parts and any interceptor silts and oils. The containment and disposal of residual waste oils and interceptor sludges will be carried out by an approved contractor. Such operations will be carried out in accordance with the Waste Management (Hazardous Waste) Regulations, 1998. The remaining wastes will all be removed from site and reused, recycled or disposed of in an authorised facility in accordance with best practice.

Waste volumes will not be significant as to require new permitted treatment, storage and disposal facilities as there is sufficient capacity at existing licensed disposal or recycling facilities.

Table 2.9 Sample of Authorised Waste Facilities

LoW Code	Waste Type/Stream	Facility	Location
13 02 08*	Waste oils	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
13 05 06* 13 05 07* 13 05 08*	Oil interceptors	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 01 01	Concrete	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 01 07	C&D waste	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois
		Patrick Larke Haulage Ltd.	Killenure, Ballybrittas, Co.Laois.
		Kantara Environmental Waste Services Ltd	Newline Road, Durrow, Co. Laois.
17 02 01	Wood	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 02 03	Plastic	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
17 03 01*	Bituminous mixtures containing coal tar	McGuire Plant Hire Limited	33 Burrells Walk, College Park, Callan Road, Co Kilkenny.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.

LoW Code	Waste Type/Stream	Facility	Location
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 04 07	Mixed Metal	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 04 11	Cables	A1 Metal Recycling Ltd.	Acragar, Mountmellick, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 05 03*	Soil and stones containing hazardous substances	M McGuire Ltd	Dublin Road, Thomastown, Co. Kilkenny.
		A1 Metal Recycling Ltd.	Acragar, Mountmellick, Co. Laois.
17 05 04	Soil and stones	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		A1 Metal Recycling Ltd.	Acragar, Mountmellick, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
17 06 04	Insulation materials	A1 Metal Recycling Ltd.	Acragar, Mountmellick, Co. Laois.
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
20 01 01	Paper and cardboard	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
20 03 01	Domestic waste	ROC Recycling Solutions Ltd	Clonminam Business Park, Portlaoise, Co. Laois.
		CMS Waste Disposal Ltd	Newcastle, Fardrum, Castledaly, Co. Westmeath.
20 03 04	Domestic Wastewater	Enva Ireland Limited	Clonminam Industrial Estate, Portlaoise, Co. Laois.
		McBreen Environmental Drain Services Ltd	Lismagratty, Cootehill Road, Co. Cavan.

*Hazardous waste

2.10 Emissions and Nuisances

The potential emissions and nuisances likely to be generated by the development are summarised in Table 2.10 below. These environmental effects have been identified, assessed and proposals for management of the anticipated nuisances and/or emissions are presented throughout relevant chapters of this EIAR.

Table 2.10 Likely Emissions and Nuisances

Project Phase	Aspect	Potential Emission/Nuisance	Assessment Provided
Construction	Air	The main emissions to atmosphere during the construction stage of the project is from fugitive dust associated with the following activities: • Groundworks associated with excavation and construction of the project infrastructure. • Transportation and unloading of crushed stone around the site; • Vehicular movement over potentially hard dusty surfaces such as freshly excavated roads The movement of machinery, construction vehicles and the use of generators during the construction phase will also generate exhaust fumes containing predominantly carbon dioxide (CO_2), sulphur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM_{10}).	EIAR Vol 2 Chapter 8 Air and Climate
	Noise	Traffic flows, excavation works, mechanical machinery and electrical equipment typically used for construction projects would generate noise emissions.	EIAR Vol 2 Chapter 9 Noise
	Water	Surface water runoff and discharges from construction working areas are likely during construction. Potential pollution sources could arise as a result of soil erosion or from oil/ fuel or chemical storage and use. During construction the site drainage will discharge to settlement ponds and diffuse outfalls which will disperse the flow across vegetation. Silt curtains will be installed along existing field drain where construction works are proposed within 10m of their banks.	EIAR Vol 2 Chapter 7 Water
	Traffic	The additional traffic, especially heavy goods vehicles associated with the construction phase, has the potential to cause nuisance to those using the local road networks	EIAR Vol 2 Chapter 12 Traffic and Transportation
Operational	Air	No significant air emissions would be produced during operation. The diesel back-up generator would only operate in an emergency situation over a short time period.	EIAR Vol 2 Chapter 8 Air and Climate
	Noise	Noise emissions from substation plant. No noise emissions associated with the grid connection or wind farm collector cable.	EIAR Vol 2 Chapter 9 Noise
	Water	No water emissions associated with site operations. Surface water run-off from the substation will be captured and managed by the drainage system. No water emissions associated with the grid connection.	EIAR Vol 2 Chapter 7 Water
	Traffic	The substation will be monitored remotely with only occasional trips generated by maintenance and monitoring personnel. No traffic associated with the grid connection.	EIAR Vol 2 Chapter 12 Traffic and Transportation

2.11 Transboundary Effects

The location of the project is entirely within the Republic of Ireland. Transboundary impacts relate to potential impacts on other Member States, i.e. outside of the Republic of Ireland. Considering the nature of the project, the largely localised nature of potential impacts and the distance from the neighbouring member state, it is considered that the project is unlikely to result in any transboundary impacts.

2.12 Risk of Major Accidents and Disasters

It is considered that there is no risk for the project to cause major accidents and/or disasters or vulnerability of the project to potential disasters/accidents, including the risk to the project of both natural disasters and man-made disasters for the following reasons:

Overall, the nature of the construction works for each development element is standard and not particularly complex.

Each element of the proposed project will be constructed in accordance with the Safety and Health at Work Act 2005 and any subsequent regulations or amendments and with the requirements of the Health and Welfare at Work (Construction) Regulations, (SI 291 of 2013), any subsequent amendments and any other relevant Health and Safety legislation to ensure that the construction areas, site environs and public roads remain safe for all users.

The level of monitoring and controls proposed for the development during both the construction phase and operational phase provide a level of safety that reduces the potential risk of major accidents.

The presence of electrical generating equipment and electrical cables along with the storage and use of various oils (diesel fuels, lubricating oils, hydraulic fluids) can create the potential for fire and/or ground contamination. This potential primarily exists at the substation. Modern wind farm design will minimise the use of combustible materials. Lightning and surge protection will cover the electrical equipment at the substation. Each element of equipment has strict and exact operational protocols that provide for the elimination of risk.

The project is also not considered to be particularly vulnerable or at risk in terms of disasters such as landslides or flooding. Given the relatively low lying topography of the site there is no potential that any element of the Proposed Development could increase land slide risk or be at risk of a land slide.

No element of the proposed development is likely to be at risk from flooding or increase the risk of downstream flooding elsewhere. The risk of an increase in downstream flooding is low due to the small percentage increase in run-off contributing to the catchments as a result of the proposed development and the drainage design to ensure that run-off will replicate predevelopment greenfield surface water runoff conditions at the proposed development lands.