

East Meath - North Dublin Grid Upgrade Environmental Impact Assessment Report (EIAR): Volume 1

Non-Technical Summary

EirGrid

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1 Introduction

This document is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) for the East Meath – North Dublin Grid Upgrade (referred to as the Proposed Development throughout this NTS).

Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU of the Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the EIA Directive), requires the production of a NTS as part of the production of an EIAR. The obligations set out in the EIA Directive have been implemented into Irish law by the provisions of Number 30 of 2000 - Planning and Development Act, 2000 (as amended) (hereafter referred to as the Planning and Development Act), and S.I. No. 600/2001 - Planning and Development Regulations, 2001 (as amended) (hereafter referred to as the Planning and Development Regulations). The NTS ensures that the public is made aware of the environmental implications of any decisions on new developments to take place. The NTS is laid out in a similar, but summarised format to the main EIAR, describing the Proposed Development, existing environment, potential environmental impacts, proposed mitigation and monitoring measures, and any significant residual impacts.

The process to determine whether an Environmental Impact Assessment (EIA) is required for a proposed development is called 'screening'. This is dependent on the mandatory legislative threshold requirements for the type and scale of proposed development or project, and significance or environmental sensitivity of the receiving environment. All projects listed in Annex I of the original Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (referred to as the original EIA Directive) are considered as having likely significant effects on the environment and require the preparation of an EIA as a mandatory requirement. For projects listed in Annex II to the EIA Directive, the national authorities may determine whether an EIA is needed, either on the basis of thresholds / criteria or on a case-by-case examination.

The Proposed Development has been reviewed against the classes of development and thresholds set out in Schedule 5 of the Planning and Development Regulations. No classes of development as outlined in Schedule 5, Part 1 of the Planning and Development Regulations were considered applicable to the Proposed Development. The Proposed Development is of a nature or scale of a class of development within Schedule 5, Part 2 of the Planning and Development Regulations, specifically Schedule 5, Part 2, Paragraph 1(a), and based on an assessment of the likely temporary and permanent field boundary removal would exceed the relevant specified amount in that paragraph. Having regard to the absence of guidelines on how this legislation should be interpreted, from a legally cautious perspective, an EIAR has been prepared and EIA is required. The EIA will be carried out by the competent authority (An Bord Pleanála) and an EIAR has therefore been prepared for the Proposed Development to accompany the planning application and to assist An Bord Pleanála with its EIA.

2 Environmental Impact Assessment Process

EIA is a systematic and an iterative process that examines the potential environmental impacts of a proposed development or project and establishes appropriate design and mitigation measures to avoid, reduce or offset impacts. The EIAR reports the findings of an assessment of the potential environmental impacts of the Proposed Development. The purpose of the EIAR is to:

- Describe the existing baseline conditions before any work on the Proposed Development has commenced including an outline of the likely evolution of the baseline without implementation of the Proposed Development;
- Describe the Proposed Development;
- Describe the methods used to assess the potential environmental impacts of the Proposed Development;
- Describe environmental issues and any likely significant impacts which may occur during the Construction and Operational Phases of the Proposed Development;
- Consider the potential cumulative impacts as a result of potential impacts from other schemes or developments in combination with the potential impacts of the Proposed Development;
- Propose mitigation and monitoring measures to avoid or reduce these impacts; and
- Identify the significant residual impacts which occur after the proposed mitigation and monitoring measures have been applied.

All assessments have been carried out in accordance with best practice and applicable guidelines. The majority of impact assessments have rated the level of potential environmental impact using the 2022 Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. However, some chapters of the EIAR use other specific guidelines related to that particular discipline to determine the level of potential environmental impact.

The assessments set out in the EIAR are based on the Proposed Development design and construction methodology proposals described in Chapter 4 (Proposed Development Description) in Volume 2 of the EIAR. Where, as part of the detailed design process, the design and construction proposals are further developed post-consent (if granted), this will be in accordance with the parameters set out in the EIAR. In those instances, the assessment has adopted a precautionary approach and identified whether the significance of any impacts is predicted to change within the prescribed parameters.

This approach is a resilient method that provides conservatism within assessments in this EIAR while also facilitating the progression of the Proposed Development through the detailed design stage, including refinement, following the appointment of contractors and discharging of planning conditions requiring the agreement of matters of detail (e.g., the final location of Joint Bays, design of crossings etc.)

The detailed design and construction methodology for the Proposed Development will be subject to confirmatory surveys and investigations to ensure that both will not result in any environmental impacts of higher significance than those reported in the EIAR and being assessed by An Bord Pleanála. If the confirmatory assessments identify unanticipated impacts that are greater than those set out in the EIAR, mitigation will be implemented, where required, to ensure no additional residual impacts arise.

3 Consultation

Public participation has been an integral part of the development of the Proposed Development from the outset. The primary objective of the non-statutory public consultation process was and is to provide opportunities for members of the public and interested stakeholders to contribute to the planning and design of the Proposed Development and to inform the development process.

The early involvement of the public and stakeholders ensured that the views of various groups, individuals and stakeholders were taken into consideration throughout the development of the Proposed Development and in the preparation of the EIAR.

Consultation can take many forms and have many functions over the course of a development of this type. The main consultation carried out over the course of the Proposed Development with stakeholders, landowners and members of the public has included:

- Public Consultation: Undertaken during various stages of the design process as follows:
 - Consultation on Route Options between 7 September 2022 to 30 November 2022, when EirGrid sought feedback on four shortlisted route options (Option A to D); and
 - Consultation on the Emerging Best Performing Option (Option A or the 'Red Route') between 29 March 2023 to 14 May 2023 when EirGrid informed stakeholders about the Emerging Best Performing Option, and stakeholder engagement helped to develop the route option further and to minimise disruption to local stakeholders where possible.
- Landowner Engagement with potentially affected landowners during 2022 to 2023 to gain input into potential routing;
- An Bord Pleanála Pre-Application Consultation: Formal engagement with An Bord Pleanála between September 2023 and November 2023;
- EIA Scoping Consultation: Informal EIA Scoping with prescribed bodies and relevant non-statutory consultees between November 2023 and December 2023;
- Technical Engagement with stakeholders: Ongoing throughout the design development and EIA process to gather data, provide information and consult on emerging issues; and
- Statutory consultation as part of the Section 182A application process (this will take place following lodgement of the Proposed Development).

4 Need for the Proposed Development

The Proposed Development is required to strengthen the electricity network in the east of Meath and the north of Dublin to improve the transfer of power across the existing electricity transmission network. There is a need to upgrade and strengthen the network to:

- Address the increased electricity demand in East Meath and North Dublin due to economic development and population growth;
- Reduce the use of and reliance on fossil fuels for electricity generation;
- Facilitate further development of renewable energy generation, onshore and offshore; and
- Assist in achieving climate action targets of having up to 80% of electricity coming from renewable sources by 2030. The Proposed Development is essential to meet the Climate Action Plan 2024 target to increase the proportion of renewable electricity to 80% by 2030, which includes transporting electricity from offshore wind energy. In Ireland, based on existing policies and strategies, total electricity demand over the next 10 years is forecast to grow up to 50%, largely driven by new large energy users. This presents a challenge to Ireland's emissions targets and to Ireland's security of supply.

The need for the Proposed Development was established through the series of reports completed at Steps 1 to 4 of EirGrid's Framework for Grid Development (see Section 5 for a summary of the various steps in the Framework for Grid Development). The Proposed Development was also identified as one of the candidate solutions in EirGrid and the System Operator for Northern Ireland's 2021 Shaping Our Electricity Future – a roadmap to achieve our renewable ambition. The reports identified two key drivers for the need to further develop the transmission system:

- **Increased demand in North Dublin:** New industry demand is concentrated around North Dublin. These industries (including data centres) are located at, or near, the existing substations at Corduff, Finglas, and Belcamp. There are a limited number of circuits to supply these zones and constraints are likely as installed demand capacity increases; and
- **Low Generation in Dublin:** There are four generation stations in Dublin connected at Finglas, Corduff, Shellybanks, and Irishtown, respectively. The generators at Finglas, Corduff, and Shellybanks can be used to supply the load in North Dublin and offset flows from Woodland towards Corduff. However, these generators are likely to be overtaken in the merit order by newer, more efficient, conventional generators and increasing levels of renewables. Renewable generation is generally built remote from Dublin and new power stations could be located outside of Dublin. This means that the power produced will have to be transported to get it to where it is needed around Corduff, Finglas, and Belcamp.

In addition to supporting future renewable generation, the Proposed Development will improve power quality and support growing electricity demand in the North Dublin area. The Proposed Development will strengthen the transmission network between Woodland and Belcamp Substations to continue to ensure the security of the network feeding the east of Meath and the north of Dublin, between Woodland, Clonee, Corduff, Finglas and Belcamp Substations.

The Proposed Development is supported by a number of European, National, Regional and Local Level policies and plans, including, but not limited to:

- Project Ireland 2040 – National Planning Framework;
- Project Ireland 2040 – National Development Plan 2021 – 2030;
- The latest Climate Action Plan 2024 (and previous iterations from 2019, 2021 and 2023);
- National Energy and Climate Plan 2021 – 2030;
- Regional Spatial and Economic Strategy for the Eastern and Midland Regions 2019 – 2031;

- Fingal Development Plan 2023 – 2029; and
- Meath County Development Plan 2021 – 2027.

5 Alternatives Considered

The Proposed Development has been developed in accordance with EirGrid’s Framework for Grid Development. The six-step approach in the Framework for Grid Development involves detailed studies and assessments and provides a framework for the comparison of reasonable alternatives.

Following careful consideration of alternatives from the early stages of EirGrid’s six-step Framework for Grid Development, alternative options were assessed using a thorough and consistent multi-criteria analysis (MCA). This MCA facilitated a balanced consideration of the following criteria relating to the development of the Proposed Development (refer to Image 5.1):

- Environmental;
- Socio-Economic;
- Technical;
- Deliverability; and
- Economic.



Image 5.1: EirGrid’s Assessment Criteria

A series of reports were completed for each step of EirGrid’s Framework for Grid Development and are available on the EirGrid website (<https://www.eirgrid.ie/eastmeathnorthdublin#links-and-documents>) and are also included in the EIAR (Volume 5 (Supporting Documents)) to demonstrate the selection process for the final Proposed Development and the alternatives considered during Step 1 to Step 4 of the Framework for Grid Development.

5.1 Overview of Alternatives Considered

5.1.1 Do Nothing Alternative

The consideration of alternative options included a ‘Do Nothing’ alternative scenario. In this scenario, the Proposed Development would not be progressed. This option was assessed to be unacceptable as electricity demand is continuing to increase in East Meath and North Dublin due to continued economic development and population growth in these areas. In accordance with the Climate Action Plan 2024, Ireland is required to

reduce the use of and reliance on fossil fuels and is also required to achieve climate action targets of having up to 80% of the electricity coming from renewable energy sources by 2030.

As part of Step 1 of EirGrid's Framework for Grid Development, EirGrid identified the need for a solution in November 2017. The conclusion of the Step 1 analysis into the system needs in the North Dublin Corridor highlighted the increasing dependence on generation in the Dublin area and the need to ensure continued security of supply if demand were to continue to grow.

The Proposed Development will strengthen the electricity transmission network and will facilitate integration of renewable energy sources, and ensure continued security of supply.

Should the Proposed Development not proceed, it will result in an impact to the achievement of climate action targets through the lack of continued integration of renewable generation into the grid. It will also mean that the identified system needs in the North Dublin Corridor will not be met.

5.1.2 Route Alternatives

5.1.2.1 Step 2 of EirGrid's Framework for Grid Development

From an initial long-list of 21 technical options, seven options (which included a mix of overhead line and underground cable solutions, and the possibility of a new transmission route between Woodland Substation and either, Corduff, Finglas or Belcamp Substations) were taken forward to a short list, published for public consultation and assessed using MCA. This process identified the following four best-performing options to explore in Step 3:

- Option 1 - 400kV (kilovolt) overhead line between Woodland and Finglas Substations;
- Option 2 - 400kV underground cable between Woodland and Finglas Substations;
- Option 3 - 400kV overhead line between Woodland and Belcamp Substations; and
- Option 4 - 400kV underground cable between Woodland and Belcamp Substations.

5.1.2.2 Step 3 of EirGrid's Framework for Grid Development

As part of Step 3, EirGrid re-confirmed the need for the Proposed Development and assessed the feasibility of, and constraints which may impact upon each of the four options from Step 2, The options were assessed using the MCA process again, and were updated to incorporate consultation feedback and any new information received during the process.

In April 2022, EirGrid brought forward the 400kV underground cable option between Woodland and Belcamp Substations as the Best Performing Technical Option to progress for this Proposed Development into Step 4.

5.1.2.3 Step 4A of EirGrid's Framework for Grid Development

As part of Step 4A, four route options for the Best Performing Technical Option of a 400kV underground cable option between Woodland and Belcamp Substations were identified and analysed. The four route options identified were designed using the following routing principles which align with EirGrid's five key MCA criteria (i.e. environmental, socio-economic, technical; economic; and deliverability):

- Avoid motorways;
- Maximise the use of regional and local roads;
- Avoid town centres and industrial estates;
- Avoid going off-road, through private land and through agricultural land where possible;
- Avoid sensitive natural and built heritage locations;

- Minimise impact on communities where possible; and
- Minimise the overall length of the route.

In addition to these routing principles, the following types of routing constraints were considered:

- Width and quality of the road;
- Existing services in the road such as water, gas and drainage;
- Environmental constraints such as European and National protected areas for biodiversity, invasive and protected species and other important biodiversity areas (including undesignated habitats);
- Relevant Development Plans and Local Area Plans; and
- Areas of Amenity.

All four route options would start at Woodland Substation in County Meath and finish at Belcamp Substation in Fingal, County Dublin. All route options would cross the M3, M2 and M1 Motorways, and would also require some off-road corridors.

Following MCA, Route Option A (Red) was selected as the Emerging Best Performing Route Option.

5.1.3 Design Alternatives

5.1.3.1 Step 4B of EirGrid's Framework for Grid Development

At Step 4B, the Emerging Best Performing Route Option (Option A (Red)) was re-examined to refine the route, as far as possible, to remove the need for any wider areas and to provide more certainty on the specific locations, including off-road sections which required further discussions with relevant stakeholders and landowners, and motorway crossings.

5.1.3.2 Step 5 of EirGrid's Framework for Grid Development

At Step 5, further refinements were completed for the Proposed Development. Additional discussions, engagement, further surveys and assessment work allowed the Project Team to determine the best location for the entire proposed cable route which formed the basis for the Proposed Development. This included refinement at specific locations such as the M3 motorway crossing, the off-road section east of the M1 Motorway, and at individual off-road watercourse crossings.

6 Description of the Proposed Development

6.1 Proposed Development Description

The Proposed Development includes approximately 37.5 kilometres (km) of new 400kV underground cable circuit (also referred to as the proposed cable route) between the existing Woodland Substation in the townland of Woodland in County Meath and the existing Belcamp Substation in the townlands of Clonshagh and Belcamp in Fingal, County Dublin. The Proposed Development will also involve works in the substations to facilitate the connection of the underground cable circuit to the electrical grid. The location of the Proposed Development is shown in Image 6.1.

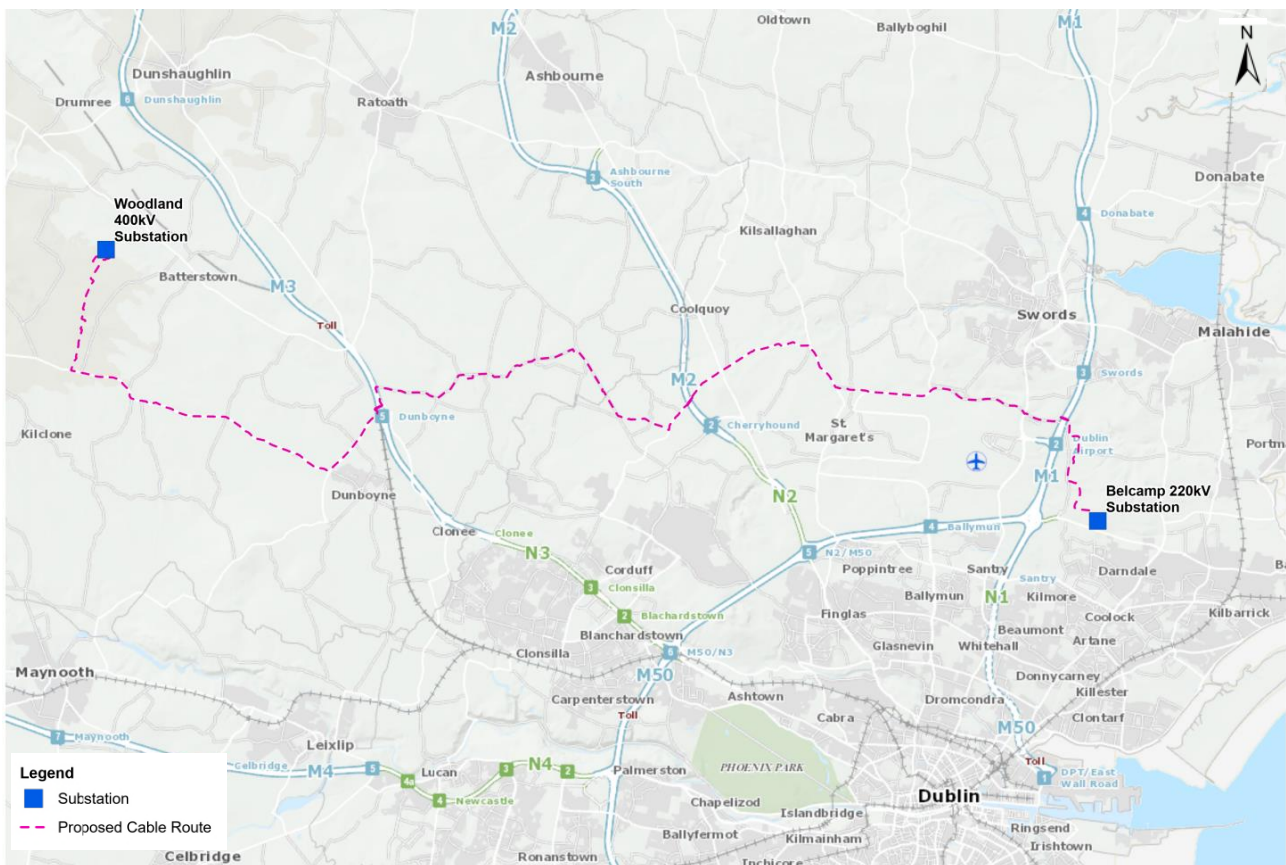


Image 6.1: Location of the Proposed Development

Approximately 20.5km of the proposed underground cable route will be located in County Meath and approximately 17km of the proposed underground cable route will be located in Fingal, County Dublin. Approximately 70% of the proposed underground cable route will be located within public roads and approximately 30% will be located in private lands, to avoid location-specific constraints.

The Proposed Development will consist of the following principal elements:

- A. Installation of an underground cable circuit, approximately 37.5km in length, connecting Woodland Substation (400kV) in the townland of Woodland in County Meath, and Belcamp Substation (220kV) in the townlands of Clonshagh and Belcamp in Fingal. The development of the underground cable circuit will include the following:
 - o Construction of a trench of approximately 1.5m in width and approximately 1.3m (metres) in depth in the public road (approximately 26km) and approximately 1.8m in depth in private lands (approximately 11.5km) in which the underground cable circuit is laid in flat formation, with associated above ground route marker posts. Route marker

- posts will be located at field boundaries where the proposed underground cable circuit is laid in private land, at regular intervals in road verges when the proposed underground cable circuit is in-road, in road verges where the proposed underground cable circuit crosses any roads, and at Horizontal Directional Drilling (HDD) crossing locations;
- Construction of 49 Joint Bays (on average every 750m), primarily in the public roads, each approximately 10m in length, 2.5m in width and 2.5m in depth, with adjacent communication chambers and link boxes, along the full alignment of the underground cable circuit. Where the Joint Bays are located off-road, permanent hardstanding areas will be created around the Joint Bays;
 - The laying of communication links and fibre optic cables between both substations, running in the same trench as the underground cable circuit;
 - The provision of seven Temporary Construction Compounds located along the route and adjacent to substations – sizes for each of the seven Temporary Construction Compounds ranging from approximately 0.8ha to 1.6ha;
 - The provision of a Temporary HDD Compound at both the reception and launch locations for three HDD motorway crossings, (i.e., six temporary HDD Compounds in total), and associated laydown area for each HDD crossing (i.e., three laydown areas in total) - sizes for each of the six HDD Compounds (plus laydown area where applicable) ranging from approximately 0.15ha to 0.45ha;
 - The provision of temporary Passing Bays during construction at certain Joint Bay locations, each approximately 95m in length and 5.5m in width;
 - The laying of unbound temporary access tracks, 5m wide in private lands (approximately 12km in total length);
 - The laying of 12 unbound, permanent access tracks, 4m wide in private land (approximately 4km in total length);
 - All associated water, rail, road, and utility underground crossings using either trenchless drilling or open cut techniques as appropriate for the particular crossing; and
 - All associated and ancillary above and below-ground site development works, including works comprising or relating to permanent and temporary construction and reinstatement, roadworks, utility diversions and site and vegetation clearance.
- B. Upgrades to the existing 400kV Woodland Substation in the townland of Woodland in County Meath. This will include:
- Installation of a 400kV feeder bay and associated electrical shunt reactor (approximately 8m in height);
 - Installation of insulators, instrument transformers, overhead conductors, disconnectors, circuit breakers, surge arrestors (up to 12.6m in height) in order to connect the bay to the busbar;
 - Installation of two gantries, 25m in height, with one 3m tall lightning rod on top of each gantry; and
 - All ancillary site development works including site preparation works, underground cabling, drainage and earthgrid, as required to facilitate the Proposed Development.
- C. Upgrades to the existing 220kV Belcamp Substation in the townlands of Clonshagh and Belcamp in Fingal. This will include:
- Construction of a new steel framed and clad building (73m long, 17.8m wide by 16m high) to house a new 400kV Gas Insulated Switchgear (GIS) Hall, plus eight lightning rods on the roof of the GIS Hall (each 3m in height);
 - Installation of 400kV switchgear to facilitate the connection of the new underground cable circuit to the existing substation;

- Installation of associated electrical shunt reactor (approximately 8m in height) with insulators, instrument transformers, overhead conductors, disconnectors, circuit breakers, surge arrestors (up to 12.8m in height) in order to connect the reactor to the cable circuit;
- Installation of two lightning masts (each 15m in height);
- Installation of a new 400/220kV transformer adjacent to the new GIS Hall and connections to the existing 220kV substation via cable circuit;
- Internal access road; and
- All ancillary site development works including site preparation works, site clearance and levelling, drainage, access tracks, and use of existing access points off Stockhole Lane and the R139.

6.2 Underground Cable

There are three key elements of the proposed underground cable:

- **Cable Trench** – approximately 1.5m in width, 1.3m in depth in the public road and 1.8m in depth in private lands in which the underground cable is laid;
- **Joint Bay** – the cable will be delivered in lengths and will need to be connected (jointed) together. This will happen at the Joint Bays which are underground chambers located at various points on the route. Joint Bays are used as locations to pull the cables into the pre-installed ducts and to connect ('joint') together the individual cables and create a single, overall continuous circuit; and
- **Passing Bay** – a temporary traffic lane to allow traffic flow around Joint Bays while construction works are ongoing.

The width and depth of the cable trench can vary for the crossing of watercourses or utilities and for other technical reasons. The specific location and design of Joint Bays and Passing Bays are subject to refinement at the detailed design stage, within the parameters set out in this planning application.

The majority (70%) of the underground cable route between the existing Woodland Substation and Belcamp Substation will be installed within the existing public road network. Off-road routes are proposed at particular locations to avoid specific constraints.

Temporary Construction Compounds (TCCs) will provide laydown areas where construction materials, plant and equipment can be temporarily stored, in addition to office accommodation, vehicle parking and welfare facilities. These are temporary and will be removed on completion of the Construction Phase of the Proposed Development, and the land will be reinstated to its original condition. These areas will all be within the Planning Application Boundary for the Proposed Development.

The use of HDD below existing infrastructure (e.g. motorways) will require Temporary HDD Compounds. These areas will be required to create launch and reception pits for the HDD equipment and to facilitate logistics and storage works. Temporary HDD Compounds (six in total at three motorway crossing locations) have been included within the Planning Application Boundary for the Proposed Development. The Temporary HDD Compounds will not be used for the storage of materials for the wider route or for site offices but will be used to facilitate the works required adjacent to and under the motorways and railway. The sites will be temporarily covered with a gravel hardstanding to allow construction plant to operate safely. Launch and reception pits of approximately 3m x 5m will be constructed for the HDD tunnel. When the HDD works are completed, the working platform will be removed, and the site reinstated to its original condition.

6.3 Underground Cable Route Description

From the Woodland Substation, the proposed cable route will travel south through private lands for around 3.5km until it joins the R156 Regional Road at Barstown Industrial Estate. From there, the route will travel east as far as Dunboyme, turning north along the R157 Regional Road once it reaches the north-western outskirts of the town. See Image 6.2 for this section.

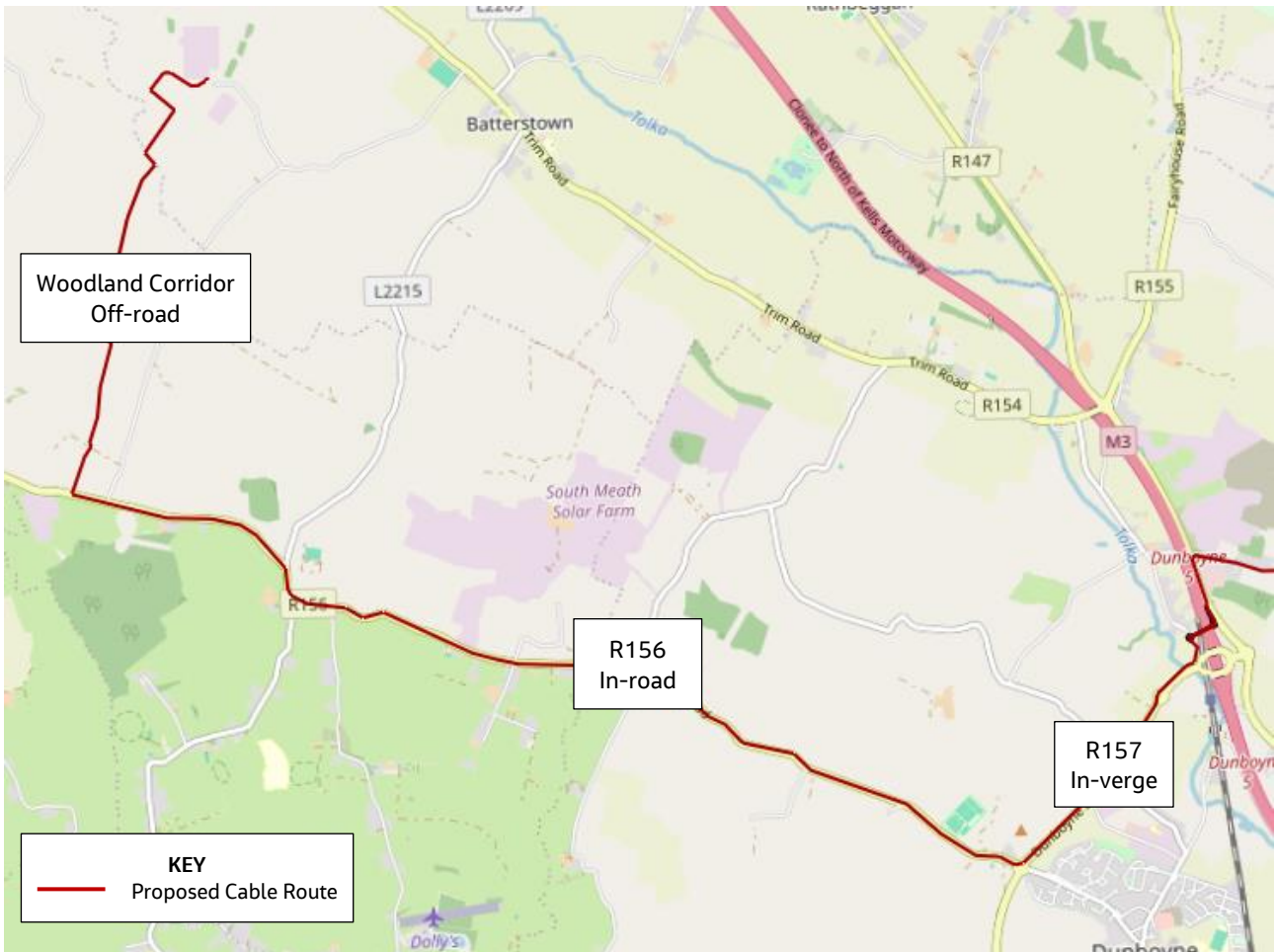


Image 6.2: Proposed Cable Route Woodland Corridor, R156 and R157 Regional Roads

The proposed cable route will follow an off-road corridor, crossing the River Tolka, the railway line at M3 Parkway and the M3 Motorway at Junction 5. The railway and motorway will be crossed via HDD. The proposed cable route will then briefly progress north along the R147 Regional Road before travelling east once more along the L5026 Local Road. At the junction with the L1010 Local Road, the proposed cable route will turn to the north-east, following the L1010 Local Road, before turning east again through Nuttstown, following an off-road route to facilitate the crossing of a watercourse, which is a tributary of the Pinkeen_010 watercourse. See Image 6.3 for this section.



Image 6.3: Proposed Cable Route M3 Parkway Railway and M3 Motorway Crossing, Along L5026 and L1010 Local Roads

As the proposed cable route continues eastward toward Kilbride, there will be an off-road section required to cross the Ward_010 watercourse. The proposed cable route will pass through Priest Town, and before reaching the junction with the L1007 Local Road, will follow a localised off-road section again crossing the Ward_010 watercourse. See Image 6.4 for this section.

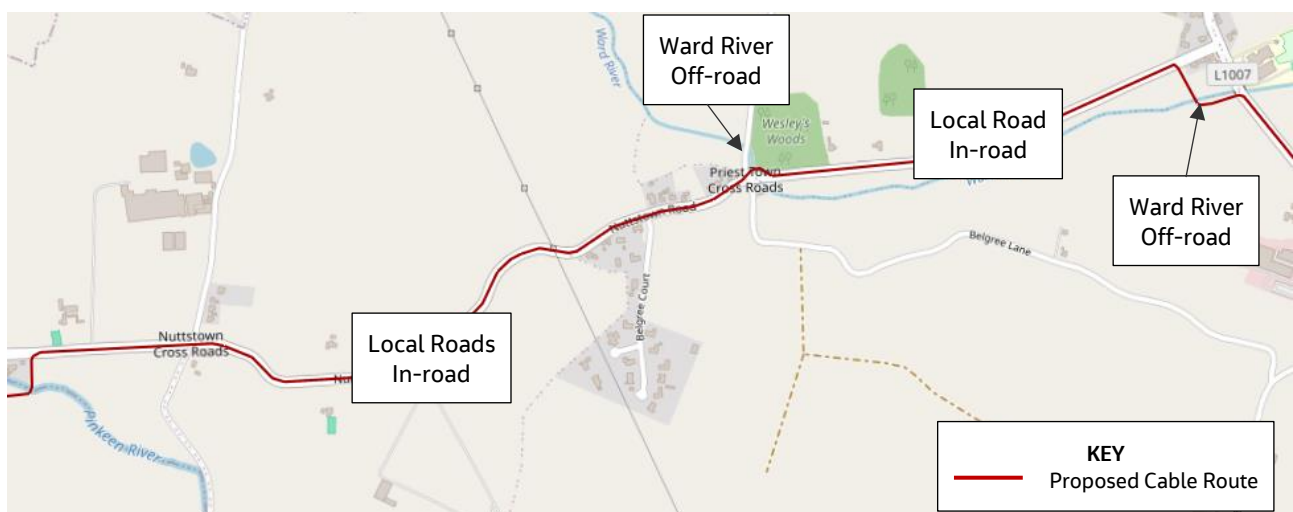


Image 6.4: Proposed Cable Route Along Local Roads through Nuttstown, Priest Town to the L1007 Local Road

From this location, the proposed cable route will turn south-east following an in-road route along the L1007 Local Road. Approaching Hollystown, the proposed cable route will follow a localised off-road section to facilitate a watercourse crossing. Immediately north of Hollystown, opposite Kilmartin Lane, the proposed cable route will turn off-road to the south-east. Following the off-road section at Hollystown, the proposed cable route will turn back in-road at Killamonan, following the R121 Regional Road to the north-east. At the M2 Motorway, the proposed cable route will follow a localised off-road section, to allow for an HDD crossing to the south of the overbridge. See Image 6.5 for this section.

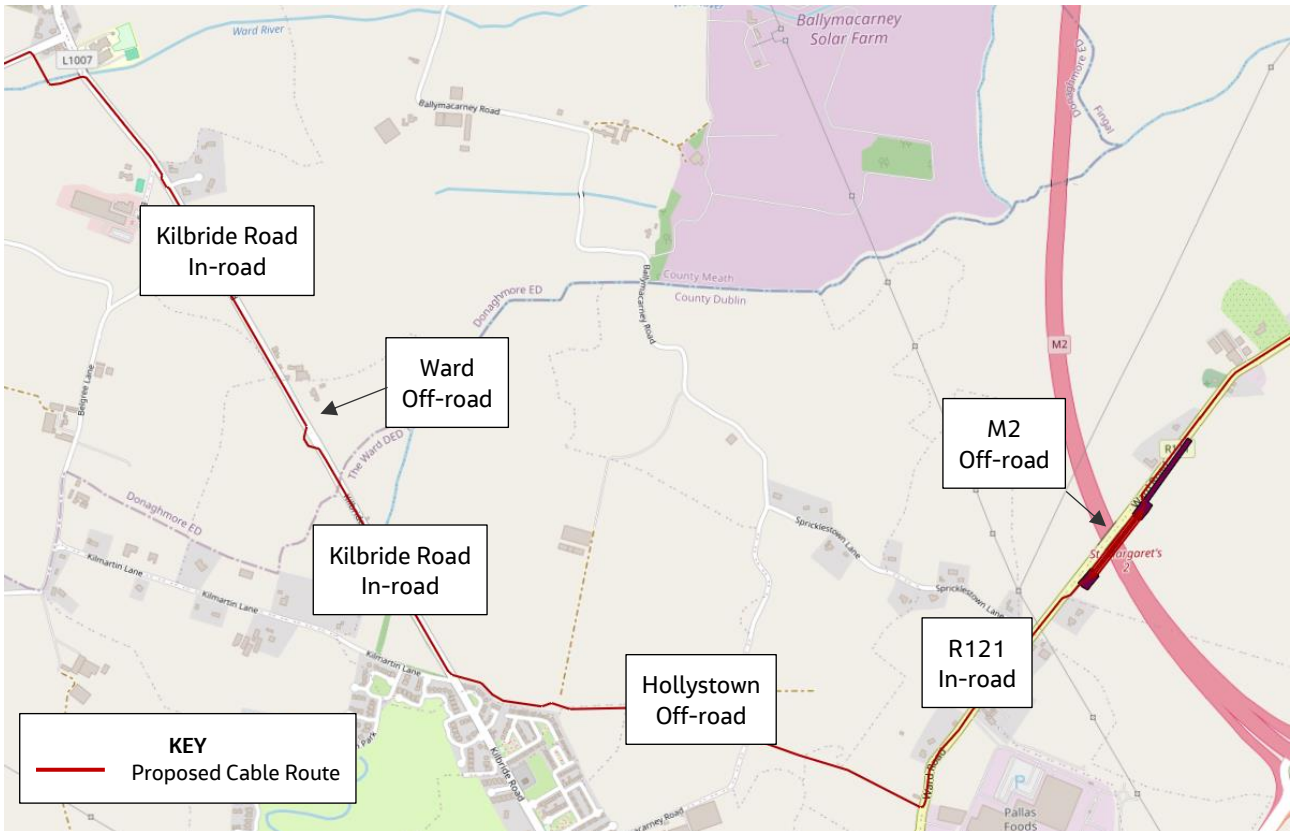


Image 6.5: Proposed Cable Route Along Kilbride Road, Off-Road to the R121 Regional Road and M2 Motorway Crossing

The proposed cable route will remain in-road to cross the roundabout with the R135 Regional Road and will continue to follow the R121 Regional Road through the townlands of Ward Lower, Newpark and Shallon. As the proposed cable route passes from Newpark to Shallon, there will be a localised off-road section in order to cross the Ward_030 watercourse to the south of the existing road. At the junction with the R122 Regional Road in Skephubble, the proposed cable route will turn to the south-east following an in-road route through Ballystrahan. See Image 6.6 for this section.



Image 6.6: Proposed Cable Route Along R121 Regional Road to the R122 Regional Road

At the junction with Toberburr Link Road (known locally as Kilreesk Lane), the proposed cable route will turn from the R122 Regional Road onto Toberburr Link Road in an easterly direction towards St. Margaret's, where the proposed cable route will follow an off-road section, crossing a watercourse, Toberburr Road and a short section of agricultural land. Following the off-road section near St. Margaret's, the proposed cable route will turn back in-road, following the R108 Naul Road to the east and remaining in-road. At the roundabout at Forrest Great, the proposed cable route will remain in-road, following the L2020 Local Road to the east, passing through Forrest Little. See Image 6.7 for this section.



Image 6.7: Proposed Cable Route Along R108 Regional Road and Naul Road (North of Dublin Airport)

The proposed cable route will remain in-road to cross the roundabout with the R132 Regional Road and will follow the L2753 Local Road in an easterly direction, through the townland of Cloghran towards the M1 Motorway. The proposed cable route will follow an off-road section at the M1 Motorway, to allow for an HDD crossing to the north of the overbridge. Following the motorway crossing, the proposed cable route will remain off-road, crossing the L2055 Baskin Lane and following an off-road corridor to Belcamp Substation. See Image 6.8 for this section.



Image 6.8: Proposed Cable Route Along the L2753 Local Road, across the M1 Motorway to Belcamp Substation

6.4 Woodland Substation

The Proposed Development at Woodland Substation will consist of the provision of new electricity transmission infrastructure, comprising the elements outlined Point B in Section 6.1 and illustrated on Image 6.9.

This infrastructure will be located within the extension to the hardstand compound at Woodland Substation which forms part of a planning application which has been recently granted permission (in April 2023) by Meath County Council (planning reference 221550).

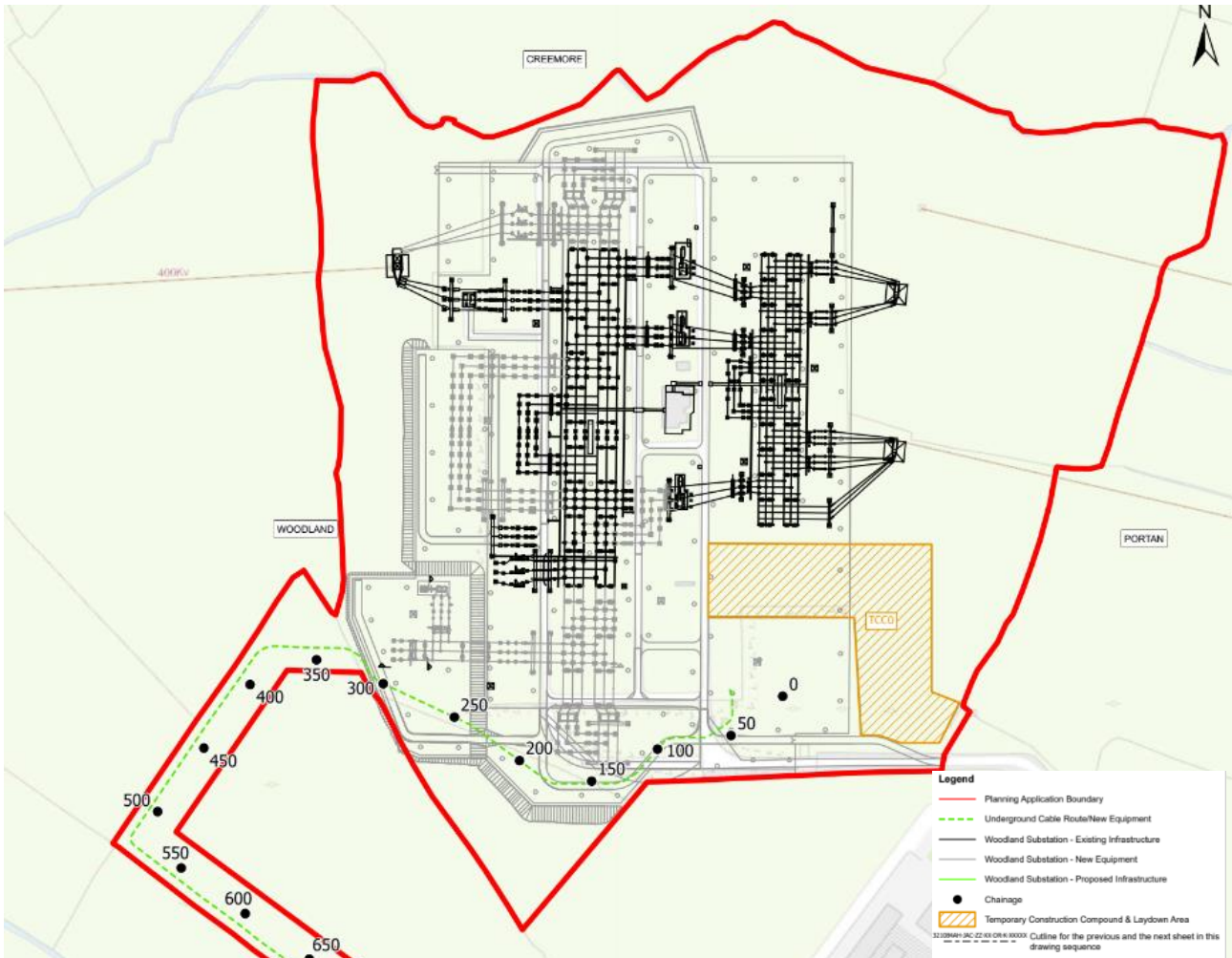


Image 6.9: Woodland Substation

6.5 Belcamp Substation

The Proposed Development, at Belcamp Substation, will consist of the provision of new electricity transmission infrastructure, comprising the elements outlined in Point C in Section 6.1 and illustrated on Image 6.10.

This infrastructure will be located within the extension to the hardstand compound at Belcamp Substation which forms part of a planning application that has been recently granted permission (in December 2023) by Fingal County Council (planning reference F23A/0040). This is likely to require modifications to the permitted development under planning reference F23A/0040, but such modifications are separate to, and thereby do not form part of, the Proposed Development.

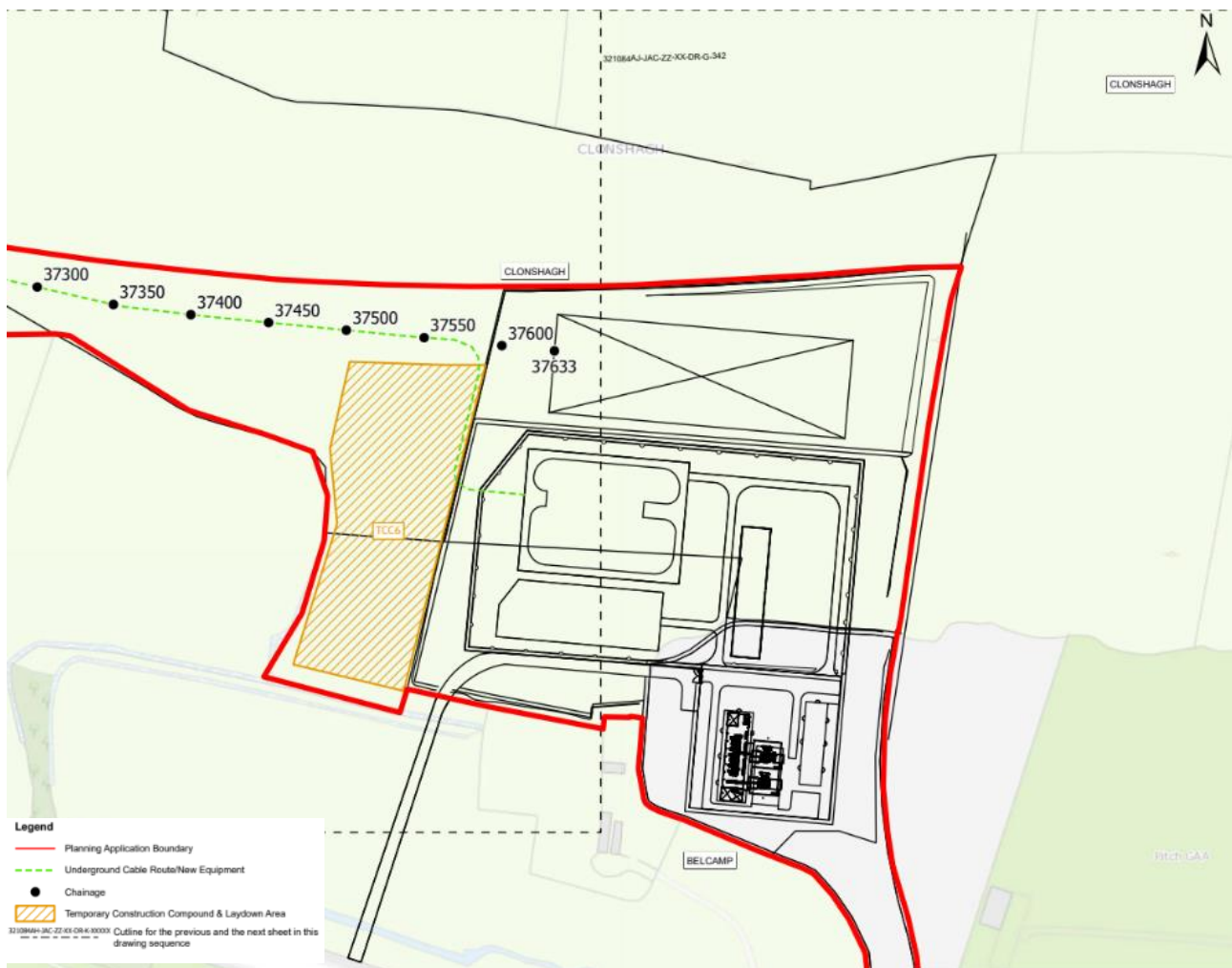


Image 6.10: Belcamp Substation

6.6 Cable Construction Phase Activities

The following sections describe the proposed Construction Phase activities associated with the installation of the new proposed underground cable. The laying of the new proposed underground cables is a standard construction technique undertaken by a range of utility and other services providers. The proposed underground cables will be installed in a flat formation in the following phases:

- Phase 1 – Installation of Joint Bays and Passing Bay structures;
- Phase 2 – Excavation and installation of cable ducts; and

- Phase 3 – Installation and jointing of cables.

Duct and Joint Bay installation are the most construction-intensive and invasive elements of cable route installation, as digging of a trench is required. For in-road cable laying, this phase will have the largest potential impact on traffic, including the potential need for rolling road closures (to through traffic) and diversions.

While the specifics of any cable-laying schedule are dependent upon the appointed contractor and the nature and location of the development, it is anticipated that the cable ducts will be laid in a road at a rate of 40m to 50m per day, although a reduced rate of 10m to 20m per day is anticipated in constrained sections of the proposed cable route, for example where existing utilities are present.

Joint Bays are proposed to be located at typical intervals of 750m along the proposed cable route of the Proposed Development. However, intervals between Joint Bays will vary (approximately 550m to 900m) depending on complexity of the route alignment, site conditions and technical constraints. Joint Bays are anticipated to be installed in three days. Road reinstatement along the proposed cable trench will follow the completion of the trenching and ducting, moving in sequence along the proposed cable route.

Cable pulling and jointing, which will commence when the trenching and ducting is well advanced along the proposed cable route, will be executed from the Joint Bay locations. Where this activity is likely to require a road closure, the provision of a Passing Bay at the location of the Joint Bay, where possible, will facilitate movement of traffic along the road by means of a signal-controlled lane adjacent to the Joint Bay.

Image 6.11 presents an example cable trench in a public road after installation of ducts and prior to backfilling. Marker boards can be seen within the trench prior to final reinstatement.



Image 6.11: Example of a Cable Trench In-Road with Cables in Flat Formation

Appropriate measures to avoid or reduce the impacts during the Construction and Operational Phases of the Proposed Development are set out in the Construction Environmental Management Plan (CEMP) which is

included as a standalone document in this planning application pack. The CEMP is a key construction contract document which will ensure that all mitigation measures that are considered necessary to protect the environment are implemented. The CEMP will remain a 'live' document which will be reviewed regularly and revised as necessary in consultation and agreement with the two local authorities to ensure that the measures implemented are effective, as part of an ongoing review throughout the Construction Phase of the Proposed Development. The CEMP contains a number of appendices:

- Environmental Incident Response Plan;
- Construction Traffic Management Plan;
- Construction Resource and Waste Management Plan;
- Surface Water Management Plan; and
- Invasive Species Management Plan.

The Electricity Supply Board (ESB) (the Employer for the construction works) will set out the Employer's Requirements in the construction contract and will ensure that all applicable mitigation measures identified in the EIAR, as well as additional measures required in any conditions attaching to An Bord Pleanála's decision to grant approval, if granted, are complied with. The procurement of the construction contractor will involve the determination that the appointed contractor is competent to carry out the works, including the effective implementation of the mitigation measures. The appointed contractor will be required to plan and construct the Proposed Development in accordance with the Employer's Requirements, and the ESB will employ an Employer's Representative team with appropriate competence to administer and monitor the construction contract for compliance with the Employer's Requirements, which in turn will contain all mitigation measures detailed in the EIAR and the relevant documentation appended within.

6.7 Substation Construction Phase Activities

The proposed works at Woodland Substation will be undertaken in parallel with the proposed underground cable works between Woodland and Belcamp Substations. Proposed construction access for the works at Woodland Substation will be via the existing substation access road (i.e., Redbog Road, off Red Road). A TCC (TCC0) will be set up in the south-east corner of the substation and will provide site office and welfare facilities, as well as material and plant storage for the substation works. There will be no access to the proposed cable route easement from this TCC. The area for the proposed works in Woodland Substation will be cleared and shallow founded reinforced concrete bases will be installed for the new Air Insulated Switchgear (AIS) plant, as well as a Reinforced Concrete bund for the reactor. The AIS plant will be installed on the Reinforced Concrete base slabs and associated connections installed. The reactor will be delivered to site as an abnormal load, with the appropriate measures to minimise any potential impacts to local traffic outlined in the Construction Traffic Management Plan (an appendix of the CEMP, see Section 6.6). The reactor will be slid into place on its bund off the delivery trailer. A mobile crane will be used to lift the new AIS plant into place. The proposed underground cable will be trenched across the substation from the south-west corner to connect to the new cable sealing end. Once the proposed underground cable has been installed, and the works at Belcamp and Woodland Substations have been completed, the whole system will be tested and commissioned.

The works at Belcamp Substation will be undertaken in parallel with the proposed underground cable construction works. A TCC (TCC6) will be established to the west of the substation accessed along a temporary access track off Stockhole Lane. This access track was recently constructed as part of the Belcamp to Shellybanks 220kV Project. Construction materials will be delivered to site via the existing substation main entrance off the R139 Regional Road.

The area for the proposed works at Belcamp Substation will be prepared to install the new in-situ reinforced concrete bases for the proposed GIS Hall, transformers and other miscellaneous AIS plant. The steel frame of the proposed GIS Hall will be erected and then the roof and wall cladding will be added to make it weather tight. A mobile crane will be used for the erection of the steel frame and cladding. The GIS equipment will be craned into place inside the proposed GIS Hall using the gantry crane within the building, and then the

proposed GIS Hall will be fitted out with all associated protection and control equipment, Low Voltage Alternating Current equipment etc.

At the same time, the external AIS equipment and associated connections will be installed. The reactor and transformer will be delivered to site as abnormal loads with all the relevant traffic management requirements / restrictions in place for such abnormal loads (refer to the Construction Traffic Management Plan, an appendix of CEMP, see Section 6.6). These will be slid into place directly from their transport trailer onto their Reinforced Concrete bunds. The new proposed underground cable will be trenched into Belcamp Substation and under the perimeter wall to connect up to the AIS cable sealing end, outside of the proposed GIS Hall. Once the new proposed underground cable has been installed and tested, and the works at Woodland Substation completed, the whole system will be connected together, tested and then commissioned.

6.8 Operational Phase

All areas where vegetation removal and topsoil stripping has occurred along the trenches and for the TCCs, HDD Compounds, temporary access tracks and Passing Bays will be reinstated following installation of the proposed cable route. Image 6.12 shows an example of a reinstated road after Joint Bay construction.



Image 6.12: Example of a Reinstated Road Over a Joint Bay (Darker Asphalt) with the C2 Chamber Cover Visible

During the Operational Phase, the proposed cable route will require routine maintenance activities along its route. Access to link boxes and communications chambers will be required on an annual basis for inspection and any necessary maintenance. The permanent access tracks will be used to reach off-road sections of the cable for maintenance access. Access to these locations will be coordinated with relevant landowners to minimise disruption. Prior to the works commencing, consultation will be undertaken with the local authorities to determine traffic management requirements.

A permanent easement of 5m will generally be required above the proposed cable trench. A wider easement will be required on certain land holdings for proposed permanent access tracks and Joint Bays, HDD splayed sections and other features. Specifically, a wider permanent easement will be required at the following off-road sections:

- Woodland Substation to the R156 Regional Road – a 15m wide permanent easement is assumed for assessment purposes; and

- M1 Motorway to Belcamp Substation – a 30m wide permanent easement is assumed for assessment purposes.

This will be discussed and agreed with the affected landowners and all permanent easement areas are within the Planning Application Boundary for the Proposed Development.

Following the Construction Phase, operation and maintenance of Woodland and Belcamp Substations will be managed by the ESB. The substations do not currently require any personnel for operation and this will remain the case following the implementation of the Proposed Development. Scheduled maintenance of the substations will continue to occur approximately once a year, in line with the current maintenance schedule.

7 Environmental Impacts and Mitigation

The EIA process provides a valuable opportunity to avoid, prevent or reduce potential environmental impacts through design refinement. This has formed an important part of the design process for the Proposed Development, while also ensuring that the objectives of the Proposed Development are achieved. In addition, feedback received from the comprehensive consultation undertaken throughout the option selection and design development processes has been incorporated, where appropriate. The design of the Proposed Development has been developed to a stage where all potential environmental impacts can be identified, and a fully informed EIA can be carried out.

The following sections provide a summary of the assessments for each environmental topic and set out the likely significant residual impacts as a result of the Construction and Operational Phases of the Proposed Development.

7.1 Population

The population assessment considers the likely potential impacts on population during the Construction and Operational Phases of the Proposed Development.

The population assessment has considered how the Proposed Development may affect the way in which people live, work, relate to one another, organise to meet their needs, and generally operate as members of society. In doing so, this assessment considers demographics, community composition, land use, the location of residential, commercial, community receptors and recreational (including tourism) amenities as well as economic activity in general. The assessment topics are Amenity; Accessibility and Severance; Land Use / Land Take; and Local Economy.

The Proposed Development will be located in County Meath and Fingal, County Dublin. With regard to Amenity, Accessibility and Severance, a study area of a 300m buffer from the Planning Application Boundary is considered to be the typical distance in which potential impacts associated with air quality, noise and vibration, visual, traffic, accessibility and severance are expected to occur. There are approximately 13,024 people who live within a 300m buffer of the Planning Application Boundary. The closest settlements to the Proposed Development are Dunboyne, Fosterstown, Swords and Darndale. There are approximately 652 residential receptors within 300m of the Proposed Development, in addition to 11 community receptors and 56 commercial receptors. No tourism receptors are located within 300m of the Proposed Development. The study area for Land Use / Land Take consists of the footprint of the Proposed Development (i.e. within the Planning Application Boundary), and the study area for Local Economy comprises the area of County Meath as well as the Local Authority area of Fingal in County Dublin, as these are the areas in which the Proposed Development is to be situated and therefore determined to be the extent to which potential impacts on the economy are experienced.

The majority of the area surrounding the Proposed Development is occupied by agricultural fields composed of small to medium sized fields with mature hedgerows. Outside of agricultural land use, the predominant

land use is urban, in the form of built-up residential areas and industrial estates in and around Dublin Airport and surrounding Dunboyne.

Ireland's economy has been performing strongly for a number of years recently and was one of a small number of countries to experience economic growth during the COVID-19 pandemic. The Irish economy was also the fastest growing economy in Europe in 2022. County Meath has the third highest labour force participation rate in Ireland and Fingal has experienced significant growth in employment in the past number of years, and has major economic assets (including Dublin Airport) and is in close proximity to Dublin City, Dublin Port Tunnel, road and rail infrastructure, and a prime location on the Dublin to Belfast Economic Corridor.

During the Construction Phase there is the potential for the following impacts:

- Negative, Slight and Temporary potential impact on amenity, which considers the potential air quality, noise and vibration, traffic and transport, and landscape and visual impacts assessed in the relevant assessments in the EIAR;
- Negative, Moderate and Temporary potential impact on accessibility and severance. The majority of the proposed underground cable will be constructed in the existing road network. As construction will take place on a rolling basis and works at any one area will be short-term, access to all residential, commercial and community receptors will be maintained throughout the Construction Phase;
- No potential impact on the land use of residential, commercial receptors or community / recreational facilities as there will be no off-road works taking place in these land types (agricultural impacts are assessed separately in Agronomy and Equine, Section 7.11);
- Positive, Slight and Short-Term potential impact on employment. The total average estimated number of workers required for the peak construction period of the Proposed Development would not exceed 215 workers. When considered against the size of the wider labour force within County Meath and the local authority area of Fingal, the magnitude of change in terms of employment levels is considered to be 'Negligible'; and
- Negative, Slight and Temporary potential impact on the local economy. As mentioned previously, construction will take place on a rolling basis and works at any one area will be short-term, and therefore, there is not expected to be any significant impact to the ability of commercial receptors in the vicinity to operate.

As there are no significant impacts anticipated during the Construction Phase, no additional mitigation or monitoring measures above those outlined for other assessment topics such as air quality, noise and vibration, traffic and transport, and landscape and visual are required.

During the Operational Phase, the proposed underground cable will be buried and periodic access for maintenance will only be required on agricultural land (see Section 7.11) and along the existing road network. Maintenance activities will occur in the same manner at Woodland and Belcamp Substations and the operation of the substations will also no impact on residential, commercial, community receptors and recreational (including tourism) amenities, above the current baseline. As a result, no potential impacts are expected during the Operational Phase and no mitigation is required.

No significant residual negative impacts are anticipated in regard to people and communities (Amenity; Accessibility and Severance; Land Use / Land Take; and Local Economy) as a result of the Construction and Operational Phases of the Proposed Development.

7.2 Human Health

The human health assessment considers the likely potential impacts on human health during the Construction and Operational Phases of the Proposed Development.

The assessment considers the interaction of factors such as individual characteristics and the 'wider determinants of health' which have an important influence on the health of a population (such as lifestyle and the physical, social, and economic environment (as influenced by open space, leisure and recreation; employment and income; transport modes, access and connections; air quality; and noise and vibration)). The study area includes all 'small areas' which intersect the Planning Application Boundary (i.e., a small area is a Central Statistics Office administrative unit generally covering 65 to 90 households) sufficient to capture the exposure pathways of the Proposed Development such as construction noise and air pollution, as well as incorporating any impacts on land use.

Health indicator data for small areas within Fingal suggest generally resilient populations, with lower than average levels of people who are unemployed or unable to work due to illness or disability or with some level of disability. Health indicator data for County Meath also suggests resilient populations, with the proportion of people unemployed or unable to work due to illness or disability, with some level of disability or with bad or very bad self-reported health below the national average and the proportion of people with good or very good self-reported health higher than the national average for all small areas.

During the Construction Phase there is the potential for the following impacts:

- Negative, Imperceptible and Temporary potential impact on open space, leisure and recreation. The rolling nature of the construction programme means that the duration of impacts on relevant facilities in the study area will be very short-term, and as such, they are not considered likely to be sufficient to dissuade the use of these facilities for recreational physical activity;
- Neutral, Imperceptible and Short-Term potential impact on employment. Due to the low total numbers of construction workers required for the Proposed Development, and the fact that the nature of the Proposed Development means specialist contractors will likely be required for health and safety reasons, job opportunities for local communities are likely to be very limited;
- Negative, Moderate and Short-Term potential impact on income. None of the affected land holdings are considered likely to experience impacts which would threaten or prevent the continued viability of operations. However, in the absence of mitigation, there is the potential for farming community concerns over financial insecurity in the short term;
- Negative, Not Significant and Short-Term potential impact on transport modes, access and connections for the majority of the study area, with a Negative, Slight and Short-Term potential impact for older people and children residing in four small areas within the study area due to increased volume of heavy good vehicles which have the potential to dissuade the use of these routes by these vulnerable road users;
- Negative, Slight and Short-Term potential impact on air quality for three small areas, and Negative, Not Significant and Temporary for all other small areas. Construction dust emissions may present an annoyance in more heavily populated areas but this would be of short-term duration and immediately reversible following the completion of construction activities; and
- Negative, Slight and Short-Term potential impact on noise and vibration for four small areas, and Negative, Not Significant and Temporary for all other small areas. Given the rolling nature of the construction programme, construction related noise is likely to give rise to annoyance and adversely affect quality of life for nearby residents, users of nearby community facilities and places of employment, but there will be a short duration of exposure (in the majority of cases), and the majority of affected residential locations (including nursing homes) are located along or in close proximity to Dublin Airport or to motorways and regional roads within the study area which all generate noise.

Mitigation measures included for the agronomy and equine assessment topic (i.e., the requirement for the appointed contractor to maintain close liaison with local community representatives and landowners and farmers to provide them with adequate progress information and advance notice of works. This will ensure that construction activities are planned around the reasonable access needs of the landowner, so that access is maintained when required by the landowner for farming activities, such as for example, forage and crop harvesting, fertiliser spreading, slurry spreading, and herding of livestock etc.) will provide farmers with information and support and give them the opportunity to be included in the planning of activities. This will help to reduce uncertainty and allow them to plan their operations more effectively throughout the Construction Phase.

No significant health impacts were identified for the population in the study area as a whole during the Construction Phase. Implementation of the CEMP and mitigation and monitoring measures for other assessment topics such as traffic and transport, air quality, and noise and vibration, will help to further reduce the impacts on human health.

The following additional mitigation measures for human health will be implemented during the Construction Phase:

- All proposed traffic diversion routes will remain suitable for walkers, cyclists and horse riders as well as motorised vehicles if these user types are known or anticipated to make use of the closed route;
- A Community Liaison Officer will be engaged who will act as a single point of contact for members of the community who may have concerns about construction related activities, collate data regarding issues raised by members of the community to enable them to be addressed, and who will act to resolve concerns in a timely manner;
- The Community Liaison Officer will be contacted either via telephone or by a suitable online feedback mechanism; and
- There will be specific liaison between the appointed contractor's Community Liaison Officer and the identified facilities to develop targeted mitigation measures which will help to minimise adverse effects associated with increased traffic flows on nearby roads.

No permanent land take will be required from areas of open space or facilities used for leisure and recreational purposes. In addition, EirGrid design standards require all electricity infrastructure to operate under existing public exposure guidelines from the International Council on Non-Ionizing Radiation Protection (ICNIRP), there would be no direct impact on human health from Electromagnetic Fields (EMFs). No health impacts are therefore anticipated during the Operational Phase of the Proposed Development and therefore no mitigation or monitoring is required.

Following the implementation of mitigation measures, there will be no significant residual impacts on human health as a result of the Construction and Operational Phases of the Proposed Development.

7.3 Air Quality

The air quality assessment considers the potential impacts on air quality at sensitive human and ecological receptors during the Construction and Operational Phases of the Proposed Development.

The term 'air quality' refers to how polluted the air we breathe is, in relation to levels of air pollution that could potentially affect human health. Air quality is affected by emissions of air pollutants from a wide range of sources including the exhausts of petrol / diesel fuelled road vehicles, as a result of brake, tyre and road wear, and other sources such as fossil fuel combustion processes used for power generation (e.g. diesel generators). It also refers to dust, which could affect health or give rise to annoyance due to the soiling of surfaces through deposition. Both air pollution and dust can also affect sensitive vegetation and ecosystems (i.e. ecological receptors).

There are different study areas used in the assessment depending on the type of potential air quality effects or emission sources. The assessment considers:

- Temporary dust impacts generated by construction activities;
- Temporary increases in air pollutant concentrations due to additional vehicle movements and emissions of pollutants to air from construction plant and machinery during the Construction Phase; and
- Increases in air pollutant concentrations due to additional vehicle movements during the Operational Phase.

The key air pollutants considered relevant to the Proposed Development are:

- Nitrogen dioxide (NO₂);
- Dust emissions from construction activities; and
- Particulate matter (PM₁₀, particles with an aerodynamic diameter of 10 microns or less, and PM_{2.5}, particles with an aerodynamic diameter of 2.5 microns or less).

Ireland is split into four main air quality zones. The eastern half of the Proposed Development will be located within the Dublin Conurbation air quality zone (Zone A) with the western half of the Proposed Development located in the Rural Ireland air quality zone (Zone D). Dublin Airport (Station 55) is the only monitoring site within the study area and is located approximately 2.4km north-west of Belcamp Substation. The monitoring data from Station 55 show that the existing air pollutant concentrations are well within the relevant air quality guidance 'Limit Values'.

A qualitative assessment of construction dust effects has been undertaken for the different construction activities associated with the Proposed Development. These construction activities were selected to represent those activities which have the greatest potential for dust generation at source. Likewise, the locations chosen for assessment purposes represent those locations with the highest number of sensitive receptors in close proximity to the Planning Application Boundary. There are no designated ecological receptors within the study area for construction dust effects. Based on the matrix of relationships between the sensitivity of the area and the dust emission magnitudes for various activities set out in the 2023 Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1), it is considered that in the absence of appropriate mitigation, there is a low risk of dust impacts for earthwork and construction activities, and a medium risk for trackout at human receptors. There is therefore the potential for infrequent, short-term episodes when baseline dust deposition rates could be increased by an amount that residents could perceive. With regard to human health, there is a negligible to low risk as there is limited potential for emissions of particulate matter (PM₁₀ and PM_{2.5}) to increase baseline concentrations to a value that is above the Limit Values set for the protection for human health. However, through the adoption of good practice dust management mitigation measures set out in the EIAR and the CEMP, the effect of dust emissions on human health and amenity during construction is considered to be Not Significant.

The changes in air pollutant concentrations at sensitive human and ecological receptors due to additional vehicle movements (road traffic emissions) and emissions of pollutants to air from construction plant and machinery during the Construction Phase is considered to be Negligible, and therefore assessed as a Not Significant impact on air quality.

During the Operational Phase, apart from occasional maintenance visits for the monitoring of the cable at the Joint Bays and maintenance at the two substations, there will be very few road traffic movements. Therefore, the changes in the concentrations of pollutants at sensitive human and ecological receptors due to additional vehicle movements during the Operational Phase is considered to be Negligible, and therefore assessed as a Not Significant effect on air quality, and it is not considered necessary to implement additional mitigation measures.

Following the implementation of mitigation measures, there will be no significant residual impacts on air quality as a result of the Construction and Operational Phases of the Proposed Development. As ambient pollutant concentrations will be well below the relevant Limit Value, no exceedances of relevant Limit Values are anticipated.

7.4 Climate

The climate assessment considers the likely potential climate impacts associated with the Construction and Operational Phases of the Proposed Development. The assessment includes consideration of:

- The vulnerability of the Proposed Development to climate change; and
- The likely potential impact of the Proposed Development to climate.

Climate is defined as the average weather over a period of time, whilst climate change is a significant change to the average weather. Climate change is a natural phenomenon but in recent years human activities, through the release of Greenhouse Gases (GHGs), have impacted the climate. The release of anthropogenic GHGs is altering the Earth's atmosphere resulting in a 'Greenhouse Effect'.

The study area for assessing the vulnerability of the Proposed Development to changes in climate comprises the assets associated with the Proposed Development within the Planning Application Boundary. The study area for the GHG assessment comprises the construction and operational areas within the Planning Application Boundary and also incorporates the transport of construction materials from the supplier within Ireland and the transport of materials offsite for waste processing within Ireland.

The sectoral Baseline Emissions Inventories for County Meath and Fingal have been quantified by their respective county councils for a baseline year of 2018 and 2016, respectively, in support of their individual Climate Action Plans (Meath County Council Climate Action Plan 2024-2029 and Fingal County Council Climate Action Plan 2024-2029). The total GHG emissions in 2018 for County Meath were 4,254 ktCO₂e (kilotonnes carbon dioxide equivalent), equivalent to approximately 6% of the national total in 2018 (~69,998 ktCO₂e, as reported in the EPA's Ireland's National Inventory Report 2023. Greenhouse Gas Emissions 1990-2021). The total GHG emissions for Fingal in 2018 were 1,641 ktCO₂e, which is equivalent to approximately 2% of the national total in 2018.

During the Construction Phase there is the potential for the Proposed Development to affect the Earth's climate by causing (directly or indirectly) the emission of GHGs, such as CO₂, into the atmosphere. The total estimated embodied carbon and material transport emissions for the Proposed Development are equivalent to 27,390 tonnes of CO₂e. These construction emissions would occur over the anticipated 42-month construction period equating to an average annual emission of 7,826 tonnes CO₂e per year. This represents a very small percentage (0.3%) of the 2030 Electricity Sectoral Emissions Ceiling. Construction Phase GHG emissions will result in a Not Significant impact.

The following good practice measures will be implemented during the Construction Phase:

- Investigating and implementing sustainable reuse of any materials won from excavation;
- The reuse where possible of materials and waste generated from construction works;
- Procuring locally sourced materials where reasonably practicable to reduce transportation emissions;
- Careful consideration of material quantity requirements to avoid over-ordering and generation of waste materials, while also reducing transportation-related emissions; and
- The appointed contractor will develop and implement a plan to reduce energy consumption and GHG emissions throughout construction.

During the Operational Phase there is the potential for risks associated with climate change to impact the Proposed Development. GHG emissions associated with maintenance of the Proposed Development are scoped out on the basis that the cable is underground and GHG generating activities associated with maintenance would be very low even over the Whole Life Cycle period. The greatest climate change risks are those associated with ground temperatures and ground movement. Increases in temperatures and precipitation have been assessed to result in Not Significant impacts. The Proposed Development is designed to international standards which allow infrastructure to operate in varying climatic conditions. In addition, mitigation of impacts associated with climate change are embedded in the design and specification of the Proposed Development, thus providing resilience of the asset to these vulnerabilities, with no significant impacts identified. No further mitigation measures are required for the Operational Phase.

The Proposed Development will help to meet the Government of Ireland's Climate Action Plan target of up to 80% renewable energy generation by 2030. This includes the transmission of electricity from offshore and onshore renewable sources thus allowing for a sustainable growth in energy demand, while also supporting the uptake of renewably sourced electricity in other sectors. It is anticipated that the Proposed Development's role in providing a low-carbon electricity grid will, over time, partially offset the direct emissions resulting from the Construction (and Operational) Phases.

7.5 Noise and Vibration

The noise and vibration assessment considers the potential noise and vibration impacts on dwellings and other sensitive receptors (including schools and nursing homes) during the Construction and Operational Phases of the Proposed Development. Different study areas were used in the construction noise and vibration assessment. Operational impacts were assessed at the closest sensitive receptor in accordance with the relevant guidelines.

Existing noise levels vary along the Proposed Development with higher noise levels closer to transport infrastructure and during peak periods of transport activity. The main noise sources are from road traffic noise and airport noise. The proposed cable route will cross the M3, M2 and M1 Motorways, as well as regional roads including the R156, R157, R147, R121, R135, R122, R108 and R132 Regional Roads. Noise associated with Dublin Airport is also present in the existing environment, particularly close to the Belcamp Substation. Other noise sources in the existing environment include rail noise, particularly where the Dublin to M3 Parkway railway line runs close to the M3 Motorway. The closest sensitive receptor to Woodland Substation is a dwelling located over 600m from the substation. The closest sensitive receptor to Belcamp Substation is the Craobh Chiaráin GAA pitches to the east, while the closest residential receptors are located in Cara Park to the south (approximately 250m and 300m respectively).

During the Construction Phase there is the potential for the following noise and vibration impacts:

- Adverse, Significant and Temporary potential noise impact to receptors (nearby dwellings) due to HDD works at the M2 and M3 Motorway crossings. This is because noise and vibration levels are likely to exceed the significance thresholds stated in the relevant noise guidance and the duration of the works is likely to exceed the criteria for significance stated in the relevant guidance;

- Adverse, Not Significant and Temporary potential noise impact to receptors due to construction activities associated with Phase 0 (devegetation works), Phase 1 (installation of Joint Bays and Passing Bay structures), Phase 2 (excavation and installation of cable ducts), Phase 3 (installation and jointing of cables), and works to the proposed access roads. This is because noise levels are likely to exceed the significance noise thresholds, but the duration significance thresholds are not likely to be exceeded;
- Adverse, Not Significant and Temporary potential noise impact due to Construction Phase works at the TCCs, the Woodland and Belcamp Substations, and works to the proposed access tracks as these works are not likely to exceed the significance noise thresholds;
- Neutral to Adverse, Not Significant and Temporary potential vibratory compaction impact to receptors. There are no buildings anticipated to experience cosmetic damage as a result of vibratory compaction;
- Neutral to Adverse, Moderate to Significant and Temporary potential vibration impact to receptors due to HDD works at the M2 and M3 Motorway crossings. HDD vibration impacts related to cosmetic damage to buildings are not likely to occur as a result of the construction works;
- Neutral and Not Significant potential noise impact due to the presence of construction traffic as the number of construction vehicles required for the Proposed Development will not result in a noticeable change in noise levels at nearby residences;
- Adverse, Not Significant to Significant and Temporary potential noise impact due to additional traffic on some roads in the vicinity of the Proposed Development from traffic diversions as a result of laying the proposed underground cable in the existing road network; and
- Neutral and Not Significant potential vibration impact due to construction traffic. It is not anticipated to give rise to perceptible ground borne vibration at receptors within the Planning Application Boundary.

In terms of HDD works, appropriate mitigation measures including the use of temporary acoustic enclosures / barriers, community engagement, selecting appropriate plant, and following good construction practices, as outlined in the EIAR and the CEMP, will be implemented in full and will ensure that the final residual noise and vibration impacts will be reduced to Adverse, Not Significant and Temporary.

During the Construction Phase, road closures and diversion routes will be minimised and suitable advanced warning of road closures will be provided to residents within 25m of the affected diversion routes. However, there are no suitable measures to mitigate impacts resulting from diversion routes. Four diversion routes are assessed as having Adverse, Significant and Temporary residual noise impacts. It is noted that these impacts will be temporary and are expected to last less than one year.

Once constructed, the majority of the Proposed Development will result in no noise or vibration. However, the Proposed Development will include the operation of additional electrical equipment to be installed at Belcamp Substation (and to a lesser extent Woodland Substation). The equipment at Belcamp will mainly be housed in a building, and therefore, noise levels at the closest dwellings to the substation are not likely to exceed significance guidance threshold levels. The impact is considered to be Neutral and Not Significant. An operational assessment has not been undertaken in relation to the additional equipment to be installed at Woodland Substation because there are no nearby residences (or other sensitive receptors), and the impact is therefore considered to be Neutral and Not Significant. The equipment to be installed as part of the Proposed Development will not produce high levels of vibration and, as a result, vibration impacts during the Operational Phase are not likely.

Following the implementation of mitigation measures, there will be significant residual noise impacts during the Construction Phase resulting from four diversion routes. There will be no other significant residual impacts from noise and vibration during the Construction Phase. There will be no significant residual noise and vibration impacts as a result of the Operational Phase of the Proposed Development.

7.6 Biodiversity

The biodiversity (ecology) assessment considers the likely potential impacts on ecological receptors during the Construction and Operational Phases of the Proposed Development. The assessment included a review of available published data to identify any features of ecological value and field surveys of habitats, bats, ground mammals, birds, amphibians (frogs and common newts) and reptiles plus water sampling for smooth newt, freshwater fish and white-clawed crayfish.

The Proposed Development will not directly overlap with any nature conservation sites of European importance (European site). The nearest European sites are Malahide Estuary Special Area of Conservation (SAC) and Malahide Estuary Special Protection Area (SPA), located approximately 3.6km from the Proposed Development Planning Application Boundary. However, 19 European sites were assessed as being potentially within the 'zone of influence' of the Proposed Development due to their connectivity (proximity / ecological / hydrological etc.). Potential impacts on designated European sites are specifically assessed in the Natura Impact Statement (NIS), which forms part of the planning application pack to An Bord Pleanála. The NIS concluded that, with mitigation measures adopted, there will be no adverse effects on the integrity of any European sites, either alone or in-combination with other plans or projects.

The study area is largely characterised by farmland (arable and pasture) intersected by hedgerows, treelines, river catchments, and roads. The main habitats within the Proposed Development boundary include woodland and scrub, grassland and marsh, exposed rock / disturbed ground and cultivated and built land.

The biodiversity surveys and assessment found the following:

- No evidence of protected or notable plant or fungi species along the Proposed Development;
- Five Third Schedule listed non-native invasive plant species (Three-cornered leek, Spanish bluebell, Giant hogweed, Japanese knotweed and Rhododendron) and a four non-listed invasive species (Winter heliotrope, Snowberry, Sycamore and Cherry laurel) were recorded along or in the vicinity of the Proposed Development. There was evidence of two non-native invasive animal species (rabbit and brown rat) recorded within water bodies to be crossed by or in the vicinity of the Proposed Development;
- Five bat species (Common pipistrelle, Soprano pipistrelle, Leisler's bat, Natterers bat and brown long-eared bat) were recorded along or in the vicinity of the Proposed Development;
- Potential roost features (locations where bats rest) were recorded in 19 trees, although no roosts were discovered from emergence surveys;
- Evidence of badger was recorded, with 10 setts identified (one main, one annex, one subsidiary, and seven outliers), alongside signs of badger activity including prints and droppings;
- No evidence of otter at proposed watercourse crossings. However, evidence of otter was recorded at four locations, the closest approximately 33m east of the Planning Application Boundary (south-east of Nuttstown);
- Evidence of other protected mammals such as Red Squirrel, Hedgehog and Red Deer was recorded;
- Evidence of common frog was recorded but no evidence of smooth newt or common lizard;
- Evidence of three fish species of conservation interest (lamprey, brown trout, European eel) and evidence of other fish species (three-spined stickleback, minnow and stone loach) was recorded in watercourses in the vicinity of the Proposed Development;
- No evidence of white-clawed crayfish; and
- A total of 18 breeding bird species and 27 wintering bird species were recorded within the vicinity of the Proposed Development.

During the Construction Phase there is the potential for the following impacts on biodiversity:

- Temporary and permanent loss of habitats to facilitate construction works, most notably in off-road sections;
- Habitat degradation from construction works, most notably in off-road sections;
- Fragmentation of habitats for the proposed cable and access tracks which can cause a barrier / severance effect on species;
- Changes in water quality from hydrological impacts;
- Sedimentation (increased sedimentation concentrations within the water column, and sediment deposition on the riverbed and downstream water bodies), bank erosion, chemical contamination, changes in hydrology and riparian habitat degradation from in-stream trenching and construction works near sensitive water bodies;
- Accidental pollution events from construction site activities such as runoff into water bodies;
- Accidental spread of non-native invasive species;
- Mortality of individuals due to construction works; and
- Disturbance/displacement of individuals due to construction works.

There will be significant impacts during the Construction Phase to numerous ecological receptors in the absence of mitigation. The majority of impacts to ecological receptors will be at a Local Level of importance. Impacts to fish and aquatic invertebrates, Atlantic salmon, Lamprey spp., and Hedgerows and Treelines will be at a Local-County Level, impacts to Otter, European eel, and White-clawed crayfish will be at a County Level, and impacts to designated European sites will be of International and National Level Importance.

During the Construction Phase, the following mitigation measures will be implemented:

- A suitably qualified Ecological Clerk of Works (ECoW) will be appointed by the appointed contractor to carry out pre-construction surveys to ensure that the ecological baseline remains current and, where required, will implement appropriate mitigation measures as needed. The ECoW will also give toolbox talk to all site personnel to highlight any environmental sensitivities and the boundaries of sensitive habitats, and supervise construction works near sensitive ecological receptors;
- Site management and pollution control measures, including silt fencing to prevent any silt-laden runoff from impermeable surfaces, will be implemented through the application of the CEMP to protect species and water bodies, and to properly manage and prevent the spread of non-native invasive species;
- Vegetation clearance will take place outside of the breeding bird season (1 March to 31 August inclusive). Where this seasonal restriction cannot be adhered to, habitats that need to be removed will be inspected by a ECoW suitably experienced in the identification of nests for the presence of breeding birds prior to clearance. When nesting birds are present, the ecologist will demarcate a suitable buffer around an active nest and clearance within this area will be postponed until the chicks have fledged. A suitable exclusion zone will be established by the ECoW. To reduce the potential of birds to nest, bird deterrents (e.g. flicker tape / compact discs) will be tied to habitat confirmed to be without nests and the habitat will be cleared within three days of the inspection;
- To ensure that there will be no disturbance to QI species within functionally linked habitat, a 2m to 3 m high non-transparent visual and noise screening barrier will be erected along the perimeter of the site, all plant used will be the quietest of its type that is practical, noise levels will not exceed permissible levels for construction works, a Noise and Vibration Management Plan will be developed by the appointed contractor, and all plant will be operated in accordance with the manufacturer's recommendations;
- Any excavations will be covered at night to prevent small mammals from falling in and/or becoming trapped;

- Pre-construction surveys and mitigation measures for otters will follow the National Roads Authority 2008 Guidelines for the Treatment of Otters during the Construction of National Road Schemes;
- Pre-construction surveys and mitigation measures for badgers will follow the recommendations set out in the National Roads Authority 2006 Guidelines for the Treatment of Badgers during the Construction of National Road Schemes. If a licence is required this will be issued by the relevant local authority;
- Any roosts recorded during the pre-construction surveys will be felled under a derogation licence. The loss of trees with high and medium potential for roosting bats will be mitigated by the use of bat boxes; and
- Control measures will be implemented during the Construction Phase in or adjacent to a watercourse and additional mitigation measures will be undertaken to protect fish species.

Along most of the proposed cable route, the road will be reinstated for public use, and vegetation removed will be re-instated, except along the permanent easement, at Joint Bays, along permanent access tracks, and where over-cable planting is not technically viable, for example due to asset risk. All planting will take account of the vegetation that has been removed and typical species of the local landscape. Unless otherwise agreed with ESB and the local authority, the appointed contractor will reinstate hedgerows and treelines to a species-rich condition (i.e., five native woody species per 30m (excluding brambles), with no use of commercial seed), comprising only native species. All other sites will be returned as close as possible to their pre-existing condition, using the same woody species removed, under the supervision and direction of the appointed contractor's ECoW.

During the Operational Phase, the impact of the Proposed Development on important ecological receptors is expected to be not significant. Should unexpected and / or emergency maintenance of the proposed underground cable be required during the Operational Phase, there will be the potential for the same negative effects to occur to ecological receptors due to excavation of the trench. Maintenance works will be undertaken in line with best practice and management procedures.

Significant residual impacts are predicted for dry calcareous grassland, wet grassland, mixed broadleaved woodland, hedgerows, treelines, scrub, immature woodland, and individual trees. Significant residual impacts are only considered for permanent habitat losses. Temporary habitat losses (for dry meadow and grassy verges and other artificial lakes and ponds) are not considered as there are no significant residual impacts following the implementation of mitigation (i.e. habitat reinstatement). There will be a Negative, Significant and Medium to Long-Term residual impacts at Local to County Level from the loss of hedgerows and treelines until new species rich hedgerows and treelines are established. There will be a Negative, Significant and Permanent residual impact estimated at County Level from the loss of mature trees as this cannot be compensated with replacement planting due to the time taken for trees to reach maturation. There is no scope for wet grassland at Belcamp Substation, where the grasslands are dry, or compensation options for dry calcareous and neutral grassland. As such, the grassland losses are assessed as Negative, Significant and Permanent residual impacts, estimated at a Local (High) geographic scale.

An offsite compensation strategy for hedgerows, treelines and individual trees has been developed, in light of the urgent biodiversity action required at European and national level, and the hedgerow / tree policy objectives of Meath County Development Plan 2021-2027 (particularly HER POL 37, HER POL 38, HER POL 40) and Fingal Development Plan 2023-2029 (particularly GINHP21, GINHP22, GINHO44).

A Draft Over Cable Planting Strategy is in advance development in consultation with the ESB, for which the Designers Risk Assessment (DRA) was ongoing at the time of writing. However, applying a precautionary principle, it is assumed that the DRA will conclude planting cannot be carried out while maintaining technical and safety standards. As such, offsite compensatory planting is assumed to be the only action available to replace hedgerows / treelines removed from off-road underground cable route sections. The offsite compensatory planting will be entirely outside the Planning Application Boundary. A minimum of 130%

compensatory offsite planting will be delivered by ESB, in consultation with EirGrid. The surplus will help contribute towards an overall biodiversity net gain.

Subject to consent, the compensatory planting will commence in advance of, or in parallel with, the Construction Phase of the Proposed Development. EirGrid has identified candidate sites in County Meath and County Dublin in consultation with a charity partner, who provides compensatory planting options on third-party lands. Whether these candidate sites or other sites are used for compensatory planting, there will be no planting in semi-natural habitats of significant ecological value, which will be verified by the suitably qualified ecologist employed the compensation supplier.

7.7 Soils, Geology and Hydrogeology

The soils, geology and hydrogeology assessment considers the potential impacts on land, soils and geology, and hydrogeology (groundwater) during the Construction and Operational Phases of the Proposed Development.

The assessment included a desk-based study of publicly available information and on-site ground investigations. The geology (soils and rock) beneath the study area (defined as a 250m buffer from the Planning Application Boundary to enable the description of geology baseline conditions) of the Proposed Development mainly comprises limestone and alluvium soils along the courses of rivers and their floodplains. Primary land uses within the study area are agricultural, cultivation and mixed forest, and a mix of urban land uses including road and rail networks, industrial and commercial units and Dublin Airport, in addition to some sports and leisure facilities.

Aquifers (which store / produce groundwater) within the study area of the Proposed Development are classified as 'Locally Important' (moderately productive in local zones) or 'Poor' (generally unproductive except for local zones), in terms of their ability to produce water. Nine potential Ground Water Dependent Terrestrial Ecosystems (GWDTEs) were identified in the study area, associated with wet grassland, marsh and woodland situated on a riverbank.

During the Construction Phase there is the potential for a Moderate/Slight impact on soils due to the excavation of soils for the proposed underground cable, access tracks and ancillary works in relation to the two substations. Works during the Construction Phase also have the potential to have a Significant impact on the groundwater quality of Uisce Éireann public supply wells (the proposed cable route will intercept the Inner Protection Area of Dunboyne Public Water Supply between Chainage 10,950 and 12,100), a Significant impact on groundwater flow and quality of unknown private water supplies, and a Moderate impact on groundwater flow and quality of potential GWDTEs. All other Construction Phase soils, geology and hydrogeology impacts will be Imperceptible to Slight.

No significant impacts are anticipated to the Water Framework Directive (WFD) groundwater bodies, in terms of water quality and flow. As a result, the Proposed Development will not cause deterioration of the WFD status of any groundwater body either quantitatively or qualitatively or jeopardise the ability of such groundwater bodies to achieve such status.

During the Construction Phase, the implementation of the good industry working practice and pollution prevention measures in the CEMP, with a particular focus on controlling run off and suspended solids, preventing accidental spillages, excavated material stockpile management, and ensuring safe storage of materials and product in sealed areas, will reduce the potential for impacts. Potential risk from ground gas, radon and encountering contaminated land during construction will be mitigated through the development and adoption of an appropriate safe system of work, including the use of Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) as a last resort.

Uisce Éireann will be further consulted during the detailed design stage regarding the Dunboyne abstractions, on relevant aspects of the CEMP and agreeing a method statement within the final CEMP for the works in the

relevant location (potentially including monitoring and reporting requirements). GWDTes will be protected by installing clay bunds in the trench backfill along the proposed cable trench to prevent drainage pathways being formed. Should any unknown private water supplies be identified in the vicinity of the cable route, the supply will be monitored and, if required, an alternative supply will be provided.

During the Operational Phase, there is the potential for Imperceptible impacts on soils, geology and hydrogeology, with the exception of a potential Significant impact on groundwater flow and quality of unknown private water supplies and a potential Moderate impact on groundwater flow of GWDTes in the absence of mitigation. During any maintenance works, all maintenance workers will follow the safe system of work for working in confined spaces, including the use of PPE and RPE, to reduce the risk of impacts from ground gas. In the event that ground works are required during the Operational Phase, appropriate health and safety and waste management procedures for working with potentially contaminated soils (including asbestos) and water will be established, such as the development and adoption of safe systems of work.

Following the implementation of mitigation measures, there will be no significant residual impacts on soils, geology and hydrogeology as a result of the Construction and Operational Phases of the Proposed Development.

7.8 Hydrology

The hydrology assessment considers the potential impacts on the surface water environment during the Construction and Operational Phases of the Proposed Development, as well as the potential flood risk to the Proposed Development. The assessment considers the following subtopics:

- Hydrology, including surface water drainage;
- Hydromorphology;
- Surface water quality including surface water supply and wastewater discharge;
- WFD assessment; and
- A summary of flood risk.

The surface water assessment involved a desk-based study and the completion of field surveys to establish the current surface water conditions in order to identify the likely impacts of the Proposed Development.

The Proposed Development will be located within the Liffey and Dublin Bay and the Nanny Delvin catchments. The water bodies relevant to the Proposed Development are:

- Dunboynestream_010 which forms part of the Tolka_SC_010 catchment and drains from the west through Dunboyne Town before discharging into the River Tolka downstream. Existing pressures on this water body include agriculture and domestic wastewater;
- Rye Water_030 which forms part of the Liffey_SC_080 catchment and drains from the north upstream of Barstown and the R156 road before discharging into the Rye Water_040. Existing pressures on this water body include agriculture;
- Tolka_020 which forms part of the Tolka_SC_010 catchment and drains from the west downstream of Woodtown to where it meets the River Tolka at Clonee which is downstream of the study area. Existing pressures on this water body include agriculture;
- Pinkeen_010 which forms part of the Tolka_SC_10 catchment and drains from the north-west at Rathbeggan and flows easterly towards its meeting point with the River Tolka. Existing pressures on this water body include agriculture and domestic wastewater;
- Ward_020 which forms part of the Broadmeadow_SC_010 catchment and drains from the west at Nuttstown and flows easterly towards its meeting point with Ward_030 to the west of North Road at Ward Cross. Existing pressures on this water body include agriculture and urban wastewater sources;

- Ward_010 which forms part of the Broadmeadow_SC_010 catchment and drains from the north-west at Fairyhouse Road to the east of Rathbeggan and flows in a south-west to westerly direction to its meeting point with Ward_020 to the east of Ballymacarney Solar Farm. There are no existing pressures on this water body;
- Ward_030 which forms part of the Broadmeadow_SC_010 catchment and drains from the north-west at Muckerstown Solar Farm and flow in a south-west direction to its meeting point with the Ward_040 at Toberburr. Existing pressures comprise agricultural, urban runoff, urban wastewater and other anthropogenic pressures;
- Sluice_010 which forms part of the Mayne_SC_010 catchment and drains from the east from its source to the north of Dublin Airport before it discharges into the Irish Sea at Portmarnock. Existing pressures comprise of anthropogenic influences from the number of times this water body is crossed by existing infrastructure; and
- Mayne_010 forms part of the Mayne_SC_010 catchment and drains eastwards from Dublin Airport before discharging into the Irish Sea. Existing pressures include urban runoff.

There are also numerous unnamed non-designated watercourses within the study area, and these are generally straightened land drains / ditches. There are no known surface water abstractions within the study area and no WFD designated water bodies designated as drinking water protected rivers.

Given the nature of the Proposed Development, the potential for impacts on the water environment is mainly associated with the Construction Phase and includes potential impacts on:

- Surface water quality from sediment runoff, spillages, discharges or physical modification;
- Drainage patterns from formation of impermeable surfaces and working in or near water bodies;
- Working within water bodies and disturbing natural bed material and features; and
- Flood risk.

In the absence of mitigation, the above potential impacts from the Proposed Development are deemed to be Slight to Very Significant for surface water quality, Imperceptible for hydrology, and Imperceptible to Moderate for hydromorphology with regard to the relevant watercourses.

The Flood Risk Assessment (FRA) (included as Appendix A12.1 in Volume 3 of the EIAR) determined that the majority of the Proposed Development will be located in Flood Zone C (where the probability of flooding from rivers and the sea is low), and concluded that the Proposed Development is at low risk of fluvial flooding, and there will be a low impact on surrounding areas due to pluvial flooding.

A Surface Water Management Plan (an appendix of the CEMP, see Section 6.6) details control and mitigation measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the Construction Phase. These include a requirement for an environmental incident response plan, the control of runoff of fine sediments, the management of storage of materials / fuels, the management of the batching and use of concrete; and the management of vehicles and plant. Additionally, site-specific measures are proposed to avoid or reduce negative impacts related to the open cut trench crossing of watercourses. These include the appointed contractor will be required to prepare detailed construction method statements to IFI for approval, the restriction of open cut crossings of watercourses to between July and September to avoid salmon and trout spawning, unless otherwise agreed with IFI, that fluming is preferred to over pumping, and the management and control of all works will be through Risk Assessment Method Statements and appropriate Health and Safety documents.

During the Operational Phase of the Proposed Development, all new cable infrastructure will be located below-ground and will not interface with surface water receptors. The proposed substation upgrades at Belcamp and Woodland are upgrades that will occur within the existing substation footprints in the context of existing grid infrastructure. The substations will continue to function as they do under baseline conditions in terms of the surface water environment. There is a requirement for a permanent crossing of the Dunboyne

Stream_010 to allow for the provision of the new permanent access track extending north from the R156 Regional Road to Joint Bay 1. Further work will be undertaken at the detailed design stage to develop the crossing design. For the purpose of the EIAR, it is assumed that the crossing will take the form of a pipe culvert. It is assumed that the temporary culvert (for the proposed construction access track) will also form the operational culvert upon completion. There is the potential for changes in the baseline hydromorphology of the water body due to this permanent culvert crossing which is assessed to be a Significant impact. Post-construction management and maintenance will be carried out and will include sediment and debris clearance, riparian vegetation management, and structure repair or maintenance as and when required by regular inspection.

Following the implementation of mitigation measures, there will be no significant residual impacts on hydrology as a result of the Construction and Operational Phases of the Proposed Development. In addition, the assessment identified that the Proposed Development will not cause a deterioration in the WFD status of any water body and will not jeopardise the potential of any water body to achieve the objectives under the WFD.

7.9 Archaeology, Architectural Heritage and Cultural Heritage

The archaeology, architectural heritage and cultural heritage assessment considers the likely potential impacts on archaeology, architectural heritage and cultural heritage during the Construction and Operational Phases of the Proposed Development. The assessment of these three topics is defined as follows:

- Archaeology - the study of past societies through the material remains left by those societies and the evidence of their environment. The 'archaeological heritage' consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence;
- Architectural Heritage - comprising all structures and buildings (together with their settings and associated grounds, fixtures and fittings, groups of such structures and buildings and sites), which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Architectural heritage is generally visible and has a presence in the landscape; and
- Cultural Heritage - a general term used to describe aspects of the environment and intangible heritage which are valued for their age, beauty, history or tradition. It encompasses aspects of archaeology, architecture, history, landscape and garden design, folklore and tradition and topography. Cultural heritage is expressed in the physical landscape in numerous and often connected ways.

This assessment involved a desk-based review of published and unpublished documents, including analysis of Light Detection and Ranging (LiDAR) data acquired for the Proposed Development, aerial imagery and historical mapping, and a site inspection and walkover survey, and has been carried out according to best practice and guidelines relating to archaeological, architectural and cultural heritage.

The study area contains no evidence of the Mesolithic Period (approximately 8,000 to 4,000 BC (Before Christ)) but does contain evidence of the Neolithic Period (approximately 4,000 to 2,500 BC) at Barberstown and Dunboyne, the Bronze Age Period (approximately 2,500 to 600 BC) at Bennetstown, Dunboyne, Ward Upper and Woodland and the Iron Age (approximately 600 BC to AD (Anno Domini) 500) at Dunboyne. There is also evidence of the Early Medieval Period when Christianity was introduced in Ireland (approximately AD 400 to AD 1,100) through the presence of an early monastic site in Dunboyne. Early medieval settlements in the study area include raths (ringforts), circular enclosures typically defined by ditches and earthen banks that were thought to be farmsteads, with one or more houses within each enclosure. Country houses were established from the 17th Century onwards, with landowners building country estates to demonstrate wealth and satisfy changing social values. The land use of the study area remained largely agricultural, and the field pattern depicted on historic Ordnance Survey mapping remains noticeable both through existing field boundaries, and the remains of former field boundaries. Recent development within the study area comprises

the network of roads, motorways and associated infrastructure (such as the M3 parkway car park in Bennetstown), Dublin Airport, and areas of residential infill, recreational sites (such as Forrest Little Golf Club), and commercial complexes (such as Avoca Dunboyne in Piercetown).

There are eight recorded monuments on the Record of Monuments and Places, six sites on the Sites and Monuments Record, two protected structures on the Record of Protected Structures, one National Inventory of Architectural Heritage structure, 10 Gardens and Designed Landscapes (GDLs), and 194 cultural heritage assets, comprising 38 cultural heritage sites, 61 assets identified from the LiDAR data and 98 townland boundaries. No Architectural Conservation Areas are located within the study area.

During the Construction Phase there is potential for the following direct pre-mitigation impacts to occur:

- Archaeology - one recorded monument (AY_47) (a mound) will be removed as a result of construction of the Proposed Development (between Chainage 34,850 and Chainage 34,950). This will result in a direct Very Significant impact. There is also the potential for accidental damage to a graveyard wall, which is also a Recorded Monument (AY_24), between Chainage 23,975 to Chainage 24,025. This will result in a Very Significant impact. The route is located within the Zones of Notification of seven Recorded Monuments (AY_18, AY_23, AY_24, AY_25, AY_29, AY_41 and AY_43). This will result in direct Slight impacts. Construction may also have a direct impact on any previously unknown archaeological remains that may be present within the land required for the Proposed Development. There is the potential for impacts on archaeological remains and artefacts that may survive in watercourses and in the land adjacent to them. A total of 37 watercourses will be crossed in-road (some more than once) using existing road structures, therefore avoiding watercourses themselves and the land immediately adjacent to them. No potential impacts on archaeological remains and artefacts that may survive have been identified. Instream trenching will be required at 18 watercourses comprising a mix of drainage ditches, streams and rivers. In addition, a total of two indirect impacts of Slight significance are assessed on the setting of two Recorded Monuments (AY_23 and AY_24);
- Architectural Heritage – an area of Crockanee Wood and approximately 120m of boundary associated with Priest Town GDL (DL_04) will be removed as a result of the proposed cable crossing a watercourse at Chainage 18,200. This will result in a direct Moderate impact. In addition, a total of two direct impacts of Slight significance and one direct impact of Not Significant significance are assessed for architectural heritage. There will be four indirect impacts of Slight significance for GDLs (DL_04, DL_05, DL_15 and DL_16); and
- Cultural Heritage – the majority of an enclosure (LI_40; between Chainage 22,100 and Chainage 22,200), and three ring ditches (CH_78; between Chainage 35,750 and Chainage 35,950) will be removed as a result of construction of the Proposed Development. This will result in direct Very Significant impacts. The construction of the Proposed Development will also result in the removal of footings of a small group of buildings (LI_08, Chainage 2650), three ring-ditches and the partial removal of two ring-ditches (CH_62, between Chainage 325 and Chainage 725). This will result in direct Significant impacts. Half of an enclosure (CH_75) between Chainage 26,800 and Chainage 26,925 and curvi-liner features forming part of CH_67 between Chainage 3,100 and Chainage 3,300 would be removed as a result of construction of the Proposed Development. This will result in direct Significant impacts. Construction of the Proposed Development will also remove deposits associated with three palaeochannels (LI_24, LI_36 and LI_58), and sections of six townland boundaries (TB_01, TB_04, TB_39, TB_44, TB_67, and TB_87). This will result in direct Moderate impacts. In addition, a total of 14 direct impacts of Slight, 13 direct impacts of Not Significant, two direct impact of Imperceptible significance, six indirect impacts of Slight significance and five of Not Significant significance are assessed for cultural heritage.

There is the potential for the discovery of previously unknown below-ground archaeological features, materials and deposits along the Proposed Development. As a result, archaeological investigations will be

implemented post-consent and pre-construction in all off-road sections required for construction, including land required for access tracks, Passing Bays, Joint Bays, HDD Compounds and TCCs to inform any mitigation measures required. This will comprise archaeological geophysical survey, archaeological test excavation, palaeoenvironmental assessment, and underwater assessment at relevant locations to inform the design of archaeological excavation and further underwater surveys. Mitigation will be carried out under the supervision of a suitably qualified archaeologist under Licence (where required) granted by the Minister for Housing, Local Government and Heritage and in accordance with the provisions of the National Monuments Acts. Written reports on the results of all surveys and assessments undertaken will be prepared in accordance with the requirements of the Licence(s) granted.

Mitigation measures for known archaeological, architectural heritage and cultural heritage assets, that will be undertaken post-consent, but in advance of the Construction Phase, will comprise:

- Topographical survey of the upstanding remains of LI_08;
- A photographic and written record of the elements of GDLs DL_04, DL_05, DL_15 and DL_16 impacted by the Proposed Development;
- Townland boundary surveys comprising a detailed written and photographic survey, and test trenching of TB_01, TB_04, TB_38, TB_39, TB_44, TB_51, TB_52, TB_54, TB_57, TB_67, TB_76, TB_78, TB_82, TB_85, TB_86, TB_87, TB_96 and TB_97;
- Palaeoenvironmental assessment and analysis of LI_24, LI_36 and LI_58;
- Archaeological excavation of AY_47, CH_32, CH_59, CH_62, CH_67, CH_75, CH_78, LI_05, LI_08, LI_09, LI_11, LI_24, LI_36, LI_40 and LI_58, informed by archaeological geophysical survey and archaeological test excavation, where preservation in-situ is not feasible;
- Underwater assessment comprising wade and metal detecting survey of: Dunboyne Stream (WCP01); Pinkeen River (WCP05); and two unnamed streams (UNWC 34 and WCP16); and
- An archaeological metal detecting survey will be undertaken of the banks of UNWC 1, UNWC 2, UNWC 3, WCP04, WCP07, WCP08, UNWC 28, UNWC 29, WCP12, WCP13, UNWC 31 (1), UNWC 33 (2), UNWC 33A and UNWC 35).

During the Construction Phase the following mitigation measures will be implemented:

- Archaeological monitoring of in-road construction works within the Zones of Notification of Recorded Monuments (AY_18, AY_23, AY_24, AY_25, AY_29, AY_41 and AY_43) and for assets CH_34, CH_53, CH_68, CH_80, CH_81, CH_82, CH_83, LI_37, LI_57 and LI_60 will be undertaken; and
- AY_24, CH_15 and CH_63 will be clearly demarcated with temporary fencing within the Planning Application Boundary to avoid accidental damage.

If archaeological remains are identified during the archaeological monitoring, and preservation in-situ is not feasible, archaeological excavation will be undertaken under an excavation licence granted by the Minister for Housing, Local Government and Heritage and in accordance with the provisions of the National Monuments Acts 1930–2004 (as amended).

During the Operational Phase there will be no direct impacts on archaeological, architectural and cultural heritage as a result of permanent access tracks or Joint Bays. There will also be no indirect impacts on archaeological and cultural heritage. There will be two Slight indirect impacts on Priest Town House GDL (DL_04) and Hollywoodrath GDL (DL_05) during the Operational Phase as a result of the presence of new infrastructure in the form of concrete caps and access tracks within Hollywoodrath GDL. No mitigation for archaeological, architectural and cultural heritage is proposed during the Operational Phase as there is no potential for significant impacts.

Following the implementation of mitigation measures, there will be one Moderate (which is considered 'Significant' for this assessment) impact on the recorded monument to be removed (AY_47) during the

Construction Phase but no other significant residual impacts as a result of the Construction and Operational Phases of the Proposed Development.

7.10 Traffic and Transport

The traffic and transport assessment considers the likely potential impacts on traffic and transport from the Construction and Operational Phases of the Proposed Development. The study area for the traffic and transport assessment is the existing road network that will potentially be impacted by the Proposed Development comprising the substations (Woodland and Belcamp), Temporary Construction Compounds (TCCs), HDD Compounds, the proposed cable route, construction access routes, potential lane closures and diversions.

This assessment involved a desk-based review of the existing traffic conditions and the road network in the vicinity of the Proposed Development, and the completion of traffic count surveys. This information was used to inform how any traffic and transport impacts from the Proposed Development can be minimised.

The Proposed Development will be located in the vicinity of, or will cross, a number of regional roads and the M1, M2 and M3 Motorways. There are a number of Dublin Bus, Bus Éireann, Go-Ahead, in addition to express, retail and local bus services, in the vicinity of the Proposed Development. The Dublin to M3 Parkway / Dunboyne rail line also passes through the study area.

During the Construction Phase, the traffic impact of the Proposed Development will be as a result of temporary additional traffic volumes, associated with the construction activities (both staff and heavy goods vehicle movements), on the existing road network, and affecting users of that road network (including drivers, and those walking, wheeling, cycling, or travelling by public transport). In the absence of mitigation, the increases in traffic would have a Negligible/Minor (Not Significant) effect on the majority of identified receptors. At one location (M3 Motorway On/Off Slips), the effect would be Moderate (Significant).

There will also be disruption to road users as a result of laying the proposed underground cable in the existing road network. Of the 30 temporary traffic management (TTM) sections, there will only be four TTM sections of 9.1km in length that will result in a Negative, Moderate (deemed Significant) and Temporary impact on traffic and transport due to the requirement for traffic diversions. The sections along the R156 Regional Road, L1010 Nuttstown Road, and Prieststown Road in County Meath will be impacted as a result of between approximately 21 and 22-minute diversions that will be signposted from the affected regional road to alternative roads of similar or better standard. The other sections of affected roads will have no impact or have been assessed to be Minor. Other impacts to public transport or active travel users have been assessed to be Not Significant for the Construction Phase.

During the Construction Phase, the temporary impacts that construction will have on traffic and movement through the construction works areas will be managed through the application of a Construction Traffic Management Plan (an appendix of the CEMP, see Section 6.6). The Construction Traffic Management Plan will be a live document throughout the Construction Phase and will be continuously updated by the appointed contractor in collaboration and agreement with the relevant roads authorities. The appointed contractor will agree temporary traffic measures, and will then adopt and monitor an appropriate way of working, in consultation with Meath County Council, Fingal County Council, daa, Transport Infrastructure Ireland and / or their agents, and An Garda Síochána as appropriate. Construction activity generated vehicles will travel on predefined construction access routes to and from the relevant working areas to reduce the effects on local traffic. In addition, a wheel wash facility and road sweeper will be provided to minimise any mud and debris on the surrounding public road network.

During the Operational Phase, there is no potential for significant impacts on traffic and transport as the roads in which the proposed underground cable will be laid will be restored to their original condition, and the presence of the Proposed Development along some portions of the road in the Planning Application Boundary will not affect traffic flows. Where maintenance is required along the proposed cable route, or

where maintenance works are undertaken at Woodland or Belcamp Substations, the traffic impacts have been assessed based on the specific circumstances of the maintenance activity. The Joint Bays and associated link boxes and communication chambers will require periodic inspection, for which, localised, temporary traffic management will be devised by the contractor that carries out the inspection, in consultation with the road authorities. Any maintenance based traffic is therefore considered to be not significant given its Brief duration and Negligible (Not Significant) impact. To minimise inconvenience to the local community in terms of obstructive parking, adequate vehicle parking space is available on-site at Woodland and Belcamp Substations. For cable inspection, car parking will not be permitted on any part of the public road network for inspection of link boxes at each Joint Bay location. Any localised, temporary traffic management will be devised by the appointed contractor that carries out the inspection in consultation with the road authorities with consideration that sight lines will be maintained and to minimise the potential for obstruction and delay for other road users.

There will be a Negligible / Minor magnitude of residual traffic and transport impact (i.e., Not Significant) during the Construction Phase with the successful implementation of the required mitigation measures it is acknowledged that inconveniences will be caused in some areas due to the diversion routes and construction of the proposed cable route.

However, whilst the overall construction period will be over several months, all construction access routes will only be affected during certain periods, and therefore, any impacts will be of a Temporary duration.

Following the implementation of mitigation measures, four of the 30 TTM Sections (1.02, 1.07, 1.09, and 1.12) of 9.1km in length will experience a Moderate (Significant) residual impact during the Construction Phase because of associated diversion lengths due to road closures rather than due to the volume of construction traffic. These sections along the R156 Regional Road, L1010 Nuttstown Road, and Priesttown Road in County Meath will have a Moderate impact as a result of between approximately 21 and 22-minute diversions that will be signposted from the affected regional road to alternative roads of similar or better standard. While the impact will be Moderate, the impacts will be limited to the construction of the proposed cable trench, which will be a Temporary duration (typically 40m to 50m of cable trench is proposed to be constructed in one day, meaning these impacts are predicted to last for between 26 and 227 days, although not consecutively). The remaining Construction Phase impact will be Not Significant.

Following the implementation of mitigation measures, there will be no significant residual impacts on traffic and transport as a result of the Operational Phase of the Proposed Development.

7.11 Agronomy and Equine

The agronomy and equine assessment considers the potential impacts of the Proposed Development on agricultural and equine land parcels with the study area that will be directly affected by the Proposed Development.

In general, the land quality along the Proposed Development is good, with the land considered suitable to support very high-sensitive enterprises such as stud farms and high-sensitive enterprises such as dairy and horticultural enterprises. The average size of farms along the Proposed Development are likely to be larger than the national average (approximately 45.4 hectares, versus 33.4 hectares). There will be 40 land holdings directly impacted by the Proposed Development and three of these landholdings are farms with horses (equine facilities), with two of the three equine-only landholdings. The majority of the farm enterprises, including the two equine-only facilities, are of medium sensitivity, with one dairy farm being of high sensitivity.

During the Construction Phase, the installation of the underground cable in-road will have potential impacts on farms adjoining these works for a period of two to three months, which is based on a rate of construction of 40 to 50 metres per day. The following potential impacts are likely to arise in the absence of mitigation:

- Not Significant potential dust and noise and movement impacts on grazing livestock from construction machinery and excavation and handling of soil materials;
- Not Significant potential impact from disturbance and delays caused to local traffic during construction, which has the potential to affect how farmers access for farm machinery and livestock movements;
- Not Significant potential impact from disturbance to land drainage and land quality;
- Not Significant potential impact of weed propagation on soil heaps and spread of these weeds to adjoining agricultural land; and
- Not Significant potential impact from the removal of trees and hedgerow resulting in reduction in available shelter.

Where construction works will take place in off-road agricultural land (i.e. for the 40 identified land holdings), the following potential impacts are likely to arise in the absence of mitigation:

- Not Significant to Slight Adverse potential impact due to temporary land take for construction works due to the damage to land and soil structure;
- Not Significant to Slight Adverse potential impact due to the potential for severance of services such as pasture, water pipes and power cables (electric fencing) to occur;
- Not Significant potential impact due to the potential for the spread of soil borne diseases and noxious weeds due to excavation, movement and storage of topsoil;
- Not Significant dust and noise impacts on grazing livestock from construction machinery and excavation;
- Not Significant to Significant Adverse potential impact for disturbance to land access for farm machinery and livestock movements; and
- Not Significant to Moderate Adverse potential impact from disturbance to land drainage and land quality.

Mitigation measures will be applied during the Construction Phase to reduce these impacts. The appointed contractor will be required to maintain close liaison with local community representatives and landowners to provide them with adequate progress information and advance notice of works. Where construction work results in the severance of land access, the appointed contractor will ensure that there is adequate access to facilitate the farmer to effectively farm severed land. In addition, the mitigation measures outlined in the CEMP (which includes the recommended mitigation from the air, noise and vibration, hydrology, and traffic and transport assessments in the EIAR) will be applied by the appointed contractor. The appointed contractor will comply with any regulations pertaining to the control of farm diseases as specified by the Department of Agriculture, Food and the Marine and will employ reasonable and best practice precautions against spreading any such farm disease. Once construction is complete, the appointed contractor will ensure that drainage reinstatement does not impede the drainage of the surrounding agricultural lands, any drains that are intersected or blocked during construction are reconnected or diverted to a suitable outflow and field boundaries that were removed will be replaced with fit for purpose stock proof fencing and hedgerows, with the exception of hedgerows over the permanent cable easement. These measures will reduce the impacts to Not Significant for the majority of land holdings (33), Slight Adverse for five landholdings and Moderate Adverse for two of the landholdings. Following the implementation of mitigation measures, there will be no significant residual impact on agronomy and equine during the Construction Phase.

During the Operational Phase, there is the potential for impacts to arise as a result of the permanent easement and land take. The permanent easement will be generally 5m wide above the proposed cable trench and will cross agricultural land (29 land parcels) for approximately 10km, directly affecting approximately 18.7ha of land. Trees and hedgerow will be permanently removed along the temporary working area. However, before mitigation, this will have a Not Significant impact on shelter in the Operational Phase.

Farmers can still use the land within the easement for agricultural purposes; except for relatively small areas associated with the Joint Bays and access tracks. Activities such as ploughing and agricultural production will be restricted at 15 of the off-road Joint Bays that will be located in 13 agricultural land parcels, and agricultural production will be permanently restricted from the wide hard-core area around each of these. There will be permanent land take for approximately 4km of permanent access tracks (1.6ha) to Joint Bays along the proposed cable route required for maintenance. The pre-mitigation impacts of permanent easement and land take are Not Significant to Slight Adverse.

There will also be permanent disturbance during the Operational Phase. The presence of the underground cable and Joint Bays below ground level will have the potential to impede activities such as land drainage. While the proposed cable development will not cross existing commercial forestry, future land use such as commercial forestry and tree planting will be set back from the cable route. In addition, building agricultural buildings in close proximity to the cable will also be subject to restrictions and agreement from the Electricity Supply Board. The cable will require routine maintenance along the entire length of the cable route. Inspection vehicles and personnel will access joint bays, link boxes and communications chambers on an annual basis for inspection and for any necessary maintenance. This has the potential to cause damage to field surfaces and disturbance to livestock. There may also be cable markers located in field boundaries which could potentially disturb hedgerow trimming/cutting operations. However, the selected location of permanent access tracks and Joint Bays will ensure that the pre-mitigation impact will be Not Significant to Slight Adverse.

EirGrid's design standards require all underground cables to operate to existing public (including farmers) exposure guidelines from the International Commission on Non-Ionizing Radiation Protection and as such there will be no direct effects from Electric and Magnetic Fields (EMF) related to the proposed underground cable during the Operational Phase. The food quality standards written by Bord Bia for Beef and Lamb (Sustainable Beef and Lamb Quality Assurance Scheme), Milk (Sustainable Dairy Assurance Scheme) and Cereals (Irish Grain Assurance Scheme) and the Department of Agriculture, Food and the Marine 2020 Farm Animal Welfare Advisory Council Guidelines for calf, dairy herds, cattle, sheep horses and pigs do not refer to EMF, and therefore, EMF are not likely to have significant impacts on food quality. Before mitigation, the potential impact as a result of EMF is therefore assessed as Not Significant.

Mitigation measures will be applied during design, construction and operation to avoid or reduce the above Operational Phase impacts. The loss of agricultural land due to the construction of the Proposed Development will be a permanent loss which cannot be mitigated, except through compensation. Restriction of Common Agricultural Policy payments, farmyard building, commercial forestry and commercial tree planting will be addressed by compensation, where applicable. Routine maintenance and inspection of cable infrastructure will be notified in advance to the relevant landowner to minimise disturbance to livestock and farm enterprises.

Following the implementation of mitigation measures, no significant residual impacts have been identified for any individual farm enterprise during the Construction or Operational Phases of the Proposed Development. In terms of regional effects on agronomy and equine, the temporary and permanent agricultural land take for the Proposed Development will be 0.02% of the combined agricultural area of County Meath (197,366 hectares) and County Dublin (33,041 hectares). Therefore, there will be a Not Significant impact at a regional level.

7.12 Waste

The waste assessment considers the likely potential waste and resource impacts associated with the Construction and Operational Phases of the Proposed Development.

Site clearance, excavation and construction are activities which will take place during the Construction Phase which are likely to generate surplus materials. In recent years there has been a shift in focus on best practice waste management and waste minimisation in construction and an increase in the reuse of construction by-products in projects. Sustainable waste and resource management principles have been included into the design of the Proposed Development and these principles will also be applied in line with the Circular Economy Model. This will ensure that waste generation will be minimised.

Where residual waste generation is unavoidable it will be dealt with in a way that follows the waste hierarchy, as set out in the Waste Framework Directive. The waste hierarchy supports the need to achieve efficient use of material resources, minimise the amount of waste produced (or otherwise increase its value as a resource), and reduce as far as possible, the amount of waste that is disposed to landfill.

The assessment included a desk-based review of relevant policy and legislation, and data on waste generation and waste and resources management.

In Ireland, the most recently available published data records that 9 million tonnes of construction and demolition waste was generated in 2021. This represented a 10% increase on the generation of the same for 2020. Of this waste, approximately 7.7 million tonnes comprised soil, stones and dredging spoil and these make up 85.1% of the current construction and demolition waste stream. A total of 466,941 tonnes of hazardous waste (e.g., oils, batteries, asbestos, asphalt (bituminous mixtures containing coal tar) and contaminated soils and materials) was produced in Ireland in 2021, which represented an approximate 16% decrease from the generation reported for 2020. In Ireland, municipal waste (i.e. typical household waste types) is made up of household waste as well as commercial and other waste that, because of its type, is similar to household waste. According to the Environmental Protection Agency, Ireland generated 3.17 million tonnes of municipal waste and recycled 1.3 million tonnes (41%) of this waste in 2021.

Construction waste, including excavation waste, will be the main type of waste generated as a result of the Proposed Development. There will also be small quantities of municipal-type waste generated during the Construction and Operational Phases (i.e. associated with maintenance activities).

During the Construction Phase, waste will largely arise as a result of excavation activities, as well as from surplus construction materials and damaged materials. Construction works areas, site offices and temporary facilities are also likely to generate waste during the Construction Phase (e.g. municipal type wastes by construction employees, packaging, food waste, etc.). Hazardous wastes which are likely to arise include waste electrical and electronic equipment, batteries, oil / fuel residues and oil contaminated items.

Soils and fill material will make up the majority of the Construction Phase surplus material at 96.9% of the total estimated quantities requiring removal during the Construction Phase. The estimated total construction and demolition waste to be generated during the Construction Phase is 255,727 tonnes, which is equivalent to 3% of the construction and demolition waste management baseline for the Eastern and Midlands Waste Region (i.e., the region where the Proposed Development will be located). The potential impact prior to mitigation is assessed as Negative, Significant and Short-Term. However, it should be noted that this is based on a conservative assessment approach, where all estimated waste has been assumed to arise in a single year with all going to landfill for disposal.

There will be a relatively small volume of hazardous waste generated during the Construction Phase (comprising coal tar in asphalt / bituminous waste from the excavation of road surfaces that were surfaced up to the late 1970s). This would result in a potential hazardous waste quantity of 5,019 tonnes and this waste

will be transported to and disposed of at a suitably licensed facility. The potential impact of these hazardous waste types, before mitigation, is assessed to be Negative, Not Significant and Short-Term.

In addition to the above potential waste materials, there will be small quantities of mixed municipal waste arising from construction staff, and from the offices, canteens and welfare facilities. The potential impact of this waste stream during the Construction Phase will be Negative, Not Significant and Short-Term.

A number of key construction materials will be required to be imported for the Construction Phase (asphalt, topsoil, subsoil, engineered fill and concrete). The quantities of these materials to be imported represent a very small proportion of the Irish quantities manufactured per year. As the materials required for the Construction Phase of the Proposed Development are generally readily available and constitute less than 1% of the quantities produced per annum in Ireland. In addition to these materials, there will be electrical equipment and plant required for the substations, and there will also be approximately 150 drums of insulated copper cabling required for the cable route. These items will be acquired for the project pre-fabricated from specialist manufacturers. The potential impact associated with the imported materials will be Negative, Imperceptible and Short-Term.

During the Operational Phase, the majority of operational waste will be associated with maintenance activities and municipal waste from day-to-day management activities which will be minimal. This will be managed in accordance with all relevant waste management legislation. Similarly, there will be a minimal requirement for imported materials and this will only be required for routine maintenance activities. Should equipment need to be replaced, the new equipment will be professionally manufactured and installed, and will be maintained in-line with the manufacturer's and ESB guidelines. The risk of replacement equipment is assessed to be extremely low and so it is not anticipated to result in any significant environmental impacts.

A Construction Resource and Waste Management Plan has been prepared (an appendix of the CEMP, see Section 6.6). The Construction Resource and Waste Management Plan outlines how waste is to be managed on-site and the procedures for removal of waste and materials offsite. The appointed contractor will implement, review and update the Construction Resource and Waste Management Plan throughout the Construction Phase, in line with relevant best practice guidance. This will reduce the impact from Negative, Significant and Short-Term to Negative, Not Significant and Short-Term.

In terms of imported materials, the Proposed Development has been designed to minimise the quantities of construction materials required. The appointed contractor will consider the sustainability of materials being sourced for construction, and wherever possible, materials will be locally sourced to reduce the amount of travel required to reach the site(s). Construction materials will be managed to prevent overordering and waste. 'Just-In-Time' ordering principles will be implemented by the appointed contractor, where practicable, to reduce the potential for over-ordering. The impact of importing materials will remain as Negative, Imperceptible and Short-Term following mitigation.

As there are no anticipated significant impacts during the Operational Phase, no additional mitigation or monitoring measures are considered necessary. Waste will be managed during the Operational Phase in line with ESB waste management plans and procedures.

Following the implementation of mitigation measures, no significant residual impacts have been identified for the Construction or Operational Phases of the Proposed Development.

7.13 Material Assets

The material assets assessment considers the likely potential impacts on material assets during the Construction and Operational Phases of the Proposed Development. The assessment focused on both the direct and indirect likely potential impacts of the Proposed Development on the existing built services and major infrastructure:

- Electricity infrastructure;
- Telecommunications infrastructure;
- Gas infrastructure;
- Water supply infrastructure; and
- Sewer network and drainage infrastructure.

This assessment involved a desk-based review of these material assets. Utility information was requested from utility providers. In addition, a Ground Penetrating Radar (GPR) survey was undertaken in Quarter 3 / Quarter 4 of 2023 at selected locations along the proposed cable route to identify potential utility crossings.

The following existing material assets are located within the Planning Application Boundary for the Proposed Development:

- Electricity lines, ducts and cabling and associated infrastructure;
- Potable watermains and associated infrastructure;
- Sewer lines and associated infrastructure;
- Gas mains (high and medium pressure);
- Telecommunications lines and associated infrastructure for multiple providers; and
- Infrastructure associated with Dublin Airport including the Aviation Fuel Pipeline.

Prior to the implementation of mitigation measures, the Construction Phase impacts on utility interfaces will be Negative, Moderate and Temporary, and the impact on utility use will be Negative, Not Significant and Short-Term. Prior to the implementation of mitigation measures, the Operational Phase impacts on utility interfaces and use will be Negative, Imperceptible and Brief while the improvement of the electricity infrastructure of the region once the Proposed Development is operational will result in a Positive, Significant and Long-Term impact.

The Proposed Development has been designed to minimise the impact on utility infrastructure. This includes avoiding interactions with major utility infrastructure, as far as is possible. Where there will be interfaces with existing utility infrastructure, these will be protected in place or diverted as necessary to prevent long-term interruption to the provision of the affected services, which will be based on minimum safety clearances and design standards.

All reasonable precautions will be taken to avoid unplanned disruptions to any infrastructure or services during the Construction Phase. Proposed utility works will be based on available records, and preliminary site investigations. Prior to excavation works being commenced, localised surveys will be undertaken to verify the results of the pre-construction assessments undertaken and reported in the EIAR.

In addition, consultation has taken place with the major utility companies, and the appointed contractor will continue to consult with these companies, in liaison with EirGrid and the ESB. Where diversions are required and service disruptions to the surrounding properties are unavoidable, this will be planned with prior notification given to the impacted property owners.

No significant negative residual impacts on major infrastructure or utilities are predicted as a result of the Construction or Operational Phases of the Proposed Development. Once operational, the Proposed

Development will have a Positive, Significant and Long-Term residual impact on the electricity infrastructure in the region.

7.14 Landscape and Visual

The landscape and visual assessment considers the likely potential landscape and visual impacts on the surrounding landscape and receptors such as residences during the Construction and Operational Phases of the Proposed Development. Although closely linked, landscape and visual impacts are assessed separately:

- A Landscape Impact Assessment assesses the impacts of the Proposed Development on the landscape as a resource in its own right and is concerned with how the Proposed Development will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character; and
- A Visual Impact Assessment relates to assessing impacts of the Proposed Development on specific views and on the general visual amenity experienced by people. Visual impacts may occur from visual obstruction (blocking of a view, be it full, partial, or intermittent) or visual intrusion (interruption of a view without blocking).

The assessment involved a desk-based review of available information including aerial photography and mapping of the Proposed Development, and a field survey to verify the desk-based review findings. The desk-based review and the field survey allowed for the selection of a set of potential viewpoints from which to study the potential impacts of the Proposed Development.

The study area (as defined by a 500m buffer around the Planning Application Boundary) comprises a mix of landscape types, with a large proportion occupied by agricultural fields. Field patterns are generally composed of small to medium sized fields which are separated by mature hedgerows. Outside of agricultural land use, the predominant land use is urban, in the form of built-up residential areas, and industrial estates in and around Dublin Airport and surrounding Dunboyne Village. The area has a gently undulating landscape and is slightly more elevated to the west of Dublin Airport. A number of notable watercourses are located in the vicinity of the Proposed Development, including the River Tolka which flows through the area in an easterly direction and into Dublin Bay. There are no notable landscape features related to tourism or heritage amenities. There are a few recreation areas including St. Margaret's Golf and Country Club and Forrest Little Golf Club and sports pitches at Clonshaugh, St. Margaret's and Dunboyne. The area is served by three motorways (M1, M2 and M3 Motorways) and a network of regional roads. The Dublin to M3 Parkway / Dunboyne rail line also passes through the study area.

The greatest potential for significant impacts on landscape character and for visual impacts to occur in relation to the Proposed Development will be during the Construction Phase, as, apart from the proposed upgrade works at Woodland Substation and the proposed new GIS Hall and associated transformers at Belcamp Substation, there will only be very minor surface expression of the Proposed Development during the Operational Phase (i.e., permanent Joint Bays, marker posts, permanent access tracks and limited locations of permanent vegetation loss). However, because the Construction Phase is temporary at any one location, its effects will be brief along the proposed cable route and almost fully reversible through reinstatement of the prevailing land cover. Therefore, there is limited potential for significant impacts to occur. In light of this, the potential pre-mitigation impacts are as follows:

- Negative, Slight and Short-Term landscape impact as a result of the construction of the proposed underground cable in-road and off-road in private land during the Construction Phase;
- Negative, Imperceptible and Short-Term landscape impact as a result of the proposed upgrade works at the existing Woodland Substation and the new GIS Hall and associated electrical infrastructure to be built at the extended Belcamp Substation during the Construction Phase;

- Negative, Slight and Short-Term visual impact on the assessment viewpoints and residential receptors in the landscape to whom views of the construction works may be possible during the Construction Phase;
- Negative, Imperceptible and Permanent landscape impact during the Operational Phase;
- Negative, Slight to Imperceptible and Permanent visual impact during the Operational Phase in the vicinity of Belcamp Substation, at the viewpoints at the Local Road in Clonshaugh (VP1) and at the R139 Regional Road, Clonshaugh (VP2); and
- Neutral, Imperceptible and Permanent visual impact during the Operational Phase in the vicinity of Belcamp Substation, at the viewpoints at the at the R139 Regional Road, Belcamp (VP3) and at the Craobh Chiaráin GAA pitches.

The main mitigation measure for the Proposed Development was the avoidance or reduction of landscape and visual impacts through the design as mitigation of landscape and visual impacts is not always possible or practical. The key embedded design measure is to place the underground cable within the existing road network to minimise the amount of vegetation loss (hedgerows and trees). This has been applied in the design of the Proposed Development wherever it was feasible. In addition, as part of the arboricultural assessment completed for the Proposed Development, there has been an effort at this current design phase to design out impact on trees, where possible. Based on a precautionary approach scenario, where all at-risk trees will be required to be removed, 1,174 trees will need to be felled, representing 12% of the total trees within the study area.

During the next phase of the design, the ESB will appoint a Project Arboriculturist to develop a final site-specific Arboricultural Method Statement to provide appointed contractors with details on how specific operations need to be performed to protect trees, including the use of exclusion zones and ground protection. A Tree Protection Plan will be produced providing schematic details of how protective fencing will be installed and any other pre-planned targeted tree protection measures. The Project Arboriculturist will be retained for the Construction Phase and will ensure that the site-specific Arboricultural Method Statement and Tree Protection Plan are adhered to.

Additional mitigation measures will also be applied during the Construction Phase. Following the completion of construction, the road surface and agricultural grassland will be reinstated along the underground cable route. Any material surface expression of the underground features will be minimal. Although there will be permanent and temporary hedgerow and mature tree loss, no Tree Preservation Order or National Biodiversity Data Centre heritage trees will be removed. Hedgerows removed for the temporary works areas will be replanted with a new species-rich hedgerow which is likely to be more ecologically diverse than what was removed.

The proposed underground cable and the substations will both have a negligible magnitude of impact on the landscape during the Operational Phase. This combined with the landscape sensitivity along the route of the underground cable and the low-negligible landscape sensitivity at the substations, will result in an overall Operational Phase impact significance of Slight to Imperceptible. Specific landscape and visual mitigation measures are not considered necessary in relation to the Proposed Development during the Operational Phase.

No significant landscape or visual impacts are predicted as a result in any significant landscape or visual impacts during the Construction and Operational Phases of the Proposed Development.

7.15 Risk of Major Accidents and / or Disasters

This assessment considers the likely potential significant impacts of the Proposed Development on the environment, resulting from its vulnerability to risks of major accidents and / or disasters during the Construction and Operational Phases of the Proposed Development. The risk assessment:

- Identified major accidents and / or disasters (i.e. unplanned incidents) that the Proposed Development may be vulnerable to; and
- Assessed the likely impacts and consequence of such incidents in relation to the environmental, social and economic receptors that may be affected.

A register of all potential risks and the associated potential impacts was developed for the Construction and Operational Phases of the Proposed Development. This register initially considered a scenario before any mitigation measures or emergency plans would be put in place to reduce the likelihood and potential impact of any major accidents and / or disasters.

Risks are rated by multiplying the likelihood rating (likelihood of a risk happening which ranges from extremely unlikely to very likely) with the consequence rating (level of consequences if a major accident and / or disaster occurred, which ranges from minor to catastrophic). This gives a risk score of low, medium or high. Low risk scores do not meet the definition of a major accident and / or disaster and high-risk scores would be considered high risk and unacceptable for the Proposed Development to proceed, and would need to be designed out. Medium risk scores would require a level of mitigation that would reduce the level of impact.

For the Construction Phase, there were a number of risks that were deemed low and were not considered further. No high risks were identified and the following medium level risks were identified:

- Risk of gas explosion due to striking underground gas mains during excavation works;
- Risk of pollution occurring to a watercourse or groundwater, most notably associated with the release of fine sediments during construction works; and
- Risk of spread of non-native invasive species during construction works, particularly during site clearance.

The Proposed Development complies with relevant design standards, which include measures to reduce the likelihood of risk events occurring.

Appropriate mitigation measures will be implemented during the Construction Phase, including the implementation of the CEMP and Environmental Incident Response Plan (an appendix of the CEMP, see Section 6.6). Once these mitigation measures are applied, there will be no remaining identified incidents or major accidents and / or disasters risk events that present a level of risk that would lead to significant impacts or environmental effects.

No significant risks were identified as being likely to occur during the Operational Phase.

7.16 Cumulative Impacts and Environmental Interactions

This assessment considers the potential for cumulative impacts arising from the Construction and Operational Phases of the Proposed Development in combination with approved developments or other developments which, at the time of assessment, were yet to be approved, but for which a decision on such development is reasonably foreseeable over the likely consenting and construction period anticipated for the Proposed Development.

The cumulative impact assessment process is outlined in Image 7.1.

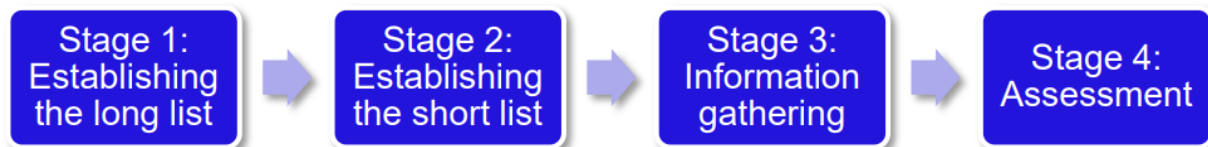


Image 7.1: Staged Approach to Identifying Which Other Developments Should be Included for Analysis as Part of the Cumulative Impact Assessment

Stage 1 involved a desk-based assessment to identify other developments deemed potentially relevant to be included in the long list. An Bord Pleanála and local authority planning application datasets were used to generate a long-list, in addition to checks of major infrastructure projects from Transport Infrastructure Ireland, the National Transport Authority and Uisce Éireann, along with other infrastructure and utility providers, including daa. The long listing process involved establishing the topic Zones of Influence (Zoi). This was achieved by establishing whether each of the other developments identified would fall within the study areas for the topics considered for the Proposed Development in isolation. The largest Zoi identified in the assessment chapters of the EIAR was 1km. Therefore, a 1km buffer from the Planning Application Boundary was applied and considered appropriate to capture the potential cumulative impacts that could arise for all assessment topics.

During Stage 2, the long list from Stage 1 was narrowed down to include only those other developments where there was potential for significant cumulative impacts to arise in combination with the Proposed Development by considering the potential for the other development to overlap with the Proposed Development in terms of timelines and physical location. At this stage, the scale and the nature of the other development was also considered. The output of Stage 2 was a short-list to be carried forward for a more detailed assessment at Stage 3 and Stage 4.

Stage 3 involved the gathering of additional information for the short-listed developments, specifically with regard to location, programmes of construction and operation, and available environmental assessments.

Of the initial long list of 57 'other developments' considered to have the potential to overlap (either spatially or temporally) with the Proposed Development at Stage 1 / Stage 2, 29 were assessed for potential cumulative impacts with the Proposed Development at Stage 3 / Stage 4.

Each environmental topic was considered for potential cumulative impacts with the Proposed Development, in the absence of any mitigation for the Proposed Development. There is limited potential for cumulative impacts during the Operational Phase, on the basis that fewer impacts are anticipated during this phase for the Proposed Development itself.

The Stage 4 assessment demonstrated that, for the majority of environmental topics, no additional mitigation measures other than those already provided in the specialist chapters of the EIAR, and the CEMP and its appendices are required to mitigate the identified cumulative impacts. There was one other development for which additional mitigation measures will be implemented to mitigate the potential cumulative impacts identified, and this is the EirGrid CP0966 Kildare Meath Grid Upgrade development. The Proposed

Development and the CP0966 Kildare Meath Grid Upgrade have the potential to occur at the same time, and there is spatial overlap between the two developments in the 'Woodland Corridor', which extends from Woodland Substation southwards to the R156 Regional Road. These additional mitigation measures will be included in the contract documents for the Proposed Development, and once adopted, will avoid and minimise the potential cumulative impacts identified.

There are a number of negative and significant residual cumulative impacts identified for biodiversity and agronomy and equine, due to the combined removal of calcareous and natural grassland, and the permanent acquisition of agricultural land between the Proposed Development and the CP1213 Belcamp 220kV Extension Project (biodiversity and agronomy impact) and the Greater Dublin Drainage Project (agronomy impact). In the case of the impact to grassland, this is deemed Negative, Significant and Medium-Term as the habitat removed will take longer periods to grow / re-establish. In the case of agronomy, the loss of agricultural land will be a permanent loss which cannot be mitigated. There is also a Negative, Significant and Permanent residual cumulative impact on a single Archaeology, Architectural Heritage and Cultural Heritage receptor (a Designed Landscape) due to the presence of two Glenveagh Homes developments and one Montague Ventures Limited development, and permanent access tracks and Joint Bays within this demesne.

There will be a Positive, Significant and Long-Term impact on the regional electricity network once the Proposed Development and the CP0466 North South Interconnector EirGrid CP0966 Kildare Meath Upgrade Mayne Stability Limited development, ESB Engineering & Major Projects development (Macetown / Corduff underground cable), CP1213 EirGrid development, the ESB development at Darndale and the CP1194 EirGrid Station Redevelopment are operational.

Key interactions include:

- Biodiversity and Hydrology – interactive impacts could potentially occur to the surface water environment. They could include potential impacts on aquatic species, requiring mitigation and monitoring measures;
- Biodiversity and Landscape and Visual – interactive impacts could potentially occur as a result of loss of habitats (hedgerows, trees, grassland, etc.);
- Archaeology, Architectural Heritage, and Cultural Heritage and Landscape and Visual – interactive impacts could potentially occur in relation to the landscape character and setting of cultural heritage assets;
- Archaeology, Architectural Heritage, and Cultural Heritage and Soils, Geology and Hydrogeology – interactive impacts arising from dewatering could potentially impact on cultural heritage sites, such as historical wells; and
- Material Assets, Agronomy, Air Quality, Noise and Vibration, Traffic and Transport, Population and Human Health – interactions in the human environment are typically complex as there is the potential for receptors to be impacted in a number of ways.

The likely significance of these combined and interrelated impacts (and mitigation and monitoring where required) has been assessed within the individual assessment chapters of the EIAR.

8 What Happens Next?

The application for consent / approval, the EIAR and this NTS may be viewed / downloaded on the following website: www.eirgrideastmeathnorthdublin.ie.

A copy of the application, including the NIS and EIAR, may be inspected free of charge or purchased on payment of a specified fee (which fee shall not exceed the reasonable cost of making such a copy) during public opening hours for a period of seven weeks commencing on 5 April 2024 at the following locations:

- The Offices of An Bord Pleanála, 64 Marlborough Street, Dublin, D01 Y902;
- The Offices of Meath County Council, Buvinda House, Dublin Road, Athlumney, Navan, Co Meath, C15 Y291; or
- The Offices of Fingal County Council, County Hall, Main Street, Swords, County Dublin K67 X8Y2 and Grove Road, Blanchardstown, Dublin 15, D15 W638.

Submissions or observations may be made only to An Bord Pleanála, 64 Marlborough Street, Dublin, D01 V902 during the above-mentioned period of seven weeks relating to:

- The implications of the Proposed Development for proper planning and sustainable development;
- The likely effects on the environment of the Proposed Development; and
- The likely adverse effects on the integrity of a European site, if carried out.

An Bord Pleanála may, in relation to an application submitted for approval under Section 182A of Number 30 – Planning and Development Act, 2000 (as amended), by order, approve the Proposed Development, with or without modifications and subject to whatever environmental conditions it considers appropriate, or may refuse to approve the Proposed Development.