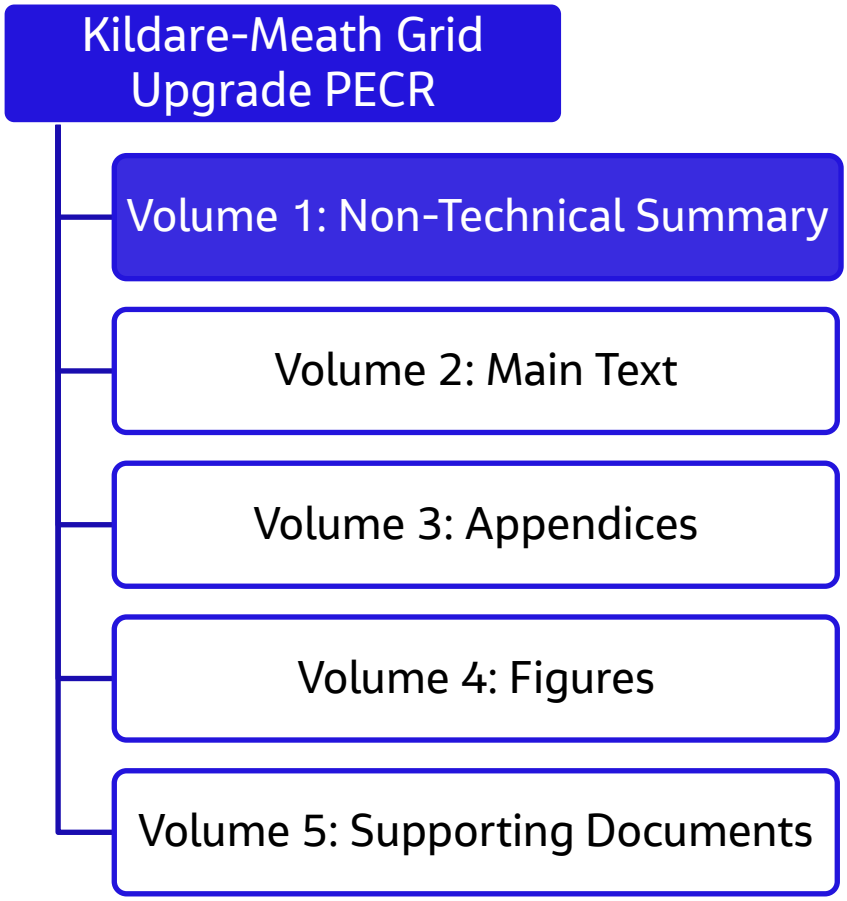
Kildare – Meath Grid Upgrade
Planning and Environmental Considerations Report
Volume 1: Non-Technical Summary

April 2023

EirGrid

This document is Volume 1: Non-Technical Summary of the Kildare-Meath Grid Upgrade Planning and Environmental Considerations Report (PECR).

The whole PECR consists of a number of documents and should be read together.



Kildare-Meath Grid Upgrade Non-Technical Summary

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Contents

Glossary of Terms

Appropriate Assessment	An Appropriate Assessment is the term given to examining potential effects on ecologically sensitive sites called Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Separate reports have been prepared for this project; they are called AA Screening and Natura Impact Statement.
Busbar	This is a series of metal connections within the substation which connect different electric wires (or circuits) together.
Ducts	These are plastic pipes, which the underground cable will be placed into. The ducts are buried underground first and then the cables are inserted.
Feeder bay	This is the point where the underground cable will connect into the substation. There is a range of electrical equipment in the feeder bay to allow this connection.
Joint Bay	The underground cable will not be delivered to site in one continuous length but in sections roughly 800 metres long. These lengths of cable will need to be connected together and that is done in an underground box called a joint bay, which is 10 metres long by 2.5 metres wide.
Mitigation Measure	This is a method of reducing impacts. Such measures include passing bays to get traffic moving, supervision of the construction works by environmental professionals, or measures to prevent soil and mud from entering streams and rivers.
Passing Bay	This is an area where the road is widened temporarily to allow traffic to continue around the construction area. These are placed beside the joint bays to reduce the traffic disruption.
Planning and Environmental Considerations Report	This is a report prepared by EirGrid to explain the project, what its impacts could be, and what measures will be put into place to prevent or reduce the impacts.
Proposed Development	These are the works EirGrid is applying for in this planning application – The Kildare-Meath Grid Upgrade Project.
Electrical Shunt Reactor	This equipment is used to stabilise levels across the electricity network. It is made from wire and magnets, and they are found in substations all over the world.
Strategic Infrastructure Development	This is a class of planning application for larger scale projects. It has been agreed with An Bord Pleanála that the Kildare-Meath Grid Upgrade project is Strategic Infrastructure Development. Strategic Infrastructure Development can generally be described as development which is of strategic economic or social importance to Ireland, the region or local areas. Strategic Infrastructure Developments are not submitted to the local planning authority but instead they are submitted to An Bord Pleanála for a decision.
Substations	These are the end points of the underground cable. They are areas where a number of electricity wires (or circuits) meet and they allow the flow of electricity across the network from high voltage, down to lower voltages which are used for homes and businesses. The two substations on this project are Woodland, Co. Meath and Dunstown, Co. Kildare.
Trenchless Crossing	These are methods to build the cable trench without digging up the ground surface along the length of trench. They are used to pass under a river, motorway, railway, etc. There are different ways of doing this. One of the most common ways is Horizontal Directional Drilling (HDD).
Underground cable	This is the electrical wires that will carry the electricity between the two end points. There is not one single wire but three cables and two fibre optic cables. This is a standard design for projects of this type.

1. Introduction

1.1 Purpose and Content of the Non-Technical Summary

EirGrid is seeking approval from An Bord Pleanála for a new underground electricity line. EirGrid is planning a major electricity transmission development between the existing high-voltage electricity network in Ireland. The Kildare-Meath Grid Upgrade (the Proposed Development) is a 400 kilovolt (kV) underground cable circuit linking the existing Woodland substation in Woodland, near Batterstown, County Meath to Dunstown substation, near Two Mile House, County Kildare.

As part of the planning application for approval, a Planning and Environmental Considerations Report has been prepared and provided to An Bord Pleanála. The purpose of this document is to summarise the contents of the Planning and Environmental Considerations Report in non-technical language. This report is that non-technical summary and is one volume of five volumes that make up the Planning and Environmental Considerations Report.

The Planning Application and An Bord Pleanála

The Proposed Development has been determined by An Bord Pleanála to be Strategic Infrastructure Development (see glossary of terms), in accordance with Section 182E of the Planning and Development Act 2000 (as amended). Strategic Infrastructure Development pre-application meetings were held with An Bord Pleanála on 15th September 2022, 15th December 2022, and 16th February 2023 where the Proposed Development was presented, and advice on the planning process from An Bord Pleanála was received. This is typical for projects of this type and the details of the meetings are set out in the various records available at www.pleanala.ie (ABP Case Number VC17.314112).

Environmental Impact Assessment Screening

An Environmental Impact Assessment (EIA) screening has been carried out and a report of its findings accompanies the Planning and Environmental Considerations Report. The EIA Screening Report concluded that the Proposed Development does not come within the classes of development that European and Irish legislation identify as being likely to have significant effects on the environment. This is set out in Part 1 and Part 2 of Schedule 5 – Planning and Development Regulations, 2001 (as amended). Therefore, neither an Environmental Impact Assessment nor an Environmental Impact Assessment screening determination is required. However the Proposed Development has been considered from an environmental perspective in the Planning and Environmental Considerations Report. The Planning and Environmental Considerations Report has been prepared by EirGrid (with assistance from their consultants, Jacobs) to accompany the planning application for the Proposed Development. This EIA screening process applies to the application to the Board for planning approval. A separate process is being undertaken for the removal of the hedgerows.

Appropriate Assessment

An Appropriate Assessment (AA) Screening Report for of the Proposed Development accompanies this application, and will inform the AA Screening determination by An Bord Pleanála. The Rye Water is crossed by the Proposed Development and this watercourse is designated as a Special Area of Conservation (SAC) seven kilometres east of the Proposed Development. The conclusion of the AA Screening Report was that without mitigation, there is potential for Likely Significant Effects, alone or in combination with other plans or projects , on the conservation objectives of the Rye Water Valley/Carton SAC. The AA Screening Report concluded that no other European sites would be potentially affected and were screened out. Following the AA Screening Report, a Natura Impact Statement (NIS) was prepared for the Proposed Development, to inform the AA determination by An Bord Pleanála.

The NIS, which accompanies this application, concluded that there will be no adverse effects on the integrity of Rye Valley/Carton SAC or any other European sites, from the Proposed Development alone or in combination other projects, considering the site's conservation objectives.

Location of the Proposed Development

2. Project Need

2.1 Introduction

There are large amounts of energy produced in the South and South West and there is large demand for electricity in the East. The Proposed Development will help move the energy (including from many wind farms and other renewable sources) from the South and South West to the East (Meath, Kildare and Dublin).

A significant number of Ireland's electricity producers (energy generators) are in the South and South West regions, where many wind farms and some modern electricity producers are located. There are also significant plans for larger offshore wind projects off the South and South West coast. Improvement to the network is needed to get the electricity from where it is produced to where demand is greatest. Currently, the electricity is mainly transported cross-country on the two existing 400 kV lines from Moneypoint power station in County Clare to Dunstown substation in County Kildare and Woodland substation in County Meath. However, at the moment, there is no high voltage connection between the two substations. So if something happens to one of the substations or existing 400 kV lines (e.g. closure because of essential maintenance), it is difficult to have a backup for the high voltage system as there is no connection between the two substations. Without the Proposed Development, the electricity network does not have the backup it needs to connect all the new energy being produced and to supply all of the new demand.

Existing cross-country 400 kV lines

The Proposed Development will connect these two important substations, and this will strengthen the electricity network by improving reliability and security in the network.

2.2 Need for the Proposed Development

There are two main reasons why the Proposed Development is needed:

1. Increased demand in the East – There has been a lot of development in the Meath, Kildare, and Dublin areas and much more is planned. This includes homes, businesses, and industry. There are large demands for electricity and upgrades of the network are needed to meet this demand.

2. Integration of energy production from the South and South West regions – Significant levels of new renewable energy have been built or are in the process of connecting to the network in the South and South West of Ireland. This is also where the newer and more cost effective existing energy producers are located (e.g. in Moneypoint, County Clare). Improvement to the network is needed to get the electricity from where it is produced to where demand is greatest.

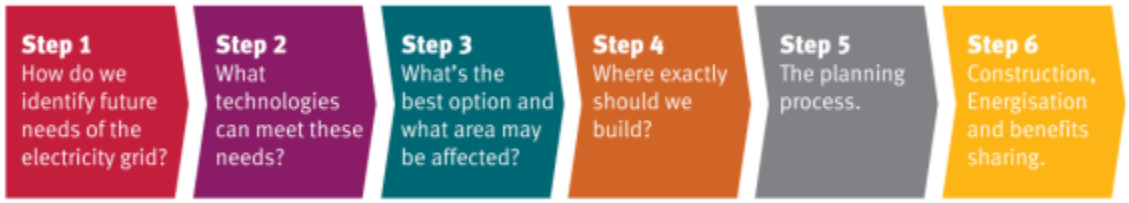
The need for the Proposed Development has been established through a series of reports prepared by EirGrid completed between 2017 and 2022 (these are included in Volume 5 of the Planning and Environmental Considerations Report). These reports identified the need for the Proposed Development, what type of technology would be best (e.g. overhead or underground), and where the Proposed Development should go.

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 (movement) of electricity from wind farms (onshore and offshore). The Proposed Development will help to transport that energy from renewable and other sources (e.g. newer and more cost effective existing conventional producers). EirGrid has identified that the Proposed Development will have the following benefits:

The Proposed Development will improve the electricity network; help to connect new demand for electricity to support economic growth in the area; help to reduce costs; and connect new renewable energy production to meet national Climate Action Plan targets.

3. Alternatives Considered

The Proposed Development has been developed in-line with EirGrid's six-step Framework for Grid Development. This Framework reflects EirGrid's values and approach to grid development. In accordance with the Framework, feedback from the public, affected landowners, Local Councils and Government bodies has been central to the process.



Source: EirGrid

As set out in detail in Chapter 4, Volume 2 of the Planning and Environmental Considerations Report, the Proposed Development process has considered a range of alternatives.

3.1 Step 1 and 2

In Step 1 (July 2017), EirGrid identified the need for the Proposed Development and that report is included in Volume 5 of the Planning and Environmental Considerations Report. In Step 2 (December 2017), EirGrid compiled a shortlist of best performing technical options (see Volume 5), which went out for public consultation between November 2018 and February 2019. This included a mix of overhead line, underground cable, and upvoltage technologies[1]. Four of those options were taken forward to Step 3 in April 2019.

3.2 Step 3

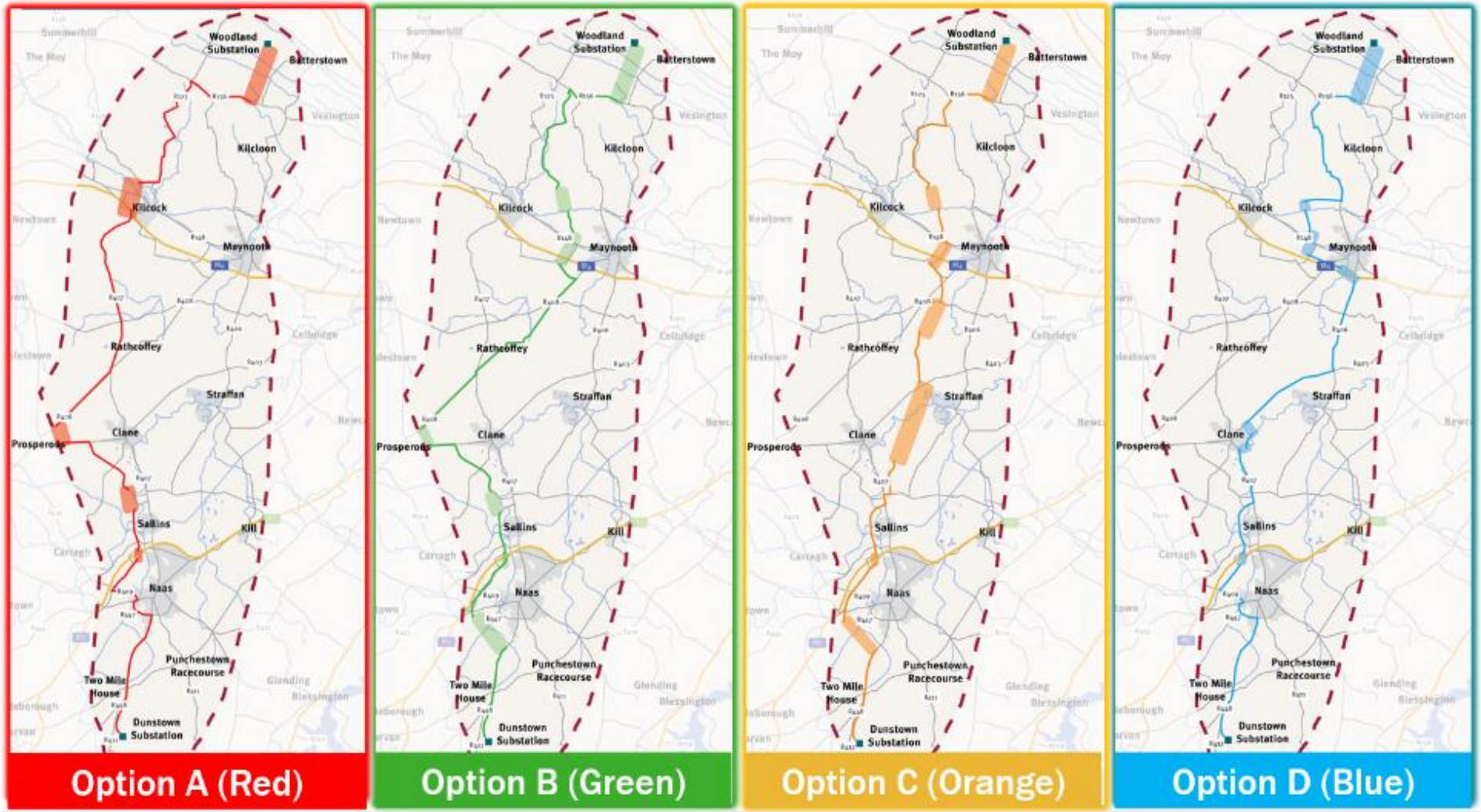
In Step 3, EirGrid re-confirmed the need for the Proposed Development and investigated and consulted on the shortlisted technology options to strengthen the electricity network between the Woodland and Dunstown substations. Feasible options were published as part of the assessment of the technology options for the project.

Following consultation with the public, and a detailed technical assessment, it was determined the best option for the project was a new 400 kV underground cable – and this was taken forward to the next step.

3.3 Step 4

Four options for new underground cable were developed and were presented for public consultation between August and November 2021. The Step 4A Report considered the feedback from the consultation and it was published in March 2022. The report presented an assessment of the four proposed route options. The Step 4A Report selected Option A (Red) as the emerging Best Performing Option because it scored more favourably in terms of Deliverability (or how it could be constructed) compared to the other options – in how it could be built, its impact on other projects, and how long it would take to build. Option A (Red) also had less socio-economic (community) impacts compared to other options. This was reinforced by the feedback received during the 2021 consultation period. Option A (Red) impacted the least amount of agricultural land and avoided concerns that the other options would have resulted in, such as, potential impacts to the settlements of Rathcoffey on the R408 and Ovidstown along the R403 and R406; and greater potential impacts to areas of amenity, such as Alexandra Bridge, near to Clane.

[1] This is where existing overhead lines are improved to carry higher voltages.



Shortlisted Options – shown in Step 4A Public Consultation (2021)

In Step 4B, Option A (Red) was re-examined to refine the route as far as possible to remove any wider areas (corridors) and to provide more certainty on the specific location. Changes were made for a number of reasons, such as reducing potential environmental impacts, reducing road closures, or avoiding private lands. As a result, approximately 3% of the route was moved from the route shown at Step 4A. The maximum movement of the cable route was 240 metres – this occurred on the approach to Dunstown substation where the route moved 240 metres west from the location shown in Step 4A.

Consultations were held with potentially affected landowners. This allowed landowner input into the potential routing and provided more information on ground conditions, environmental constraints, and farming practices that were considered in the routing process. Further surveys and assessment were undertaken to determine how the route could be refined in order to avoid or reduce the potential environmental and social impacts, and to take account of technical issues.

3.4 Step 5

In the Step 4B report, it was identified that further design, survey, assessment, and consultation would be undertaken at Step 5 and refinements to the Best Performing Option would be possible. These refinements have been completed and resulted in the Proposed Development. This process is normal practice for infrastructure projects and allowed for further engagement with landowners to be taken into consideration and for the results of additional surveys and design work to be incorporated into the Proposed Development. The changes are shown in the table below.

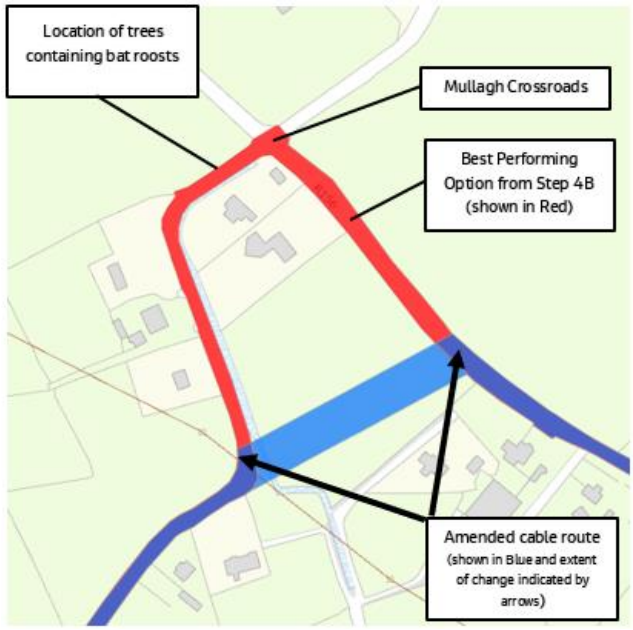
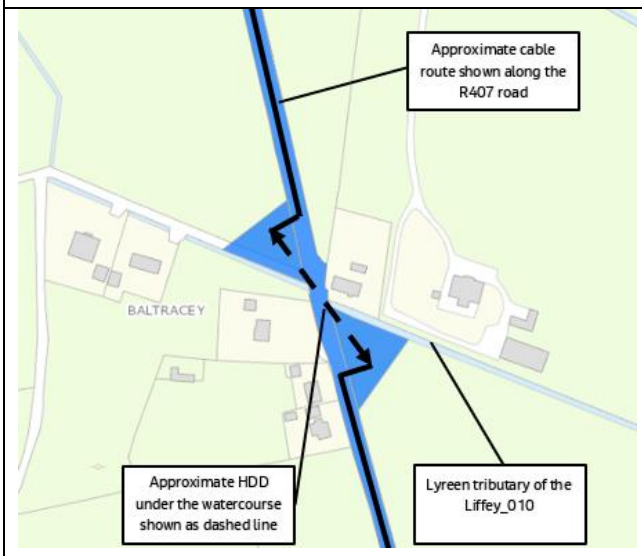
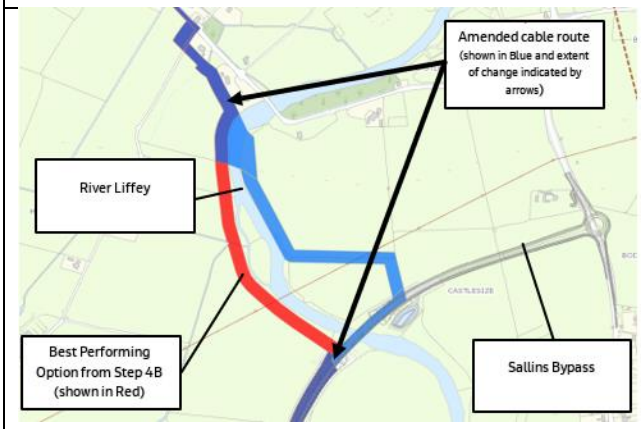
3.5 Proposed Cable Route

The Proposed Development seeks to minimise the impacts of off-road crossings by routing the underground cable along the existing public road network, so far as is reasonably practicable. See Chapters 2 and 4 of the Planning and Environmental Considerations Report for further details. This helps to minimise environmental and socio-economic impacts from crossing off-road sections (e.g. agricultural land).

The proposed cable route leaves the Woodland substation and travels across agricultural land until it enters the R156. Traveling west until the Mullagh crossroads, the cable route then turns south along the R125 until it approaches Kilcock. It then travels along the R158 to go to the west of Kilcock, where there will be two trenchless underground crossings – one of the Rye Water and one of the Royal Canal and the railway. Continuing to the south, along the R148, there will be a trenchless underground crossing of the M4 motorway.

The cable route connects with the R407 to the south of Kilcock. There is a trenchless underground crossing of a watercourse along the R407. At the junction of the R408 and R407, the cable route turns west towards Prosperous. However before the village, the cable route turns off-road to the south to then connect with the R403 and Millicent Road (L2002) and travel southeast towards the River Liffey.

There will be a trenchless underground crossing of the River Liffey and then the cable route will connect with the Sallins Bypass road to travel to the south. Past the Osberstown Road bridge, the cable route leaves the Sallins Bypass to pass under the M7 in the existing road, before connecting with the Millennium Parkway. The cable route travels to the west of Naas, using the Parkway and the R409. There will be a trenchless underground crossing of Grand Canal close to the Naas Sports Centre and Jigginstown Castle. The cable route will travel along the R447 and R448, to the south of Naas. The cable route travels along the R412 for a short section before entering the Dunstown substation.

	In the townland of Mullagh, north of Kilcock, approximately 7.5 km along the cable route from Woodland substation, the R156 road curves around in a horseshoe bend to connect with the Mullagh Crossroads. This change improved the Best Performing Option by avoiding proximity to bat roosts; reducing the length of the cable; and improving the construction challenges of laying the cable around a bend in the road.
	In the townland of Baltracey, south of Kilcock, approximately 22 km along the cable route from Woodland substation, the R407 crosses over a small watercourse with a stone bridge. An off-road underground crossing was chosen as the preferred crossing type as it allowed the roadside properties to be avoided and the disruption to the R407 at this location to be avoided. It was determined that a diagonal crossing under the bridge would be the optimal crossing type.
	In the Millicent area, northwest of Sallins, approximately 37 km along the cable route from Woodland substation, the Best Performing Option at Step 4B was proposed to travel along the western bank of the River Liffey. At Step 5, this was reassessed following discussions with landowners. Concerns were raised about the cable route passing through the gardens of two residential properties. In addition, ecology surveys completed in Step 5 identified the presence of a number of protected species along the western bank of the River Liffey. Six different options were assessed, and it was found that going to the east of the River Liffey was the best option.

Amendments to the Cable Route made at Step 5

4. Description of the Proposed Development

4.1 Overview

The Proposed Development is set out in detail in Chapter 5 of the Planning and Environmental Considerations Report. In summary, the Proposed Development is approximately 53 kilometres of new underground cable in a trench along public roads and private lands, connecting the Woodland and Dunstown substations. Approximately 38 kilometres of the underground cable is in County Kildare and approximately 15 kilometres are in County Meath. The Proposed Development will include associated works such as fibre optic cables in the same trench, permanent access tracks, temporary construction compounds, laydown areas, joint bays, and passing bays. Approximately 82% of the underground cable will be located within roads while approximately 18% will be located off-road, to avoid constraints. In addition, there will be works at the existing Woodland and Dunstown substations.

4.2 Substation Works

Works at the existing Woodland substation will involve installation of additional electrical equipment and apparatus , including a 400 kV feeder bay, an associated electrical shunt reactor, and other associated equipment and site development works.

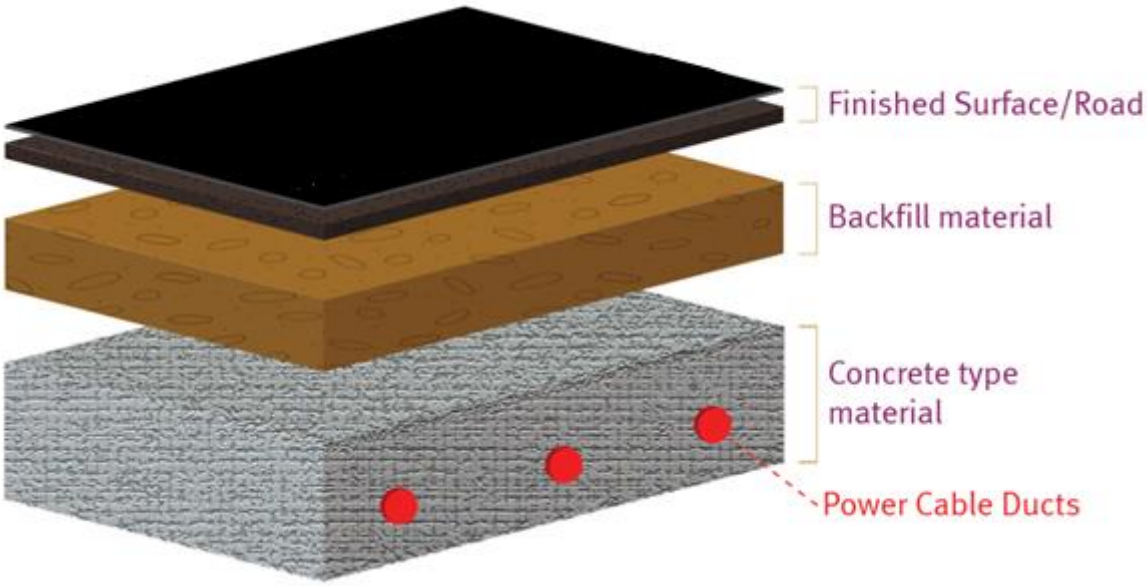
Works at Dunstown substation will not require an extension of the substation compound. Works will include installation of additional electrical equipment and apparatus will include a 400 kV feeder bay, an associated electrical shunt reactor, an extension to the busbar, and other associated equipment and site development works.

4.3 Construction of the Underground Cable

There are three key elements of the underground cable:

- **Phase 1: Installation of Passing Bays and Joint Bays Structure:** The construction of passing bays (where required) at joint bay locations. On completion of the passing bays, it is proposed that the joint bays will then be installed;
- **Phase 2: Excavation and Installation of Ducts:** A cable trench approximately 1.5 m wide and 1.3–1.7 metres deep will be constructed; this will contain the underground cables. A trench will be dug along the cable route, ducts installed, and the road surfacing or agricultural land will be restored. This will also include physical crossings such as motorways, rivers and railways; and
- **Phase 3: Installation of Cables:** The cables will be installed at joint bay locations within the ducts. The cables will then be jointed (connected) at each joint bay location to allow the installation of a continuous circuit; the circuits will then be tested to ensure they are ready to be used.

Subject to the grant of planning permission and other approvals, the construction phase will commence in the summer of 2025 with the underground cable element of the Proposed Development becoming fully operational after construction and testing in the autumn of 2028 – taking approximately three and a half years.



Proposed High Voltage Cable Trench

A typical cable duct installation in the road

A typical jointing bay where cables are connected

Cables being pulled into the ducts and jointing bay

A typical passing bay in operation during cable jointing

A typical road reinstatement

While the specific programming of the construction phase are subject to change, it is generally the case that cable ducts can be laid in a road at a rate of approximately 40 to 50 metres per day although a rate of 20 to 50 metres per day is anticipated in built-up areas where utilities are more common.

Joint bays are generally located at intervals (on average) of 745 metres along the cable route. Joint bays are likely to be installed in three days. Road reinstatement along the route of the cable trench follows the completion of the trenching and ducting as it moves in sequence along the route. There are 70 proposed joint bays on the Proposed Development – 31 off-road and 39 in-road. Of the 39 in-road joint bays, 34 of them will have an associated passing bay. The passing bays are approximately 100 metres in length and 5.5 metres in width and will allow for a one-way flow of traffic with traffic lights controlling the flow.

Six temporary construction compounds are proposed, each approximately one hectare in size. All temporary construction compounds will be secured with hoarding/fencing. Temporary construction compounds will include facilities such as construction phase car parking and welfare facilities and temporary material storage areas, as necessary. The areas will be reinstated to their current use after construction.

Access tracks comprise both temporary and permanent tracks. Where a permanent access track is required to access off-road joint bays, this will comprise approximately 300 mm of fill material. The permanent access track will be finished to approximately 100 mm above ground level. The access track will remain in place to allow access to the joint bays should future maintenance works be required. Where a temporary construction road is required, engineering stone fill will be laid and compacted and maintained as required for the duration of the works. Once the works are completed, the engineered stone fill will be removed, and the land will be reinstated to its original condition.

Trenchless underground crossings are proposed at major watercourse crossings or where there are significant constraints. There will be a 'launch' and 'reception' pit either side of the drilling and those temporary compounds will be within the planning application boundary.

The cable route will cross existing structures, utilities, and watercourses at various location. These crossings will be facilitated by either open cut trenching or trenchless crossings which have been designed as appropriate. The underground cable will be a minimum of 300 millimetres (30 centimetres) from existing services as set out in EirGrid's Technical Specifications. This distance will increase depending on the utility type. Future utilities in the vicinity of the underground cable will need to consult with the Electricity Supply Board (ESB) and maintain the minimum distances.

There are the following proposed watercourse crossings:

- Five watercourses with a trenchless crossing;
- Twenty-five watercourses with a trenched crossing;
- Ten watercourses crossed in-road with no direct effects on the watercourse; and
- One watercourse will be affected by a passing bay.

The Proposed Development will cross the following significant watercourses:

- Rye Water (upstream of the SAC designation)– trenchless crossing;
- Royal Canal – trenchless crossing;
- River Liffey (three crossings: trenchless; crossed in-road; and crossed in-road);
- Grand Canal (two crossings: crossed in-road; trenchless).

There are six Horizontal Directionally Drilled (HDD) crossings proposed along the cable route:

- HDD1 – crossing of the Rye Water, to the west of the R158. The trenchless crossing length is approximately 50 metres;
- HDD2 – crossing of the Grand Canal and Dublin–Sligo railway line, to the west of Kilcock. The trenchless crossing length is approximately 220 metres;
- HDD3 – crossing of the M4 motorway, to the south of Kilcock. The trenchless crossing length is approximately 120 metres;

- HDD4 – crossing of the Lyreen tributary of the Liffey, along the R407. The trenchless crossing length is approximately 100 metres;
- HDD5 – crossing of the River Liffey, north of Sallins. The trenchless crossing length is approximately 120 metres; and
- HDD6 – crossing of the Grand Canal, in Naas. The trenchless crossing length is approximately 150 metres.

Following consultation with Kildare County Council, it has been agreed, subject to detailed design (this will be a refinement of the design shown in the planning application), that the Sallins Bypass will be utilised for part of the cable route. The cable route will generally follow the footpath along the eastern boundary of the road. There will also be five crossings of bridges on the Sallins Bypass. These are (from north to south):

- River Liffey Underbridge Number 2 – a clear-span crossing of the Liffey, approximately 200 metres in length;
- River Liffey Underbridge Number 1 – a clear-span crossing of the Liffey, approximately 100 metres in length;
- Grand Canal Underbridge – a clear-span crossing of the Grand Canal, approximately 60 metres in length;
- Irish Rail Overbridge – the Dublin–Cork/Limerick crossing over the Sallins Bypass, approximately 40 metres in length; and
- Osberstown Road Overbridge – the L2002 Osberstown Road crossing over the Sallins Bypass, approximately 15 metres in length.

River Liffey Underbridge Number 2 on the Sallins Bypass – footpath on the right-hand side of the image will be used for the underground cable

A Traffic Management Plan has been prepared for the Proposed Development and is contained as Appendix 5.1 of the Planning and Environmental Considerations Report. Works during Phases 1 and 3 are discrete locations along the cable route. Phase 2 will be a rolling working area as the trench will run the entire length of the Proposed Development.

In summary, the following traffic control measures will be applied depending on location and the phase of the construction works:

- Single lane closure: Where the road width at the location of the joint bay is greater than 10.5 metres, a passing bay would not be required and only a single lane closure required;
- Passing bay with single lane closure: Where the road width is less than 10.5 metres and where there is suitable space to construct a passing bay, a passing bay with single lane closure will be used;
- Full road closure (with local access arrangements): Where the road width is less than 10.5 metres and where there is insufficient space to construct a passing bay, a road closure with local access arrangements will be provided for the affected area with signposted diversions; or
- Lane closure with Heavy Goods Vehicles (HGV) diversion: Where the residual open carriageway is between 2.5 metres and 3 metres the road will be required to be closed to HGVs but open to Light Goods Vehicles

(LGVs e.g. Ford Transit vans) and cars. All HGVs will be required to utilise the diversion route; signage will be provided to mitigate the risk of HGVs passing the works sites.

The cable will be delivered to site on cable drums with on average 750 metres length of cable per drum – the exact lengths will be sized to suit the distance between each joint bay. Each cable drum will be approximately 4.3 metres in diameter, and 4 metres wide. This will require a large trailer to allow for transport and will be classed as an abnormal load. Following consultation with an abnormal load specialist, at this stage it is not expected that specific road closures will be required to transport the drums provided they are accompanied by escort vehicles. The escort vehicles ensure the safety of all road users but also assist the oversized load vehicle in overcoming particular obstructions. The requirement and number of escort vehicles and Garda support will be agreed before the works start. On agreement of the final cable drum, agreement of the delivery port, and specific abnormal load vehicle, the consenting authorities (County Councils and Transport Infrastructure Ireland (TII)) will be consulted and the exact requirements for permits can be jointly agreed.

In line with all large infrastructure projects, there will be a period of detailed design after planning approval and when the contractor is appointed. The contractor will confirm the detailed design of the development following on-site detailed surveys, within the scope, nature and location of the approved development (should this Proposed Development be approved by An Bord Pleanála).

Typical section of the R447

5. Planning and Environmental Topics

5.1 Introduction

The following sections provide a summary of the assessments for each environmental topic and set out the likely significant effects as a result of the construction and operation of the Proposed Development. The following environmental topics are described:

- Planning;
- Population and Human Health;
- Air Quality;
- Noise and Vibration;
- Biodiversity;
- Soils, Geology and Hydrogeology;
- Hydrology;
- Archaeology, Architectural Heritage and Cultural Heritage;
- Traffic and Transport;
- Material Assets – Agriculture and Equine;
- Material Assets – Non-Agriculture;
- Landscape; and
- Cumulative Impacts and Environmental Interactions.

5.2 Planning

The Proposed Development facilitates the delivery of national energy policy outlined in the National Planning Framework (sustainability, security of supply, and competitiveness) and aids in moving Ireland towards a low carbon, climate resilient society. It also delivers on the National Development Plan through the delivery of an expanded and strengthened electricity network. In terms of the Climate Action and Low Carbon Development (Amendment) Act 2021 and Climate Action Plan 2023, the Proposed Development helps climate action via strengthening of the electricity grid and allowing the supply of more renewable energy.

The Proposed Development meets with the polices within the Meath and Kildare County Development Plans and Local Area Plans. Both County Development Plans identify the clear need for improved energy grid infrastructure alongside new development, and outline policies that facilitate grid infrastructure improvements. The Kildare County Development Plan specifically supports the Proposed Development.

The Proposed Development is considered to be entirely in compliance with national, regional and local planning policy, and with the principles of proper planning and sustainable development for the areas.

5.3 Population and Human Health

The study area comprises four main settlements: Naas, Sallins, Prosperous and Kilcock. Outside of the settlements, much of the population lives in communities and housing alongside the regional and local roads. Tourism centres including castles, racecourses, golf clubs, and equestrian centres are located within the study area. Community facilities, tourism sites, towns, villages, businesses, and other key receptors have been mapped and avoided where possible through the careful routing of the cable route and through the mitigation measures that will be implemented. A total of 32 community and 40 commercial receptors were identified in the study area. Bespoke mitigation measures will be implemented at sensitive receptors such as tourism sites and schools to further reduce the impacts.

During the construction phase, the key impacts of the Proposed Development will be disruption to traffic while the construction takes place in public roads. Traffic Management will minimise the effects but there will be some disruption to road users and to the communities of the area. These effects will be temporary but have been carefully considered by the project team because of the disruption that may be felt.

Overall, it is anticipated that through appropriate mitigation and monitoring measures there will be no significant adverse effects on Population and Human Health.

5.4 Air Quality

The Proposed Development is located primarily within Air Quality Zone D – Rural Ireland. Where the cable route traverses Naas, County Kildare, it enters Air Quality Zone C – cities and large towns. The air quality monitored at the nearest air quality monitoring site is well within the national Air Quality Standards.

The potential impact on local air quality, at sensitive human and ecological locations in the vicinity of the Proposed Development, associated with emissions from plant and machinery and associated vehicle traffic are anticipated to be negligible (or insignificant). As the air quality effects associated with the Proposed Development are not significant, the national Air Quality Standards will not be exceeded.

5.5 Noise and Vibration

Good practice mitigation measures will ensure that noise and vibration effects are not likely to be significant at any sensitive receptor (in other words, properties) in the study area. Mitigation measures for construction noise and vibration will ensure no significant effects at properties in the study area. No significant noise impacts are anticipated as a result of construction traffic on surrounding roads. However there will be some temporary disruption while the works are ongoing, especially at roadside properties where the cable route will travel past.

The operational noise assessment concluded that no significant noise and/or vibration effects will occur as a result of the Proposed Development.

5.6 Biodiversity

The Proposed Development does not pass through any nature conservation sites (SACs, Special Protection Areas, or Ramsar sites). The nearest hydrologically linked nature conservation site to the Proposed Development is the Rye Water Valley/Carton SAC located 7 km to the east and downstream.

One Natural Heritage Area, seven proposed Natural Heritage Areas, and one candidate Natural Heritage Area are in the vicinity of the Proposed Development. These include the Royal Canal and Grand Canal proposed Natural Heritage Areas, which will be crossed by the Proposed Development. Harristown Common candidate Natural Heritage Area (fen grassland) lies approximately 113 m to the west of the Proposed Development at its nearest location. Mitigation measures will be implemented to ensure there will be no significant impacts to any nature conservation sites.

The cable route is generally agricultural land (improved grassland). Important Ecological features include treelines, hedgerows, watercourses, mature trees, wet grassland, scrub, woodland, and reed swamps. No Habitats Directive Annex 1 habitats were recorded within the study area. Protected species found in the study area include white-clawed crayfish, European eel, Atlantic salmon, badger, bats, otter, pine marten, and many protected species of birds. No wintering bird habitat will be affected by the Proposed Development.

There will be potentially 95–190 trees, and approximately 4.08 km of hedgerows and trees permanently removed by the Proposed Development. The number of trees lost is uncertain, accounting for potential injury or loss of trees outside the footprint, where cables laid in narrow roads damage existing root systems.

An Off-site Hedgerow Compensation Strategy will deliver species-rich planting, outside the Proposed Development boundary, to deliver an overall net gain of hedgerow habitat. A minimum of 130% compensatory off-site planting will be delivered by the Developer (ESB), in consultation with EirGrid.

A Draft Planting Strategy is under development for restricted low shrub planting within the cable easement, including use of a high performing Root Barrier Membrane. This Draft Planting Strategy is undergoing Risk Assessment, in conjunction with a review of international best practice.

If approved, the Draft Planting Strategy would complement the commitment to Offsite Compensatory Planting for permanent hedgerow loses within the footprint of permanent access tracks.

For receptors other than mature trees and hedgerows, residual effects from the Proposed Development will be at local level. Following offsite planting, there will be an overall increase in hedgerow length. Despite compensation, there will be a residual effect of County significance from the loss of mature trees which will take longer to establish and grow, and from hedgerow fragmentation in the event that a risk assessment concludes the Draft Planting Strategy for restricted low shrubs over the cable cannot be implemented.

EirGrid's commitment to monitor to inform adaptive management for mitigation success, and the Off-site Hedgerow Compensation Strategy will deliver a net gain in hedgerow length, and minimize residual effects ultimately aligning with Kildare and Meath County Development Plan policies on trees and hedgerows.

Rye Water Crossing Point

5.7 Soils, Geology and Hydrogeology

The land use that covers the majority of the Proposed Development is agricultural land used for pasture.

Bedrock aquifers in the majority of the study area are classified as locally important bedrock aquifer which is moderately productive in local zones. Within the centre of the study area there is a small area which is a locally important bedrock aquifer. In the southern part of the study area there is an area classified as a regionally important bedrock aquifer. There are eight Water Framework Directive groundwater bodies within the study area,

all of which have a good overall status. In general, the scale of the Proposed Development relative to the size of the groundwater bodies as a whole is very small. The Proposed Development will not cause negative impacts to any groundwater body. The Proposed Development will not affect the Water Framework Directive status of any groundwater or surface water body.

There will be temporary adverse effects to the surface and land use due to the disruption associated with trenching for the cable installation, temporary storage of excavated materials, and change of land use at temporary construction compounds. However, given the size and minimal extent of the land use areas directly impacted compared to the wider extent of land use within the wider study area these impacts are likely to be negligible.

Mitigation measures will be implemented to ensure there will be no significant impacts to soils, geology and hydrogeology as a result of the Proposed Development.

5.8 Hydrology

The Proposed Development and the study area are located within the Liffey and Dublin Bay water catchment area. The Proposed Development crosses 27 watercourses that have been mapped by the Environmental Protection Agency (EPA), as part of its requirements under the Water Framework Directive. Fourteen of these watercourses have been assessed to have Good Ecological Status; five have Moderate Status; and eight are Poor. An additional 14 watercourses that have not been mapped by the EPA will be crossed by the Proposed Development. These watercourses will be considered to be of Good potential status and mitigation measures will be applied to ensure that the Proposed Development would not affect that potential status or the Water Framework Directive status of any water body.

The Proposed Development crosses several floodplains including those associated with the River Liffey. The Proposed Development is located in Flood Zone C[2], apart from minor local areas in close proximity to watercourses. While flooding was considered in the routing of the Proposed Development, it would not be feasible to entirely avoid floodplains. The nature of the underground cable means that there will be no effect on floodplains post-construction. The cable and joint bays will be designed to be watertight and so there will be no impact from flooding on the Proposed Development. The proposed works at the substations are within existing substation sites and will not affect nor be affected by flooding. Mitigation measures will ensure no significant effects during construction. Works will take account of forecasted high rainfall and any storage of material will be set back from watercourses.

In summary, during the construction phase, impacts to watercourses are anticipated to be small, localised, and temporary in duration. Mitigation measures will be implemented to ensure there will be no long-term effects to hydrology.

[2] An area where there is a moderate risk of flooding, with an estimated probability of flooding of between 1 in 100 and 1 in 1,000 per year.

Typical watercourse crossed by the Proposed Development

5.9 Archaeology, Architectural Heritage and Cultural Heritage

The study area is a rich network of Ireland's history from prehistoric to the post-medieval periods. This includes prehistoric settlements, the remains of the Pale (a boundary constructed by the Anglo-Normans to divide their lands from those held by the Irish) to Protected Structures comprising houses and churches.

There is one National Monument and three sites with Preservation Orders located within the study area. These form part of the Jigginstown Castle complex. Mitigation measures will be implemented to ensure the cable route will pass Jigginstown Castle with no significant impacts.

The Proposed Development is located within the Zones of Notification of six Recorded Monuments – these are enclosures, raths, mounds, and earthworks. While the Proposed Development would not directly impact the Recorded Monuments themselves, excavation of the cable trench would have a direct impact on any archaeological remains that may survive within this zone.

Construction of the Proposed Development would directly impact 12 sites that have been recorded from historic mapping or from surveys undertaken for the Proposed Development. These are ring-ditches; cropmarks; an enclosure; boundary/marker stone; a mound; a possible rath site; the remains of a small group of buildings, post-medieval farmstead, post-medieval corn mill, and two post-medieval buildings. Mitigation measures will be implemented and there will be no significant effects as a result of these impacts.

Archaeological testing will be undertaken pre-construction and there will be archaeological supervision during construction to ensure that any archaeological remains are not affected.

Jigginstown Castle

5.10 Traffic and Transport

The potential disruption to road users has been considered. Along the approximately 53 kilometre cable route, there will be one section (4 kilometres in length) that will have a Moderate effect. This section along the R156 in County Meath will have a significant effect as a result of the proposed Single Lane Closure with HGV Diversion. There will be a large diversion that will be signposted from the affected regional road to an alternative regional road. While the effect will be Moderate, the impacts will be limited to the construction of the cable trench, which will be a temporary impact – approximately 20–50 metres of cable trench can be constructed in one day. The other sections of affected roads will have no effect or have been assessed to be Minor. Other effects to public transport users or community severance have been assessed to be Not Significant.

Typical section of the R156

5.11 Material Assets – Agriculture and Equine (Horses)

In general the land along the Proposed Development is good quality. The average size of farms along the Proposed Development is larger than the national average (44 hectares versus 33.4 hectares) where the majority of which are medium sensitivity. Of the total of 68 land holdings located along the Proposed Development, ten are equine enterprises.

Significant impacts on agriculture and equine will not arise where the Proposed Development is constructed in-road. There are 43 land parcels where there will be permanent easements or land-take required for the underground cable, access tracks, and joint bays. Where the construction works are off-road there will be eight locations where slight adverse impacts arise due to the Proposed Development and the remaining 62 directly affected farms will have no significant impacts. None of the slight adverse impacts affect high or very high sensitive enterprises (e.g. equine).

The overall residual impact on agriculture and equine along the entire Proposed Development is not significant. The works will affect less than 2.5% of the area of these land parcels. The Proposed Development will have direct effects on 0.02% of the area of County Kildare and County Meath. The residual impact on agriculture within this region is not significant.

Crossing Point of the Dublin–Sligo Railway Line and the Royal Canal

5.12 Material Assets – Non-Agriculture

The land along the Proposed Development is a mixture of agricultural land and non-agricultural lands which consist of residential clusters, single dwellings, community, industrial, and commercial properties. The main non-residential properties within the study area include:

- Schools;
- Medical facilities;
- Retail, commercial, and industrial property;
- Sports and recreational facilities; and
- Churches and graveyards.

There is potential for impacts on material assets associated with the construction of the Proposed Development, however with the implementation of the mitigation measures, the permanent impacts on material assets will not be significant. However there will be a temporary significant effect to one property because of impacts to the garden. Additionally, users of the Sallins Bypass footpath and cycleway will experience a temporary significant effect from construction along the facility. Along the Sallins Bypass, early notification and signage to show diversions will be used by the Contractor. Local cycling/walking groups and community groups (as well as Cycling Ireland and Kildare County Council) will be directly contacted by the Contractor to inform them of the timing, extent, and duration of any closures and what signed diversion routes will be available. As far as possible the works along the Sallins Bypass will be phased so that the entire length of the cycleway and footpath will not be closed at any one time. The use of the Sallins Link Road at the roundabout on the Sallins Bypass will allow a shorter diversion. There will be no significant operational phase impacts, except for the beneficial impact that the new electricity infrastructure will have on the electricity network.

The majority of the waste which will arise as a result of the Proposed Development will be surplus material (earth) excavated during the Construction Phase. In terms of waste, given the relatively small potential quantity of surplus material to be generated, and that this quantity will be generated across the approximately 42 months construction phase, the effect of this quantity on the local and regional waste capacity will be not significant.

5.13 Landscape

There are five Landscape Character Areas within the Meath portion of the study area: South-East Lowlands; Tara Skryne Hills; Rathmoylan Lowlands; Royal Canal; and The Ward Lowlands. Each Landscape Character Area within County Meath is assigned a rating in relation to 'value', 'importance', 'sensitivity' and potential capacity to accommodate various forms of development.

There are 12 Landscape Character Areas within the Kildare portion of the study area: Chair of Kildare; Northern Lowlands; North-western Lowlands; Western Boglands; Northern Hills; Allen Bog; Pollardstown Fen; The Curragh; Central Undulating Lands; Eastern Transition; River Liffey; and Eastern Uplands. In the County Development Plan, each Landscape Character Area is assigned a rating in relation to 'sensitivity'. Furthermore, several of the Landscape Character Areas within the study area are also designated as Areas of High Amenity: River Liffey; Pollardstown Fen; The Curragh; and Eastern Uplands.

Landscape effects and visual effects have been considered in respect of the Proposed Development. There will be adverse construction stage effects, but these will be temporary/short-term in duration. After construction, there will be no significant effects as the Proposed Development is predominantly below ground with the land cover above largely reinstated.

It is considered that the Proposed Development will not give rise to any significant landscape or visual effects.

5.14 Cumulative Impacts and Environmental Interactions

There are no planned or proposed projects that will result in any cumulative effects with the Proposed Development. Any interactions with the above listed environmental topics have been fully considered as part of the assessment.