EirGrid
Powering Up Dublin

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DUBLIN REPLACEMENT UNDERGROUND CABLE PROGRAMME

Best Performing Option – CP1216 North Wall to Poolbeg Cable Replacement

www.EirGrid.ie

Context

This report presents an independent review and analysis of submissions received to the public consultation on the EirGrid "Powering Up Dublin Project".

This report has been prepared for EirGrid by RPS Consulting Engineers Ltd.

Disclaimer

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EXECUTIVE SUMMARY

What is the Powering Up Dublin - Replacement Underground Cable programme?

Powering Up Dublin is a critical programme that will strengthen key electricity infrastructure in Dublin and the surrounding areas, making the city 'renewable ready'. Dublin's demand for electricity has grown and will continue to grow in the years ahead as we move to using electricity for heat and transport. These works allow us to meet our energy demands now and in the future.

In this first phase of the project, approximately 50km of cables will be installed across the city. Upgrades will also take place in a number of substations to support Dublin's electricity network. Due to the city landscape of Dublin, these new cables are proposed to be placed underground and they will connect electricity substations located in and around Dublin.

Studies have been carried out to identify new underground cable routes that will link the following 220kV electricity substations to each other.

- Carrickmines and Poolbeg
- North Wall and Poolbeg
- Finglas and North Wall
- Inchicore and Poolbeg (dual circuit)

This report identifies the Best Performing Option to replace the existing North Wall to Poolbeg 220kV circuit.

Purpose of this Report

The Dublin Replacement Underground Cable Programme is following EirGrid's Framework for Grid Development, which is an end-to-end process for all EirGrid's grid development projects. The framework takes projects from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation. The framework is explained in EirGrid's "Have your Say" document and is illustrated in Figure 0-1.

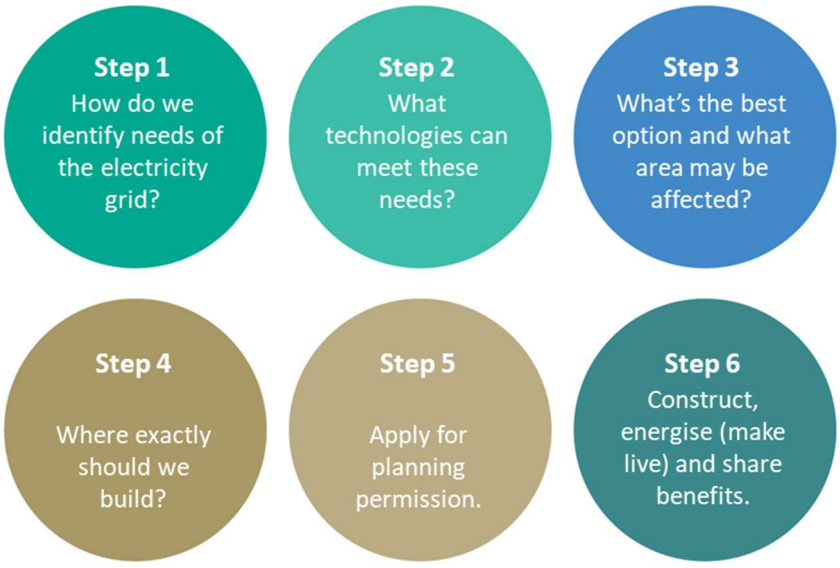


Figure 0-1: EirGrid's Six-Step Framework for Grid Development

This approach facilitates engagement and consultation with stakeholders and the public which helps to explore options fully and make more informed decisions.

The project is currently in Step 4. The objective of Step 4 is to determine the best performing option and the precise route where the project will be built. This step is characterised by two main outputs:

- Route Options Assessment (Step 4A), and
- Best Performing Option Assessment (Step 4B).

The Route Options Assessment identifies all possible route options to replace the existing North Wall to Poolbeg 220kV circuit, analyses these route options and identifies the Emerging Best Options. The Route Options Assessment was completed (March 2023), and the report was subsequently published for public consultation. The public consultation period closed eight weeks later in May 2023. Section 3 provides a summary and results of the assessment process.

The second phase of Step 4, the Best Performing Option Assessment, develops the Route Options Assessment, taking account of feedback obtained during the public consultation phase and additional technical information (from initial surveys and route walks) to arrive at the Best Performing Option. The Best Performing Option is based on the information currently available and further refinement of the option may be triggered by site investigations performed as the detailed design phase progresses. This second phase was progressed between May and October 2023. The assessment process is explained in more detail in Section 4.

Summary of Route Options Assessment (Step 4A)

All the potential route options for the North Wall to Poolbeg circuit were identified, broken down into unique sections and each section was assessed using a Multicriteria Analysis (MCA) comprising EirGrid's five multicriteria assessment categories: Technical, Deliverability, Economic, Socio-Economic, and Environmental, shown in Figure 0-2.

Figure 0-2: EirGrid's Five Multi-Criteria Assessment Categories

From the MCA results, using the best possible ranked sections, three optimised routes, Option D, Option E and Option F were progressed as Emerging Best Options (EBOs) for further consideration. These routes are shown in Figure 0-3. All routes travel from the North Wall substation in the north, cross the River Liffey via trenchless methods, to the Poolbeg substation in the south.

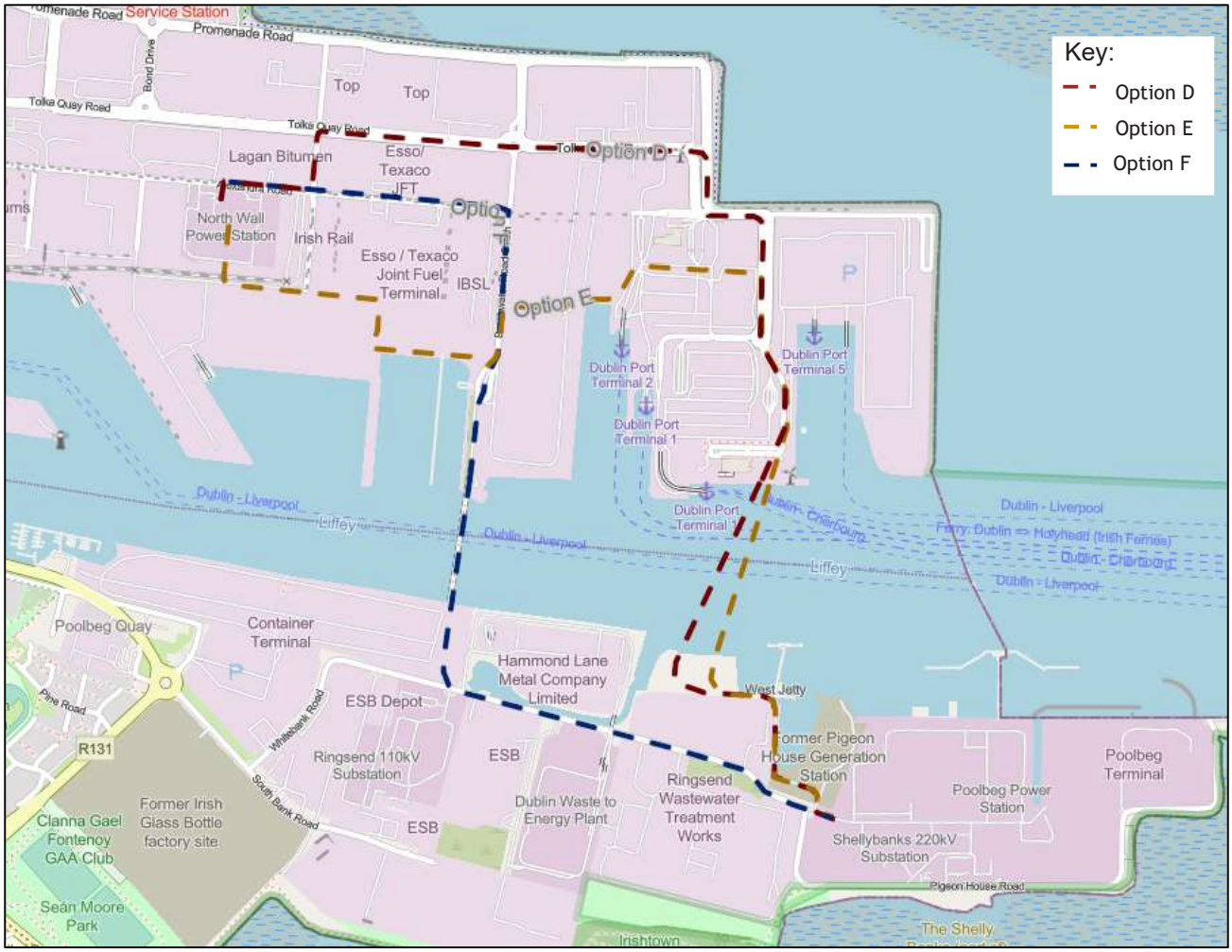


Figure 0-3: Map of Option D, Option E and Option F

Each EBO had a number of outstanding challenges that were identified in the Route Options Assessment Report (Step 4A). These challenges were investigated in more detail in the Best Performing Option Assessment.

The EBOs were published for public consultation in March 2023 and the consultation ran for eight weeks. Various consultation materials were provided, including brochures, leaflets, maps, and an online survey. In-person events and Community Liaison Officers facilitated communication with the public.

The feedback received from this consultation was included in the Best Performing Option Assessment. While the majority of respondents understood the need for this project, some concerns were raised about local environmental issues, cumulative impacts, business impacts, and traffic disruption during construction. A strong preference for collaboration between utility companies and local authorities to minimize disruption was highlighted in the responses.

Best Performing Option Assessment (Step 4B)

The Best Performing Option Assessment for the North Wall to Poolbeg circuit replacement involved detailed examination of the three Emerging Best Options (EBOs) through route surveys, stakeholder engagement, and route design. The iterative process considered environmental, social, and technical factors, incorporating input from landowners and stakeholders.

Poolbeg Peninsula

The capacity for new 220kV circuits within the Poolbeg Peninsula has been identified as a critical success factor due to the high utility congestion and limited space for new infrastructure. To determine feasibility

of these circuit replacements a detailed assessment identifying planned projects, landowners, and utility congestion was completed.

All three EBOs contain a trenchless crossing of the River Liffey. As part of the Poolbeg Peninsula study, eight possible locations for the trenchless crossing location were identified on the southern side of the River Liffey. These locations were assessed considering planned projects in the area, existing utility congestion and how the circuit could be routed from these sites to the Poolbeg substation. From this assessment a suitable Best Performing site was identified for the reception point on the south bank of the River Liffey crossing.

Option D

Option D overall ranking	Mid-level/moderate

Option D received substantial public support, with the highest backing during the public engagement process. Dublin Port Company (DPC) expressed support but emphasized the need for route amendments to minimize impacts on port operations.

The BPO Route Comparison assessed the route using multi-criteria analysis, resulting in a **mid-level/moderate** overall assessment ranking for Option D. Challenges include non-standard trenchless crossings, construction progress through the container yard, and the River Liffey crossing. The socio-economic ranking decreased due to public consultation feedback.

Option E

Option E overall ranking	Moderate-high

Dublin Port Company (DPC) deemed Option E not a preferred option, citing emergency access and exclusion zone concerns during fuel vessel offloading. DPC highlighted challenges to port activities and proposed projects.

The BPO Route Comparison assessed the route using multi-criteria analysis, resulting in a **moderate-high** overall assessment ranking for Option E. Challenges include non-standard trenchless crossings, concerns about delivery interruptions and space constraints. The socio-economic ranking increased due to public consultation feedback.

Option F

Option F overall ranking	Moderate-high

Dublin Port Company (DPC) deemed Option F not a preferred option as it poses challenges to port activities and proposed development.

The BPO Route Comparison assessed the route using multi-criteria analysis, resulting in a **moderate-high** overall assessment ranking for Option F. Challenges include non-standard trenchless crossings, impact on port activity and space constraints. The socio-economic ranking increased due to public consultation feedback.

Best Performing Option

The Best Performing Option (BPO) identified through the work undertaken at this phase of the project, is Option D. This BPO is shown in Figure 0-4. There are a number of changes to this route that were identified during the Best Performing Option assessment, and which have arisen due to feedback the public engagement; route surveys; and detailed design assessments. These changes are outlined in Section 5.3.

Additional work will be undertaken as this project moves into Step 5 which may result in further refinements and alterations to the route. This work includes site investigation (both non-invasive and limited invasive site investigation) and further engagement with landowners and stakeholders. Any changes to the route will be tracked and described in detail in the Step 5 reports.

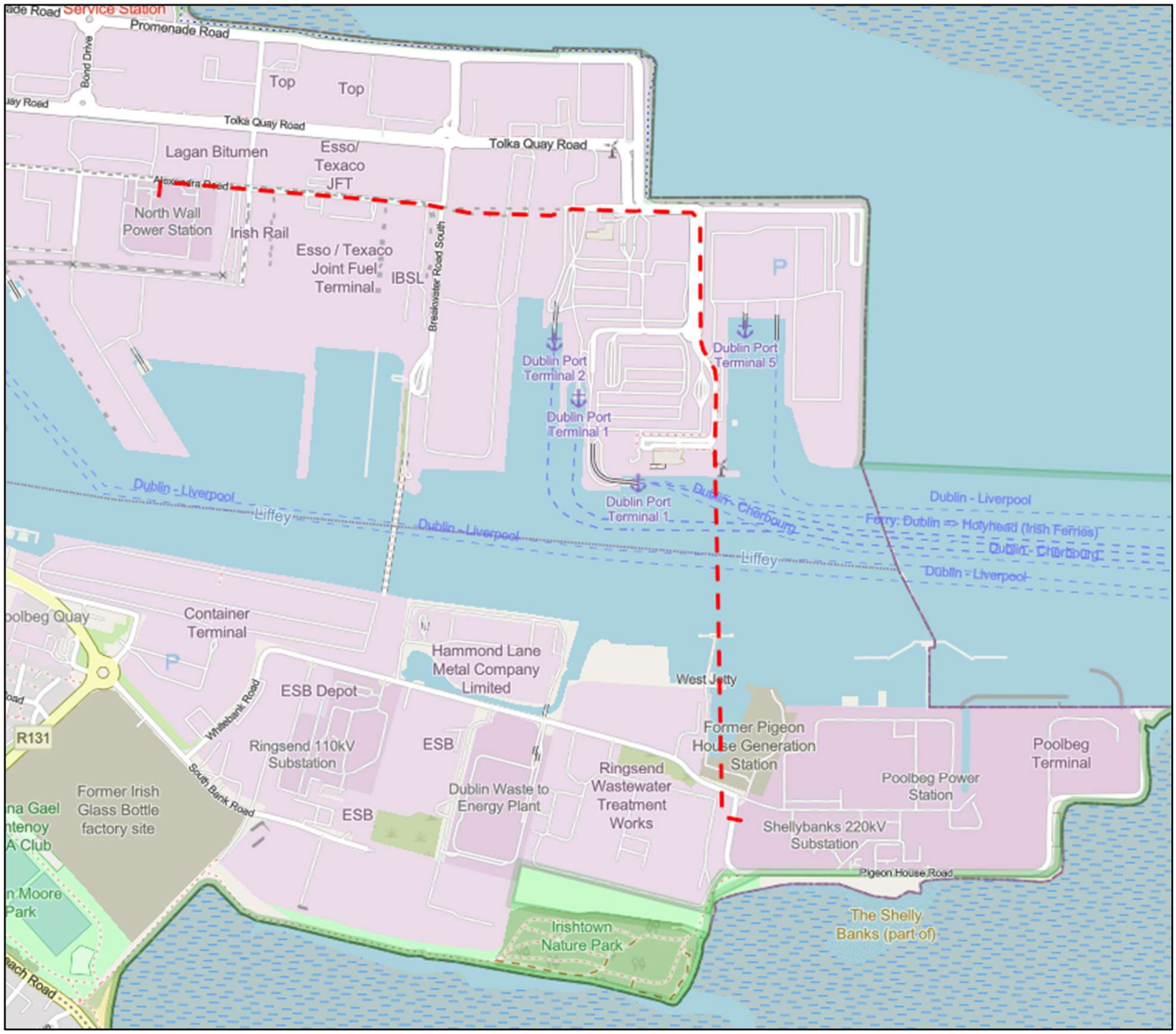


Figure 0-4: North Wall to Poolbeg Best Performing Route

Updates will be available on EirGrid's project website here: [Powering Up Dublin](#).

1 INTRODUCTION

1.1 Who is EirGrid?

EirGrid develops, manages, and operates Ireland's electricity grid and is responsible for the safe, secure and reliable supply of Ireland's electricity. EirGrid is also leading the secure transition of the grid to a sustainable low-carbon future.

The grid brings power from where it is generated to where it is needed throughout Ireland. It supplies power directly to industry and businesses that use large amounts of electricity. The grid also brings power from generators to the domestic network that supplies the electricity you use every day in homes, businesses, schools, and hospitals.

This critical infrastructure supports the current development of our society and economy. But just as importantly, work carried out now to improve the grid will help to create a more sustainable future for future generations.

1.2 What is the Powering Up Dublin - Replacement Underground Cable programme?

Dublin's electricity infrastructure is ageing and reaching its end of life. Work must be done to transform and modernise the city's electricity infrastructure, so Dublin can continue to develop and thrive, while increasingly using power from renewable sources.

Powering Up Dublin is a critical programme that will strengthen key electricity infrastructure in Dublin and the surrounding areas, making the city 'renewable ready'. Dublin's demand for electricity has grown and will continue to grow in the years ahead as we move to using electricity for heat and transport. These works allow us to meet our energy demands now and in the future.

While this work will be disruptive at times, EirGrid seeks to minimise any potential disruption during construction by working with local communities, local authorities and businesses in Dublin.

Ireland's energy future lies in our ability to continue to harness and grow the potential of renewable energy. Ireland has made good progress to date achieving on average 40% of our electricity coming from renewable sources annually. By 2030, we must strive to reach 80% of electricity demand being supplied by renewable resources.

Powering Up Dublin is key to meeting this target, which is set out in Ireland's Climate Action Plan.

In this first phase of the project, 50km of cables will be installed across the city. Upgrades will also take place in a number of substations to support Dublin's electricity network. These new cables will all be underground, and they will connect electricity substations located around Dublin.

Studies have been carried out to identify new underground cable routes that will link the following electricity substations to each other.

- North Wall and Poolbeg
- Finglas and North Wall
- Carrickmines and Poolbeg
- Two cables linking Inchicore and Poolbeg

The 220kV circuits which are to be replaced are detailed in Figure 1-1 and Table 1-1.

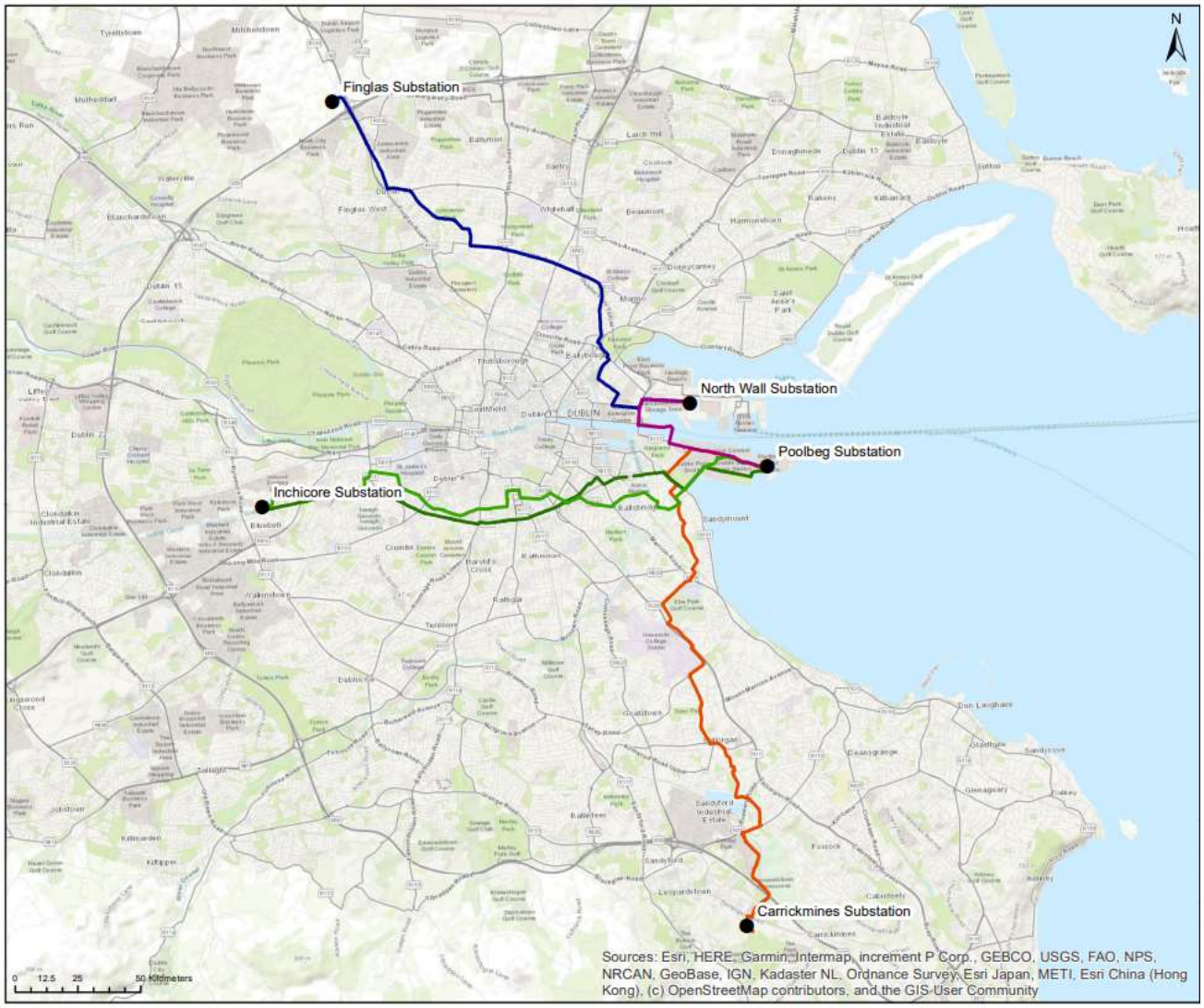


Figure 1-1: Existing 220kV to be replaced as part of the Powering Up Dublin Programme

Table 1-1: Dublin Replacement Cable Projects in the Dublin Area

Project Name	Existing Circuit Route Length
CP1146 Carrickmines - Poolbeg	11.9 km
CP1150 Inchicore – Poolbeg	14.5 km
CP1157 Inchicore – Poolbeg	14.5 km
CP1216 North Wall – Poolbeg	**4.6 km**
CP1100 Finglas – North Wall	11.3 km

EirGrid proposes to replace all the existing circuits with cross-linked polyethylene (XLPE) cable primarily on an offline route, to minimize power outages on the existing circuits. These XLPE cables are more efficient and robust, which will enable the grid to carry more power.

Replacing the existing circuits in an offline route means the new circuit follows a separate route to the existing circuit. The advantage of this is that there are minimal disruptions to the existing circuit and no, or very few, planned outages would be needed during construction.

The alternative to this is online replacement where the new circuit follows the existing circuit route. The old circuit is decommissioned as the new circuit is laid. For this method, a circuit outage of the existing circuit would be required for the entire construction period.

Due to the requirement to maintain the electricity supplies to Dublin, the option to remove and replace the existing cables (known as an online replacement) is not feasible. For this reason, offline installation will be necessary for the replacement of this circuit. That is a new supply will be installed, tested and commissioned before the existing supply is decommissioned.

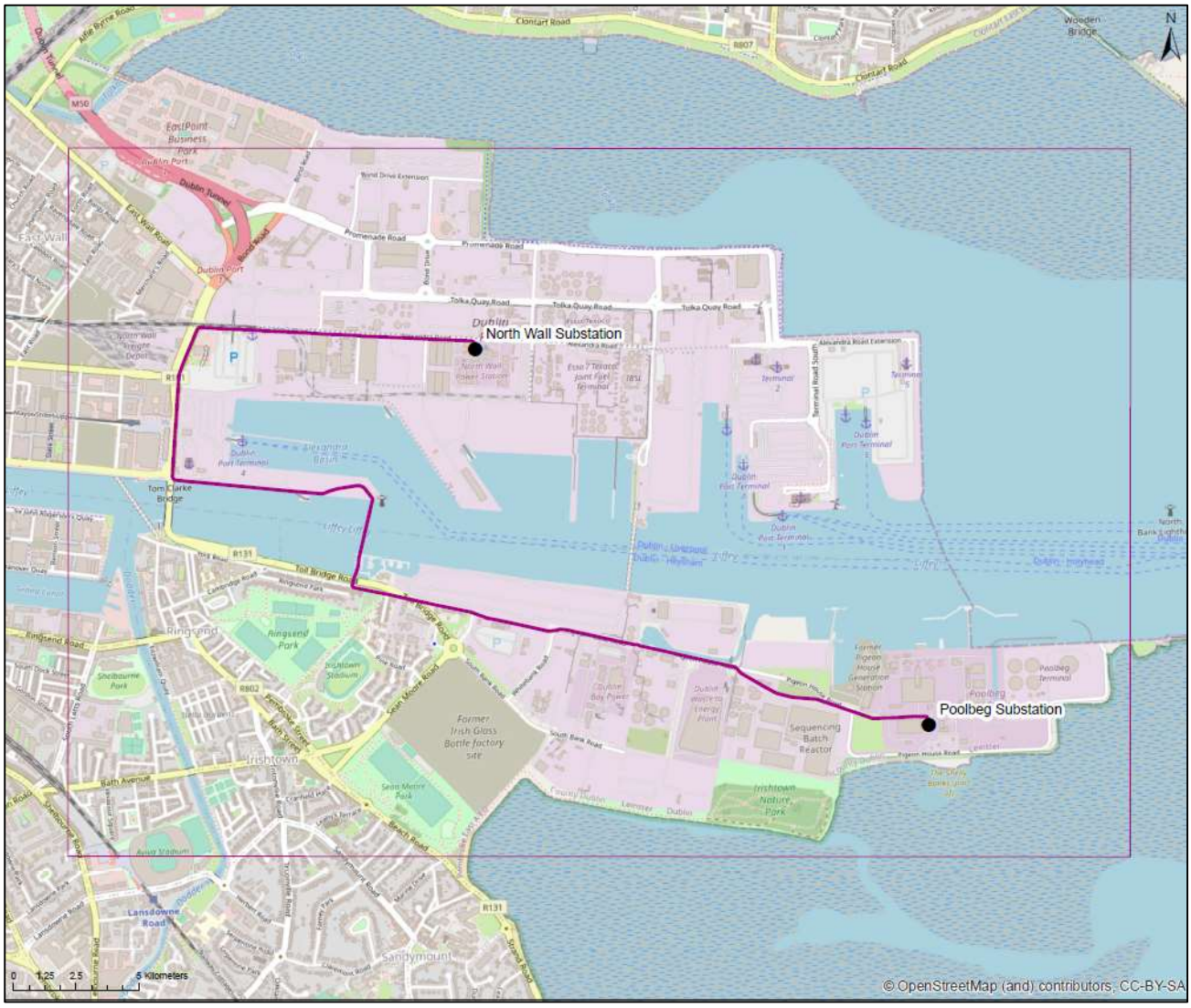


Figure 1-2: The existing North Wall - Poolbeg 220kV circuit within the study area for this project

1.3 Purpose of this Report

The Dublin Replacement Underground Cable Programme is following EirGrid's Framework for Grid Development, which is an end-to-end process for all EirGrid's grid development projects. The framework takes projects from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation. The framework is explained in EirGrid's "Have your Say" document and is illustrated in Figure 1-3.

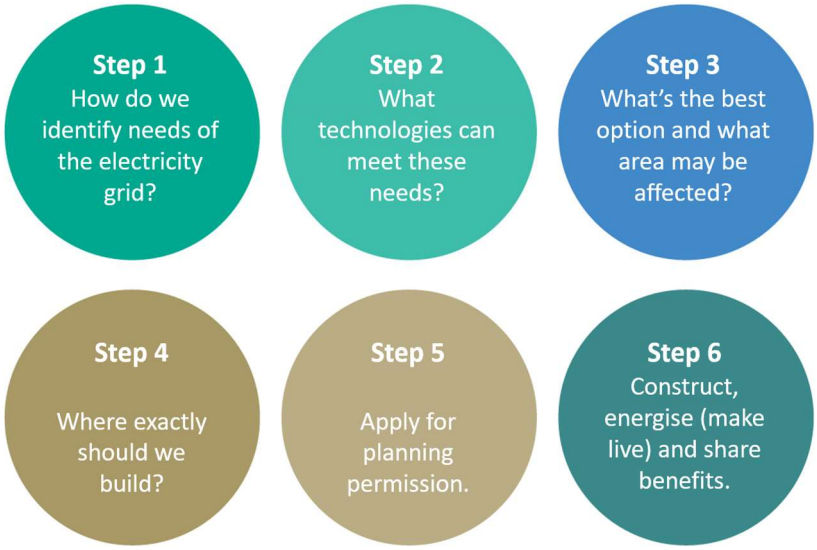


Figure 1-3: EirGrid's Six-Step Framework for Grid Development

This approach facilitates engagement and consultation with stakeholders and the public which helps to explore options fully and make more informed decisions. The project is currently in Step 4. The timeline for this step is shown in Figure 1-4.

Figure 1-4: The timeline of EirGrid's Six-Step process for this project

In Step 1, EirGrid identified the need for this project.

In Step 2, EirGrid assessed and confirmed the technology required to achieve the need; namely the required ratings to support the capacity of (renewable) energy to be transmitted. The cable technology selected is XLPE 220kV cable.

In Step 3, EirGrid assessed the feasibility of the Dublin Replacement Underground Cable Programme in December 2022. This Step looked at the key constraints, considerations, and opportunities in the North Wall and Poolbeg areas as well the proposed technology options. The report confirmed the need for the replacement of the existing 220kV circuits, in a mostly offline replacement to limit the outages required.

In Step 4, the Route Options Assessment Report was published in March 2023. This report fully described and analysed the route options within the North Wall to Poolbeg study area. Each route option was assessed, and the Emerging Best Options were identified.

The project is currently in the second stage of Step 4, where the project team, in consultation with stakeholders and the community, identifies exactly where the underground cables will be built.

As the project progresses through to Step 5, the project team will identify specific requirements and prepare the necessary statutory applications. This work will include planning and environmental reports, which will describe the final design of the project, outline the potential impacts, and identify the mitigation measures that will be put into place to avoid or reduce any impacts.

1.4 Accompanying Reports

This Best Performing Option report is supplemented by the following reports:

- Route Options Assessment North Wall to Poolbeg
- Powering Up Dublin project brochure
- Constraints Report North Wall to Poolbeg
- EirGrid Dublin Fluid Filled Cables Replacement Feasibility Study
- Powering Up Dublin Strategic Framework for Planning & Environment
- Public Consultation Feedback Report

These reports as well as further information on the Powering Up Dublin project can be found here: Powering Up Dublin.

2 DESCRIPTION OF STEP 4 PROCESS

In EirGrid's Six-Step Framework, Step 4 determines the precise route where the project will be built. This step is characterised by two main outputs:

- Route Options Assessment, and
- Best Performing Option Assessment.

Figure 2-1 outlines the design process followed in Step 4, showing the process used for Route Options Assessment and how that is developed to identify the Best Performing Option.

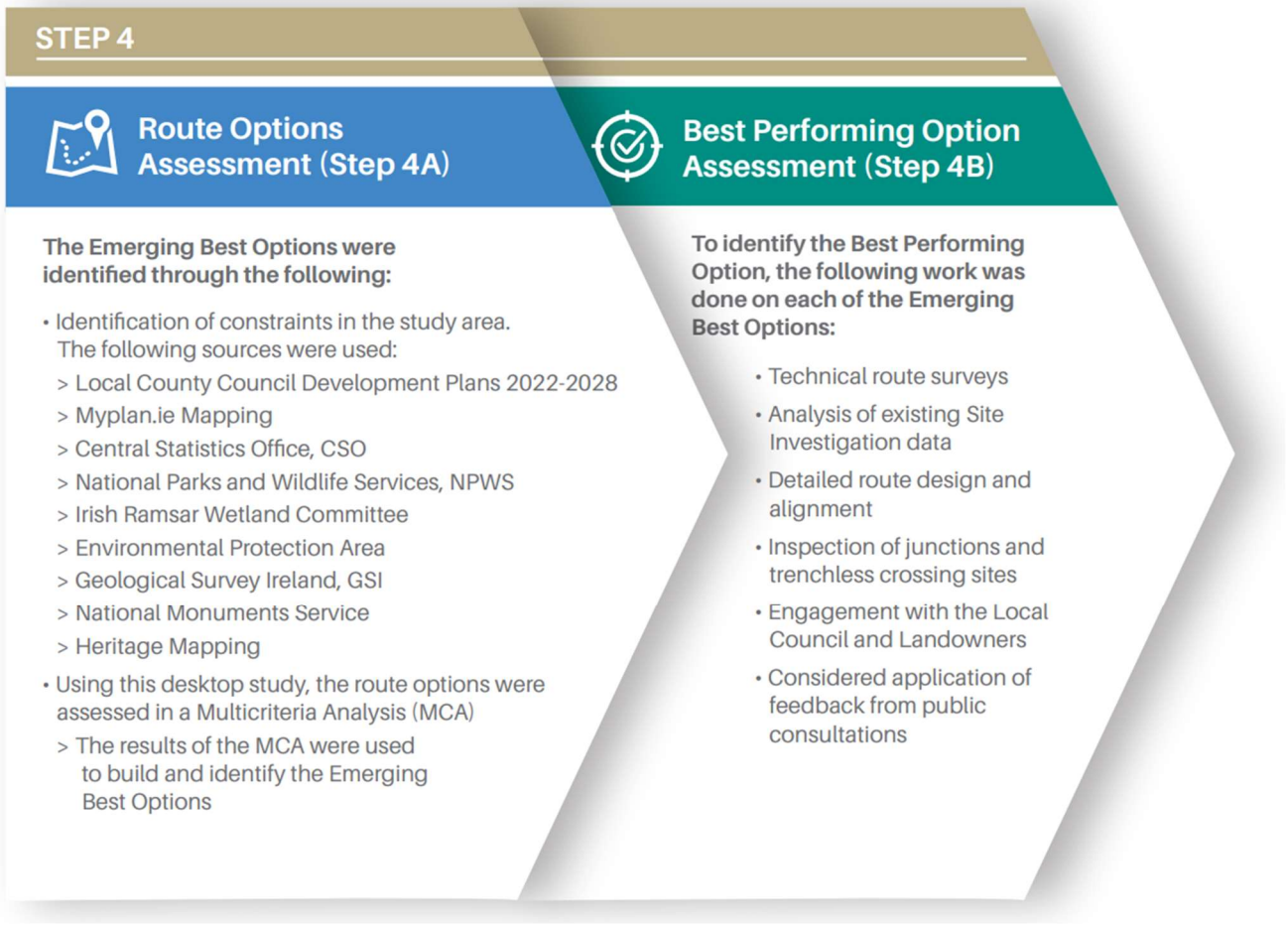


Figure 2-1: Step 4 design process

The Route Options Assessment identifies all possible route options to replace the existing North Wall to Poolbeg 220kV circuit, analyses these route options and identifies the Emerging Best Options. The Route Options Assessment was completed (March 2023), and the report was subsequently published for public consultation. The public consultation period closed eight weeks later in May 2023. Section 3 provides a summary and results of the assessment process.

The second phase of Step 4, the Best Performing Option Assessment, develops the Route Options Assessment, taking account of feedback obtained during the public consultation phase and additional technical information (from initial surveys and route walks) to arrive at the Best Performing Option. The Best Performing Option is based on the information currently available and further refinement of the option may be triggered by site investigations performed as the detailed design phase progresses. This second phase was progressed between May and December 2023. The assessment process is explained in more detail in Section 4.

3 SUMMARY OF ROUTE OPTIONS ASSESSMENT (STEP 4A)

The study area for this project was carried through from Step 3. We completed the first phase in Step 4 by identifying the constraints in this study area in December 2022. We then established all possible route options to replace the existing North Wall to Poolbeg 220kV circuit. These options were then assessed, with the results of the assessment included in the Route Options Assessment Report. The Emerging Best Options (EBOs) were shortlisted for further investigation in March 2023. This Route Options Assessment design process is shown in Figure 3-1 and the report can be found here.

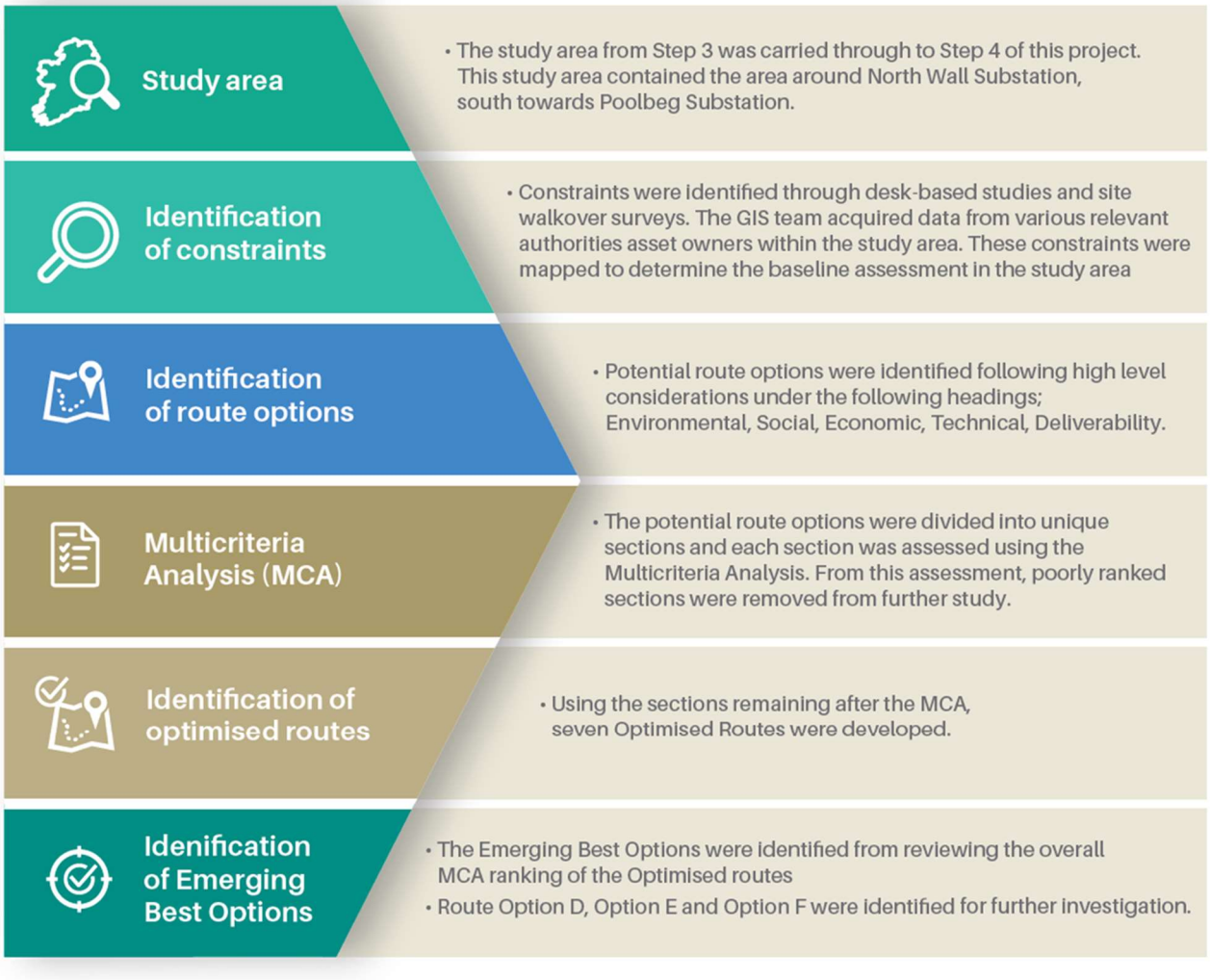


Figure 3-1: Route Options Assessment (Step 4A) Design Process

This section summarises the Route Options Assessment process from the identification of the route options, through to the identification of the Emerging Best Options.

All the potential route options for the North Wall to Poolbeg circuit were identified, broken down into unique sections and each section was assessed in a Multicriteria Analysis (MCA) using EirGrid's five multicriteria assessment categories, shown in Figure 3-2.

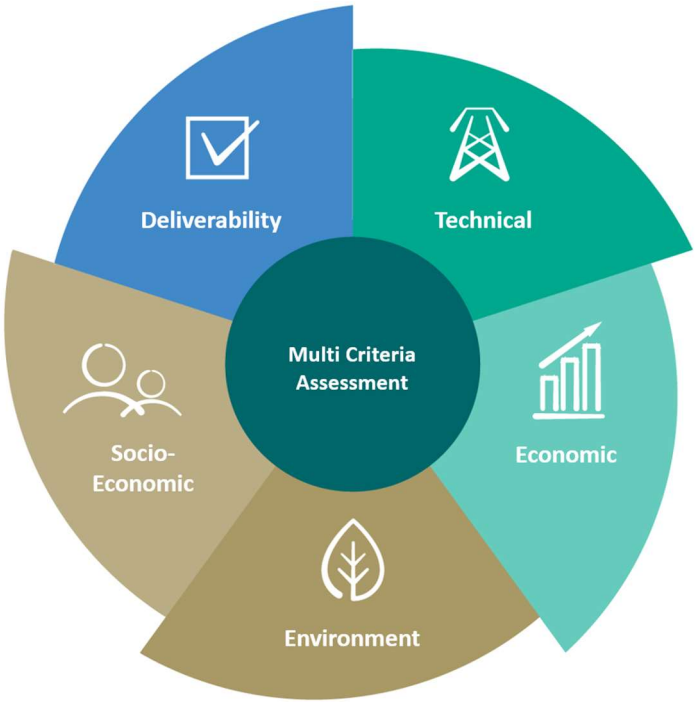


Figure 3-2: EirGrid's Five Multi-Criteria Assessment Categories

The categories were further split into the following subcategories shown in Table 3-1.

Table 3-1: Categories and subcategories in the Multi-Criteria Analysis

Category	Subcategories
Technical	Technical Operating Risk Compliance with EirGrid Functional Specification for 220kV Expansion/Extendibility Geotechnical conditions
Deliverability	Road Access Outage Impact Route Geometry Land Availability Planning and other statutory requirements Material Assets Utility Congestion Working Time Constraints Reinstatement Requirements Dependence on other projects
Economic	Number of complex crossings Reinstatement Costs Utility Diversion Requirements Bespoke Circuit Trench Requirements
Socio-Economic	Cultural heritage Proximity to critical services Duration of the works Settlements and Communities Amenity Traffic and Transport Emergency services
Environmental	Planning policy and land use Biodiversity, Flora and Fauna Landscape and Visual Contaminated land Flood risk Water Impact

The map of all route sections between nodes that were assessed as part of this MCA are shown in Figure 3-3. The colour of each section shows the overall MCA ranking of that section.
The colour coding is outlined in Table 3-2.

Table 3-2: Colour coding of Risk / Significance / Sensitivity levels

Colour Key	Level of Risk / Significance / Sensitivity
Yellow	Low
Green	Low-Moderate
Dark Green	Mid-Level / Moderate
Blue	Moderate-High
Dark Blue	High

From the MCA results, using the best possible ranked sections, three optimised routes, Option D, Option E and Option F were progressed as Emerging Best Options for further consideration. These routes are shown in Section 3.1.

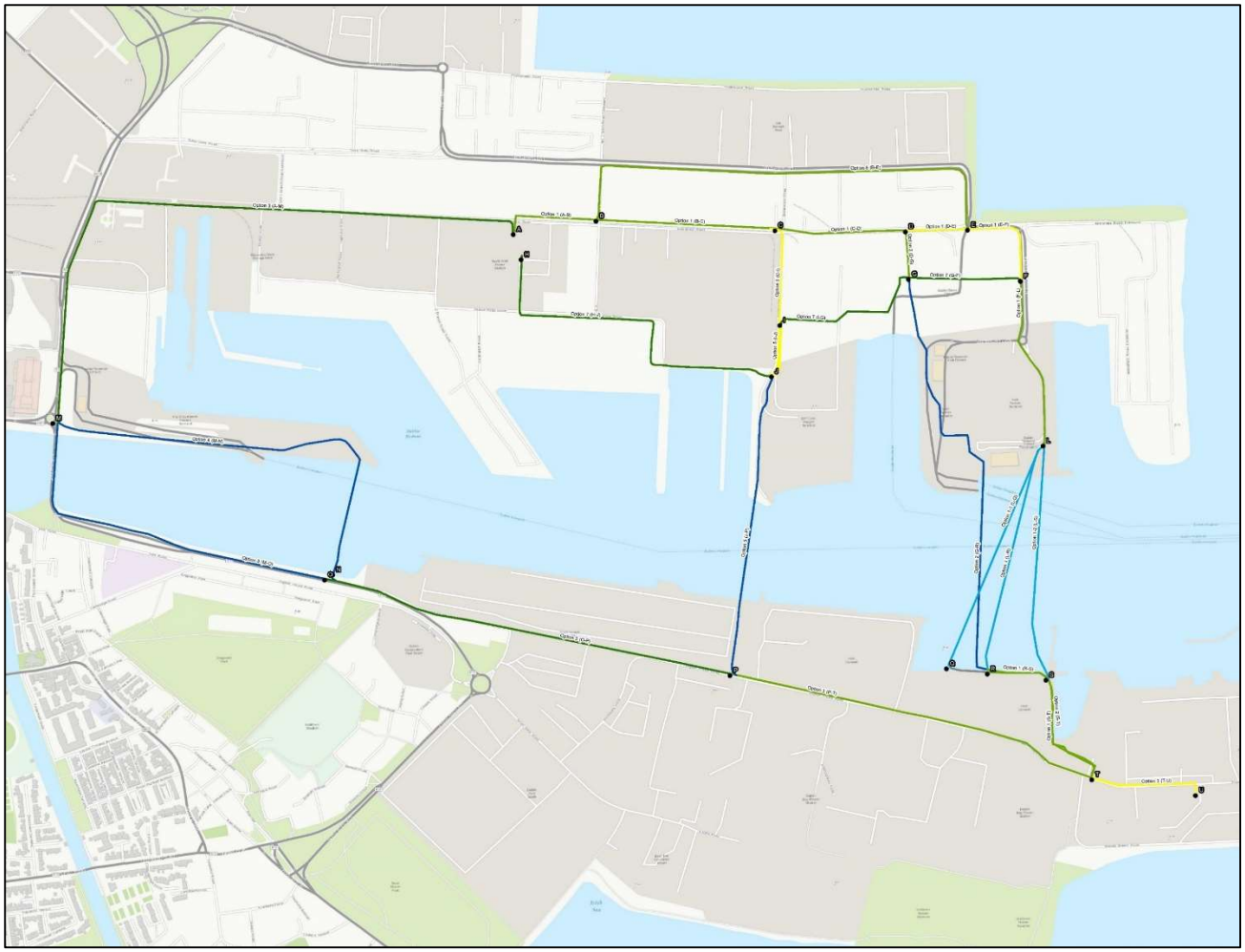


Figure 3-3: Route section and node map for North Wall to Poolbeg route options

3.1 Step 4A Emerging Best Options

Option D, Option E and Option F were identified as the Emerging Best Options for further consideration in this report. This section outlines the overall MCA ranking of each Option and the outstanding challenges that were identified at this stage for each route. Figure 3-4 shows a map of these EBOs.

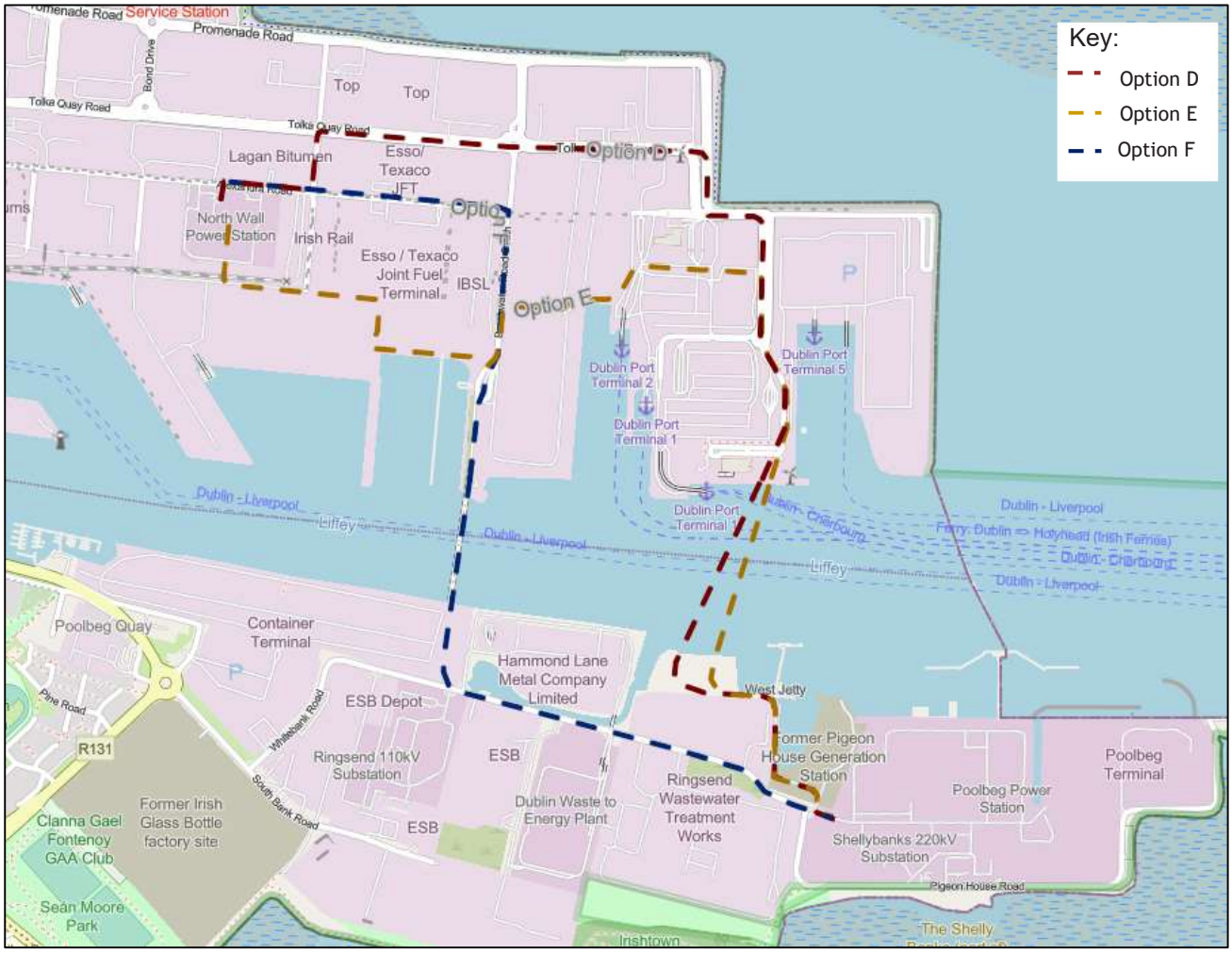


Figure 3-4: Map of Route Option D, Option E and Option F

Each route has outstanding challenges associated, which were further assessed in the Best Performing Options assessment and are addressed in Chapter 4.3.

Option D was selected due to the overall MCA ranking of low-moderate. All the criteria for this route option were low-moderate, apart from deliverability which was ranked as mid-level / moderate. The factors driving this was the trenchless crossing of the Liffey and the two service troughs on Alexandra Road. Both of these risks can be reduced during the detailed design phase. This route could be constructed in compliance with EirGrid specifications and would have minimal expansion/extendibility issues.

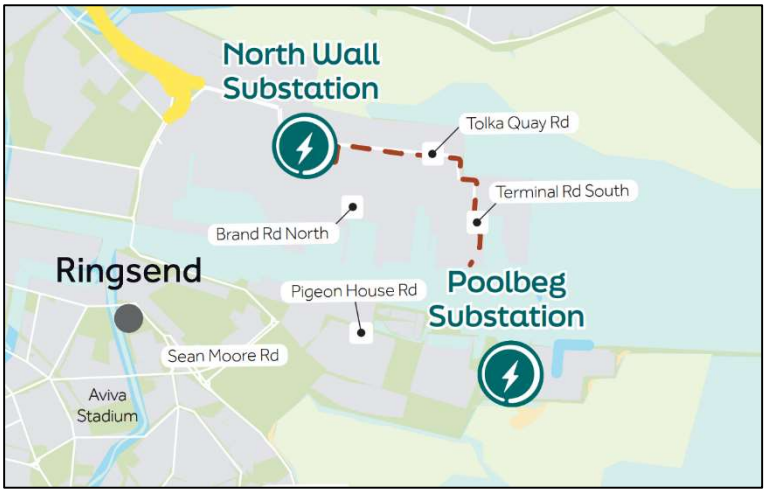


Figure 3-5: Map of Option D

Option E also had an overall ranking of mid-level / moderate. The criteria of Technical, Deliverability and Environmental are rated as mid-level / moderate. Technical and Deliverability are being driven by the trenchless crossing of the Liffey, as well as large sections of this route travelling on Dublin Port Company land including long sections of operational port areas. This may necessitate agreements for both working time during construction and ongoing maintenance. Sections of this route are also quite narrow. With careful detailed design, and with the agreement with DPC, the ranking of this route can be managed. This route could also be constructed in compliance with EirGrid specifications and would have minimal expansion/extendibility issues.

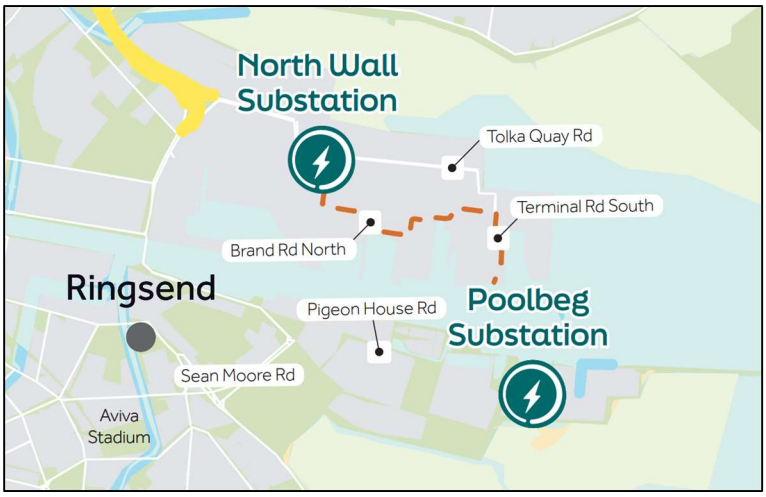


Figure 3-6: Map of Option E

Option F was the final route that was considered for further investigation. This route was ranked as low-moderate overall. The deliverability of this route was the only criteria ranked slightly higher as mid-level / moderate. The HDD crossing of three service troughs on Alexandra Road, and the Liffey crossing contribute to this higher ranking. At the crossing point of the Liffey, there is an existing 220kV circuit (Finglas to Shellybanks). This will complicate the crossing, however, with detailed design and site investigation, this risk can be managed.

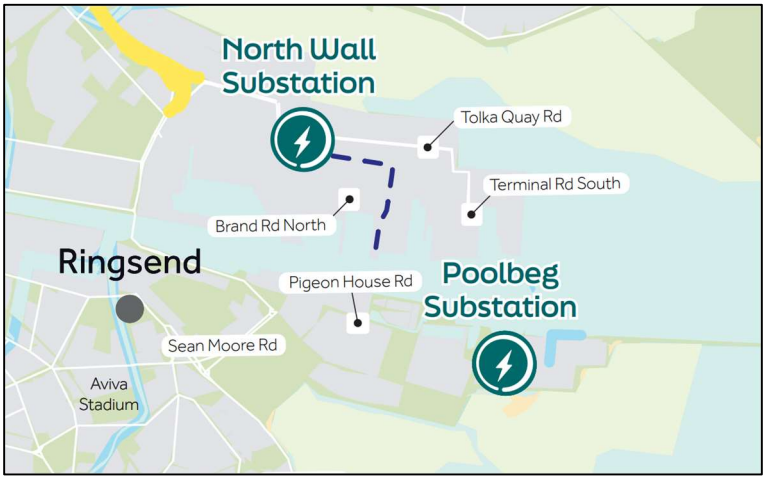


Figure 3-7: Map of Option F

3.1 Emerging Best Options Public Consultation

The public consultation period commenced on Tuesday, 28 March 2023 and ran for an eight-week period ending on Tuesday 23 May 2023. All relevant consultation material was available on the EirGrid Powering Up Dublin (PUD) website. This included:

- Project Summary Brochure
- Distribution of 130,000+ leaflets and feedback forms into homes in the Dublin area
- Route Maps including an Interactive Map Tool
- Link to Online Consultation Survey
- Link to Submission Portal
- Supporting Information

The consultation was promoted by EirGrid through advertising, social media and generating local / national news reports and interviews.

For up to three weeks before the consultation phase began, advertising was placed in newspapers, bus shelters, outdoor adshels, online and on radio. Advertising to promote the consultation continued throughout the eight-week consultation period on radio and social media.

Several in-person consultation events were conducted at relevant locations in the greater study area. Two dedicated Community Liaison Officers (CLOs) are in place since the start of the project in 2022. Community Liaison Officer drop-in clinics were undertaken throughout the public consultation period (i.e., March to May 2023). Briefings were offered and delivered to elected representatives, schools, businesses, and community groups, where requested.

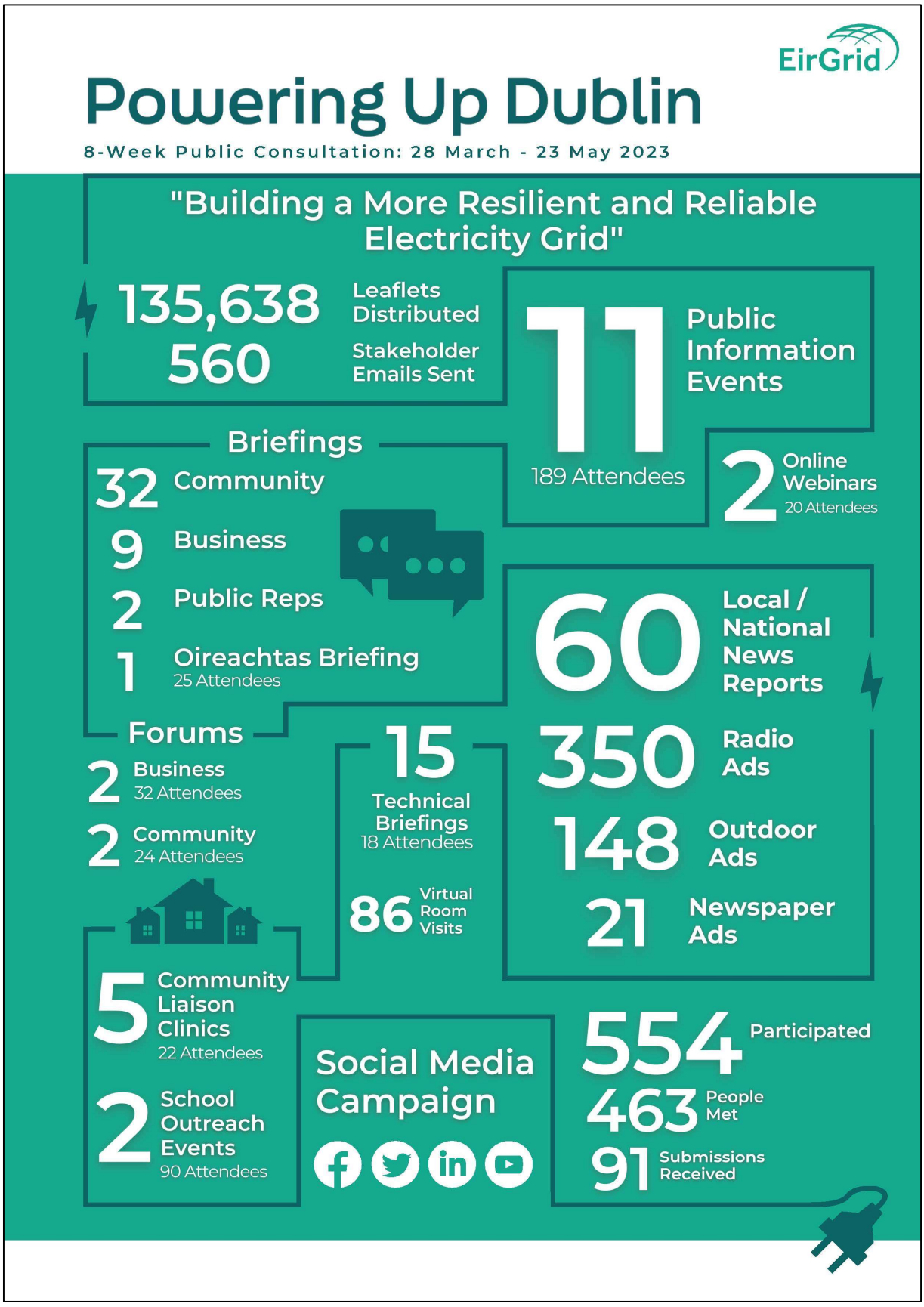


Figure 3-8: Consultation Activity Summary

3.2 Emerging Best Options Public Consultation Feedback

The *PUD Consultation Findings Report* summarises feedback, responses and comments received relating to the first non-statutory public consultation on the first phase of the Powering Up Dublin (PUD) Project.

Overall, most people understood the need for the project and there was widespread acceptance of the PUD programme. Notwithstanding this, submissions received included valuable feedback on the concerns related to the project.

The most frequently emerging themes raised included local environmental issues, cumulative impacts, business impacts and traffic disruption. Concerns regarding the potential traffic impact on schools and the disruption to businesses in the area were also raised.

However, there were concerns regarding the potential impacts of the required works when the project reaches the final route selections and subsequent construction stage. The area of primary concern and most frequently recurring issue was that of traffic disruption (general, business and traffic specific) and congestion resulting from construction stage. A high volume of respondents referenced the need for robust traffic management measures, routing preferences and retention of public transport/pedestrian routes throughout construction.

Respondents also voiced concerns in relation to potential for cumulative impacts of multiple utilities projects programmed, in progress and recently completed - in the communities where several of the potential routes pass through.

Individual respondents expressed strong preferences for collaboration between utilities companies and local authorities where possible and this sentiment was echoed by several utilities' companies and local authorities (e.g.: ESB Networks, Uisce Éireann and Dublin City Council) themselves in their submissions. Those utility companies and local authorities called for continued dialogue and engagement regarding the project, route development and collaborative opportunities. The overarching sentiment of responses referring to collaborative opportunities was that they may reduce disruption potentially experienced by communities, such as through reducing the need for ongoing or repeated carriageway excavations.

The Consultation Findings Report can be found here and all consultation submissions can be found here.

The feedback and findings from the consultation were used within the Best Performing Options Assessment (Step 4B) to support route selection and optimisation.

4 BEST PERFORMING OPTION ASSESSMENT (STEP 4B)

4.1 Introduction

To determine the Best Performing Option, the three Emerging Best Options (EBOs) identified in the Route Options Assessment Report were examined in greater detail. This process included route surveys, stakeholder and landowner engagement, and detailed route design, focusing on areas of particular difficulty such as water courses and rail crossings.

The design process to determine the Best Performing Option is shown in Figure 4-1. It is noted that the assessment process is iterative. This means, for example, that information found at the information gather stage could be used to inform the technical route surveys and stakeholder engagement, which feeds back into the information gathering and route assessment.

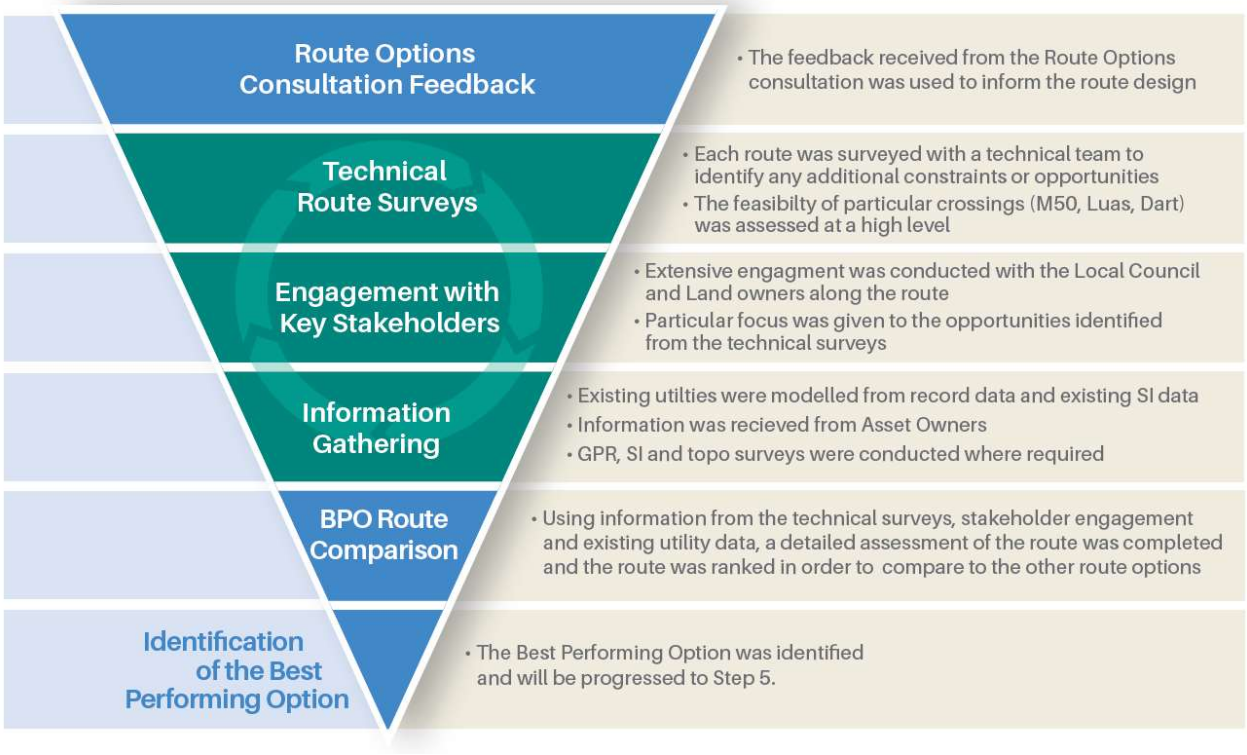


Figure 4-1: Best Performing Option Assessment Design Process

Any changes made to Emerging Best Option identified as the Best Performing Option during this assessment are highlighted in Chapter 5.3.

4.2 Information Gathering and Route Assessment

The first step for the technical team was to perform surveys of all three route options identified. The team identified any constraints that may affect the constructability of the circuit in this location, as well as potential opportunities that may benefit the construction of the circuit in a particular location.

Some route modifications were identified as a result of the work done during the Best Performing Option assessment. The changes identified have resulted in an improved route from the original EBO.

Multidisciplinary assessments were undertaken on each EBO route which included engineering, archaeology, environmental and ecological assessments. These assessments were primarily desktop based, with targeted walkover surveys of particular areas of sensitivity or importance.

EirGrid engaged with landowners and stakeholders that may be affected along the cable route. This engagement allowed the landowners and stakeholders to inform the route option based off their preference, current or future land use and any land conditions they have knowledge of.

Detailed assessments were completed to consider any technical issues identified along the route and to identify the best crossing locations of important features such as the River Liffey, Dublin Port Company's (DPC's) land, Irish Ferries Terminal, amongst others.

This process allowed for the careful examination of the EBOs, including environmental, social, and technical considerations as well as input from landowners, stakeholders and the community. The Best Performing Option for the North Wall to Poolbeg circuit was selected from this process.

4.3 BPO Route Assessment

The three EBOs were analysed using the process outlined in the previous section, Section 4.2. This section summarises the findings for each route option, as well as the findings from the Poolbeg Peninsula study.

4.3.1 Poolbeg Peninsula

There are four existing 220kV circuits within the Poolbeg Peninsula that must be replaced as part of the PUD programme of works, namely the North Wall to Poolbeg, Carrickmines to Poolbeg and two Inchicore to Poolbeg circuits.

As part of the work done in the Best Performing Option Assessment process, an in-depth study was completed on the Poolbeg Peninsula. This study looked at current and planned projects in the area, existing utility congestion and landowners.

The following are planned projects in the Poolbeg area that may affect the PUD project:

- Poolbeg West Strategic Development Zone (SDZ), including the mixed-use development at the former Irish Glass Bottle site
- DPC 3FM Project
- Codling Wind Park
- LUAS Proposed Red Line Extension
- Dublin District Heating Project
- Ringsend Wastewater Treatment Plant Upgrade Project

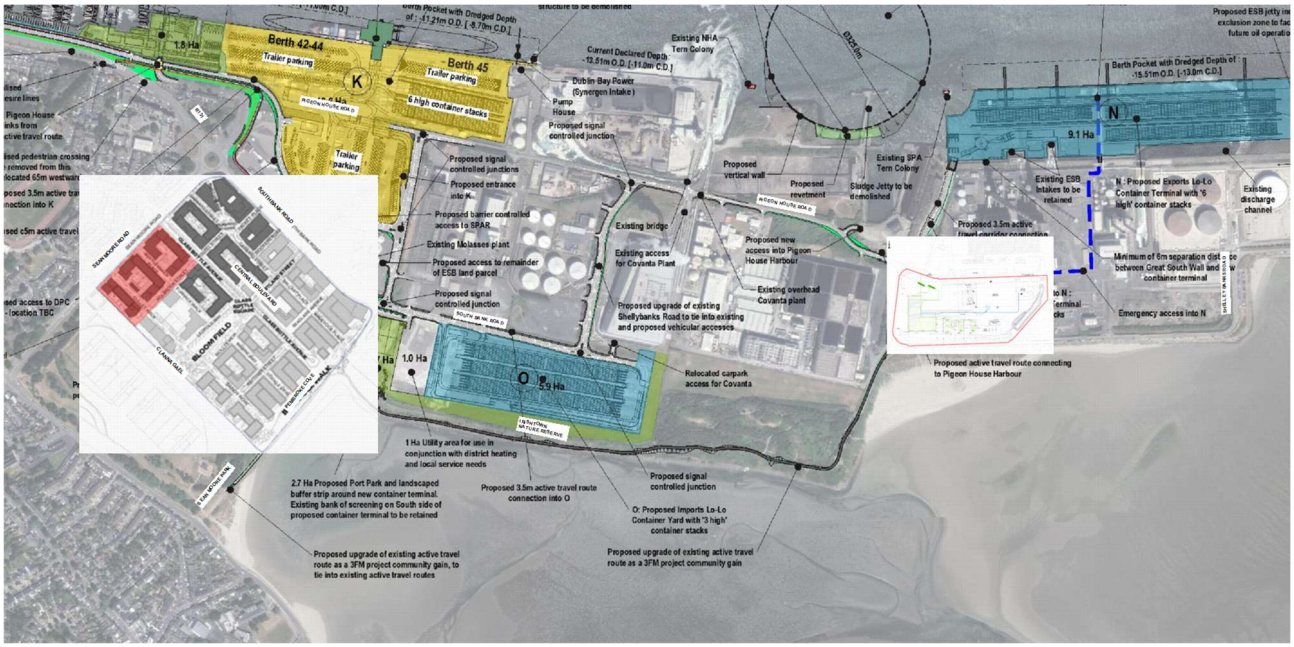


Figure 4-2: Site plans of the 3FM Project, formers Irish Glass Bottle site redevelopment and new Poolbeg GIS

This study highlighted, using publicly available data, those lands in the Poolbeg area in public ownership. This was used to determine what stakeholders would be affected by each route option, and where engagement with the stakeholders would be needed. Figure 4-3 shows these landowners.

Figure 4-3: Land in public ownership the Poolbeg area[1]

A further major constraint in the Poolbeg area is the existing utilities. Figure 4-4 shows the currently available utility record data, with the width of the utility taken into account where this is known.

[1] Available here: https://lda.ie/public-lands/register-of-relevant-lands/map

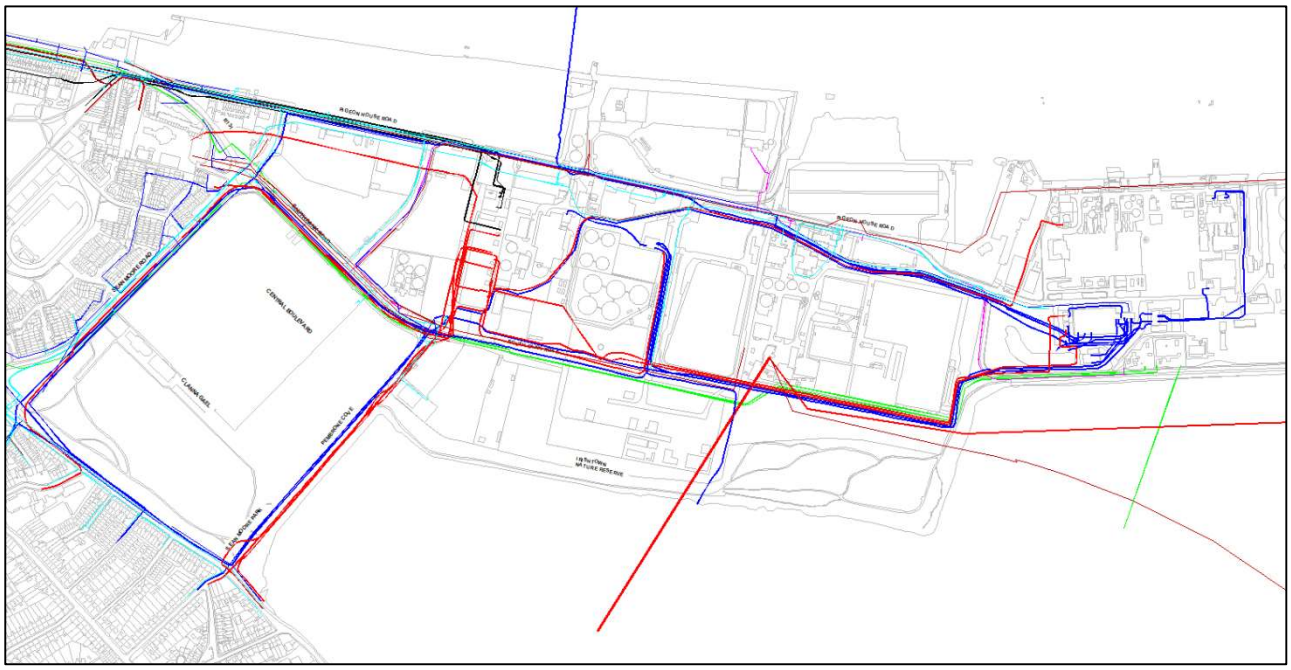


Figure 4-4: Existing utility congestion in the Poolbeg area[2]

4.3.1.1 Liffey Crossing Reception Location

The location identified in the Route Options Assessment for the southern reception location of the Liffey crossing from North Wall to Poolbeg was at West Jetty. Due to infrastructure developments already proposed in that location, an alternative suitable reception location was required. As part of the Poolbeg study, a high level an assessment was made of locations on the southern bank of the Liffey which may have sufficient space to accommodate construction of the river crossing.

Throughout this process, there was ongoing engagement with Dublin Port to identify suitable sites, and the constraints and opportunities associated with each site.

Eight possible locations were identified (Figure 4-5) and then subjected to further assessment which considered how the circuit could be routed from these sites to the Poolbeg substation, space availability and existing utility congestion. From this assessment a suitable Best Performing site was identified for the southern reception point of the River Liffey crossing. Initial engagement with the landowner is ongoing in relation to these works.

[2] Sources in Appendix A

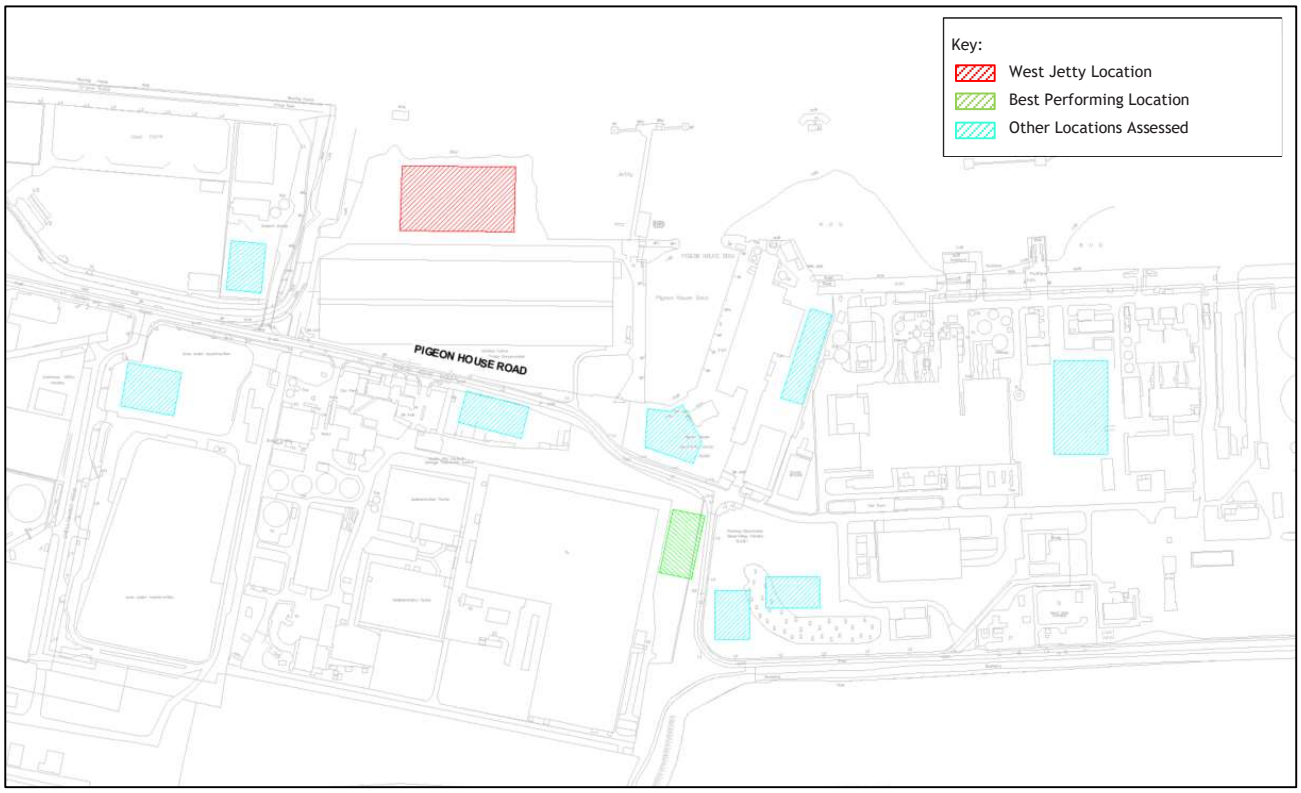


Figure 4-5: Preferred Liffey crossing reception location along with other locations assessed

4.3.2 Option D Route Assessment

The following sections summarise the findings from the Best Performing Option Assessment on Option D.

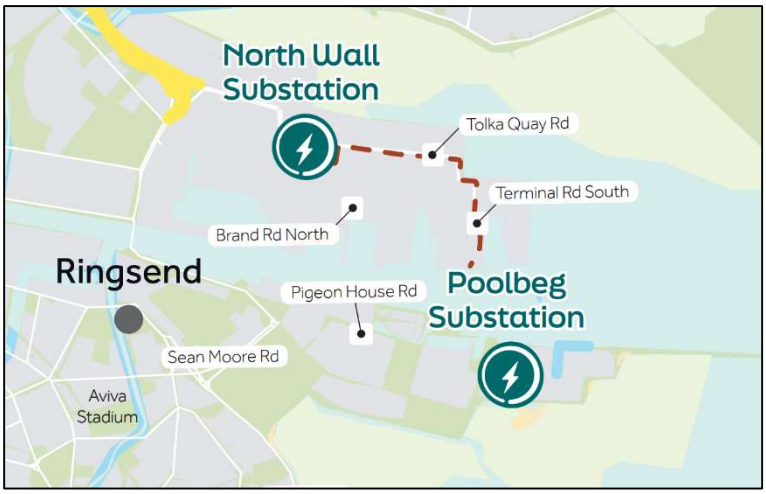


Figure 4-6: Map of Option D

4.3.2.1 Route Options Consultation Feedback

The following public engagement feedback was received on Option D:

- This route received the most amount of support from the public engagement process.
- Dublin Port Company (DPC) expressed support in locating routes and/or portions of through their lands however highlighted that amendments to this route would be required to minimise impact to port operations.

4.3.2.2 BPO Route Assessment

Technical surveys, key stakeholder engagement and information gathering all formed part of the route assessment. Information gathering included assessment of available existing utility record data, information from asset owners and feedback from key stakeholders. In some critical areas, detailed design was completed to assess the feasibility of the route through these areas.

The critical areas identified through this process, that are major constraints to the successful delivery of this route, are as follows:

- 2 Branch Road North and Tolka Quay Road

The Dublin Port Company outlined concerns regarding sections of Route Option D as it would disrupt port operations as well as live fuel lines within the port. At this location, there is high congestion of Port utilities.

Dublin Port has indicated a preference for a new route in line with their plans to upgrade Alexandra Road which could facilitate the installation of the PUD ducting. This route will not use 2 Branch Road North, but continue on Alexandra Road, crossing DPC land and re-joining Option D on Terminal Road South.

Where the preferred alternative route crosses DPC land (which is a container yard), engagement and agreement with DPC will be required during design and construction to establish any constraints and detail allowable working hours in order to reduce the impact on the container yard operations.

- Terminal Road South

Terminal Road South is a vital transport route to the Irish Ferries Terminal. Engagement with DPC has identified an opportunity for advanced ducting as part of the planned Pedestrian Cycleway Network (PCN) upgrades. This project plans to improve pedestrian and cycle access throughout the Port. The walkway along Terminal Road South will be upgraded as part of this project.

There is a potential for advanced ducting to be placed in the footpath as part of these upgrades. The cable route can then make use of this ducting from where it leaves the container yard, to the trenchless crossing launch location next to the Irish Ferries Terminal.

If this project cannot make use of the advanced ducting as part of the PCN upgrades, there is space within the roadway for the circuit.

- Trenchless crossing reception location on Poolbeg Peninsula

In Section 4.3.1, the high utility congestion in the Poolbeg Peninsula was discussed. Due to the planned projects in the area, it was determined that the originally identified location for the trenchless crossing works on the southern side of the Liffey crossing was not a feasible reception location as it could constrain other critical infrastructure developments.

The Poolbeg Peninsula study identified an alternative location for these works within the grounds of the Irish Water Treatment Works at Ringsend.

The location of this reception site leads to an approximately 800m long trenchless crossing of the Liffey, it is likely that this crossing will be completed via a micro tunnel due to the length and depth of the crossing. The other likely suitable technique for such a crossing would be Horizontal Direction Drilling (HDD), however, to achieve the required cable rating, up to four separate parallel HDDs would be required which is considered to be more challenging from both a technical and deliverability standpoint.

4.3.2.3 BPO Route Comparison

Using all the information gathered throughout this BPO Assessment, the route was assessed using EirGrid's five assessment categories to progress the assessment of the route and compare it to the other two EBOs. Table 4-1 shows the main comments under each criterion for this route.

Table 4-1: BPO Route Assessment of Option D

Criteria	Step 4A Ranking	Comment	BPO Ranking
Technical		The technical ranking of this route during the Route Options Assessment was low-moderate. The following has been identified during the BPO route assessment phase: • Non-standard trenchless crossings envisaged. ▪ Detailed review of the major utility crossings identified that there is no space for a flat formation, and as a result would require trefoil formation (in a single conduit) a which is not a standard crossing formation. • A detailed feasibility study has been carried out on the Liffey crossing element of this route, to confirm that it is feasible. As a result of these items the ranking has been increased to **mid-level/moderate** in this assessment.	
Deliver-ability		The deliverability ranking of this route during the Route Options Assessment was mid-level/moderate. The following has been identified during the BPO route assessment phase: • The route will make use of advanced ducting on Alexandra Road and Terminal Road South. This ducting will be delivered as part of the projects upgrading Alexandra Road and the Tolka Estuary Greenway scheme. • Where the route crosses the container yard, engagement with DPC will be required to establish allowable working hours that will reduce the impact on the container yard movement. • Where the route crosses the River Liffey, the envisaged length of the trenchless crossing has extended due to revised reception site, detailed consideration will be required to optimise this crossing, however the crossing is considered constructable and feasible. As a result of these items, the ranking has remained to **mid-level/moderate** in this assessment.	
Economic		No additional economic assessment issues have been identified during the BPO route assessment phase. The environmental assessment of this route remains at **mid-level/moderate** ranking.	
Socio-Economic		No additional socio-economic assessment issues have been identified during the BPO route assessment phase. The Socio-Economic assessment of this route remains at **low-moderate** ranking. This option was identified as a preferred route during the public engagement.	
Environ-mental		No additional environmental issues have been identified during the BPO route assessment phase. The environmental assessment of this route remains at **mid-level/moderate** ranking.	
Overall		The overall assessment ranking is **mid-level/moderate**. This has increased from low-moderate in the Route Options Assessment.	

4.3.3 Option E Route Assessment

The following sections summarise the findings from the Best Performing Option Assessment on Option E.

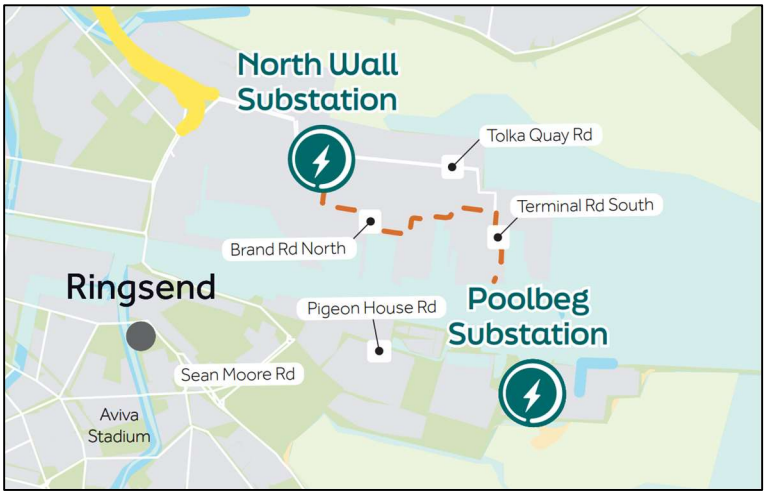


Figure 4-7: Map of Option E

4.3.3.1 Route Options Consultation Feedback

The following public engagement feedback was received on Option E:

- Dublin Port Company stated that this route was unsuitable due to emergency access requirements, and exclusion zones which are in place during offload of vessels delivering fuel.
- Dublin Port Company also noted Route E would cause challenges to Port activities and proposed development projects.

4.3.3.2 BPO Route Assessment

Technical surveys, key stakeholder engagement and information gathering all formed part of the route assessment. Information gathering included assessment of available existing utility record data, information from asset owners and feedback from key stakeholders. In some critical areas, detailed design was completed to assess the feasibility of the route through these areas.

The critical areas identified through this process, which provide major constraints to the deliverability of this project, are as follows:

- Container handling area

This route commences at the North Wall substation and travels to the south into the container handling area of Dublin Port Company (DPC) where it crosses railway tracks and travels east and skirts around the perimeter of the fuel tank farm along 2 Branch Road North. Due to the feedback from DPC on this route regarding the impact on Port operations, this route is considered very challenging.

- Breakwater Road

Through stakeholder engagement with DPC, it was indicated that this route would cause major disruptions to port operations and impact on the exclusion zone for the common oil pipeline. DPC has indicated this is not a preferred route option.

- Trenchless crossing location on Poolbeg Peninsula

In Section 4.3.1, the high utility congestion in the Poolbeg Peninsula was discussed. Due to the planned projects in the area, it was determined the originally identified location for the trenchless crossing works on the southern side of the Liffey crossing was not a feasible crossing location.

The Poolbeg Peninsula study identified an alternative location for these works within the grounds of the Irish Water Treatment Works at Ringsend.

4.3.3.3 BPO Route comparison

Using all the information gathered throughout this BPO Assessment, the route was assessed using EirGrid's five assessment categories to progress the assessment of the route and compare it to the other two EBOs. Table 4-2 shows the main comments under each criterion for this route.

Table 4-2: BPO Route Assessment of Option E

Criteria	Step 4A Ranking	Comment	BPO Ranking
Technical		The technical ranking of this route during the Route Options Assessment was mid-level/moderate. The following has been identified during the BPO route assessment phase: • Non-standard trenchless crossings envisaged. ▪ Detailed review of the major utility crossings identified that there is no space for a flat formation, and as a result would require trefoil formation (in a single conduit) a which is not a standard crossing formation. As a result of these items the ranking has been increased to **moderate-high** in this assessment.	
Deliver-ability		The deliverability ranking of this route during the Route Options Assessment was mid-level/moderate. The following has been identified during the BPO route assessment phase: • There are concerns about potential interruptions to delivery supplies, as the area needs to be cleared whenever deliveries are in progress. • During the public consultation it was pointed the constrained space for accommodating the circuits between the fuel tank farm and edge of the road/ river. As a result of these items the ranking has been increased to **moderate-high** in this assessment.	
Economic		The economic raking of this route during the Route Options Assessment was low-moderate. The following has been identified during the BPO route assessment phase: • Bespoke trenches may be required at the trenchless crossing locations as well as in the narrow areas. As a result of these items the ranking has been increased to **mid-level/moderate** in this assessment.	
Socio-Economic		The socio-economic ranking of this route during the Route Options Assessment was low-moderate. This has been increased to **mid-level/moderate** in this assessment due to the feedback received during the public consultation. This feedback is highlighted in Section 4.3.3.1.	
Environ-mental		No additional environmental issues have been identified during the BPO route assessment phase. The environmental assessment of this route remains at **mid-level/moderate** ranking.	
Overall		The overall assessment ranking is **moderate-high**. This has increased from mid-level/moderate in the Route Options Assessment.	

4.3.4 Option F Route Assessment

The following sections summarise the findings from the Best Performing Option Assessment on Option F.

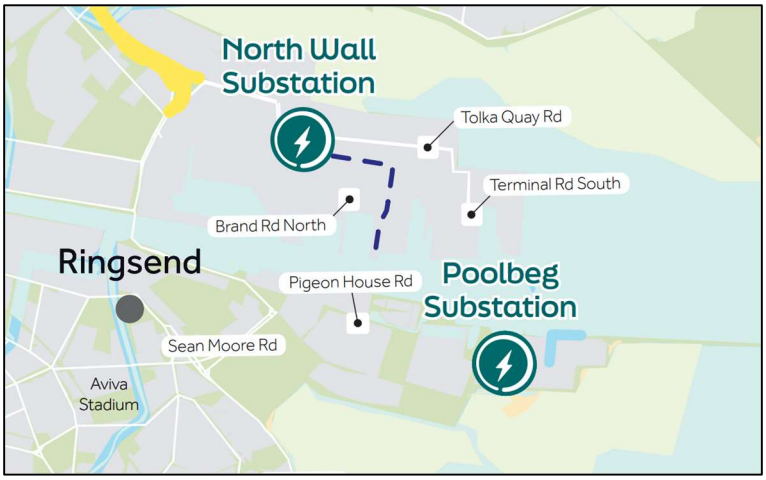


Figure 4-8: Map of Option F

4.3.4.1 Route Options Consultation Feedback

The following public engagement feedback was received on Option F:

- Dublin Port Company in their comments stated that Route F is not viable as it would cause challenges to Dublin Port Company activities and proposed development projects.
- Dublin Port Company outlined that the lands around Route Option F could be further developed.

4.3.4.2 BPO Route Assessment

Technical surveys, key stakeholder engagement and information gathering all formed part of the route assessment. Information gathering included assessment of available existing utility record data, information from asset owners and feedback from key stakeholders. In some critical areas, detailed design was completed to assess the feasibility of the route through these areas.

The critical areas identified through this process, that are major constraints to the successful delivery of this route, are as follows:

- Breakwater Road

Through stakeholder engagement with DPC, it was indicated that this route would cause major disruptions to on port operations and impact on the exclusion zone for the common oil pipeline. DPC has indicated this is not a preferred route option.

- Trenchless crossing location on Poolbeg Peninsula

In Section 4.3.1, the high utility congestion in the Poolbeg Peninsula was discussed. Due to the high congestion identified on Pigeon House Road, it was determined the originally identified location for the trenchless crossing works on the southern side of the Liffey crossing was not a feasible crossing location. There is no suitable route corridor from this crossing location into the Poolbeg Substation.

4.3.4.3 BPO Route comparison

Using all the information gathered throughout this BPO Assessment, the route was assessed using EirGrid's five assessment categories to progress the assessment of the route and compare it to the other two EBOs. Table 4-3 shows the main comments under each criterion for this route.

Table 4-3: BPO Route Assessment of Option F

Criteria	Step 4A Ranking	Comment	BPO Ranking
Technical		The technical ranking of this route during the Route Options Assessment was low-moderate. The following has been identified during the BPO route assessment phase: • Non-standard trenchless crossings envisaged. ▪ Detailed review of the major utility crossings identified that there is no space for a flat formation, and as a result would require trefoil formation (in a single conduit) a which is not a standard crossing formation. As a result of these items the ranking has been increased to **mid-level/moderate** in this assessment.	
Deliver-ability		The deliverability ranking of this route during the Route Options Assessment was mid-level/moderate. The following has been identified during the BPO route assessment phase: • Project timeline uncertainty ▪ This route has a high impact on port activity, and a large section of the route passes through DPC land. Working time will be constrained through these areas and engagement with DPC will be required to establish allowable working hours that will reduce the impact on port activity. • High level assessment of the crossing location of the River Liffey indicate this is a technically challenging crossing location As a result of these items the ranking has been increased to **moderate-high** in this assessment.	
Economic		No additional economic assessment issues have been identified during the BPO route assessment phase. The environmental assessment of this route remains at **mid-level/moderate** ranking.	
Socio-Economic		The socio-economic ranking of this route during the Route Options Assessment was low-moderate. This has been increased to **mid-level/moderate** in this assessment due to the feedback received during the public consultation. This feedback is highlighted in Section 4.3.4.1.	
Environ-mental		No additional environmental issues have been identified during the BPO route assessment phase. The environmental assessment of this route remains at **mid-level/moderate** ranking.	
Overall		The overall assessment ranking is **moderate-high**. This has increased from low-moderate in the Route Options Assessment.	

4.4 Identification of Best Performing Route Option

Table 4-4 shows a summary of the BPO Route Assessment, using EirGrid's five multicriteria assessment categories. This assessment has been used to identify the Best Performing Option.

Table 4-4: Identification of Best Performing Option

Route	Length (km)	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall
Option D	2.5	Non-standard crossings are envisaged for utility crossings. A detailed feasibility study has been carried out on the Liffey crossing element of this route, to confirm that it is feasible.	The route will use advanced ducting on Alexandra Road and Terminal Road South.	The environmental assessment of this route remains at mid-level/moderate ranking.	This option was identified as a preferred route during the public engagement.	The environmental assessment of this route remains at mid-level/moderate ranking.	
Option E	1.6	Non-standard crossings are envisaged for utility crossings.	This route has a high impact on port activity. Working time will be constrained through these areas. The working space available on this route is highly constrained.	The environmental assessment of this route is mid-level/moderate ranking. This aligns with the economic ranking of the other two options.	This has been increased to mid-level/moderate in this assessment due to the feedback received during the public consultation.	The environmental assessment of this route remains at mid-level/moderate ranking.	
Option F	2.4	Non-standard crossings are envisaged for utility crossings.	This route has a high impact on port activity. Working time will be constrained through these areas. The River Liffey crossing is a technically challenging crossing location.	The environmental assessment of this route remains at mid-level/moderate ranking.	This has been increased to mid-level/moderate in this assessment due to the feedback received during the public consultation.	The environmental assessment of this route remains at mid-level/moderate ranking.	

The Best Performing Option identified through the work undertaken at this phase of the project is Option D. There are a number of changes to this route from the published Option D that were established during the Best Performing Options assessment. These are discussed in Section 5.3.

5 DESCRIPTION OF THE BEST PERFORMING OPTION

5.1 Introduction

The Best Performing Option identified through the work undertaken at this phase of the project, is a development of the route previously identified as Option D during the public engagement. There are a number of changes to this route from Option D that were established during the Best Performing Options assessment, with particular focus on the feedback from landowners, stakeholders and the community. These changes are outlined in Section 5.3.

Additional work will be undertaken as this project moves through Steps 5 and 6 which may further refine the route. This work may include invasive site investigation and further engagement with landowners and stakeholders. Any changes to the route will be described in detail in the Step 5 reports.

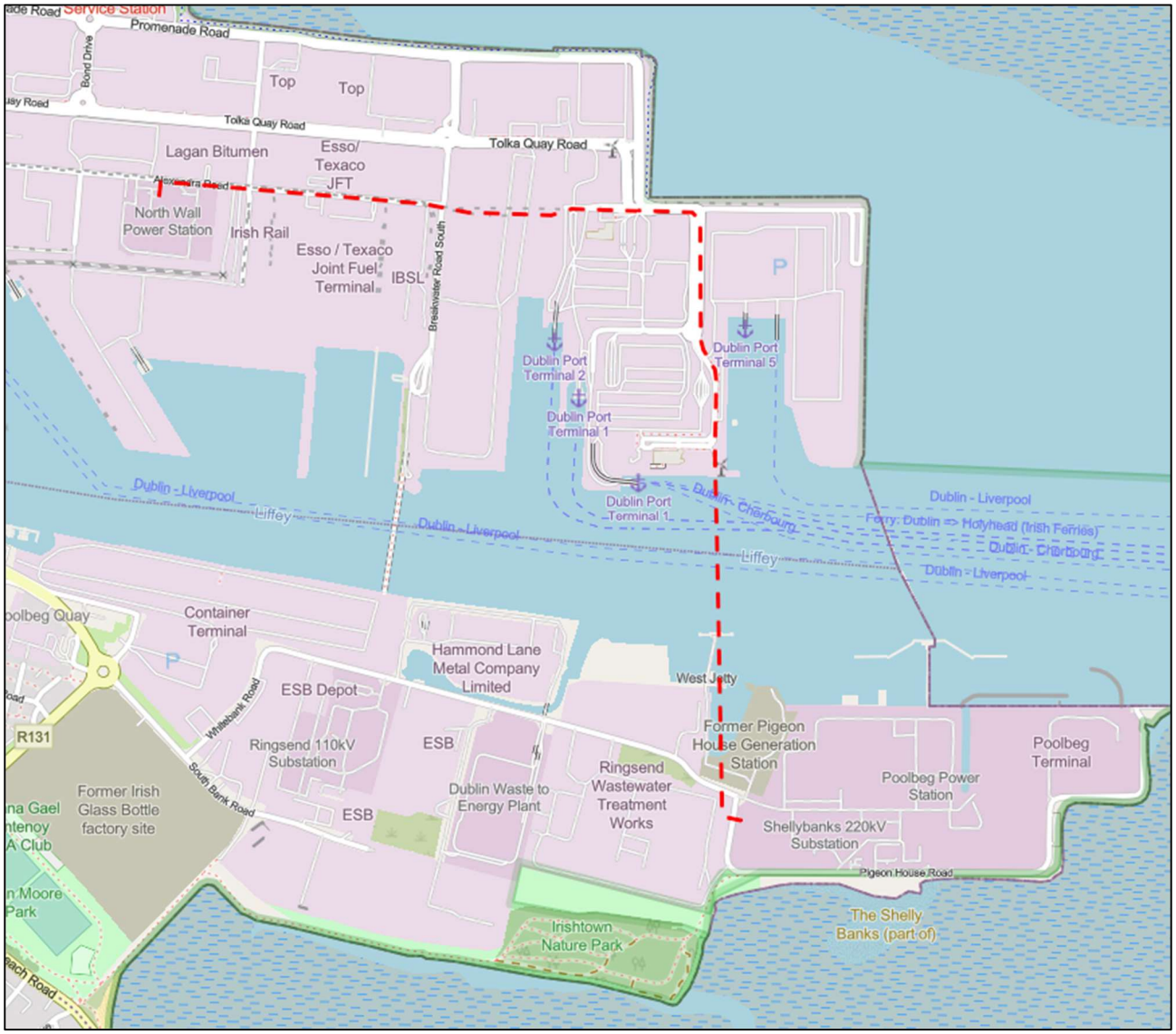


Figure 5-1: North Wall to Poolbeg Best Performing Option

5.2 Route Corridor

The route corridor required at this stage is the width of the public roadway (including footpaths) or 20m wide where the route not located within public lands. This allows for the adjustments to the exact

positioning of the circuit trench within this corridor depending on existing services to minimise the impact on the existing services and ensure ideal placement of the circuit within this corridor.

Within this route corridor, the circuit will be installed in a trench 1100mm wide. This follows the EirGrid standard for 220kV circuits in flat formation. Where required due to space constraints, the trench can be narrowed to 700mm, and the circuit can be laid in trefoil formation according to the EirGrid standard for 220kV circuits in trefoil formation. The exact location of this trench within the Best Performing Option route corridor is subject to site investigation and landowner agreement along the route.

The majority of the onshore section of the Best Performing Option is located within the Dublin Port Company's land. A traffic management plan will be established to ensure the minimal impact on road users. Depending on the location of the works, temporary single lane closures, temporary road closures, or night works may be required. The works will take place along small sections of the route, in approximately 50-100m long stretches at a time. This means that only small sections of the roads along the route will be disrupted at one time. This disruption is also temporary in nature, as once the road or section has been reinstated, normal activity can resume above the cables installed. It should be noted that the delivery approach for the sections of advance ducting along Alexandra Road and Terminal South Road may differ as they will be delivered as part of wider ranging Dublin Port infrastructure upgrades.

Approximately every 300-500m along the circuit route, a joint bay will be required to joint up the separate cable sections. These joint bays are 8x2.5m and require a temporary works area to facilitate construction. During the detailed design of the circuit route, careful consideration is given to the joint bay location to minimise the traffic impact of the works. Where it is necessary to locate a joint bay in the roadway, careful traffic management plans will be established to facilitate the flow of traffic around the works area and reduce the need for road closures.

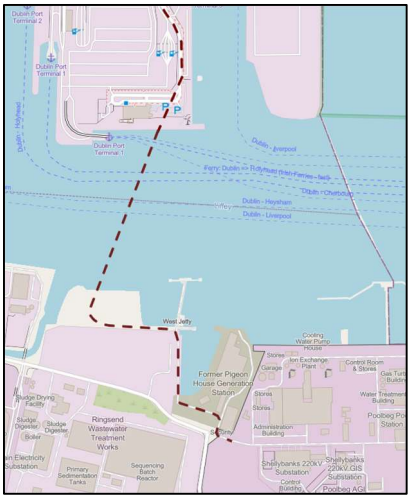
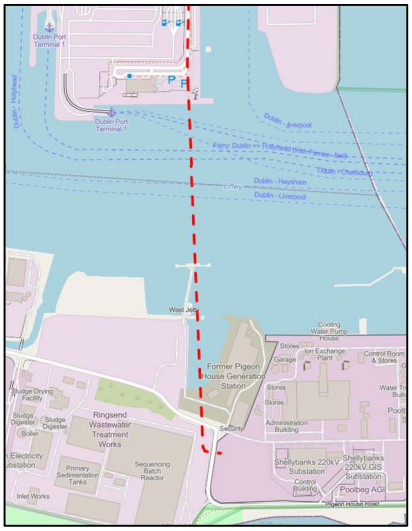
The route crosses the Dublin Port Company's (DPC's) land, utilities, the Irish Ferries Terminal and the River Liffey. The crossings will be designed in detail as part of Step 5. Trenchless techniques such as micro-tunnel and horizontal directional drill will be used to cross these major obstacles.

This route also includes an approximately 800m long trenchless crossing of the River Liffey. This trenchless crossing will require works compounds to both the north and south of the crossing from which the crossing will be completed using specialist construction equipment. The southern compound is expected to be located on open ground adjacent the Ringsend Wastewater Treatment Works whilst the northern compound is expected to be located adjacent the Irish Ferries Terminal on DPC The exact crossing methodology to be utilised in completing this crossing and exact locations of work sites will be determined following further investigation and design during Step 5.

5.3 Route Changes from the Route Options Assessment Report

From the work undertaken to identify the Best Performing Option, including technical walkovers, stakeholder, landowner, and community engagement, changes were identified to the Emerging Best Option, Option D. These changes have been defined in Table 5-1.

Table 5-1: Changes to Emerging Best Option

Option D / Emerging Best Option	Reason for Change	Best Performing Option
Tolka Quay Road 	From key stakeholder engagement, a preferred route through DPC land was determined. Due to planned upgrades on Alexandra Road, an opportunity for advanced ducting along this road has been identified. This improves the deliverability of the route option.	
Trenchless Crossing location 	Option D's southern trenchless crossing location was next to West Jetty. This location is not a feasible crossing option due to planned projects in the area. The alternative preferred crossing location was determined in the Poolbeg Peninsula study. This crossing location is on Irish Water land adjacent to Shelley Banks Road.	

5.4 Summary of the Route

This section contains a detailed description of the Best Performing Option route. The description has been split into subsections based on major features to be crossed or other logical blocks within the route.

5.4.1 North Wall Substation heading east on Alexandra Road

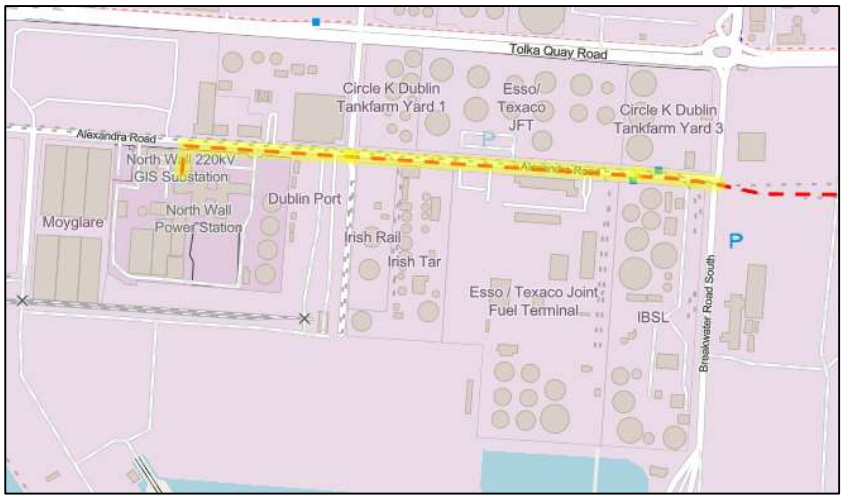


Figure 5-2: Best Performing Option: North Wall Substation heading east on Alexandra Road

The exact location of the start of the 220kV circuit within the North Wall Substation will be confirmed with ESB during the next stage of this project. The Best Performing Option initiates at the Substation boundary on Alexandra Road, the route follows Alexandra Road heading East requiring three crossings of utility culverts and a pipe bridge before entering the Dublin Port container yard. The crossing methodology and detailed design will take place in Step 5 of this project and with agreement and ongoing stakeholder engagement from Dublin Port Company.

5.4.2 Dublin Port container yard crossing to Terminal Road South

Figure 5-3: Best Performing Option: Dublin Port container yard crossing to Terminal Road South

From the west side of Alexandra Road, the route crosses the Dublin Port container yard. After crossing the DPC's land, the route reconnects with Alexandra Road on the east side towards Terminal Road South.

5.4.3 Irish Ferries Terminal to Irish Wastewater Treatment Works

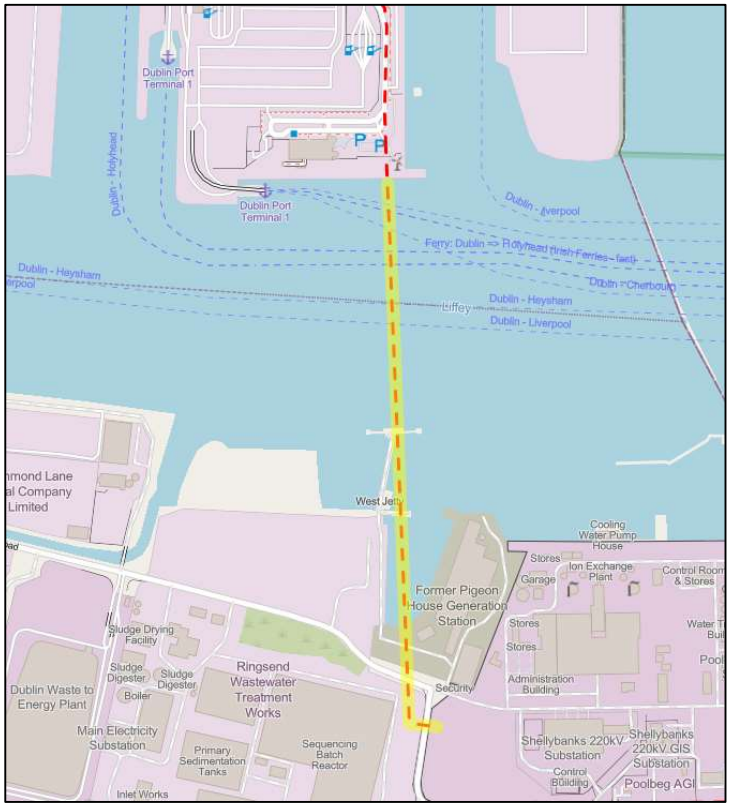


Figure 5-4: Best Performing Option: The Irish Ferries Terminal to Irish Wastewater Treatment Works

This route uses a land cable to cross the River Liffey to Poolbeg via trenchless methods. The launch location for the land cable installed via trenchless method on the southern side is in the Irish Ferries parking lot. At this location, the cable will cross the River Liffey via trenchless method. The exact crossing methodology from there to the reception side at the Poolbeg area will be designed in Step 5.

6 CONCLUSION

Following publishing of the Route Options Assessment Report and the public consultation, work has continued to develop and refine the Emerging Best Option through design, assessment, and surveys of the routes. EirGrid has also engaged with key stakeholders, such as the Dublin Port Company, local authorities, asset owners and landowners and considered feedback from the consultation stage. This has allowed us to refine the Emerging Best Options and identify the Best Performing Option.

One the basis of the assessments complete, a refined version of the Option D route as shown in this report is the Best Performing Option.

The route refinements have decreased the route slightly from 2.9 km to 2.5 km. The land cable route has also decreased from 1.9 km to 1.7 km.

Further minor route refinements may be needed at Step 5, after the completion of additional design, surveys, engagement, and assessment. Feedback will be sought privately on the developing design from affected landowners, local communities, and prescribed bodies. Details will be provided to the public on EirGrid's website. Additional design features may be incorporated at Step 5, but these will generally be within the area of the route described, a final decision will be made at Step 5.

7 NEXT STEPS

The following actions will be completed on the North Wall to Poolbeg project as part of the wider Powering up Dublin Replacement Underground Cable programme:

- EirGrid will publish this Best Performing Option Report. Where appropriate the route will be refined, on the basis of feedback, additional information or other engagement;

- EirGrid will continue to engage with affected landowners, local communities, local councillors, the Community Forum, and other relevant stakeholders to discuss the North Wall to Poolbeg project as part of the wider Powering up Dublin programme;

- EirGrid will continue to engage with bodies such as Dublin Port Company, Transport Infrastructure Ireland, National Transport Authority, Inland Fisheries Ireland, Irish Rail, and utility providers such as Uisce Éireann and Gas Networks Ireland. Initial meetings have taken place with some of these organisations and subsequent meetings will be facilitated to examine further details of the proposed route design;

- EirGrid will engage with environmental stakeholders such as EPA, Local Authorities, Inland Fisheries Ireland, the National Parks and Wildlife Service, Uisce Éireann and local authority heritage officers. Matters to be discussed will include crossing of River Liffey, the agreement of watercourse crossing mitigation and reinstatement principles. EirGrid will incorporate biodiversity enhancement into the design where possible. Natural recolonisation will be adopted, in lieu of sowing commercial wildflower seed in the reinstatement of semi-natural habitats. All biodiversity enhancement methods will be discussed in consultation with relevant stakeholders;

- EirGrid will determine the requirement for statutory applications such as planning permission and foreshore licences in accordance with the statutory requirements. Appropriate Assessment screening and EIA screening may be undertaken as part of this process;

- EirGrid will complete a range of studies, investigations, and surveys to confirm the route design and support any necessary statutory applications. This will include consideration of the approach to the construction phase and potential mitigation measures, such as traffic management, to minimise traffic disturbance. Surveys include archaeology, ecology, marine investigations, ground investigations, utility surveys, hydrology, and technical assessments. As these surveys are progressed and further information is gathered, new issues may be identified, resulting in changes to the route. This is a normal part of the design development process;

- Further design work will be progressed to ensure that the final design of the route is optimal and has the minimal adverse impact on the public and the environment;

- The Project Team will prepare the necessary licences (including Road Opening licences) and agreements to progress the Project through the construction stage and will continue to identify measures to minimise impacts and disruption; and

- Further updates will be published by EirGrid on the project website: Powering Up Dublin.

Appendix A: Source of Existing Utility Records

Table 7-1: Data source for Material Assets/Infrastructure used in the Poolbeg study

Material Assets / Infrastructure	Data Source
ESB Transmission Network (110 kV, 220 kV and 400 kV) and Distribution Network (38 kV and below)	ESB
Water Infrastructure - Foul/Watermains	Irish Water
Underground Gas Services _409a_HighPressure_GasPipeline _409b_Proposed_GasPipeline	Gas Networks Ireland
Telecommunication Networks	BT Ireland Cable & Wireless Eir E-Net UPC Vodafone
Surface Water Networks	Fingal
Surface Water Networks	DCC
Surface Water Networks	DLRCC
Dublin Port Foul/Surface	Dublin Port
Covanta - as built PM - CDM Smith	DCC contact
Public Lighting DLRCC	GOV.ie
Surface Water Dataset from RPS servers	IW