MWP

Chapter 10 Material Assets

Brittas Wind Farm

Brittas Wind Farm Ltd

November 2024

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Project No.	Doc. No.	Rev.	Version	Date	Prepared By	Checked By	Approved By	Status
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10 Material Assets

10.1 Introduction

This chapter describes the Material Assets that are potentially impacted by the proposed Brittas Wind Farm, a ten (10) turbine wind energy development, 3km north of Thurles in Co. Tipperary. A full description of the project and all associated project elements is provided in Chapter 2 of this EIAR. The purpose of this assessment is to: identify relevant Material Assets that are within the vicinity of the proposed project site or which will be utilised by the development; determine the impact, if any, on these resources, and; propose mitigation where necessary to ensure that they are used in a sustainable manner. The nature and probability of effects on material assets arising from the overall project has been assessed. The assessment comprises:

- A review of the existing receiving environment.
- Prediction and characterisation of likely effects
- Evaluation of effects significance; and
- Consideration of mitigation measures, where appropriate.

10.2 Competency of Assessor

The assessment was completed by Ai Bridges and Valerie Heffernan (MWP).

The Telecommunications and Aviation assessments were completed by the Engineering Department of Ai Bridges, a company with extensive experience in aviation and telecommunications\electromagnetic interference impact assessment studies for EIA's. Ai Bridges have extensive experience in the wind farm industry and have previously worked with many utility companies under Framework Agreements for Telecommunications Signal Interference Surveying and Remediation Services. They are a leading supplier of telecommunications solutions and software services for the telecommunications industry in the Irish marketplace. They have been supplying telecommunications solutions to the renewable energy sector and the wind farm industry throughout the Republic of Ireland, Northern Ireland, and the UK since 2007. They have undertaken aviation, telecommunications, and electromagnetic interference impact studies on behalf of wind farm operators on the potential impact on telecommunications networks and transmission networks of proposed wind farm developments. Ai Bridges has also developed a 3D software prediction model that can predict potential wind farm development interference impacts on television transmission and aviation networks.

Valerie Heffernan is an Environmental Scientist with MWP. She holds a B.Sc., M.Sc. in Environmental Science and has worked as an environmental professional since graduating in 2015. She has considerable experience in wind and solar development and has had input in a variety of projects. She has been a contributing author to EIARs for Galway Wind Park Phase 3, Co. Galway, Drumnahough Wind Farm, Co. Donegal and Cordal Wind Farm, Co. Kerry.

10.3 Methodology

The study included desk-based research of published information and site visits to assemble the information on the local receiving environment and the proposed project.

The methodology of the assessment comprises:

- Identifying baseline conditions and the likely evolution of the baseline of the site and its environs, i.e. the project study area which is a larger assessment area than presented in the planning application boundary. It is dependent on the zone of influence and sensitive receptors being assessed.
- Assessing a variety of turbine models as the precise turbine model has not yet been determined and the developer has been granted flexibility to consider three different types of turbines with variable designs, blade lengths, and hub height (see Appendix 1A). The power output of the proposed project will range from 57-66MW depending on what turbines are used.
- Identifying the sensitivity of receptors that had potential to be affected by changes in the baseline conditions.
- Predicting the magnitude of likely changes to the baseline receiving environment.
- Assessing the significance of effect considering sensitivity of receptors and magnitude of effect.
- Identifying and assessing appropriate mitigation measures, including alternatives.
- Assessing the significance of residual effects, taking account of any mitigation measures.

The desk study included the following activities:

- Review of Ordnance Survey Mapping and aerial photography to establish existing land use and settlement patterns within the study area;
- Review of Tipperary Development Plan 2022-2028 to identify local authority's planning policies relevant to the proposed project site and surrounding area; and
- Review of Tipperary County Council's Planning Register to identify relevant future development and planning applications within the proposed project and surrounding locations.

Review of the following sources for information regarding existing utilities:

- Gas Networks Ireland Dial Before You Dig Maps (DBYD);
- ESB Dial Before You Dig Maps (DBYD); and
- Irish Water Utility Mapping.

10.3.1 Legislation, Policy and Guidance

The legislation, policy and guidance applicable to the assessment is as follows:

- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022);

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018);
- Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report (EU,2017);
- A Waste Action Plan for a Circular Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025 (Government of Ireland);
- Landfill Directive (2018/850) (EU, 2018a);
- The European Union Waste Framework Directive (2018/851) (EU, 2018b); and
- The European Commission's 'Circular Economy Action Plan' (EC, 2020).
- Circular Economy And Miscellaneous Provisions Act 2022;
- Waste Management (Collection Permit) Regulations 2007 (as amended;
- European Union (Waste Licensing) (Amendment) Regulations 2019;
- European Union (Packaging) Regulations 2014 - 2022);
- Waste Management (Planning) Regulations 1997 (as amended) (S.I No. 137/1997);
- Waste Management (Landfill Levy) Regulations 2015 (as amended);
- Waste Management (Food Waste) Regulations 2009 – 2015 (as amended);
- Waste Management (Food Waste) (Amendment) Regulations 2024
- Waste Management (Hazardous Waste) Regulations 1998 to 2000;
- Waste Management (Shipments of Waste) Regulations 2007 (as amended) (S.I. No. 419/2007);
- Waste Management Act 1996 (as amended) (Act No. 10/1996);
- Environmental Protection Agency Acts 1992 – 2011 (as amended);
- Protection of the Environment Act 2003 (as amended) (Act No 27/2003);
- Litter Pollution Acts 1997 to 2009 (as amended); and
- Planning and Development Act 2000 - 2023 (as amended) (Act No. 30/2000).

The legislation, policy and guidance applicable to the Traffic Infrastructure assessment included the following:

- Tipperary County Development Plan 2022-2028.
- Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections.

The Transport Infrastructure Ireland (TII) Traffic and Transport Assessment (TTA) Guidelines PE PDV 02045 May 2014.

10.3.2 Study Area

The study area includes the area of the proposed project, as well as built services, infrastructure and waste management that adjoins the planning boundary of the proposed project, refer to townlands that encompass the study area in **Figure 10-1** below.

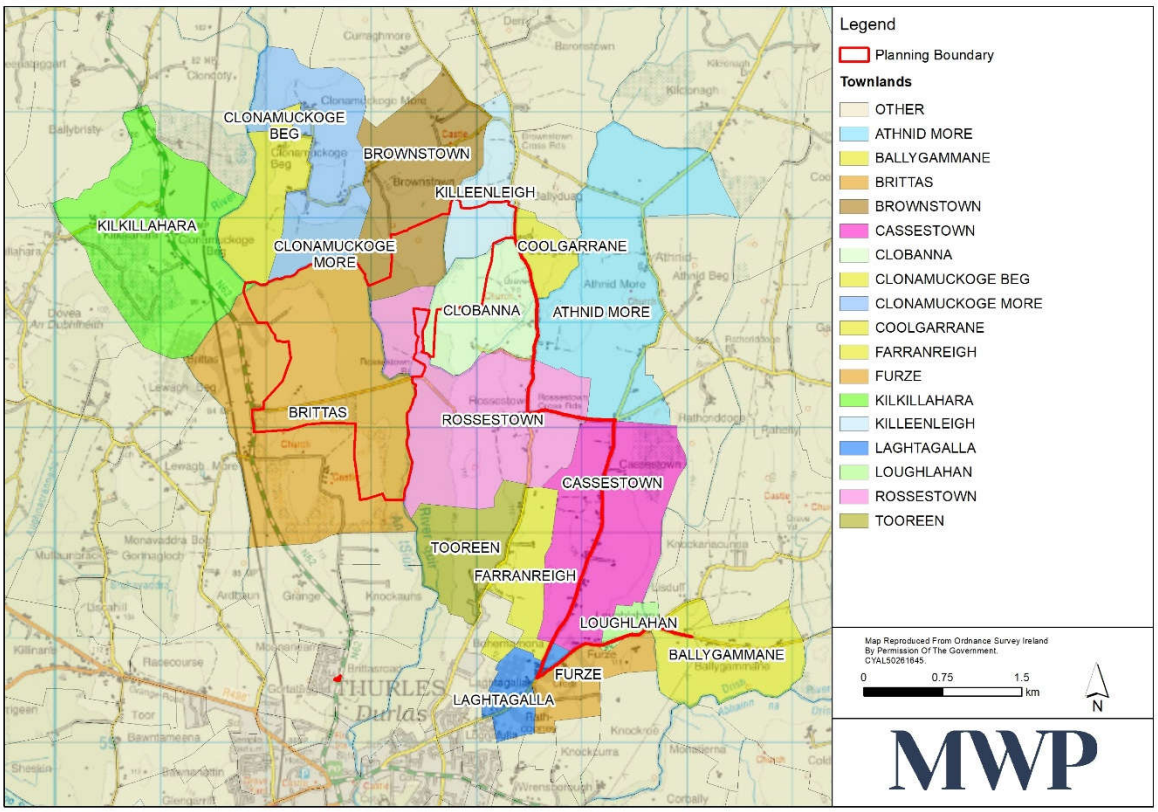

Figure 10-1 Site Boundary and surrounding Townlands

10.3.3 Scope of Assessment

Brittas Wind Farm Ltd. (the Applicant) propose to develop a wind farm (named Brittas Wind Farm) comprising ten (10) No. wind turbines approximately 3km to the north of Thurles, Co. Tipperary in the townlands of Brittas, Rossestown, Clobanna, Brownstown, Kilkillahara and Killeenleigh, County Tipperary.

For the purposes of this planning application and **EIAR**, the proposed project is referred to as "Brittas Wind Farm".

The main components of the project are ten (10) wind turbines with a height of 180m, an on-site 110kV electrical substation, a Battery Energy Storage System (BESS) and an underground electrical connection to an existing 110kV substation at Thurles which is connected to the National Grid. This is the preferred technical grid connection approach. The final selected grid route and connection strategy will be confirmed by way of a future grid connection offer process and as determined by EirGrid. Temporary accommodation works along the public road to allow for the delivery of wind turbine components from the Port of Foynes as discussed in **Chapter 2, Section 2.2**. of this **EIAR**.

Should it become operational, this wind farm will be capable of providing over 57 megawatts (MW) of renewable electricity to the National Grid.

This assessment considers the effects of the construction, operation, and decommissioning of the proposed project in terms of how it could affect the material assets relevant to the proposed project.

The material assets relevant to the proposed project were determined in accordance with the following.

- European Commission Guidance on the Preparation of the Environmental Impact Assessment Report (2017); and
- EPA Guidelines on Information to be Contained in Environmental Impact Assessment Reports (2022).

The 2022 EPA Guidelines describes 'Material Assets' to be taken to mean 'built services and infrastructure', it includes traffic as traffic makes use of transport infrastructure. Table 10-1 outlines topic areas to be examined when considering the impact of a development on Material Assets, as recommended in the 2022 Guidelines.

Table 10-1 Material Assets and topics to be covered.

Material Asset	Topics to be Covered
Roads & Traffic	Construction Phase Operational Phase Unplanned Events (i.e., Accidents)
Built Services	Electricity Telecommunications Gas Water Supply Infrastructure Sewerage
Waste Management	Construction Waste Operational Waste

Based on a review of the proposed project and the suggested topic areas set out in the 2022 EPA Guidelines, the following topics are included in this Material Assets impact assessment chapter:

- Grid Capacity and Electrical Infrastructure;
- Gas
- Telecommunication and Aviation;
- Water and Wastewater Infrastructure; and
- Waste Management.

Other topic areas which are closely related are considered in other sections of this EIAR and therefore reference should be made to the associated chapters as follows:

- The assessment on the land and geological resource is presented in Chapter 8 Lands and Soils. No further assessment on this topic is included in this chapter;
- Water resources are considered in the assessment on the surface water and groundwater resource provided in Chapter 9 Water. No further assessment on this topic is included in this chapter;
- The assessment on Cultural Assets is provided in Chapter 11 Cultural Heritage. No further assessment on this topic is included in this chapter;
- Assimilative capacity of the air resource is considered in the assessment provided in Chapter 14 Air Quality and Climate. No further assessment on this topic is included in this chapter and
- The subject of Roads and Traffic is provided in Chapter 16 Traffic. No further assessment on this topic is included in this chapter.

10.3.4 Assessment Criteria

The method of impact assessment and prediction follows the EPA (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports (**EIAR**)*. The methodology and approach outlined in the EPA Guidelines was used to determine whether the proposed project had the potential to cause significant effects on material assets and is as set out in Table 1-3, Chapter 1 Introduction.

10.3.5 Consultation

The methodology used for this study included consultation with telecoms and aviation authorities on the potentially impacted material assets.

Consultation was completed with statutory bodies who were requested to raise any concerns they have regarding the effect of the proposed project on their infrastructure. The consultation process is used to assist in identifying any potential effects by the proposed project.

The outcomes of the consultations relating to relevant individual topic areas are discussed in Section 10.3 Baseline Environment, Section 10.4 Assessment of Impacts and Effects and Section 10.5 Mitigation and Monitoring Measures.

A summary of consultee responses with utilities/infrastructure within the site boundary and study area has been provided in EIAR Vol. 3 Appendix 1E.

10.3.6 Statement on Limitations and Difficulties Encountered

No limitations or difficulties were encountered in the production of this chapter.

10.4 Baseline Environment

The existing receiving environment (baseline environment) is described in Sections 10.4.1 to 10.4.6 below.

10.4.1 Grid Capacity and Electrical Infrastructure

There is an incomplete ESB overhead 38kV powerline that passes through the proposed wind farm site that was permitted in mid-2023 as discussed in **Chapter 2 Project Description**. The section of this powerline which passes through the wind farm will need to be rerouted and the wind farm developers will submit a separate planning application for the re-routing of this section of the powerline. However, the rerouting options are assessed in this **EIAR**. The grid connection route of the proposed project runs between the proposed Brittas on-site substation within the wind farm site in the townland of Killeenleigh and the existing Thurles 110kV substation in the townland of Ballygammane. The overall 110kV connection cable route will be approximately 7.0km.

Existing electricity infrastructure includes the 110kV Thurles substation approximately 6km southeast of the project. There is a permitted (in July 2023) but incomplete 38kV overhead power line (Pl ref. 08511136) running through the proposed windfarm site (see Figure 10-2). This powerline is expected to be constructed prior to the expected construction period of the proposed wind farm. The section of this powerline which passes through the wind farm will need to be rerouted before the wind farm can proceed. The wind farm developers will submit a separate planning application to Tipperary County Council for the re-routing of this section of the powerline.

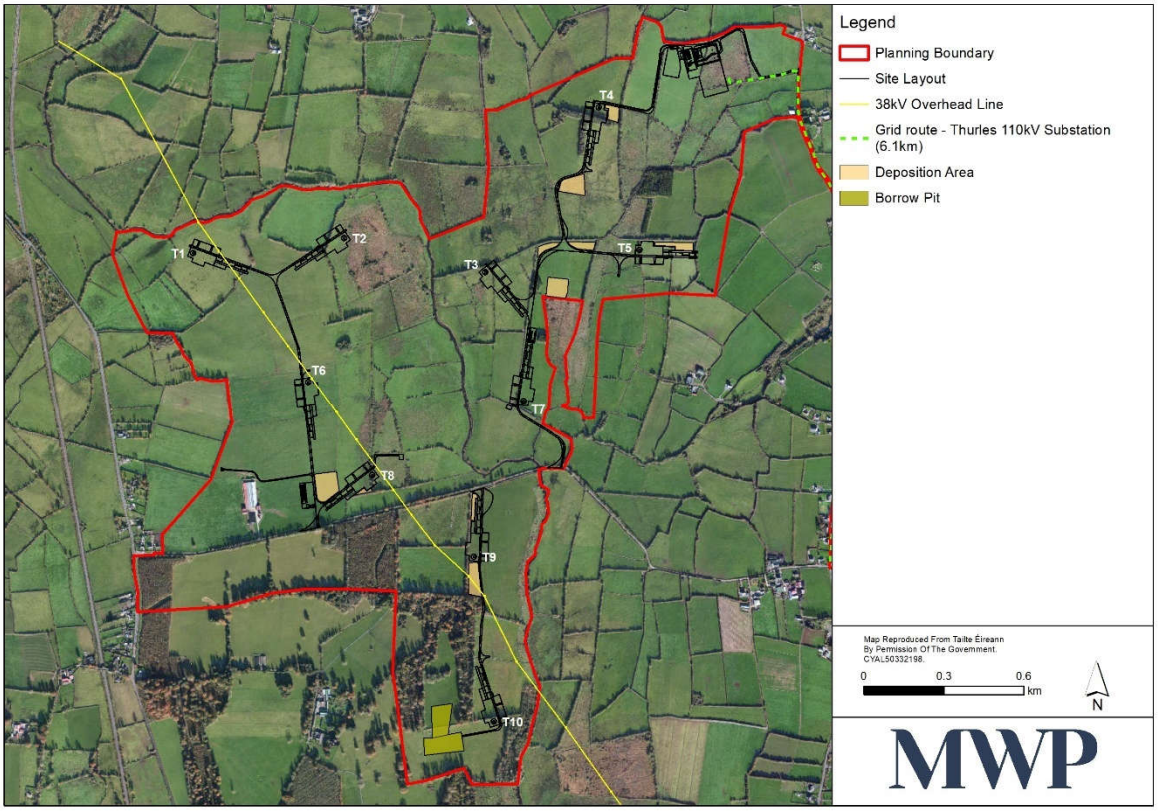

Figure 10-2 ESB 38kV overhead powerline through the wind farm site that was permitted (in July 2023) and will require rerouting if the wind farm is permitted and constructed.

10.4.2 Gas

Natural gas is supplied via underground interconnecting pipelines throughout Ireland. The natural gas network in Ireland is run by Gas Networks Ireland.

Following consultation with Gas Networks Ireland, there are no gas network utilities within the proposed project site boundary as indicated in **Figure 10-3**.

Figure 10-3 Current pipeline of gas network.

Source: https://www.gasnetworks.ie/corporate/company/our-network/pipeline-map/

10.4.3 Civil Aviation

Airports are valuable transport, tourism, employment, and business assets for the local and national economy. The development of large wind energy projects has the potential to impact air service and operations (airports, landing strips, etc.) within a project area. Developments around airports and under flight-paths can constrain operations, either directly where they conflict with safety/operational requirements, or indirectly where they interfere with radar or other navigational aids.

MWP commissioned Ai Bridges Ltd to review the possible impacts of the proposed wind farm on aviation systems in the vicinity of the proposed project. Consultation was completed with Irish Aviation Authority (IAA) (Dublin Headquarters) and Irish Aviation Authority (Shannon Centre). (See Appendix 10B for Aviation Report).

Aviation infrastructure within 75km to the proposed project site, i.e. airports and airfields, are listed in Table 10-2 and illustrated in Figure 10-4.

Table 10-2 Aviation Infrastructure in the Region

Airfield	Location	Estimated Distance: To the Proposed project
Shannon Airport	Co. Clare	74km West
Woodcock Hill	Co. Clare	60km West
Moyne Aerodrome	Co. Tipperary	5.8km East
Waterford Airport	Co. Waterford	75km Southeast

Elevated structures within the proposed project will include ten (10) wind turbines. The precise turbine models have not yet been determined and the developers have been granted flexibility to consider three different types of turbines with variable designs, blade lengths, hub heights and power outputs as discussed in EIAR Chapter 2. It is proposed that the turbines will have a maximum tip height of 180m.

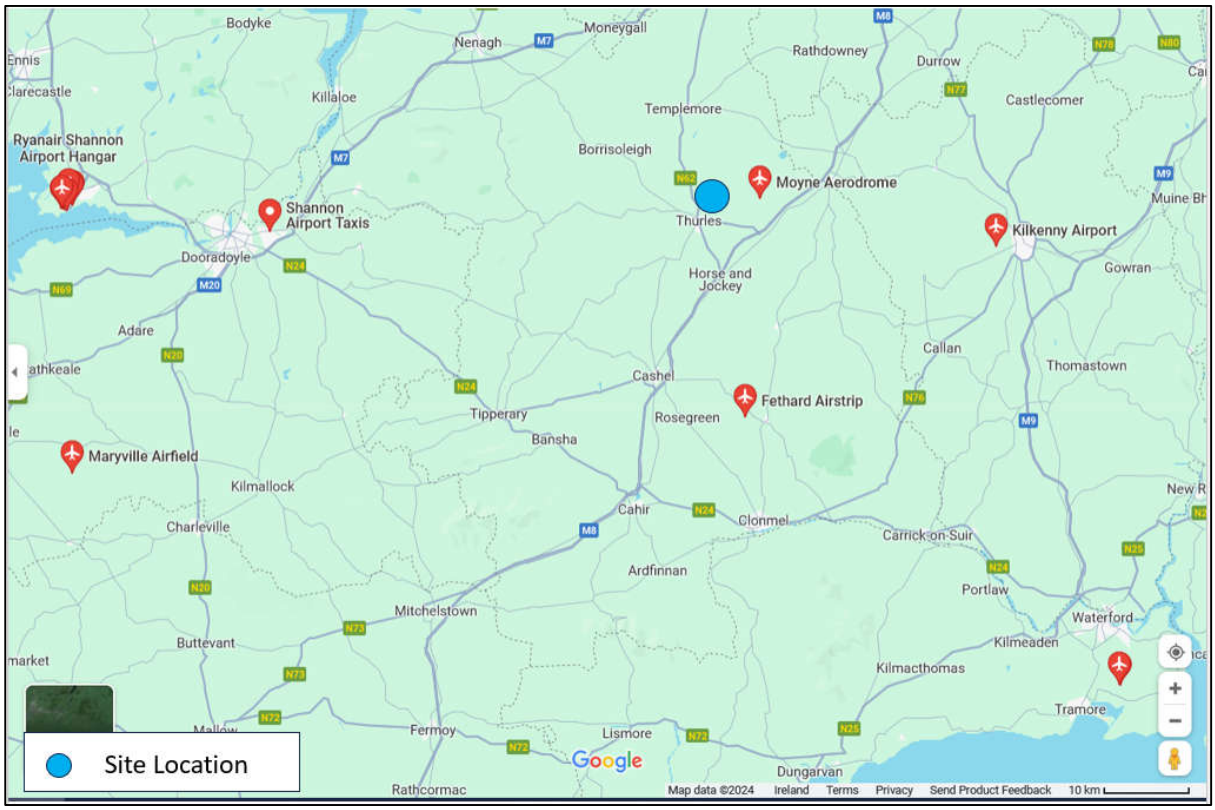

Figure 10-4 Airports and Airfields within the Region

10.4.4 Telecommunication

Ai Bridges was commissioned to evaluate the possible impacts that the proposed wind farm could have on existing telecommunications operator networks. The scope of work included field and desktop surveys to determine telecommunications network infrastructure that could be impacted by the proposed project. Consultations with telecom operators were also undertaken to assist in identifying network infrastructure that could be impacted by the proposed wind farm. During the consultation process, nineteen (19) telecom operators were contacted. At the time of writing this report, sixteen (16) of the nineteen telecom operators contacted have responded to the consultation request. The responses received from each of the telecom operators can be found in **Section 3** of AI Bridges Report which is included in **Appendix 10B**.

Results from the impact analysis indicate that there are four radio links that cross over the proposed project (see **Table** 10-3 Below). The radio links which could possibly be impacted by the wind farm development are illustrated in **Figure 10-5.** The radio links are indicated with blue lines while the proposed wind farm site is shown in yellow.

Table 10-3 Microwave radio links potentially impacted by proposed wind farm.

Operator	Link Description	Impact of wind farm
Enet	PTP microwave radio link from Urlingford to St Joseph's College.	Potentially Impacted – Mitigation possible and dependent on turbine layout.
Enet	PTP microwave radio link from Kilduff to Scoil Ruain.	Potentially Impacted – Mitigation possible and dependent on turbine layout.
Three Ireland	PTP microwave radio link from Templemore Garda College to Brittas.	Potentially Impacted – Mitigation possible and dependent on turbine layout.
Vodafone	PTP microwave radio link from Brittas to Templemore Garda College.	Potentially Impacted – Mitigation possible and dependent on turbine layout

(Source: AI Bridges, Brittas Wind Farm EMI Impact Assessment Report. 09/03/2023)

Digital Terrestrial Television (DTT) service, commonly known as Saorview TV is a technology in which television stations broadcast television content by radio waves to televisions in consumers' residences in a digital format. Transmitters surrounding the proposed project are indicated in Figure 10-6.

A review of the online Saorview coverage map indicates that TV reception in the area is principally received from the transmitter at Kilduff, Co. Tipperary (54 km northwest).

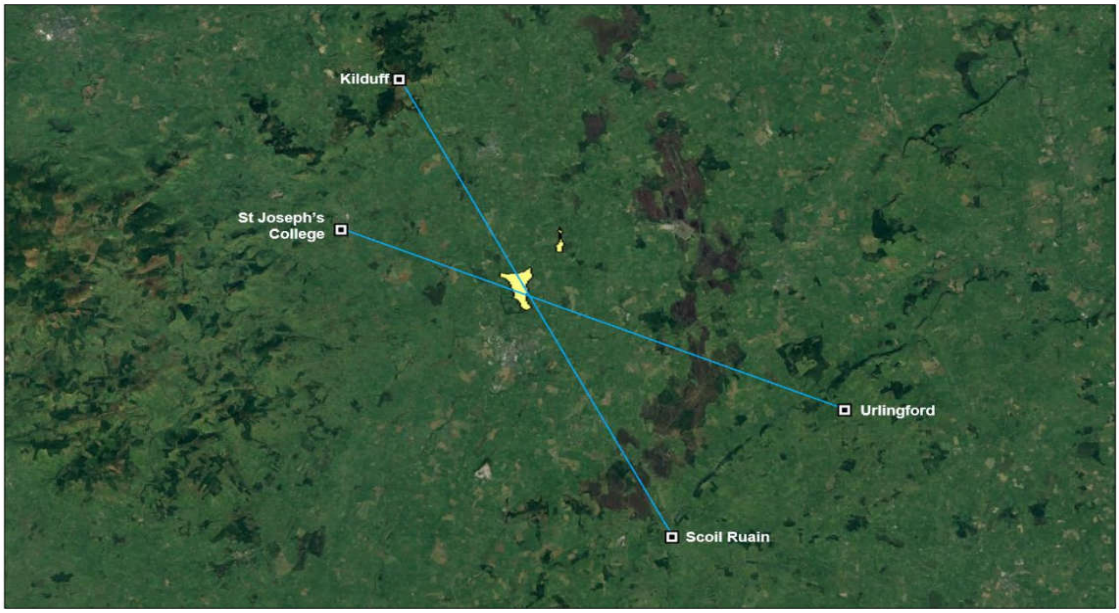

Figure 10-5: Radio links crossing over the proposed wind farm site

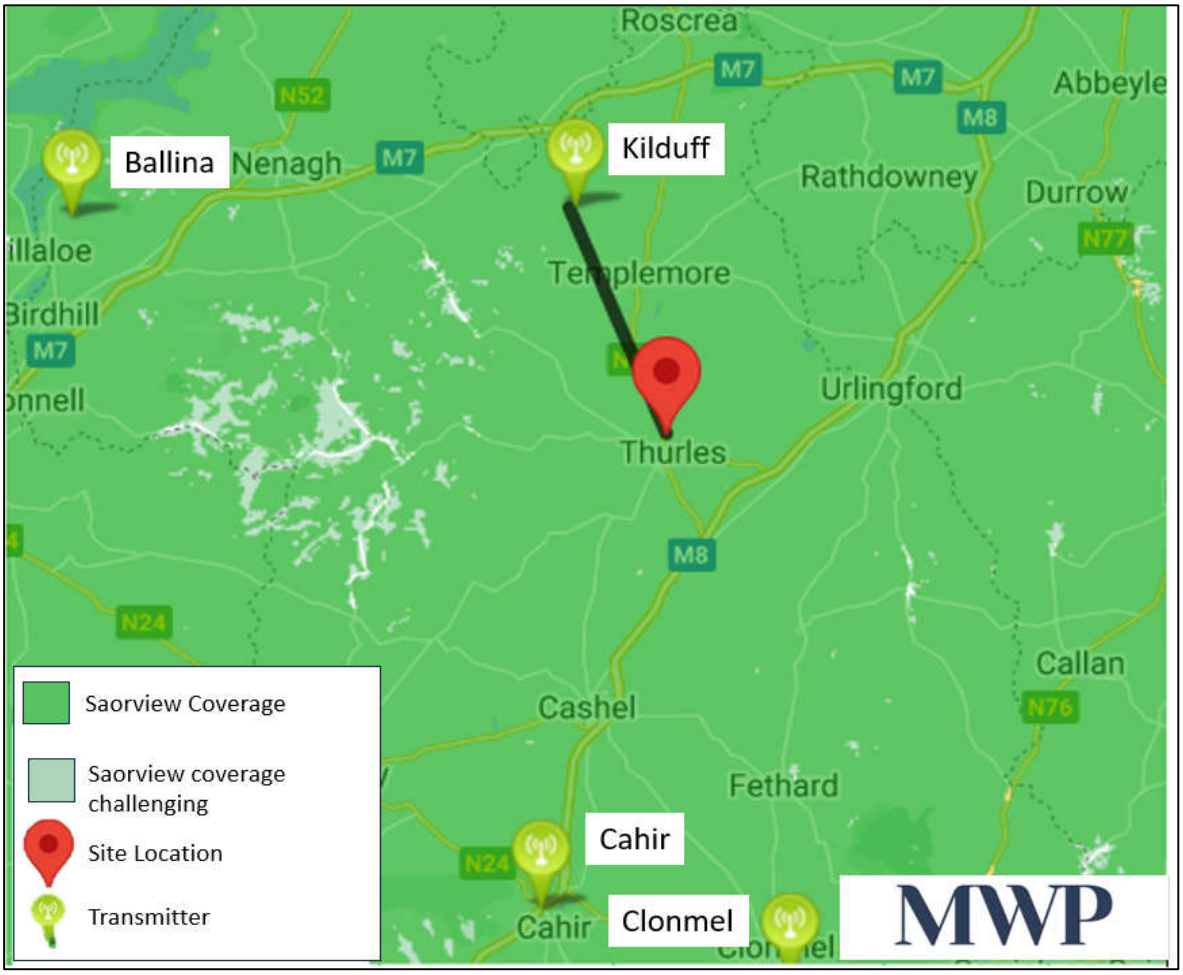

Figure 10-6 TV Transmitters in proximity to the proposed project.

(Source: https://saorview.ie/en/check-coverage/)

As discussed in Ai Bridges impact assessment (see **Appendix 10B**), consultation with Broadcasting Authority Ireland (BAI) response was summarised as the following: *"The BAI does not perform an in-depth analysis of the effect of wind turbines on FM networks. However, we are not aware of any issues from existing windfarms into existing FM networks. Also, the proposed windfarms are not located close to any existing or planned FM transmission sites."*

10.4.5 Water and Wastewater Infrastructure

There is currently no wastewater or water supply infrastructure within the subject site, however there is distribution watermains which exists along a section of road where the grid connection route passes.

A review of Tipperary settlements with Waste Water Discharge Authorisations - Wastewater Treatment Capacity Register has indicated that there are four (4) no. licensed wastewater treatment plants within 10km of the proposed project. These include Thurles WWTP (#D0026), Borrisoleigh WWTP (#D0323), Clonoulty WWTP (#A0415) and Killenaule WWTP (#D0443). The most proximate wastewater treatment plant (WWTP) is Thurles. Uisce Eireann have indicated good capacity at the WWTP with spare capacity available (Uisce Eireann, 2023).

10.4.6 Waste Management

A review of Tipperary Local Authority Waste Facility Register has confirmed that there are no waste or construction phase waste facilities within the proposed project area. Nearby waste facilities are included in **Table 10-4.**

Table 10-4 Tipperary Waste Facility Register

Authorisation Reference	Name	Waste Type	Address
COR-T-19-0003-01	Golden Agri Services Ltd	02 02 03 materials unsuitable for consumption or processing	Lagganstown Upper Golden Cashel Co Tipperary
COR-T-19-0004-01	Susan Harpur, MacQuarie Unlimited Company	17 05 04 soil and stones other than those mentioned in 17 05 03	Ballypadden Cashel Co Tipperary
WFP-TS-09-0085-03	Michael Doyle	16 01 03 end-of-life tyres 16 01 04* end-of-life vehicles 16 01 06 end-of-life vehicles, containing neither liquids nor other hazardous components 16 01 07* oil filters 16 01 12 brake pads other than those mentioned in 16 01 11 16 01 13* brake fluids	Noan Ballinure Thurles Co Tipperary E41 KT35
COR-T-20-0002-01	Enva Organics Ltd.	19 08 05 sludges from treatment of urban waste water	Templenoe Cashel Co. Tipperary
COR-T-20-0001-01	Golden Agri Services	02 02 03 materials unsuitable for consumption or processing	Cloghleigh Golden Co. Tipperary
COR-T-21-0006-01	BIGbin Waste Tech Ltd.	20 01 08 biodegradable kitchen and canteen waste 20 03 01 mixed municipal waste	Ahearnes Service Station Abbey Road Thurles Co. Tipperary E41 F9N1
COR-T-11-0005-03	Liam Guilfoyle & Liam Guilfoyle JR.	16 01 04* end-of-life vehicles	Ballynahinch Golden Cashel Co. Tipperary E25 KP08
WFP-T-23-0001-01	James Condon	16 01 04* end-of-life vehicles 16 01 06 end-of-life vehicles, containing neither liquids nor other hazardous components	Unit 1 Brittas Road Templemore Road Thurles, E41 A8N5
WFP-T-22-0002-01	Ballagh Point Limited	02 01 04 waste plastics (except packaging) 07 02 13 waste plastic 15 01 02 plastic packaging 20 01 39 plastics	Trifol Resources Limited Kileens Lanespark Ballynonty Thurles (E41 R960)

Authorisation Reference	Name	Waste Type	Address
WFP-T-19-0001-03 (T)	Sabrina Integrated Services Limited	02 01 04 waste plastics (except packaging) 15 01 02 plastic packaging 19 12 04 plastic and rubber 20 01 39 plastics	Littleton Briquette Factory Killeens Thurles Co. Tipperary E41 R960

10.5 Assessment of Effects

Likely impacts and effects on material assets are predicted on the basis of the proposed project are discussed below. The potential effects on road infrastructure is assessed in the Traffic and Road assessment (see **Chapter 16**).

10.5.1 Grid Capacity and Electrical Infrastructure

The proposed project will assist in meeting increases in electricity demand nationally by exporting electricity into the electricity market. It will contribute to ensuring that adequate electricity supplies are available to support economic activity and growth.

The main components of the development are ten (10) wind turbines with a height of 180m, an on-site 110kV electrical substation, a Battery Energy Storage System (BESS) and an underground electrical connection to an existing 110kV substation at Thurles which is connected to the National Grid. This is the preferred technical grid connection approach. The final selected grid route and connection strategy will be confirmed by way of a future grid connection offer process and as determined by EirGrid.

Should it become operational, this wind farm will be capable of providing between 57 to 66 megawatts (MW) of renewable electricity to the National Grid.

The BESS Facility will ensure a more consistent supply of energy to the grid and will minimize the potential variations in the supply of power. The proposal will maximise a natural asset which is a variable renewable resource and therefore constitutes a positive effect.

Construction Phase

Wind farm Site

There is an incomplete ESB overhead 38kV powerline that passes through the proposed wind farm site that was permitted in mid-2023. This powerline is expected to be constructed prior to any decision being made on the proposed wind farm planning application. The section of this powerline which passes through the windfarm will need to be rerouted and the wind farm developers will submit a separate planning application for the re-routing of this section of the powerline. However, the rerouting options are assessed in this **EIAR** (see **Chapter 4**. The options considered include: 1) undergrounding the whole route through the wind farm site, 2) a new overhead route to the east of the permitted overhead line, and 3) a new overhead line route to the west of the permitted

overhead line. The ESB has indicated that the proposal to underground the line through the windfarm is possible, but they would prefer an overhead line for ease of maintenance. The ESB will be consulted on these proposed changes and will need to approve them and facilitate the connection of the rerouted line should this be completed prior to construction of the proposed wind farm. The new re-routed powerline will be constructed before the existing line is disconnected and removed.

There are no other existing electrical services that would be affected by the proposed wind farm infrastructure or construction works.

Grid Connection Route

It is proposed to construct a 110kV grid connection cable within the public road between the proposed onsite substation and existing Thurles 110kV substation. The underground cabling will be constructed in a trench within the public road corridor. Where existing electrical services are located in the public road, the cable will avoid these services by providing ducting above, below or on the other side of the road corridor. Prior to construction being undertaken, a survey of underground services along the grid route will be undertaken to identify their location and design the layout of the grid route cables to avoid any interference with or risk to the existing services and networks under the road. The relevant authorities will also be consulted during this phase and will approve the proposed approach and methods prior to the initiation of construction. This will avoid any effects on existing electrical networks along the grid route.

During the process of connecting the proposed project to the national grid, some minor, **brief** disruption to electrical supply, at a **local level** are **likely**. However, during this process, EirGrid will balance the loading on the network to ensure that **no significant** disruption occurs, and significant effects do not arise.

Turbine Delivery Route

The accommodation works for the Turbine Delivery Route (TDR) will require some brief disruption to electrical supplies due to movement of existing overhead lines and poles at 2 pinch points along this route (at pinch points no. 12 and 19 see **Appendix 2A** in Volume 3 of the **EIAR**) when the turbine components are being delivered to site. The ESB and relevant local authorities will be consulted on these proposed temporary changes and will need to approve them and facilitate the dis-connection and reconnections of the affected lines and poles.

During construction there will **likely** be a **neutral, not significant, localised, brief and direct** effects on electrical infrastructure and supply associated with the grid route connection, TDR and the re-routing of the permitted 38kV overhead powerline through the wind farm site.

Operational Phase

The electricity generated by the proposed project will assist to displace electricity produced from coal, oil and gas fired power plants, thus reducing emission from these power plants.

Once operational, there will be no direct emissions to the atmosphere from the wind farm. The CO_2 offset by the wind farm will further assist Irelands CO_2 reduction commitments under the Paris Agreement and Ireland's Climate Action Plan 2024. The inclusion of energy storage infrastructure at the proposed project is aligned with

the provisions relating to grid system flexibility requirements as set out in the Climate Action Plan 2019. The battery energy storage system (BESS) proposed adjacent to proposed on-site 110kV substation will provide flexibility to the power system through the ability to store energy at times when supply outstrips national energy requirements and will allow for the provision of other necessary ancillary services to the national grid.

The proposed project includes a 110kV substation and Battery Energy Storage System (BESS) to accommodate the additional renewable energy to be generated. Therefore, the effects on grid capacity and electrical infrastructure are considered to be a **likely**, **direct**, **long term**, regional, **significant**, and **positive** effect during the operational phase.

There is a possibility that additional replacement turbine components may need to be delivered from time to time during the operational phase. This may require additional temporary accommodation works along the delivery route similar to those during the construction phase. This will **likely** be a **neutral, not significant localised, brief and direct** effect on electrical infrastructure and supply associated with the TDR.

Decommissioning Phase

In the event of decommissioning of the wind farm, this will result in the removal of between 57MW and 66MW of renewable electricity from the national grid. As discussed in **Chapter 3 Civil Engineering**, the grid cable and the re-routed 38kV powerline will remain a permanent part of the national grid and therefore decommissioning is not foreseen for these elements. In the event of decommissioning, it will involve removing the cable from the ducting but leaving the ducting and associated supporting structure in place. The ducting will not be removed if the environmental assessment of the decommissioning operation demonstrates that this would do more harm than leaving them in situ. The assessment will be carried out closer to the time to take into account environmental changes over the project life. The removal of the ducts would also cause disruption to road users. Leaving the ducts in place would avoid disruption to road users without compromising the structure of the roadway.

It is also likely the proposed Brittas on-site 110kV sub-station will remain in place and will previously have been taken in charge by the system operator, after the proposed wind farm is connected to the national electricity grid. During decommissioning there will be a **negative, significant, regional, permanent, direct and likely** effect on power generation as a result of removal of electricity generating infrastructure and the loss of over 57MW of renewable electricity to the national grid. At the same time there will be a potential **direct permanent positive** effect associated with the installed 110kV substation and underground grid infrastructure which will continue to be used for electricity distribution in the locality and region and positively effect grid capacity.

Table 10-5 Effect 1: Grid Capacity and Electrical Infrastructure

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Wind Farm Site - Re-routing of 38kV powerline	Neutral	Not significant	Localised	Brief	Direct	Likely
Grid Route	Neutral	Not significant	Localised	Brief	Direct	Likely
Turbine Delivery Route	Neutral	Not significant	Localised	Brief	Direct	Likely
Operational Phase						

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Power Generation & storage for Grid	Positive	Significant	Regional	Long-term	direct	Likely
Turbine Delivery Route	Neutral	Not significant	Localised	Brief	Direct	Likely
Decommissioning Phase						
Power Generation & storage for Grid	Negative	Significant	Regional	Permanent	Direct	Likely
Additional Grid Capacity freed up	Positive	Significant	Regional	Permanent	Direct	Likely

10.5.2 Gas

Following consultation with Gas Networks Ireland, there are no gas network utilities within the proposed project site boundary or along the grid route as discussed in Section 10.4.2. There are no gas network infrastructure requirements for the proposed project. Therefore, there are no effects to gas infrastructure anticipated during the construction, operational or decommissioning phases.

10.5.3 Aviation

The potential aviation effects are only relevant to the turbines and construction cranes on the project site.

Construction Phase

The IAA has provided general observations that in the event of planning, the applicant should contact the IAA to agree an aeronautical warning light system, provide as-constructed coordinates with ground and blade tip height elevations, at each turbine location, notify the authority of the intention to commence crane operations in at least 30 days in advance. A copy of the consultation correspondence with the IAA is attached as EIAR Volume 3 Appendix 10A. As indicated in Table 10-2, the most proximate aviation facility to the proposed project is located approximately 5.8km east at Moyne Aerodrome. Due to the proposed project's lack of proximity to the aerodromes and Airports listed in Table 10-2 and outlined in Appendix 10A, during construction, the effects of cranes and turbines are described as neutral, slight, localised, temporary, likely, and direct.

Operational Phase

Ai Bridges Aviation report has noted that in the event of a grant of planning, the proposed project will be required to register in the IAA Air Navigation Obstacle Data set. A copy of Ai Bridges Aviation report is attached as EIAR Volume 3 Appendix 10A. By incorporating aviation warning lighting within the design of the proposed wind turbines, effects are assessed to be likely, neutral, slight, localised, direct and long term for the duration of the operational phase. Due to the sub-surface nature of the proposed Grid Connection infrastructure, there will be no effects on aviation for this element of the project. It is concluded, that the operation of the proposed wind turbines will not result in any likely significant effect on Aviation.

Decommissioning Phase

At the end of the estimated 35-year lifespan of the proposed project, the Developer will make the decision whether to repower or decommission the turbines. Any further proposals for development at the site during or after this time will be subject to a new planning permission application. If planning permission is not sought after the end of life of the turbines, the site will be decommissioned and reinstated with all 10 No. wind turbines and towers removed. Effects associated with the decommissioning phase will be similar to those of the construction phase. Removal of infrastructure will be undertaken in line with landowner and regulatory requirements and best practice applicable at the time of decommissioning. During decommissioning, the effects are described as **positive imperceptible, permanent, temporary, direct,** and **likely**.

Table 10-6 Effect 2: Aviation

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Turbines & Cranes	Neutral	Slight	Localised	Temporary	Direct	Likely
Operational Phase						
Turbines & Cranes	Neutral	Slight	Localised	Long-term	Direct	Likely
Decommissioning Phase						
Turbines & Cranes	Positive	Imperceptible	Localised	Permanent	Direct	Likely

10.5.4 Telecommunications

Construction Phase

Wind Farm Site

Results from Ai Bridges impact analysis indicate that there are four radio links that cross over the proposed project site that are likely to be temporarily impacted due to turbine layout. The radio links that cross over the wind farm site are ENET (two microwave radio links), Three Ireland and Vodafone Ireland (one microwave radio link each). There will be limited interference to exiting radio links during the construction phase as cranes will temporarily be in place and turbines will be erected gradually over the 18-month construction period. Pre-mitigation construction effects are described as **Neutral, slight, localised, direct, likely,** and **temporary**.

Grid Connection Route

Where existing telecommunication lines are located in the public road, the grid cable will avoid these services by providing ducting above, below or on the other side of the road corridor. Prior to construction being undertaken, a survey of underground services along the grid route will be undertaken to identify their location and design the layout of the grid route cables to avoid any interference with or risk to the existing services and networks under the road. The relevant authorities will also be consulted during this phase and will approve the proposed approach and methods prior to the initiation of construction. This will avoid any effects on existing telecommunication lines along the grid route. Pre-mitigation construction effects are described as **Neutral, not significant, localised, direct, likely,** and **temporary**.

Turbine Delivery Route

The temporary accommodation works for the Turbine Delivery Route (TDR) may result in some brief disruption to existing overhead telecommunication lines due to the temporary movement of existing overhead lines and poles at 2 pinch points along this route (at pinch points no. 12 and 19 see **Appendix 2A** in Volume 3 of the **EIAR**). The relevant service providers and local authorities will be consulted on these proposed temporary changes and will need to approve them and facilitate the dis-connection and reconnections of the affected lines and poles. Pre-mitigation construction effects are described as **Neutral, not significant, localised, direct, likely,** and **temporary**.

Operational Phase

Wind Farm Site

During operation, there is potential interfere with telecommunications signal on some networks, from the turbine structures. Pre-mitigation this would result in operational effects describes as **negative slight, localised, likely** and **long-term.** It is anticipated that any potential interference with links can be suitably overcome through mitigation measures (see **Section 10.6.4**). A copy of Ai Bridges Telecommunications Report is attached as **EIAR Volume 3 Appendix 10B**.

Turbine Delivery Route

There is a possibility that additional turbine components may need to be delivered from time to time during the operational phase. This may require additional temporary accommodation works along the delivery route similar to those during the construction phase. This will **likely** be a **neutral, localised, brief and direct** effect on telecommunication lines associated with the TDR.

Decommissioning Phase

Decommissioning will likely have no effects as turbines will be removed from the site, removing any potential obstruction to telecommunications links. The turbine components will be broken up prior to being removed from site. Consequently, their removal from site will not have the same effects as those associated with the delivery of the turbines.

Table 10-7: Effect 3: Telecommunications

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Wind Farm Site	Neutral	Slight	Localised	Temporary	Direct	Likely
Grid Connection Route	Neutral	Not Significant	Localised	Temporary	Direct	Likely
Turbine Delivery Route	Neutral	Not Significant	Localised	Temporary	Direct	Likely
Operational Phase						
Wind Farm Site	Negative	Slight	Localised	Long-term	Direct	Likely

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Turbine Delivery Route	Neutral	Not Significant	Localised	Brief -	Direct	Likely
Decommissioning Phase						
All Components of Project	No Effects					

10.5.5 Water and Wastewater Infrastructure

Construction Phase

Wind Farm Site

During construction works, there will be two temporary compounds on the wind farm site. These temporary compounds will be set up upon commencement of the construction phase. It will be used as a secure storage area for construction materials, waste materials and also contain temporary site accommodation units to provide welfare facilities and enclosed wastewater management system. Sanitary wastewater will be collected in portable toilets. Disposal of sanitary wastes will be managed through a contract with a licensed waste contractor. The existing environment, both the local water supply and waste water treatment plant have good capacity, therefore the supply of water and treatment of waste is unlikely to burden the existing infrastructure.

As discussed in **Chapter 2**, water needs for construction activities will be limited to concrete truck chute washing, wheel wash, dust suppression and sanitary facilities.

It is estimated that up to approximately 3,000 litres per day of potable water will be required during peak construction for construction employees. It is proposed that this water requirement will be imported in bulk water tanks.

During the construction phase a 110kV underground cable will be installed in the public road. Where the cable meets existing water infrastructure, the ducting will be placed over, under or on the opposite side of the road from existing water mains.

The effects on existing water and wastewater infrastructure during the construction phase are described as a **short-term, neutral, imperceptible, localised, direct,** and **likely effect**.

Grid Connection Route

Where existing water supply or waste water networks are located in the public road, the grid cable will avoid these services by providing ducting above, below or on the other side of the road corridor. Prior to construction being undertaken, a survey of underground services along the grid route will be undertaken to identify their location and design the layout of the grid route cables to avoid any interference with or risk to the existing services and networks under the road. The relevant authorities will also be consulted during this phase and will approve the proposed approach and methods prior to the initiation of construction. This will avoid any effects on existing water infrastructure along the grid route. Pre-mitigation construction effects are described as **Neutral, imperceptible, localised, direct, likely,** and **temporary**.

Turbine Delivery Route

The TDR accommodation works are limited to ground level and above ground works. Consequently, there are expected to be no effects on underground water supply or waste water networks along the TDR.

Operational Phase

During the operational phase, maintenance personnel will visit the substation building on a semi-regular basis. The daily average wastewater production during the operational phase is estimated from the average number of workers on site, which is expected to be 2 workers, resulting in a typical wastewater production rate of 100 litres per day, on days where workers are present on site. The wastewater generated during the operational phase at the on-site substation will be managed by a holding tank which is fitted with an alarm to indicate levels and when it is due to be emptied. The holding tank will be emptied by a permitted contractor and brought to a licenced waste water treatment plant. Potable water required during the operational phase is estimated to be approximately 20 litres per day. This water will be supplied as bottled water. Welfare facilities during the operational phase will utilise rainwater harvesting at the substation. The volumes of both potable water and waste water associated with the operational phase are considered slight and would result in a **Neutral, imperceptible, localised, Long-term, direct** and **Likely** effect on the water supply and waste water utilities.

Decommissioning Phase

During decommissioning works, temporary compounds will be set up and used as a secure storage area for materials, waste materials and contain temporary site accommodation units to provide welfare facilities and enclosed wastewater management system. Sanitary wastewater will be collected in portable toilets and **potable water will be brought to site by tanker**. Disposal of sanitary wastes will be managed through a contract with a licensed waste contractor to a wastewater treatment plant. During decommissioning, there will be no impact on in-road water infrastructure as the cables will be left in-situ. The effects on existing water and wastewater infrastructure during the decommissioning phase are described as a **temporary, neutral, imperceptible, localised, direct** and un**likely effect.**

Table 10-8: Effect 4: Water supply and wastewater facilities

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Wind Farm Site	Neutral	Imperceptible	Localised	Short-Term	Direct	likely
Grid Route	Neutral	Imperceptible	Localised	Temporary	Direct	likely
TDR	No effect					
Operational Phase						
Wind farm Infrastructure	Neutral	Imperceptible	Localised	Long-term	Direct	Likely
Decommissioning Phase						
Wind farm	Neutral	Imperceptible	Localised	Temporary	Direct	likely

10.5.6 Waste Management

During the course of the project, a certain amount of waste will be produced, this will be mainly during the construction phase. **Table 10-9 Anticipated waste** arising on site below outlines the anticipated types of major waste streams that will be generated by the project.

Table 10-9 Anticipated waste arising on site.

Waste Item
Waste from Welfare Facilities
Waste Chemicals, Fuels and Oils
Packaging
Concrete
Waste Metals
Excavated Materials
Domestic Waste

In accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and Section 21A of the Waste Management Act 1996, as amended, waste management will be undertaken in order of priority, as follows:

1. Prevention;
2. re-use;
3. Recycling;
4. Other recovery (including energy recovery); and
5. Disposal.

Waste generation is principally avoided through planning and management of activities and good housekeeping. The procurement of material inputs are generally in bulk. By bulk procurement, the generation of small-sized containers and packaging is largely avoided and thus minimises the generation of unnecessary waste requiring recycling or disposal.

Ireland's Circular Economy Programme (2021 to 2027) is the driving force for Ireland's move to a circular economy. The vision for the Programme, which is led by the EPA, is an Ireland where the circular economy ensures that everyone uses less resources and prevents waste to achieve sustainable economic growth. In line with the Waste Hierarchy, wherever possible, packaging will be returned to originator for reuse ahead of recycling or disposal. Otherwise, waste packaging will be segregated and stored on site in appropriate skips within the construction compound and disposed of in accordance with waste management regulations. Skips will be clearly labelled for plastics, timber, steel and other waste materials to ensure segregation. Materials will be placed in these and can be reused as required during construction. Hazardous materials, such as gear and hydraulic oils used in the operation of the wind turbines and mineral oils used in transformers, will be disposed of in accordance with all applicable laws and regulations. A list of nearby waste facilities is included in Table 10.4. A more comprehensive list of all types of waste management facilities is provide in Appendix 2C.

Construction Phase

Construction phase waste may consist of hardcore, concrete, spare steel reinforcement, cable wires, shuttering timber and building materials. The waste from all components of the project will be stored in the demarcated areas in the construction compounds and collected during and at the end of the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility.

Plastic waste will be taken for recycling by an approved contractor and disposed or recycled at an approved facility. Hazardous materials, such as fuels and lubricant oils, used during construction that require disposal will be disposed of in accordance with all applicable laws and regulations. Domestic type waste generated by contractors will be collected on site, stored in an enclosed skip at the construction compounds and disposed of at an appropriately authorised facility. Surplus spoil may be generated through construction of access tracks, crane hardstands, construction compound, turbine foundations and substation compound. Any surplus spoil material generated during construction will be transported back to deposition areas via articulated dumper trucks or tractor and trailer for subsequent reuse in the permanent reinstatement of the borrow pit as outlined in Chapter 3 Civil Engineering. The types of wastes to be generated will be similar to established construction waste streams and will not require unusual or new treatment options. Waste volumes will not be significant as to require new permitted treatment, storage and disposal facilities as there is sufficient capacity at licensed disposal or recycling facilities in proximity to the proposed project, see Table 10-4. Waste Management procedures have been included in the Construction Environmental Management Plan (CEMP) in EIAR Volume 3 Appendix 2B. During the construction phase the effects of waste and effects on the capacity of waste management facilities will be slight, negative, localised, indirect and short term and likely due to the implementation of the Construction & Environmental Management Plan.

Operational Phase

During the operational phase, minimal amounts of solid waste will be generated, which will be collected onsite and transported to a licensed disposal facility, or recycling facility by a waste hauling contractor. Hazardous materials, such as gear and hydraulic oils used in the operation of the wind turbines and mineral oils used in transformers, will be disposed of in accordance with all applicable laws and regulations. The effects of waste and effects on the capacity of waste management facilities will be slight, negative, localised, indirect, likely and long term.

Decommissioning Phase

During the decommissioning phase, waste will be kept to a minimum. The majority of materials on site will be recycled.

Domestic type waste generated by contractors will be collected on site, stored in an enclosed skip at the temporary compounds and disposed of at an appropriately authorised facility. Tracks, hardstanding areas and foundations will be left in situ with hardstands and foundations covered over and revegetated. All non-recyclable or reusable materials will be disposed of in a licenced waste facility.

At present, between 85% and 95% of turbine components can be recycled. Wind turbine blades remain the most difficult item to recycle, however, Ørsted have committed to reuse, recycle or otherwise recover all wind turbine blades from decommissioned wind farms, and avoid any blades going to landfill. Technology has developed to allow for the breakdown of polymer composites to reuse them as new products that can substitute materials such as virgin plastics, steel, and concrete. Other existing uses for blades include artificial reefs, materials to build playgrounds and street furniture, and use as domestic building materials.

During the decommissioning phase the effects of waste and effects on the capacity of waste management facilities will be negative, slight, localised, short term, indirect and likely.

Table 10-10 Effect 5: Waste Management

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
			Construction Phase			
Waste	Negative	Slight	Localised	Long-term	Indirect	Likely
			Operational Phase			
Waste	Negative	Not significant	Localised	Long-term	Indirect	Likely
			Decommissioning Phase			
Waste	Negative	Slight	Localised	Short-term	Indirect	Likely

10.6 Mitigation and Monitoring Measures

Mitigation measures have been outlined below to reduce or eliminate potential effects on the receiving environment.

10.6.1 Grid Capacity and Electrical Infrastructure

Mitigation by design has been adopted whereby the grid connection methodology at the proposed project has been selected to utilise existing built infrastructure as discussed in Chapter 4 Alternatives. Ecological, field and desktop assessments have been applied to determine project development infrastructure locations and mitigation by avoidance of any constraints. All electrical and other services within the public road will be identified prior to construction of the 110kV underground grid route cable.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with ESB Networks.

All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines.

There is a slight chance of potential electricity outage during rerouting of the 38kV overhead line. Any outage will be kept to a minimum and any customers affected by a potential outage will be contacted prior to works commencing.

The proposed project will not result in any significant effects on grid capacity but will provide a potentially positive effect of the electricity supply infrastructure. No specific mitigation measures are proposed beyond good construction practices.

10.6.2 Gas

The proposed project will result in no effects on gas infrastructure no specific mitigation measures are proposed.

10.6.3 Aviation

Whilst the proposed project will not impede aircraft, IAA Electronic Air Navigation Obstacle Data sets has identified obstacles as objects whose height above ground level is 90m or higher, affecting air navigation. Irish

Wind Energy Association (IWEA) Guidelines have set out the following measures to ensure that pilots of aircraft are fully aware of the presence of wind turbines.

- All turbines and meteorological masts having a height of 90m, or more are promulgated in the Irish Air Navigation Obstacle database;
- Wind turbines or any structure exceeding 90m in height may require appropriate aviation warning lighting as agreed with IAA;
- The IAA should be informed 30 days in advance of the erection of any structure exceeding 45m in height.

Having regard to the above:

- The developer will agree an aeronautical obstacle warning light scheme for the wind farm development with the IAA;
- The developer will provide the IAA with as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location;
- The developer will notify the IAA of intention to commence crane operations with a minimum of 30 days prior notification of turbine erection.

10.6.4 Telecommunications

Results from the impact analysis indicate that there are four radio links that cross over the proposed project wind farm site. To mitigate the potential impact on the Enet radio link from Urlingford to St Joseph's College the following mitigation will be carried out:

Relay the Enet radio link via an existing Telecoms Mast.

To offset the potential impact on the ESB radio link from Kilduff to the Thurles 110 kV Substation the following mitigation will be carried out:

Relocate the monopole at the Thurles 110 kV Substation or relocate the radio antenna at the Thurles end of the radio link.

In the event of interference to television and telecommunication services arising from the wind farm development, the applicant will work with telecommunication providers to remedy any issues of interference to affected communication links. Appropriate mitigation measures can be implemented such that there will either be an imperceptible effect, or no effect, on surrounding reception as a result of the proposed project, with the solution to interference with TV reception or communication links dependent on where the residence receives signal from.

As standard practice, a signed Protocol between the developer and RTE will be put in place, in which the developer will be responsible to resolve any issue of interference with television reception as a result of the proposed project.

All telecommunications lines affected by the grid route or TDR accommodation works will be identified prior to construction.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with ESB Networks.

All works affecting the telecommunications infrastructure will be carried out in ongoing consultation with the local authorities and service providers and will be in compliance with any requirements or guidelines they may have.

10.6.5 Water and Wastewater Infrastructure

There are no existing watermains within the footprint of the proposed wind farm however there is distribution watermains which exists along a section of road where the grid connection route passes. Pre-construction surveys will be completed to avoid disturbance to existing watermains.

All water and wastewater networks potentially affected by the grid route will be identified prior to construction.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with Uisce Eireann or other relevant authorities.

All works affecting the water and waste water infrastructure will be carried out in ongoing consultation with the local authorities and service providers and will be in compliance with any requirements or guidelines they may have.

All construction phase and operation phase wastewater will be taken off-site by an authorised waste contractor and brought to an authorised waste facility.

10.6.6 Waste Management

Mitigation measures for waste management are based on best practice construction methods. Waste will be managed in accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and Section 21A of the Waste Management Act 1996, as amended, as follows:

1. Prevention;
2. re-use;
3. Recycling;
4. Other recovery (including energy recovery); and
5. Disposal.

All waste for offsite treatment/disposal is to be stored temporarily in appropriate dedicated storage areas. The areas in which wastes are stored on site are segregated to prevent material and contaminated surface water runoff entering local surface water drains.

All chemical, hydrocarbon or other controlled wastes will be stored in designated areas in appropriate approved containers within bunds or on spill pallets, as required.

All waste to be removed from site will be undertaken by authorised waste contractors and transported to an authorised facility in accordance with best practice and the site waste management plan as discussed in the CEMP as included in EIAR Volume 3 Appendix 2B. All personnel working on site will be trained in pollution incident control response, and an emergency response plan will be prepared as part of the CEMP.

10.7 Residual Effects

The residual effects section outlines the degree of environmental change that will occur after the proposed mitigation measures have taken effect. The residual effects are summarised in Table 10-11.

Table 10-11 Residual Effects

Impact	Effect (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)
	CONSTRUCTION PHASE		
Electricity - Wind Farm Site - Re-routing of 38kV powerline	Neutral, not significant, localised, brief, direct and likely	Refer to Section 10.6.1	Neutral, imperceptible, localised, brief, direct, and likely
Electricity - Grid Connection Route	Neutral, not significant, localised, brief, direct and likely	Refer to Section 10.6.1	Neutral, imperceptible, localised, brief, direct, and likely
Electricity - Turbine delivery	Neutral, not significant, localised, brief, direct and likely	Refer to Section 10.6.1	
Gas – All project components	No effects	No specific mitigation measures proposed	No effects
Aviation – Wind Farm Site	Neutral, slight, localised, temporary, direct, and likely	Refer to Section 10.6.3	Neutral, not significant, localised, temporary, direct, and likely
Telecommunication - Wind Farm Site	Neutral, slight, localised, temporary, direct, and likely	Refer to Section 10.6.4	No effects as the only effected link will be rerouted in consultation with the telecommunications provider.
Telecommunications – Grid Route	Neutral, Not Significant, localised, temporary, direct, and likely	Refer to Section 10.6.4	Neutral, Imperceptible, localised, temporary, direct, and likely
Telecommunications - TDR	Neutral, Not Significant, localised, temporary, direct, and likely	Refer to Section 10.6.4	Neutral, Imperceptible, localised, temporary, direct, and likely
Water & Wastewater Infrastructure – Wind Farm Site	Neutral, slight, localised, temporary, direct, and likely	Refer to Section 10.6.5	Neutral, not significant, localised, temporary, direct, and likely
Waste Management	Negative, slight, localised, short-term, indirect, and likely	Refer to Section 10.6.6	Negative, not significant, localised, short-term, indirect, and likely

Impact	Effect (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)
OPERATIONAL PHASE			
Electrical Infrastructure - Wind Farm - Power generation and storage for grid	Positive, significant, regional, long-term, indirect, and likely	Refer to Section 10.6.1	Positive, significant, localised, long-term, indirect, and likely
Electrical Infrastructure – Turbine Delivery Route	Neutral, not significant, localised, brief, direct and likely	Refer to Section 10.6.1	Neutral, imperceptible, localised, occasional and brief, direct and likely
Gas	No effects	No Mitigation Measures Required	No effects
Aviation	Neutral, Slight, localised, long-term, direct, and likely	Refer to Section 10.6.3	Neutral, not significant, localised, long-term, direct, and likely
Telecommunication – Wind Farm site	Negative, slight, localised, brief, direct and likely	Refer to Section 10.6.4	No effects
Telecommunications - TDR	Negative, not significant, localised, long-term, direct and likely	Refer to Section 10.6.4	Neutral, imperceptible, localised, occasional and brief, direct and likely
Water & Wastewater Infrastructure – Wind Farm site	Neutral, imperceptible, localised, long-term, direct, and likely	Refer to Section 10.6.5	Neutral, imperceptible, localised, long-term, direct, and likely
Waste Management	Negative, slight, localised, long-term, indirect, and likely	Refer to Section 10.6.6	Negative imperceptible, localised, short-term, indirect, and likely
DECOMMISSIONING PHASE			
Wind Farm - Grid Capacity and Electrical Infrastructure – Power generation and storage	Negative, significant, regional permanent, direct, and likely	No specific mitigation measures proposed	Negative, significant, regional, permanent, direct and likely
Additional Electrical Grid Capacity freed up	Positive, Significant, Regional, Permanent, direct and likely	No specific mitigation measures proposed	Positive, Significant, Regional, Permanent, direct and likely
Gas	No effects	No mitigation measures required	No effects
Aviation	Positive, imperceptible, localised permanent, direct, and likely	Refer to Section 10.6.3	Positive, imperceptible, localised, permanent, direct, and likely

Impact	Effect (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)
Telecommunication	Likely no effects	Refer to Section 10.6.4	No likely effects
Water & wastewater Infrastructure – Wind farm site.	Neutral, imperceptible, localised, temporary, direct, and likely	Refer to Section 10.6.5	No effects
Waste Management	Negative, slight, localised, short-term, indirect, and likely	Refer to Section 10.6.6	Negative, not significant, localised, short-term, indirect, and likely

10.8 Cumulative Impacts and Effects

The cumulative effects of the proposed project have been assessed with existing and permitted developments in the surrounding area (see section 1.6.4.6 of EIAR Chapter 1). Much of the surrounding area accommodates residential dwelling and agricultural buildings. A list of significant planning applications completed in the last 10 years, within 20km of the proposed project have also been included in Chapter 1 Introduction.

These included eight multiple housing developments, three sports facilities, six quarry developments or extensions, two overhead power lines, two waste recovery/processing facilities, one mixed-use development, two mining developments, two wastewater treatment plants, one substation, one agricultural development, one retail park, one nursing home and one medical care centre.

The closets of these planning applications to the development include:

- Four multiple housing developments in Thurles;
- 1 incomplete powerline (Borrisoleigh to Thurles – note there are 2 planning applications for this line);
- A community health care centre and pharmacy (Thurles); and
- A multifunctional spectator stand for a sports facility with three pitches in Thurles (Section 1.6.4.6.1 of Chapter 1).

One multi-housing development (86 units) in Thurles was permitted in Feb 2024, another in Feb 2023 (26 units) and a third in Sept 2022 (63 dwellings). One multi-housing planning application in Thurles is still under consideration. These are all located at least 3km south and downstream of the proposed wind farm site.

There is potential for cumulative effects to occur at existing waste management facilities if the construction of the proposed wind farm overlaps with any of these projects. Capacity of local waste management facilities may be affected. This has potential to cause a **slight, negative** and **localised** effect on local waste management facilities

The only potential development where direct cumulative effects that could reasonably be foreseen is the incomplete powerline which transects the proposed Brittas WF development site (see Figure 2-22 in Chapter 02 Project Description). This c.6.94 km of incomplete powerline requires either new poles to be erected or that existing poles be strung. The structures to be erected comprise either twin or predominately single timber pole structures strung or to be strung with a twin line. This development was permitted in mid-2023 and is likely to be constructed prior to construction phase of the proposed project. The wind farm developer will submit a separate planning application for the rerouting of this line through the wind farm site to Tipperary County Council, in consultation with ESB. The possible options for this re-routing are outlined in Chapter 04 Alternatives of the EIAR.

The construction of this powerline will be completed prior to construction of the Brittas windfarm project and will therefore not have any additional cumulative effects in combination with the proposed wind farm. This EIAR has assessed the potential effects of rerouting this powerline during the construction of the wind farm – as part of the project. Therefore, an assessment of cumulative effects is not relevant.

The re-routing of the overhead line could potentially temporarily impact the grid infrastructure if there is a temporary power outage during the rerouting of the line during the construction phase of the proposed project. This could have a likely brief to temporary, negative, localised effect on grid infrastructure.

The energy produced by the proposed Brittas wind farm development would positively cumulate with other wind farm developments in the region to advance in delivering local, regional, and national Green Energy targets. As

discussed in **Chapter 1**, Wind turbines identified within 20km of the proposed Brittas development are listed below and illustrated in **Figure 10-7**.

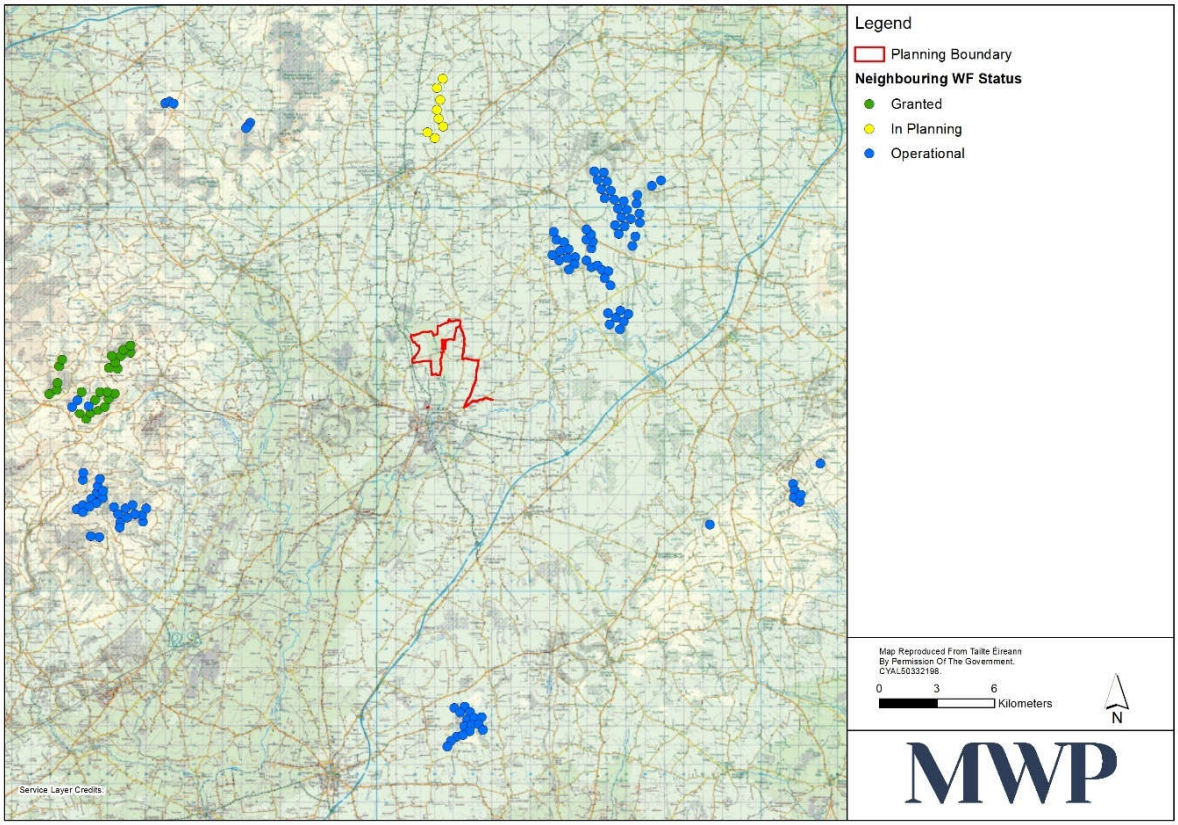

Figure 10-7: Neighbouring Windfarm applications within 20km

The proposed project is not likely to result in any significant cumulative effects on resources or utility infrastructure, either individually or in combination with other existing permitted or proposed projects.

The proposed wind farm development will positively cumulate with other renewable energy developments in the region to advance in delivering local, regional, and national Green Energy targets.

10.9 References

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