# 11. MATERIAL ASSETS

## 11.1 INTRODUCTION

This chapter examines the existing environment and assesses any likely significant direct and indirect effects on material assets arising from the proposed project.

The term 'Material Assets' can relate to both finite and renewable resources, which can be of natural or anthropogenic origin. Some of these resources, such as minerals, stone, soil, water, air, traffic and transportation, land use, human health and amenity resources are assessed separately in other chapters of the Environmental Impact Assessment Report (EIAR) (Chapter 5: Population &a Human Health; Chapter 8: Land, Soils & Geology; Chapter 9: Hydrology & Hydrogeology; Chapter 14: Air Quality; Chapter 15: Climate and Chapter 17: Traffic & Transportation). Electromagnetism is discussed from a human health perspective in Chapter 5.

This chapter of the EIAR deals with aviation and telecommunications in addition to utility infrastructure (electricity, gas, water and wastewater), and waste services.

### 11.1.1 Statement of Authority

This chapter was co-authored by Lydia Gurley and Dr. John Staunton of TOBIN. Lydia Gurley is an Assistant Project Manager with TOBIN and has a BSc (Hons) and MSc in Chemistry, complemented by postgraduate training in Offshore Renewable Energy and micro-credentials in Project Management and GIS. Lydia brings two years of project-management experience relevant to the planning and development of renewable energy projects. John Staunton is an Associate Director in TOBIN and has 18 years' postgraduate experience in both research and environmental consultancy, with 12 in the latter. John holds a BSc and PhD in Environmental Science, an advanced diploma in Planning and Environmental Law and is a Chartered Environmentalist. He has considerable experience in project managing wind energy developments (for example, Castlebanny Wind Farm, Cloghercor Wind Farm and Scart Mountain Wind Farm) and authoring EIAR chapters, including the assessment of Material Assets.

The Aviation and Telecommunications assessments were completed and managed by Kevin Hayes of Ai Bridges Limited. Kevin is a qualified engineer and holds a B. Eng. Hons and M. Eng Hons in Electronics and Communications Engineering with 25 years of experience in network design, deployment of telecommunications systems and extensive working knowledge of software modelling of telecommunications and aviation networks.

This chapter has been reviewed by Orla Fitzpatrick, Technical Director in TOBIN. Orla has over 20 years' experience working in the delivery of Environmental Impact Assessment (EIA) projects in environmental consultancy. She is a Chartered Environmentalist and has considerable experience as technical approver of environmental deliverables for major infrastructure projects. Orla has technically approved Material Asset chapters for a number of renewable energy projects including Ballyfasy Wind Farm, Scart Mountain Wind Farm and Lissinagroagh Wind Farm.

## 11.2 Scoping and Consultation

An initial telecoms specific consultation exercise was carried out in February 2025 by Ai Bridges. This sought to assist in identifying telecommunication infrastructure that could be impacted by constructing wind turbines at the proposed wind farm site. The operators were requested to raise any concerns they may have regarding impacts to their networks due to the proposed wind farm development. The details relating to the findings of this exercise are provided in Appendix 11-1.

As part of the EIA scoping process, an Environmental Scoping Report was prepared and submitted to relevant statutory and non-statutory bodies in May 2026 for review and comment. This included telecommunication service providers. The Environmental Scoping Report was accompanied by a cover email, introducing the proposed project, and inviting comments or observations within a period of six weeks from the date of the email. A copy of the EIA Scoping Report is provided in Appendix 1-2 of this EIAR.

Responses received in relation to the material assets topic were primarily in relation to aviation, telecommunications, and utilities/ resources/ waste. Relevant responses are outlined in Section 1.9.4 of Chapter 1, which provides a summary of the consultees and responses received (or not received).

All EIA scoping responses can be found in Appendix 1-3 of this EIAR, which compiles the full responses received from consultees, which have been considered in the preparation of this chapter and elsewhere in the EIAR.

## 11.3 Assessment Methodology

### 11.3.1 Legislation, Policy and Guidance

This EIAR chapter and the assessment contained within has been carried out in accordance with the appropriate guidance documentation as follows:

- Environmental Protection Agency's (EPA) Guidelines on the information to be contained in the Environmental Impact Assessment Reports (2022) (hereafter referred to as the 'EPA EIAR Guidelines (2022)';
- Department of the Environment, Heritage and Local Government (DoEHLG), Wind Energy Development Guidelines (2006) (hereafter referred to as the 2006 WEDGs);
- Irish Wind Energy Association (IWEA), Best Practice Guidelines for the Irish Wind Energy Industry 2012; and
- European Commission, Guidance document on wind energy development and EU nature legislation (November 2020).

This chapter has had due regard to the Draft Revised 2019 WEDGs which are currently in draft form, but may be formally adopted prior to the determination of the planning application.

## 11.3.2 Scope of the Assessment

The methodologies used in Aviation, Telecommunications and other material asset assessments are provided in Sections 11.3.2.1, 11.3.2.2 and Section 11.3.2.3 respectively. The detailed assessment methodology for the Telecommunications assessment is provided within the "Rooaunalaghta Wind Farm – Telecommunications Impact Assessment Report" and "Rooaunalaghta Wind Farm TETRA Impact Study", both of which are included in Appendix 11-1 and 11-2 respectively. The detailed assessment methodology for the Aviation assessment is provided within the "Rooaunalaghta Wind Farm - Aviation Review Statement" which is included in Appendix 11-3.

Aspects which the EPA EIAR Guidelines (2022) (Table 1-1, Chapter 1) state should be examined as part of the environmental assessment of material assets include:

*"Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils."*

The primary potential sources of effects of the proposed project on the sensitive material assets receptors have been identified as follows:

- Interference with telecommunications activity (construction, operational and decommissioning phases);
- Interference with aviation activity (construction, operational, and decommissioning phases);
- Interference and/or disruption to existing utility assets and provision of services/supply (construction and decommissioning phases); and
- Waste generation and management activity (construction, operational and decommissioning phases).

### *11.3.2.1 Aviation*

The requirement for an assessment of the likely significant effects on aviation is set in the 2006 WEDGs (and Draft Revised 2019 WEDGs) which state:

*"The siting of wind turbines may have implications for the operations of communications, navigation and surveillance systems used for Air Traffic Control for the separation and safety of aircraft. Wind turbine siting may also have implications for the flight paths of aircraft."*

There are three primary stages in preparing and compiling an aviation review of the proposed wind farm site and surrounding environs which are explained in the section below:

- Consultation with relevant aviation authorities;
- Undertaking field surveys of the receiving environment; and
- Undertake desktop survey network modelling and analysis.

The aviation assessment takes into consideration; controlled, uncontrolled, and en-route civil aviation airspace, as well as military airspace.

Consultation commenced with relevant aviation operators in May 2026 as part of the EIA scoping consultation. Consultees were invited to identify any concerns they have regarding the effects of the proposed project on Aeronautical Surfaces, Instrument Flight Procedures,

Navigational Aids, Communications and Radar Surveillance networks. All Consultee responses can be found in Appendix 1-3.

A desktop assessment was undertaken, during which relevant aviation infrastructure and safeguarding constraints were identified and plotted relative to the proposed project using specialised modelling software incorporating Geographical Information System (GIS) and terrain datasets. This facilitated a detailed assessment of the potential for likely significant effects on aviation infrastructure and operations arising from the proposed project.

Ai Bridges reviewed the possible impacts of the proposed wind farm on aviation systems in the vicinity of the proposed wind farm site. As part of the review, the following subjects were considered:

- Annex 14 - Obstacle Limitation Surfaces (OLS);
- Annex 15 – Aerodrome Surfaces;
- Minimum Sector Altitudes (MSA);
- Building Restricted Areas (BRAs);
- Instrument Flight Procedures;
- Existing Wind Farms in vicinity of Proposed Wind Farm;
- Communication and Navigation Systems;
- Radar Surveillance Sensors;
- Flight Inspection and Calibration;
- Aeronautical Obstacle Warning Light Scheme;
- Irish Air Corps / Department of Defence Safeguarding;
- Garda Air Support Unit (GASU); and
- Emergency Aeromedical Service (EAS).

Appendix 11-3 (Rooaunalaghta Aviation Review Statement) provides further details of the assessment methodology and findings.

#### *11.3.2.2 Telecommunications*

There are three primary stages in preparing and compiling a Telecommunications Study which are explained in the section below:

- Consultation with relevant telecom operator;
- Field Surveys of the Receiving Environment; and
- Desktop Survey Network modelling and analysis.

A summary of each of these stages is provided below.

Consultations with telecommunication operators commenced by Ai Bridges in February 2025, with the telecommunication operators also included in the May 2026 EIA scoping exercise. The consultation process was used to assist in identifying telecoms infrastructure that could be affected by the proposed project. This consultation exercise was carried out with the following extensive list of telecommunications stakeholders:

- 2RN;

- Airwave;
- An Garda Síochána;
- Coimisiún na Meán;
- BT Ireland;
- CIE / Irish Rail;
- Department of Defence;
- EIR;
- Enet;
- ESB Networks;
- Imagine Broadband;
- AirNav;
- Uisce Éireann;
- Galway County Council;
- Mayo County Council;
- TETRA Ireland;
- Three Ireland;
- Viatel;
- Virgin Media; and
- Vodafone Ireland.

Field surveys of telecom mast-sites in the vicinity of the proposed wind farm site were undertaken and the co-ordinates of communication masts were recorded. During the field surveys, approximations of antenna size, bearing and height were made for the antennas installed on each of the masts surveyed.

A desktop survey was carried out to plot the proposed wind turbines using specialised radio planning software. The software uses GIS and terrain mapping databases to enable accurate modelling. The findings of the consultation process and field surveys were collated and communications networks requiring further assessment were identified. 3D network modelling was then used to assess the impact of the turbines on the telecommunications networks where further assessment was required. The results from the network modelling were used to inform the design of the wind farm and determine if mitigation measures will be required.

Further information on the methodology is provided in Appendices 11-1 and 11-2.

#### *11.3.2.3Other Material Assets*

In order to assess the likely significant effects to electricity, gas and water infrastructure, and waste services, the EIAR scoping exercise (see Section 11.2) was carried out to a number of key consultees, including Commission for Regulation of Utilities (CRU), Water & Energy, ESB, EirGrid, Uisce Éireann, and Mayo/Galway County Councils. Online resources such as 'Dial Before You Dig' from Gas Networks Ireland (GNI) were also utilised to check for locations of significant services.[1]

[1] https://www.gasnetworks.ie/gas-safety/dial-before-you-dig/online/user Accessed August 2026

### 11.3.3 Study Area

The study area, in relation to the assessment of aviation and telecommunications links, is based on the proposed turbine locations and their associated dimensions. The particular location of turbines and their dimensions on a site have the potential to impact upon aviation activities and telecommunication links which may pass through or nearby. Depending on the site location, buffers may be required by the design or mitigation measure may need to be applied. Where potential impacts are identified, appropriate safeguarding requirements, separation distances and consultation with relevant stakeholders will inform project design and any necessary mitigation measures.

The study area for the assessment of material assets in relation to 'other material assets', primarily relates to the presence of utility infrastructure and possible interaction with such (i.e., electrical infrastructure, water services, gas networks infrastructure and telecommunications infrastructure) within the works areas of the proposed project. This includes the areas within and immediately surrounding the proposed wind farm site, along the proposed Grid Connection Route (GCR) and Turbine Delivery Route (TDR) nodes.

In relation to the proposed TDR, utility infrastructure at each of the node locations (see Chapter 2 of the EIAR for further details) will be identified at pre-construction stage. A confirmatory survey of all existing utility services at these locations will be carried out prior to construction to verify the assumptions in this report and identify the precise locations of any services. Where assets / services are identified, the Applicant will liaise with the service provider and efforts will be made to limit disruption to service.

The assessment of 'other material assets' also considers the proximity of the proposed wind farm site to mineral resources (i.e., quarries) and waste management infrastructure within County Mayo, County Galway and if required, its surrounding counties.

### 11.3.4 Assumptions and Limitations

Due diligence checks were conducted on all data received however, the findings of the Aviation and Telecommunications assessments are subject to the accuracy of the information provided to Ai Bridges by the Telecommunications Operators (e.g., telecommunications mast co-ordinates, radio antenna heights, radio link status etc.). The accuracy of the data received was verified during the field surveys and any inaccuracies found are highlighted and use of the accurate survey data is agreed with the Telecommunications Operators.

## 11.4 Receiving Environment

### 11.4.1 Aviation

The nearest significant aviation installation to the proposed project is Ireland West Airport, located approximately 49 km northeast of the proposed wind farm site (see Figure 11- 1). Ireland West Airport operates within Class C controlled airspace and is served by a range of aeronautical navigation aids, including Doppler Very High Frequency Omnidirectional Range with Distance Measuring Equipment (DVOR/DME), Non-Directional Beacon (NDB), and Instrument Landing Systems (ILS). It should also be noted that there are other existing tall structures (obstacles) nearer to the airport than the currently proposed wind farm site, e.g. the telecom masts at Croaghmoyle and the operational wind farms at Ballykinava, Cloontoa, Magheramore, Cuillilea, Lenavavea, Raheen Barr, and Derrynadivva.

The proposed project is also located in the wider vicinity of AirNav Ireland radar installations at Dooncarton, Shannon Airport and Woodcock Hill, which form part of Ireland's aviation surveillance infrastructure.

A review of aviation safeguarding constraints indicates that the proposed project is located outside the Obstacle Limitation Surfaces (OLS), Annex 15 Aerodrome Surfaces, Building Restricted Areas (BRAs), Minimum Sector Altitude (MSA) sectors and Instrument Flight Procedure safeguarding areas associated with Ireland West Airport.

Additional detail regarding the existing aviation environment (including consultation responses) is provided in Appendix 11-3 (Rooaunalaghta Wind Farm Aviation Review Statement).

**Figure 11- 1: IAA Radar Stations and Ireland West Airport in relation to the Proposed Wind Farm Site (Extracted from Appendix 11-3).**




### *11.4.1.1 Irish Air Corps / Department of Defence Safeguarding*

The Irish Air Corps position regarding wind farms and tall structures is outlined in the publication Air Corps Wind Farm / Tall Structures Position Paper (2014). The document identifies a number of restricted and safeguarded areas where wind turbines or other tall structures may affect military aviation operations. Assessment undertaken for the proposed

project indicates that the proposed wind farm site is located outside the restricted areas identified by the Irish Air Corps. For further information see Appendix 11-3.

#### *11.4.1.2 Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)*

The Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS) were considered as part of the aviation assessment. GASU operations are based from Casement Aerodrome, Baldonnel, while the EAS operates from bases at Custume Barracks, Athlone and Rathcoole Aerodrome, Co. Cork.

A review of GASU and EAS operations concluded that the proposed project is located in an area where significant effects on these aviation services are unlikely. In the event that the proposed project is constructed, turbine locations would be incorporated into relevant aeronautical datasets and aviation charts in accordance with standard aviation procedures. For further information see Appendix 11-3.

### 11.4.2 Telecommunications

As described in Section 11.2 above, a comprehensive list of telecommunication operators were consulted to identify any potential effects to existing telecommunication links in the area. Table 11- 1 provides information on the observations received during this exercise. Telecommunication scoping responses can be reviewed in Appendix 1-3.

Following receipt of the telecommunications consultation responses, the information provided by telecommunications operators was incorporated into the design and assessment process for the proposed project. Information relating to telecommunications infrastructure, including microwave radio links, telecommunications mast sites and Terrestrial Trunked Radio (TETRA) Ireland network infrastructure, was reviewed as part of the project design process.

The telecommunications information received through consultation was incorporated into GIS mapping and specialist radio-planning software to identify existing telecommunications infrastructure in the vicinity of the proposed project. This data, together with other environmental and technical constraints identified through the EIA process (including ecological, hydrological and residential amenity constraints), informed the iterative design process for the proposed project. Previous design iterations are discussed in Chapter 3 of this EIAR.

**Table 11- 1: Telecommunication Consultation key response summary (See Appendix 11-1 for further details**

| Consultee | Summary of Response(s) |
|---|---|
| 2RN | No issues were identified regarding transmission links in the area. However, 2RN requested that a protocol agreement be put in place in relation to television broadcast services should the proposed project proceed. |
| CIE/Irish Rail | CIE advised that the proposed project is located within the Global System for Mobile Communications – Railway (GSM-R) coordination zone. CIE noted that coordination between operators may be required where wind farms are located within the coordination zone. The nearest railway line is more than 10 km from the proposed project and no impact on the GSM-R network was identified. |
| Eir | Eir identified three licensed point-to-point microwave radio links in the vicinity of the proposed project. |

| | |
|---|---|
| Imagine Broadband | Imagine Broadband identified one microwave radio link in the vicinity of the proposed project. |
| TETRA Ireland | TETRA Ireland raised a concern about one TETRA Base-station. |
| Three Ireland | Three Ireland identified four licensed point-to-point microwave radio links in the vicinity of the proposed project. |
| Vodafone Ireland | Vodafone identified one microwave radio link crossing the proposed project area. |

Based on the findings of the consultation process, five telecommunications operators were identified as having infrastructure requiring detailed technical assessment in the vicinity of the proposed project:

- Eir Network;
- Imagine Broadband Network;
- TETRA Ireland Network;
- Three Ireland Network; and
- Vodafone Ireland Network.

Section 5 of Appendix 11-1 shows 2D plan views of all the highlighted radio links relative to the proposed wind farm site. To further assess the potential for likely significant effects of the proposed turbine layout, the turbines and all the radio links have been modelled in 3D, as shown in Section 5 of Appendix 11-1. The clearance distances between the Fresnel Zone (F1) of each radio link and the blade-tip of the nearest turbine(s) have also been calculated and are detailed there.

In September 2025, during the consultation exercise, TETRA Ireland raised concerns regarding the possible impact of the proposed development on TETRA Ireland service coverage from their base-station at Brodullagh South. TETRA Ireland specified a 500 m exclusion zone from this base-station and this has been plotted and is shown, relative to the proposed wind farm site, in Figure 2 of Appendix 11-2.

A desktop survey was undertaken to predict TETRA Ireland service coverage in the Rooaunalaghta area for both the pre-construction and operational phase for the proposed project. This could then be used to assess likely significant effects on TETRA Ireland service coverage due to turbines at the proposed wind farm site. Following on from the desktop study, extensive field driving surveys were conducted in the service coverage area of the Brodullagh South TETRA Ireland base-station. The results show relatively good TETRA Ireland coverage in the area. No service coverage blackspot areas were recorded during the field surveys. See Appendix 11-2 for full details.

### 11.4.3 Other Material Assets

Uisce Éireann provided data on the water infrastructure along the proposed GCR where ground works will be carried out. This data has been incorporated into the planning drawings that accompany the planning application. Regardless, all underground services will need to be mapped (via desk and field surveys) prior to any construction works.

No further responses were received from consultees issued with the EIA scoping report, regarding specifics to Material Assets. Full details of the scoping responses received are provided in Chapter 1 and Appendix 1-3 of this EIAR.

In order to facilitate the installation of the proposed GCR, it may be necessary to relocate existing underground services such as water mains, telecom networks or existing cables. In advance of any construction activity, the contractor will undertake detailed surveys and scans of the GCR to confirm the presence or otherwise of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works.

#### *11.4.3.1 ESB Supply*

ESB Networks (ESBN) utilities identified within and immediately surrounding the proposed wind farm site and along the proposed GCR are summarised below:

- Low voltage (LV) overhead lines (OHL) and pole sets at various locations, mostly along the road network;
- A 38 kV line running through the proposed wind farm site; and
- A 110 kV High Voltage (HV) line running adjacent to the proposed 110 kV substation location.

It is also possible that there might be some underground electricity cables discovered during the proposed construction works, particularly near public roads and houses or farmyards (such as along the proposed GCR road crossing and the proposed area of works on the TDR).

There are a number of electricity cables near the proposed TDR nodes, although there are no known cables within the actual works footprint.

#### *11.4.3.2 Gas Supply*

Data was reviewed in relation to gas networks infrastructure, including information obtained from the GNI 'dial before you dig' service. No gas network infrastructure was identified within or immediately surrounding proposed wind farm site or along the GCR. The nearest gas infrastructure was over 1 km to the east of the proposed 110 kV substation location (and GCR). Gas network infrastructure has been identified on the opposite side of the road at the location of the proposed temporary accommodation works on the TDR at node number 6 (Figure 11- 2 and see pinch point 6 in Appendix 2-4). They show no infrastructure within or adjacent to the proposed wind farm site and GCR.

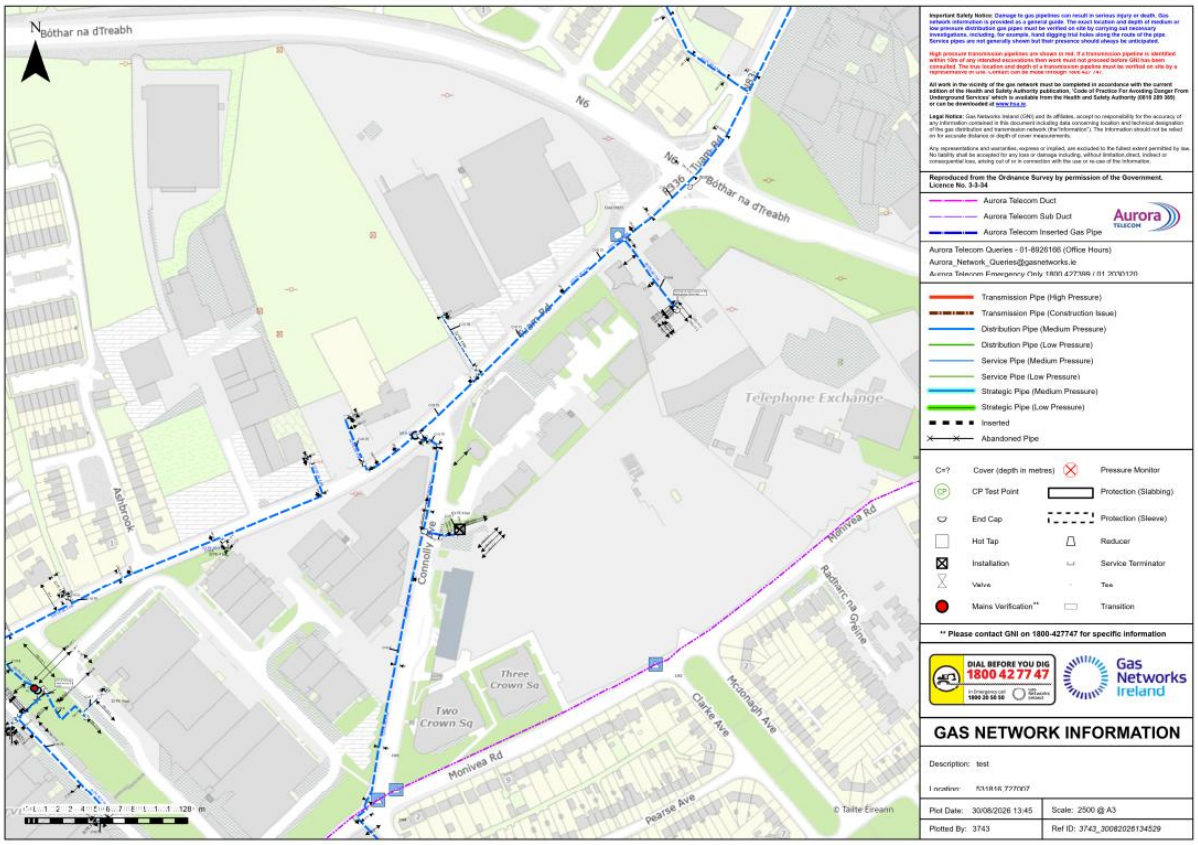



**Figure 11- 2: Gas Pipes near proposed TDR works area. Taken from the "Dial before you dig online" service.**

### *11.4.3.3Waste Management*

A desktop study of all available information from the EPA was undertaken to identify any waste or industrial licensed facilities within a 10 km radius of the proposed wind farm site. No waste sites were identified within the 10 km search area. The nearest licensed waste facilities to the proposed wind farm site are the Carrowbrowne Landfill Site, which is situated in Carrowbrowne, Co. Galway, approximately 21 km south of the proposed wind farm site and Galway Corporation Depot, which is situated just outside Galway City in the Liosban Estate, approximately 25 km southeast of the proposed wind farm site.

Further details of the nearest sites and their licences are identified in

Table 11- 2 below.

Table 11- 2: Waste Licence Facilities surrounding the proposed wind farm site

| County | License No. | Operator | Location | Distance to Site (km) | Status |
|---|---|---|---|---|---|
| Galway | W0013-01 | Carrowbrowne Landfill site | Carrowbrowne, Headford Rd, Galway | 21 km | Licensed |
| Galway | W0166 | Galway Corporation Depot | Liosban Industrial Estate, Galway | 25 km | Licensed |
| Galway | W0148-01 | The City Bin Co. Waste Management | Carrowmoneash, Oranmore, Galway | 28 km | Licensed |
| Mayo | W0021-02 | Derrinumera Landfill facility | Derrinumera, Newport, Mayo | 46 km | Licensed |
| Roscommon | W0059-03 | Ballaghaderreen Landfill | Ballaghaderreen, Roscommon | 55 km | Licensed |
| Roscommon | W0073-01 | Roscommon Landfill Facility | Killarney Townland, Roscommon | 65 km | Licensed |

In relation to EPA licensed IE/IPC sites, there are a number within a 30 km radius of the proposed wind farm site, in Galway City to the south and in Ballinrobe to the northwest:

- Martin Jennings Wholesale Ltd -Registration No. P0859-01, Knockferreen, Neale Road, Ballinrobe, County Mayo (Lic 7.4.1, The operation of slaughterhouses with a carcass production capacity greater than 50 tonnes per day) 14 km;
- McHale Engineering Unlimited-Registration No. P0988-01, Rathcarreen, Ballinrobe, County Mayo (Lic 12.3) (The surface treatment of metals and plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 $m^3$) 16 km;
- Ballinrobe Biogas Ltd-Registration No. 1005-01, Levalley, Ballinrobe, County Mayo, (Lic 11.1, Is an industrial emissions directive activity, in so far as the process development or operation specified in 11.1 is carried on in an installation connected or associated with another activity that is an industrial emission directive activity)) 16 km;
- Mr John Sheridan, Registration No. P1037-01, Levally, Ballinrobe, County Mayo, (Lic 11.4, Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. 254 of 2001));
- Earrai Coillte Chonnacht Cuideachta Neamhtheoranta , Registration No. P0355-02, Corr na Mona, Galway, Galway, F12F406. (8.3, The preservation of wood and wood

products with chemicals with a production capacity exceeding 75 $m^3$ per day other than exclusively treating against sapstain);

- Joseph Divilly & Sons Limited, Registration No. P0964-01, Lettera, Glenamaddy, Galway, (6.1(a), The rearing of poultry in installations where the capacity exceeds 40,000 places);
- Mr Paraig Kiely, Registration No. P0923-01, Carrowhauny, Ballyhaunis, Mayo, (6.1(a)), 34 km;
- Medtronic Vascular Galway Unlimited Company, Registration No. P0264-02, Parkmore Industrial Estate, Galway, Galway, (12.2.2) 25 km;
- Boston Scientific Limited, Registration No. P0725-02, Ballybrit Business Park, Galway, H91 Y868, (12.2.2);
- Irish Finishing Technologies, Registration No. P0279-01, Riverside Industrial Estate, Tuam Road, Galway;
- Nellcor Puritan Bennett Ireland Ltd, Registration No. P0285-01, Michael Collins Road, Mervue, Galway;
- Galway Metal Company Limited, Registration No. P1006-03, Carrowmoneash, Oranmore, Galway, H91V96X, (11.4(b)(iv), pre-treatment of waste for incineration or co-incineration);
- Hygeia Chemicals Limited, Registration No. P0324-01, Carrowmoneash, Oranmore, Galway (5.8, The formulation of pesticides, not included in paragraphs 5.12 to 5.17.);
- Colas Bitumen Emulsions (West) Limited, Registration No. P0056-01, Oranmore, Galway (5.12(k), The production of organic chemicals, such as, surface-active agents and surfactants.);
- Chemoran Limited, Registration No. P1169-01, Deerpark Industrial Estate, Oranmore, Galway, Galway, H91 D934, (5.12 (k)); and
- APW Galway Limited, Registration No. P0133-02, Deerpark Industrial Estate, Oranmore, Galway, Galway, (12.2.2).

The nearest Section 4 discharge licensed site identified is approximately 7.5 km east of the proposed wind farm site, and >1 km southeast of the proposed 110 kV substation location.

#### *11.4.3.4 Water*

Chapter 9 of this EIAR confirms that there are no surface water abstractions located within the proposed wind farm site. A review of the Geological Survey Ireland (GSI) wells database and site-specific investigations identified no registered groundwater abstraction boreholes within approximately 600 m of the proposed turbine locations, although a conservative assumption was adopted that individual dwellings may be served by private wells unless otherwise confirmed. One former abstraction borehole was identified within the proposed wind farm site; however, this borehole is no longer in use according to the landowner. The site is served by

public and group water supply infrastructure, including the Glencorrib Group Water Scheme network in the wider area. During consultation, the Glencorrib Group Water Scheme provided a detailed map with the locations of all their existing pipeline infrastructure in the area, and the proposed project has been designed to minimise any potential interactions and impacts on this. The proposed project is not located within a Source Protection Zone or Zone of Contribution for any mapped public water supply. For further information, see Section 9.4.2.5 in Chapter 9 of the EIAR.

#### *11.4.3.5 Natural Resources – Minerals and Aggregates and Quarries*

A number of quarries, concrete and aggregate facilities are present in the vicinity of the proposed project and the wider area, ranked in order of their proximity to the proposed wind farm site below, including:

- Joyce's Marble Quarries, Operational, 50 km;
- Paul Joyce Quarry, (QS1373), Co. Mayo (adjacent);
- Denis King Quarry (QS1372), Co. Mayo (>1 km);
- Peter King Quarry (QS1371), Co. Mayo (>1 km);
- Martina McDonagh Quarry, (QS1545), Co. Galway (5 km);
- Frank Mortimer (QS1546), Co. Galway (5 km);
- Philip Reddington (QS1544), Co. Galway (6.5 km);
- Coleman Quarries Ltd 2 (QS1379), Co. Mayo (7 km);
- Galway Co. Co. (QS1550), Co. Galway (11 km);
- McGrath Limestone Works Ltd (QS1568), Cong, Co. Galway (12 km); and
- Frank Harrington Ltd, (QS1597), Co. Galway (17 km).

The nearest of these sites identified is the Paul Joyce Quarry which is directly adjacent to the proposed wind farm site. This is operated by P&D Lydon.

Likely significant effects on Mineral/Aggregate Resources associated with the proposed project are discussed in Chapter 8 of the EIAR.

## 11.5 Assessment of Effects

### 11.5.1 Embedded Mitigation

In order to minimise potential effects on residential amenity, the design of the wind farm achieved a minimum set-back of 4 times tip height to the nearest point of curtilage of non-financially involved dwellings in line with the setback requirements in the 2006 WEDGs and Draft Revised 2019 WEDGs.

The proposed layout has achieved a high level of separation between dwellings and turbines by providing a minimum separation distance of 600 m to the nearest point of curtilage of non-financially involved dwellings.

All turbines comply with this minimum setback distance of 600 m with the exception of one consenting/involved residential property Receptor ID 377, which is located approximately 580 m from turbine T8. Written consent has been provided by the landowner.

Extensive consideration has been given to the layout of the proposed wind farm site and the positions of the 13 no. turbines in ensuring sufficient set-back distances from sensitive receptors and adjustment for minimising any potential impacts on telecommunication links and aviation. Extensive consideration has been given to the proposed project design and proposed GCR, and proposed TDR nodes to minimise the potential for effects.

During the construction phase, wastewater from the staff welfare facilities will be managed by means of a sealed storage tank, with all wastewater being tankered off-site occasionally (as required) by a permitted waste collector to a wastewater treatment plant. The permitted waste collector will also be responsible for ensuring clean water storage tanks are topped up. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. Low volume flush toilets (such as those in commonly used port-a-loos) and low volume sink faucets will be used to significantly reduce the volume of wastewater produced. In addition, the number of staff is likely to fluctuate rather than being constantly at 60 people per day, thereby reducing the volume of wastewater produced.

During the operational phase, a low-flush cistern will be fitted to reduce the volume of wastewater produced and a rainwater harvesting system will be used as the source of water for this and hand-washing basin, with all potable water being brought onsite in bottles.

## 11.5.2 Future Baseline Scenario

Should the proposed project not be constructed, there will be no potential for likely significant effects on aviation or telecommunications services, or other material assets. The existing lands will continue to be used for current/existing land uses, including agriculture with little or no changes in the baseline at the proposed wind farm site, the proposed GCR, and the proposed TDR nodes. The telecommunication links are likely to keep operating in the area, while there will likely be no localised aviation restrictions. The underground services and waste infrastructure will continue to be utilised as they currently are with regular/ongoing maintenance and repairs.

## 11.5.3 Construction Phase

### *11.5.3.1 Construction Phase – Aviation*

Taking into account the works proposed as part of the proposed project, the consultation feedback which was obtained, and the location remote from aviation infrastructure, as assessed in the Rooaunalaghta Wind Farm Aviation Review Statement (Appendix 11-3), **no significant effects** are anticipated during the majority of the construction phase in relation to aviation. For the final part of this phase (during turbine erection and commissioning), effects will be similar to the operational phase.

### *11.5.3.2 Construction Phase – Telecommunications*

The assessment in terms of telecommunications links is based on the proposed turbine locations and dimensions. The proposed wind farm site layout has been designed to avoid any impacts to telecommunications links in the area, therefore, there will be no potential for effects during the majority of the construction phase.

The construction works as part of the proposed GCR, and proposed TDR works areas will not have the potential to cause an effect for telecommunication links.

Potential interference to communication links during the construction phase is unlikely. Any interference would be very limited and would only be possible in the final stages of construction when cranes are being used to erect the turbines, and when the turbines have been erected (prior to commissioning). This would have the potential for a **brief** to **temporary**, **slight**, **adverse** effect.

### *11.5.3.3Construction Phase – Other Material Assets*

#### Utilities

Construction works requiring excavation have the potential to disrupt utility assets, particularly where utilities are present underground.

In the unlikely event that any unknown utility assets are discovered, there is potential to affect local network supplies, causing a temporary, slight, adverse effect.

In order to mitigate against such effects during the construction phase, mitigation measures have been set out in Section 11.6.1.3.

#### ESB

As part of the construction phase for the proposed project, it will connect into the national electricity grid via a loop-in connection to the existing 110 kV OHL in the townland of Killamanagh, Co. Galway. There will be no effect on the existing ESBN infrastructure in the area with the exception of the short period when the proposed end masts are being connected to the OHL. This will be a temporary slight adverse effect.

It is unlikely that unknown underground ESB / electricity network infrastructure will be encountered during the construction of the proposed project. In the unlikely event that any unknown services are discovered during excavation works, there is potential to have an effect on local network supplies, causing a **brief**, **slight**, **adverse** effect. Damaging an underground or overhead electricity cable may have the potential to cause serious harm or death (see Chapter 18).

#### Water

The water network infrastructure was assessed for the proposed project. However, along the GCR, existing Uisce Éireann and local Group Water Scheme (GWS) infrastructure will be encountered, and these crossing details are identified in the drawings which accompany this planning application. They show locations of the intersections and details of the under or over methods to cross these existing buried services. Consultation with Uisce Éireann was carried out to determine this and will need to be updated to ensure compliance at detailed design and construction phase.

It is unlikely that unknown underground water network utilities will be encountered during the construction of the proposed project. In the unlikely event that any unknown services are discovered during excavation works, there is potential to have an effect on local network supplies, causing a brief, slight, adverse effect.

In terms, of water consumption, the average flow rate for design is approximately 60 litres, per person/day, for an open construction site[2] based on the Uisce Éireann 2025 Code of Practice.

[2] Code of Practice for Wastewater Infrastructure, Uisce Éireann, August 2025 (Revision 3) - https://www.water.ie/sites/default/files/2025-08/Code-of-Practice-for-Wastewater-Infrastructure-CDS-5020-03-Rev-03.pdf

Based on an average of 50 construction staff on site over a 48 week construction period (Chapter 2, Section 2.8.1 of the EIAR references approximately 60 jobs are anticipated during the peak construction phase) the maximum total wastewater generation for the project is estimated at approximately 1.9 million litres. Wastewater will be removed off site as required by a permitted waste collector. Potable water would be supplied in large bottles for the wind farm site.

As described, during peak construction the quantities of wastewater are not anticipated to be significant, therefore a **short-term**, **imperceptible**, **adverse** effect on local wastewater management services is predicted.

### Gas Supply

No gas network infrastructure was identified within or immediately surrounding the proposed wind farm site or along the GCR.

During construction, the locations of any identified infrastructure will be marked to ensure there are no ground works within the immediate areas of the gas lines.

As mentioned in 11.4.3.2, a TDR works area is located adjacent to existing service gas pipes, therefore has the potential to interact with some gas network infrastructure if ground excavation works occur in that area. In the unlikely event that unknown underground gas network infrastructure will be encountered and discovered during excavation works (or the known pipe is damaged), there is potential to have an effect on local network supplies, causing a **temporary, slight, adverse effect**.

### Waste Management

The construction phase will have the potential to produce municipal waste (site office, canteen), wastewater (site welfare facility) and construction waste (wood, packaging, metal, etc.) which will need to be processed at appropriate local licensed waste processing facilities.

The EPA reports on national waste generation statistics on a regular basis. The latest reference year available at the time of writing (September 2026) in terms of Construction and Demolition (C&D) waste statistics is 2024, released in June 2026. The EPA reports that 7.9 million tonnes of C&D waste was managed in Ireland in 2024, a slight decrease on the previous year (9 million tonnes) (EPA, 2026). The overall composition of C&D waste generated has changed slightly between 2023 and 2024.

In 2024, soil and stones (and similar material) made up the vast majority (77%) of C&D waste collected, dropping only slightly from 2023 (81%). The next largest C&D waste types generated in 2023 were concrete, brick, tile and gypsum waste at 7% (remaining similar to 2023 at 6.7%), and mixed C&D waste at 11% (an increase on 7.5% in 2023). The proportion of segregated (wood, paper, glass, plastic and metal) waste collected remained small at less than 1% (EPA, 2024b).

In Ireland, the vast majority of C&D waste (95%) underwent final treatment in Ireland in 2024, with 5% exported abroad for final treatment. Most C&D waste was backfilled (73%), with only 10% recycled and 12% sent for disposal. Recycling was the main treatment operation for metals at an almost 100% recycling rate (EPA, 2026b).

C&D waste can vary depending on the nature of the project, and waste types and volumes can vary significantly from one project to another, depending on project type and the waste management practices employed on-site. The assessment of management of cut/fill volumes (soil and stone volumes requiring management) are addressed in Chapter 8 of the EIAR. Volumes of other C&D waste types (e.g., concrete, brick, tile and gypsum waste, mixed C&D waste, and wood, paper, glass, plastic and metal) are anticipated to be small and will be segregated and managed appropriately on site and will be removed off site to a suitably licensed facility by a permitted waste collector.

In terms of municipal waste, the amount generated in Ireland was 3.11 million tonnes in 2024, remaining similar to the 2023 figure of 3.13 million tonnes (CSO, 2026). Based on the population, the municipal waste per capita figure for 2024 stands at 578 kg per person[3] (CSO, 2026). As the municipal waste average accounts for household waste collections, an assumption of 50% of this average has been taken for an employee during construction. Based on a 24-month construction period and up to 60 construction staff (Chapter 2, Section 2.8.1) each year, the maximum municipal waste generated for the proposed project is expected to be in the region of 69,360 kg over 2 years. This is a worse-case assessment based on national statistics for the average person.

Of this total, according to the National Waste Statistics figures for treatment of municipal waste in 2024, approximately 26.6% will be recycled, 41.1% will undergo energy recovery, 15.9% will be composted / undergo anaerobic digestion (AD), and 15.2% will be sent to landfill[4] (EPA, 2026a).

Under the assumption that waste generated during the construction phase will undergo similar management and treatment, over the construction period for the proposed project the following is anticipated, approximately:

- 18,450 kg will be recycled;
- 28,507 kg will be treated through energy recovery;
- 11,028 kg will be composted / undergo AD; and
- 10,543 kg will be sent to landfill.

During peak construction, the quantities of municipal waste and other C&D waste types (e.g., concrete, mixed C&D waste, and wood, paper, glass, plastic and metal) are not anticipated to be significant. A **short-term**, **adverse**, **not significant** effect on waste management services is predicted. This effect will be permanent for any waste removed from site to landfill.

Details of required construction materials and any subsequent waste generated (i.e., cut/fill (soil and stone volumes requiring management)) from the construction phase are provided and assessed as part of Chapter 8 of this EIAR. Effects on Mineral/Aggregate Resources associated with the proposed project are also discussed / assessed in Chapter 8 of the EIAR.

[3] Latest reporting year for National Waste Statistics - https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/construction--demolition/#d.en.134085

[4] EPA National Waste Statistics for 2022 note that the remaining 2% of municipal waste is 'unmanaged' or undergoes 'other recovery' - https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/municipal/

## 11.5.4 Operational Phase

### *11.5.4.1Aviation*

An assessment of the closest aviation infrastructure to the proposed wind farm site indicates that there will be no significant potential effects to aviation as a result of the proposed wind farm site. The scoping consultation exercise did not raise any significant operational phase concerns for the proposed project in relation to aviation. The principal observations arising from the assessment relate to the requirement for aeronautical obstacle lighting, inclusion of turbine information within relevant aviation datasets and engagement with the Department of Defence regarding aviation lighting requirements.

A summary of the main assessment findings is provided in Table 11- 3. Full details are provided in Appendix 11-3 (Rooaunalaghta Wind Farm Aviation Review Statement).

**Table 11- 3: Rooaunalaghta Wind Farm - Aviation Review Summary**

| Item | Impact | Summary |
|---|---|---|
| Annex 14 - Obstacle Limitation Surfaces (OLS) | None | The proposed project is located outside the Outer Horizontal Surface and associated safeguarding surfaces for Ireland West Airport. No impacts on OLS safeguarding surfaces are anticipated. |
| Annex 15 - Aerodrome Surfaces | None | The proposed project is located outside the ICAO Annex 15 Aerodrome Surface associated with Ireland West Airport. However, turbine details may be required to be included in the relevant Irish Aviation Authority (IAA) obstacle datasets. |
| Building Restricted Areas | None | The proposed project is located more than 40 km from the Building Restricted Areas associated with Ireland West Airport and would not affect safeguarded navigation facilities. |
| Minimum Sector Altitudes (MSA) | None | The proposed project is located outside the MSA sectors associated with Ireland West Airport and would not affect published minimum sector altitudes. |
| Instrument Flight Procedures | None | A screening review shows that the instrument flight procedures for Ireland West Airport are unlikely to be impacted. |
| Communication and Navigation Systems | None | The proposed project is located more than 45 km from communication and navigation facilities at Ireland West Airport and is not expected to affect these systems. |
| Radar Surveillance Sensors | None | The proposed turbines would be located within Assessment Zone 4 under the EUROCONTROL guidance for the relevant radar installations (Dooncarton, Shannon and Woodcock Hill). Detailed radar assessment is not anticipated to be required. |
| Flight Inspection and Calibration | None | The proposed project is sufficiently distant from Ireland West Airport that significant effects on flight inspection and calibration procedures are not anticipated. |
| Aeronautical Obstacle Warning Light Scheme | Observation | It is possible that AirNav Ireland may request that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance to industry standards. Subject to further consultation with AirNav Ireland. |
| Irish Air Corps / DoD Safeguarding | Observation | The proposed project is located outside the restricted areas identified by the Irish Air Corps. In accordance with Department of Defence consultation responses, consideration should be given to military |

| Item | Impact | Summary |
|---|---|---|
| | | aviation lighting requirements and any future radar safeguarding requirements. |
| Garda Air Support Unit (GASU) | None | A review of GASU operations indicates that they are unlikely to be impacted by the proposed project. |
| Emergency Aeromedical Service (EAS) | None | The proposed wind turbines would be required to be included in the IAA Obstacle Data Set. The assessment concluded that significant effects on EAS operations are unlikely. |

A potential **long-term slight adverse effect** related to aviation is anticipated during the operational phase before considering mitigation.

### *11.5.4.2 Telecommunications*

Turbines can interfere with microwave communications link systems, as they can cause electro-magnetic interference and/or reflect and physically block microwave link signals. The most effective way to identify the presence of telecommunication links in the area is through consultation with the telecommunication / service providers and Commission for Communications Regulation (ComReg), as described above.

Results from the telecommunication operator consultations and desktop survey analysis indicate that a number of telecommunications networks requiring detailed assessment, including licensed point-to-point microwave radio links operated by Eir, Three Ireland, Vodafone Ireland, and Imagine Broadband. Specialist radio-planning software and three-dimensional modelling were used to assess the potential effects of the proposed project on these networks. The assessment identified the potential for impacts on these licensed microwave radio links and telecommunications assets. In the absence of any mitigation, there would be a potential for significant long-term adverse effects to the telecommunication assets in the area during the operational phase.

The findings of the desktop study and the field survey on the TETRA Ireland network show that in a worse-case scenario, turbines located with 500 m of the Brodullagh South TETRA Ireland base station could cause some degradation to service coverage. Any degradation will be limited to a small area on the eastern side of the proposed wind farm site, just southeast of the TETRA Ireland base station. Field Survey findings show that there are 22 no. other base stations in the area providing additional coverage in this area. When signal reception from the Brodullagh South base station is excluded, there is still adequate TETRA Ireland coverage from the neighbouring base stations. Therefore, there would be no blackspot areas in TETRA coverage due to the proposed project. Based on the findings in Appendix 11-2 of the EIAR, the effects without any mitigation are unlikely, long term, moderate adverse.

The proposed GCR and TDR would have no potential for significant effects to telecommunications during the operation phase.

In addition to major telecommunication links, wind turbines have the potential to have an effect on the delivery of telecommunication signals to end users, for example by preventing the radio or television signal reaching a house from a transmitter through electro-magnetic interference or physically blocking the signal. In the absence of any mitigation, this would result in an unlikely, **slight**, **long-term**, **adverse** effect.

### *11.5.4.3Other Material Assets*

#### ESB / Gas / Water Supply and Distribution

During the operational phase, there will be no excavation activities, only general wind farm maintenance work will take place on the proposed wind farm site. Therefore, there are no effects on the local underground utility networks including water, gas, and electricity predicted.

#### Waste Management

The operational phase is anticipated to have an extremely low rate of production of municipal waste and wastewater (site welfare facility) which will need to be processed at a licensed local waste processing facility. The quantities of these wastes are anticipated to be significantly smaller than the construction phase, on the basis that once operational, it is estimated that the proposed project will support two to three full-time long term, high quality technical jobs on site in operation and maintenance.

During the operational phase all waste materials will be removed offsite to an appropriately permitted or licensed waste disposal / recovery facility. All such waste will be transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Acts 1996 to 2011).

Therefore, while waste will be generated during the operational phase of the proposed project, all such waste will be managed in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance.

Based on the latest National Waste Statistic data for Ireland (EPA, 2023), the maximum municipal waste generated each year for the proposed project is expected to be in the region of 870 kg (based on 3 no. employees). This is a worse-case assessment for the proposed project based on national statistics for the average person.

According to the national statistics total, approximately 26% will be recycled, 43% will undergo energy recovery, 15% will be composted / undergo anaerobic digestion (AD), and 14% will be sent to landfill, equating to the following annual estimated waste volumes over the operational period for the proposed project:

- 226 kg will be recycled;
- 374 kg will be treated through energy recovery;
- 130 kg will be composted / undergo AD; and
- 122 kg will be sent to landfill.

The operation of the proposed GCR will have no potential for direct significant effects to other material assets infrastructure (i.e., utility services) or resources (i.e., minerals/aggregates/quarries) during the operational phase. There will be a potential long-term, imperceptible, adverse effect on local waste services related to any waste generated during the operation and maintenance of the proposed project. This effect will be permanent for any waste that goes to landfill.

During the operational period requirement natural resources (i.e., minerals/aggregates) are not anticipated to be significant. A **long-term**, **neutral**, **not significant** effect on natural resources is predicted.

### 11.5.5 Decommissioning Phase

The wind turbines are expected to have a lifespan of 35 years. Following the end of their useful life, the wind turbines may be replaced with a new set of machines, subject to planning permission being obtained, or the site will be decommissioned fully, with the exception of the electricity substation and site roads and drainage.

Upon decommissioning of the proposed project, the wind turbines will be disassembled in reverse order to how they were erected. All above ground turbine components will be separated, cut up to allow them fit on a standard articulated lorry and removed off-site for recycling.

Turbine foundations will remain in place underground and along with hardstands will be allowed to revegetate naturally. Leaving the turbine foundations and hardstands in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete and steel from the ground could result in potentially needless environment nuisances such as noise, dust and/or vibration. There would be no real environmental benefit from removing the foundations, as the concrete is underground, stable and inert if untouched. The site roadways will be in use for additional purposes to the operation of the wind farm (e.g. for forest/agricultural access) by the time the decommissioning of the project is to commence, and therefore it is more appropriate to leave the site roads in situ for future use.

The proposed 110 kV substation and associated grid connection will not be removed at the end of the useful life of the wind farm project as it will form part of the national electricity network. Therefore, the proposed 110 kV substation will be retained as a permanent structure and will not be decommissioned.

Should decommissioning be required, the activities required to facilitate wind turbine decommissioning and removal from site will be similar to those outlined for the construction phase, albeit in reverse and to a lesser extent and duration than during the construction phase. Therefore, for the purpose of this assessment, it is anticipated that the effects on telecommunications, aviation and other material assets receptors associated with decommissioning phase will be no greater than those identified for the construction phase. Therefore, effects associated with the decommissioning phase are considered to be **short-term**, **adverse** and **not significant**.

## 11.6 Mitigation Measures

The Mitigation Measure requirements for Aviation, Telecommunications and other material assets are provided in Sections 11.6.1 to 11.6.3 which follow.

### 11.6.1 Construction Phase

#### *11.6.1.1Aviation*

No significant effects on aviation are anticipated during the proposed construction phase. Therefore no specific mitigation measures are proposed in terms of aviation apart from the following standard practices that will be undertaken:

- An aeronautical warning light scheme will be agreed with the IAA and Irish Air Corps;
- The final as-constructed coordinates and dimensions of each turbine be mapped and provided to Mayo County Council and other stakeholders, including the IAA and Irish

Air Corps prior to erection of turbines to ensure that maps and databases are up-to-date for flight navigation; and

- 30 days' notice will be given to the IAA prior to any crane operations commencing during the construction phase.

#### *11.6.1.2 Telecommunications*

Likely significant effects on telecommunications infrastructure during the construction phase are not anticipated, other than temporary and localised effects that could arise during the final stages of turbine erection (for mitigation, see Section 11.6.2.2). Therefore, no construction-phase specific mitigation measures related to telecommunications are proposed.

In order to ensure there are no issues with construction, all telecommunication operators will be contacted in advance of construction to check that they have no new links in operation at that time. Prior to construction, Ground Penetrating Radar (GPR) surveys will be undertaken to accurately locate existing underground infrastructure. In the unlikely event that a communication underground cable or link is damaged or interfered with during construction, the operator will be contacted to agree to arrange a repair which will be carried out as soon as possible at the developers' cost.

In addition, the developer will sign an agreement with 2RN prior to construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project. This is standard industry practice and will eliminate any likely significant effects in this regard.

#### *11.6.1.3 Other Material Assets*

##### Utilities

No significant effects on utilities are anticipated during the proposed construction phase. Therefore, no specific mitigation measures are proposed in terms of utilities. However, as with any excavations, particularly in the public road network, there is a potential to disrupt local underground services if present. Standard measures / practices to avoid or otherwise minimise effects to existing utility assets and/or services provision will be undertaken:

- Prior to the commencement of the construction phase, the applicant will engage with all utility asset owners / service providers;
- A confirmatory survey of all existing services (electrical/ESB, water/Uisce Éireann, gas/GNI, telecommunications cables etc.) will be carried out prior to construction to verify the assumptions in this report and identify the precise locations of any services. Where assets / services are identified, the Applicant will liaise with the service provider;
- Utility assets / services (underground and overhead) will be identified and clearly marked prior to any pre-construction (site clearance) / construction / demolition activity occurring;
- No excavations will take place without prior consultation with relevant utility asset owners / service providers;
- Digging around existing services, if present, will be carried out as per best practice/guidance[5] by hand to minimise the potential for accidental damage;

[5] https://www.gasnetworks.ie/home/safety/dial-before-you-dig/ https://www.eirgrid.ie/grid/transmission-policies-and-standards / https://www.esbnetworks.ie/about-us/consultations

- Prior to any mechanical excavation taking place ESBN will be consulted with and the exact locations of all underground electricity cables established and verified;
- All works undertaken in the vicinity of underground assets will be carried out in accordance with current HSA guidance, namely the HSA 'Code of Practice for Avoiding Danger from Underground Services';
- All works will be undertaken in accordance with the exclusion and safe operating distances around electricity infrastructure as set out in the ESB Code of Practice, as well as HSA guidance including the 'Code of Practice for Avoiding Danger from Overhead Electricity Lines';
- Any proposed works will require a minimum clearance distance of 1 m either side of electrical cables;
- Liaison with asset owners / service providers will continue as required throughout the construction phase;
- If existing underground electricity cables are found to be present, a trench will be excavated, and new ducting and cabling will be installed along the new alignment and connected to the network on either end. The trench will be backfilled with suitable material to the required specification. Warning strip and marking tape will be laid at various depths over the cables as required by the relevant specification. Marker posts and plates will be installed at surface level to identify the new alignment of the underground cable. These underground cables will then be re-energised. Once these details are determined cable rating studies and system modelling can be carried out to determine how best to proceed with the UGC route design in these areas.

#### Waste

No significant effects on waste / waste management are anticipated during the proposed construction phase. Therefore, no specific mitigation measures are proposed in terms of waste / waste management.

Best practice waste management practices will be employed. Segregation of waste will be carried out to maximise the potential for waste recycling and minimise potential effect on waste services. Suitably permitted commercial waste collectors will be employed to remove any waste arisings generated from construction to the nearest appropriately licensed waste management facilities.

Waste management measures are set out within the Construction and Environmental Management Plan (CEMP) (Appendix 2-2 of this EIAR).

### 11.6.2 Operational Phase

#### *11.6.2.1Aviation*

No significant effects on aviation are anticipated during the operational phase of the proposed project. Therefore, no specific mitigation measures are required in respect of aviation infrastructure or operations. However, the standard aviation safeguarding measures will be implemented (see Section 11.6.1.1).

As noted above, the details of any aviation lighting requirements will be agreed with the relevant aviation stakeholders, including the IAA and, where required, the Department of Defence/Irish Air Corps. This will ensure that the proposed project is appropriately identified as an aviation

obstacle. The final turbine locations and dimensions will be provided to the relevant authorities to facilitate updates to aeronautical charts, obstacle datasets and navigation systems.

#### *11.6.2.2 Telecommunications*

Where potential effects on telecommunications infrastructure were identified, mitigation measures have been developed in consultation with the relevant network operators. These measures include operator agreements, implementation of protocol arrangements where appropriate, and modification or relocation of affected telecommunications infrastructure where required. The details of such mitigation would be confirmed prior to construction by ongoing consultation with the telecom operators. Further details are provided in Appendices 11-1 and 11-2 of the EIAR.

The Applicant have committed to sign an agreement with 2RN prior to construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project. This is standard industry practice and will eliminate any potential impacts in this regard.

#### *11.6.2.3 Other Material Assets*

##### ESB / Gas / Water Supply and Distribution

The proposed project is not anticipated to have any effect on Electric/ESB, Gas and Water supply during the operational phase. Should any maintenance work be required during the operation phase, the mitigation outlined in Section 11.6.1.3 will be implemented.

##### Waste Management

Waste management during the operational phase of the proposed project will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance) and regulated by Mayo County Council. Therefore, no further mitigation measures are required with regard to the transport and disposal or recovery of all waste streams which will be generated during the operational phase. Mitigation measures will be implemented as required to further manage the potential effects. There will be no likely significant effects associated with waste management during operation.

### 11.6.3 Decommissioning Phase

During decommissioning, the activities required to facilitate wind turbine decommissioning and removal from site will be similar to those outlined for the construction phase, albeit in reverse to a lesser extent and duration than during the construction stage. The proposed 110 kV substation and grid connection will remain part of the national network.

Therefore, mitigation measures proposed for the decommissioning phase will include:

- Liaising with telecommunication providers to check if any new links are in the area which could potentially be obstructed by works and best practice waste management practices will continue to be employed;
- Engaging with aviation stakeholders will be undertaken in advance of decommissioning works. 30 days' notice will be given to the IAA prior to any crane operations commencing during the decommissioning phase.

## 11.7 Residual Effects

This section summarises the residual effects associated with the proposed project.

### 11.7.1 Construction Phase

#### *11.7.1.1Aviation*

A **long-term, imperceptible, adverse residual effect** related to aviation is anticipated during the construction phase.

#### *11.7.1.2Telecommunications*

Following the implementation of the proposed mitigation, a **short-term, imperceptible, adverse residual effect** on known telecommunications is anticipated during the construction phase.

#### *11.7.1.3Other Material Assets*

A **short-term, slight, adverse effect** related to utilities is anticipated during the construction phase. Should there be any underground services located during construction, particularly along GCR and at works areas on the TDR, the above-mentioned mitigation measures will be used to reduce any potential for effects, so that they are **unlikely, brief, adverse, not significant effects**.

A **short-term, imperceptible, neutral** residual effect is predicted with regard to waste services, with this being permanent for any waste that goes to landfill.

### 11.7.2 Operational Phase

#### *11.7.2.1Aviation*

A **long-term, imperceptible, adverse** residual effect related to aviation is anticipated during the operational phase.

#### *11.7.2.2Telecommunications*

Following the implementation of the proposed mitigation, a **long-term, imperceptible, adverse** residual effect on known telecommunications is anticipated during the operational phase.

In the event that a link/cable/end user had their service interrupted, there may be a **temporary, not significant, adverse effect** until it is resolved. A procedure exists for identifying and solving 2RN problems and agreement will be signed between the Applicant and 2RN specifically for the proposed project should any issues in the area occur.

#### *11.7.2.3Other Material Assets*

**No likely significant residual effects** anticipated on electrical, gas and water infrastructure during the operation phase.

A **long-term imperceptible neutral** residual effect is predicted with regard to waste services. This effect would be permanent for any fraction of the waste that goes to landfill. This effect would be permanent for any portion of the waste generated that goes to landfill.

### 11.7.3 Decommissioning Phase

#### *11.7.3.1 Aviation & Telecommunications*

A **short-term slight adverse effect** is predicted in relation to aviation and telecommunications in the decommissioning phase.

#### *11.7.3.2 Other Material Assets*

A **short-term imperceptible neutral** residual effect is predicted with regard to waste and infrastructure management/services during the decommissioning phase. This effect would be permanent for any fraction of the waste that goes to landfill.

## 11.8 Cumulative Effects

In the assessment of cumulative effects, any other existing, permitted, or proposed projects in the surrounding area have been considered where they have the potential to generate in-combination or cumulative effects with the proposed project in terms of material assets. A list of projects was compiled for cumulative assessment as discussed and presented in Appendix 1-5.

A review of these developments was undertaken, including other renewable energy developments in the region (this also includes the operational wind farms listed in Section 11.4.1 - Ballykinava, Cloontoa, Magheramore, Cuillilea, Lenavavea, Raheen Barr, and Derrynadivva). Other developments such as residential, industrial, electrical and water services developments were also considered. Any utility service upgrades / works (e.g., electrical and water services etc.) or roadworks were reviewed to identify if these were planned within 50 m of the proposed project.

In terms of cumulative effects on telecommunication links, overhead services (telecommunication and electricity lines), underground services (telecommunications, gas, water and electricity) and aviation constraints are typically based on fixed infrastructure or well defined areas (i.e., these do not move) and any individual project either has a potential effect which it is required to mitigate, or it does not.

There are no cumulative effects anticipated to telecommunications or aviation during the construction phase of the project, and no anticipated operational cumulative effects. As any effects that have the potential to occur as a result of the proposed project will be fully mitigated in the event that they do occur, there will be no potential for cumulative effects.

The cumulative projects detailed in Chapter 4 of the EIAR have the potential to create varying volumes of waste from a number of waste categories, depending on the project. It is anticipated that each of these projects will be managed in accordance with legislation, licensed waste contractors etc. as will be done with this proposed project, which lessens potential for cumulative effects. Waste volumes from the proposed project are anticipated to be generally low, with the exception of the decommissioning phase should it occur (primarily associated with the removal of turbines). Many wastes streams generated from the decommissioning phase will be recyclable and will be managed appropriately. Large items, such as turbines will be collected and processed by appropriately licensed specialist companies. Overall, a likely significant cumulative effect on waste services is not anticipated.

## 11.9 CONCLUSION

### 11.9.1 Aviation

The findings of the aviation assessment indicate that there will be **no likely significant effects** to aviation as a result of the proposed project. In the event of planning consent for the proposed project, the final turbine layout should be submitted to the IAA so that the turbines can be included in their Aeronautical Electronic Obstacle Data Sets. It would also be a requirement that turbines are fitted with Aeronautical Obstacle Warning Lights in accordance with civil and military aviation industry standards. A detailed assessment of the existing obstacles identified have been included in Appendix 11-3 Rooaunalaghta Wind Farm Aviation Review Statement.

### 11.9.2 Telecommunications

The findings of the telecommunications assessment indicate that a number of telecommunications networks and licensed radio links were identified within the study area, including infrastructure operated by Eir, Three Ireland, Vodafone Ireland, Imagine Broadband, and TETRA Ireland. Detailed telecommunications modelling and analysis were undertaken to assess the potential effects of the proposed project on this infrastructure.

Where potential interactions were identified, appropriate mitigation measures have been developed in consultation with the relevant telecommunications operators. Following implementation of the proposed mitigation measures, **no significant residual effects** on telecommunications infrastructure are anticipated.

CIE / Irish Rail confirmed that the proposed project lies within the GSM-R coordination zone; however, the nearest railway line is located more than 10 km from the proposed project. The assessment concluded that there would be no effects on the operation of the CIE / Irish Rail telecommunications network.

A detailed assessment of the telecommunications environment and potential impacts is provided in Appendix 11-1 (Telecommunications Impact Assessment Report) and Appendix 11-2 (Rooaunalaghta Wind Farm TETRA Impact Study).

### 11.9.3 Other Material Assets

The findings of the above assessment indicate that there will be **no significant effect** to other material assets (water, gas and electricity supply, mineral/aggregates/quarry sites, waste services) due to the proposed project.

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