11. MATERIAL ASSETS

11.1 INTRODUCTION

This chapter examines the existing environment and assesses any potential impacts 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 discussed in other chapters of the Environmental Impact Assessment Report (EIAR) (Chapter 5 (Population and Human Health); Chapter 8 (Land, Soils and Geology); Chapter 9 (Hydrology and Hydrogeology); Chapter 14 (Air Quality and Climate); and Chapter 16 (Traffic and Transport). Electromagnetic interference is discussed from a human health perspective in Chapter 5 (Population and Human Health). The likely interactions between this assessment and other technical assessments is presented in Chapter 18 (Interaction of the Foregoing) of this EIAR.

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

The components of the proposed project are shown in Figure 1-1, of Chapter 1 (Introduction) of this EIAR.

The proposed project is described in Chapter 2 of this EIAR (Description of the Proposed Project). The proposed project includes:

- The proposed wind farm site (i.e., 10 no. turbines, on-site 110 kV substation and ancillary infrastructure);
- Grid Connection Options (GCO) (two options being considered); and
- Works along the proposed Turbine Delivery Route (TDR).

Design flexibility has been sought from An Coimisiún Pleanála for the turbine ranges used by the project. The 10 no. wind turbines on site will have a maximum blade tip height range from 170 m-180 m inclusive, a rotor diameter range from 149 m-163 m inclusive, and a hub height range from 95 m-105.5 m inclusive. Design flexibility has also been sought from An Coimisiún Pleanála for the grid connection. Two options for the grid connection are considered to connect the proposed project to the national grid.

GCO One proposes to install a 110 kV underground cable from the proposed onsite substation to the consented Castlebanny Wind Farm 110 kV substation approximately 12 km to the north.

GCO Two will connect the onsite substation with the existing 110 kV Great Island-Kilkenny overhead line which crosses approximately 2.3 km to the east of the proposed wind farm site.

A single grid connection will be constructed for the proposed project.

This chapters assesses the full project including design flexibility.

11.1.1 Statement of Authority

This chapter was prepared by Serena Byrne of TOBIN. Serena Byrne is a Project Manager at TOBIN, with over 12 years' multidisciplinary experience in engineering and environmental consulting. She has recently completed a MSc in Environmental Sustainability in University College Dublin on a part time basis, including an EIA Procedures module. She has a number of

years' experience preparing EIAR chapters, including material assets, for renewable energy projects.

This chapter has been reviewed by Orla Fitzpatrick, Technical Director in TOBIN. Orla has over 20 years' experience working in the delivery of EIA projects in environmental consultancy. She holds a BSc in Geophysics and MSc in Environmental Consultancy, and is a Chartered Environmentalist. She has considerable experience as technical approver of environmental deliverables for major infrastructure projects.

11.1.2 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, 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 also considered the Department of Housing, Planning and Local Government (DoHPLG), *Draft Revised Wind Energy Development Guidelines* (WEDGs) (2019).

11.2 METHODOLOGY

11.2.1 Consultation

As part of the EIA scoping process, an Environmental Scoping Report was prepared and submitted to relevant statutory and non-statutory bodies in September 2023 for review and comment. The Scoping Report was updated with the latest project details and resubmitted to relevant statutory and non-statutory bodies in October 2024 for review and comment. 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 latest 2024 EIA Scoping Report is provided in Appendix 1-5 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 11.3. Chapter 1 (Introduction) provides a summary of the consultees and responses received (or not received).

All EIA scoping responses can be found in Appendix 1-6 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.

Public engagement was also carried out in the local area as described in Chapter 1 (Introduction) of this EIAR, and the feedback obtained during this exercise has been reviewed in the preparation of this chapter.

11.2.2 Scope of the Assessment

Aspects which the EPA EIAR Guidelines (2022) 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."

This chapter will consider the potential impact to material assets in terms of telecommunications (i.e., telecoms and communications infrastructure and links), aviation activity and infrastructure, built services infrastructure (i.e., other utilities including electricity infrastructure, gas network infrastructure, and water utility infrastructure), and waste management, as a result of the proposed project.

The 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).

11.2.2.1Telecommunications

In order to assess if there would be any potential effects on the existing telecommunications networks, a consultation exercise commenced in October 2022, and undertaken again in October 2024 (see Appendix 11-1), with telecommunications stakeholders, including:

- Broadcasting Authority of Ireland;
- ComReg (Commission for Communications Regulation)[1];
- EIR;
- Enet Telecommunications;
- ESB Telecom Services;
- Imagine Networks Services;
- Irish Rail / CIE;
- RTE NL/ 2RN;
- Three Ireland (Hutchison);
- Towercom Ltd.;
- Viatel;
- Virgin Media; and
- Vodafone.

Telecommunications providers and stakeholders were sent information about the proposed project and were asked to inform the project team of any communication links or infrastructure

[1] ComReg is the statutory body that regulates the communications sector (telecommunications, electronic communications, radio communications, broadcasting transmissions, and the postal sector) in Ireland.

that they have in the area, or if they had any other comments/concerns relating to the proposed project. Feedback / observations received from the above, was compiled into a datasheet. Further information was supplied where requested. Any transmission links or sites were noted and constrained out of the proposed wind farm site layout with appropriate buffers to ensure there is no potential for effects. Further information on telecommunication consultees and responses can be found in Appendix 11-1.

A desktop review of the ComReg Siteviewer[2] was undertaken to identify the nearest mobile telecommunication mast sites to the proposed wind farm site. Siteviewer is an interactive map of Ireland containing information on the location of every mobile telephone mast, as well as the operators and services provided at each.

11.2.2.2Aviation

The construction of large wind turbines near airports may have the potential to pose a physical hazard for frequently used flight paths, as well as pose an issue for nearby airport operations in relation to Obstacle Limitation Surfaces (OLS), Instrument Flight Procedures (IFPs) and Instrument Landing System (ILS) Calibration. Consultation is used as the primary method of understanding the potential for effects on aviation.

A consultation exercise commenced in October 2022, and was undertaken again in October 2024, with key stakeholders. These included:

- Irish Aviation Authority (IAA);
- Department of Defence;
- Waterford Airport; and
- AirNav Ireland.

See Appendix 11-1 for scoping responses received in relation to aviation and communications.

11.2.2.3Other Material Assets

The installation of infrastructure has the potential to interact with existing utility assets / services. This has the potential to occur where unidentified assets are present, and uncovered during activities such as excavation / groundworks.

Scoping consultation responses received in relation utility assets / services, primarily related to consideration of presence of built services and infrastructure (e.g., within the road network), including potential interaction with or disruption to assets / services, potential service diversions, minimisation of impacts of the road network, requirements related to cable routing, consultation / approvals with relevant stakeholders and service providers, compliance with relevant guidelines/codes of practice/standard details, liaison with Kilkenny County Council, planning conditions and relevant licence requirements (e.g., road opening licence, road closures / diversions), surveys to determine the location of assets, and separation distances between assets and proposed structures.

In terms of waste / waste management, where responses referenced waste, this primarily related to management of waste streams, waste segregation, and waste disposal issues, which can also impact the perception of an unspoiled environment. Furthermore, some responses

[2] https://siteviewer.comreg.ie/#explore accessed April 2025.

referenced management of wastewater, making reference to proposals for the sanitary disposal of wastewater.

The assessment of other material assets in this chapter will focus on the potential for interaction / disruption to utility assets and provision of related services, and impacts in terms of waste generation and management, associated with the construction, operational and decommissioning phases of the proposed project.

11.2.3 Study Area

The study area in relation to the assessment of aviation and telecommunications links is based on the proposed turbine locations and dimensions. The particular location of turbines and their dimensions on a site has the potential to impact upon aviation activities and telecommunication links which may pass through or be nearby. Depending on the site location, buffers may be required by the design or mitigations applied.

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 telecoms infrastructure) within the works area of the proposed project.

There are 13 no. locations identified along the proposed TDR which required works to enable the delivery of turbines to site. Works are minor and temporary in nature with the exception of four private locations which require permanent works as detailed in Chapter 2 and Appendix 2-1. TDR works have been considered within this EIAR. The proposed TDR works area are located in the townlands of Rathpatrick, Granny, Garrandarragh, Ballynoony West, Ballymartin, Smithstown and Bishopsmountain, County Kilkenny. A confirmatory survey of all existing utility services at these locations will be carried out prior to construction to verify and identify the precise locations of any services. Where assets / services are identified, the Applicant will liaise with the service provider.

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 Kilkenny and its surrounding counties.

11.2.4 Assessment Criteria

Determination and description of the significance of effects is assessed in accordance with the terminology provided in Table 3-4 of the EPA EIAR Guidelines (2022), and are set out in Table 11-1.

Table 11-1: EIAR Assessment Criteria adapted from the EPA EIAR Guidelines (2022)

Description of Effects		
Quality of Effects	Positive	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative / Adverse	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.
Extent and Context of Effects	Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency of Effects	Momentary	Effects lasting from seconds to minutes.
	Brief	Effects lasting less than a day.
	Temporary	Effects lasting less than a year.
	Short-term	Effects lasting one to seven years.
	Medium-term	Effects lasting seven to fifteen years.
	Long-term	Effects lasting fifteen to sixty years.
	Permanent	Effects lasting over sixty years.
	Reversible	Effects that can be undone, for example through remediation or restoration.
	Frequency	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Types of Effects	Indirect (a.k.a. Secondary or Off-site Effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing'	The environment as it would be in the future should the subject project not be carried out.
	'Worst-case'	The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable	When the full consequences of a change in the environment cannot be described.
	Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

11.3 EXISTING ENVIRONMENT

11.3.1 Do Nothing Scenario / Likely Future Environment

If this project did not progress and was not constructed it is likely the existing land uses on the site would continue. The Coillte owned lands would remain and continue to be used for commercial forestry purposes. The privately owned lands are predominantly agricultural and would continue to be farmed. Intensification of farming of these lands is also a possibility. Given the wind resource in the area and the surrounding wind farm developments, a separate wind project may be developed in the future. The existing wind farm developments in the area would continue to be part of the landscape.

11.3.2 Proposed Project Existing Environment

The proposed wind farm is located in the southern portion of County Kilkenny, between the villages of Listerlin (approximately 3 km northeast), Mullinavat (approximately 3.5 km west), Glenmore (approximately 5 km southeast), and Slieverue (approximately 9 km south).

The main urban centres in the region are Waterford City, located approximately 11 km to the south of the proposed wind farm site and Kilkenny City, located approximately 30 km to the north. New Ross is situated approximately 10 km east.

The landscape is largely agricultural with areas of coniferous forestry occurring. In general terms, the area surrounding the site can be described as rural with a dispersed settlement type.

The proposed wind farm site includes commercial forestry with some areas of agriculture. The landscape surrounding the proposed wind farm site is a mixture of agricultural land and forestry, with existing wind farms. The Ballymartin Wind Farm and Smithstown Wind Farm are adjacent to the north of the proposed wind farm site with the nearest turbine being at Ballymartin Wind Farm 587 m from proposed Turbine 3. The Rahora Wind Farm is located to the north east with the nearest turbine being 2.25 km from proposed Turbine 5. The consented Castlebanny Wind Farm boundary is located approximately 1.5 km to the northwest of the proposed wind farm site boundary.

The current land use for both proposed GCOs is predominantly pastoral agriculture with some areas of forestry cover. GCO One, will install a 110 kV underground cable from the proposed project site substation to the consented Castlebanny Wind Farm 110 kV substation approximately 12 km to the north. This cable will be within approximately 8.4 km of public road and approximately 3.5 km of third party lands. GCO Two is situated within the proposed wind farm site and will connect into the existing 110 kV Great Island-Kilkenny overhead line which crosses over the east of the proposed wind farm site. This cable will be within approximately 2.3 km of third party lands.

Construction works at the proposed TDR works areas on lands required to facilitate turbine component deliveries currently comprise boundary walls, hedgerows, forestry, as well as transport (road corridors).

11.3.3 Telecommunications Links

As described above, a comprehensive list of telecommunication operators were consulted in 2022 and 2024 to identify any potential effects to existing telecommunication links in the area. Table 11-2 provides information on the observations received during this exercise. Telecommunication scoping responses can be reviewed in Appendix 11-1.

Following receipt of the above telecom scoping responses, the design of the proposed project was reviewed and revised, as necessary, to minimise any potential for effects telecommunication networks.

This was carried out by inputting all the constraint data that was received into GIS mapping software and ensuring that the proposed turbine locations would not be located within the appropriate buffers (which were confirmed by the telecom companies). These constraints, along with others gathered as part of the EIAR (such as ecological, hydrological and proximity to sensitive receptors, etc.) were used when refining the proposed wind farm site layout. Previous design iterations are discussed in Chapter 3 (Consideration of Reasonable Alternatives) of this EIAR.

Furthermore, the Applicant has signed 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 effects in this regard.

Table 11-2: Telecommunication Consultation information

Consultee	Key Issues	Summary of Consultation Response
2RN	Interference, agreed protocol	2RN noted: *We have linking in the area but none that passes over the proposed site.* *There is a risk of interference to broadcast services in the area so we would ask that a protocol be signed between 2RN and the developer should the site go ahead.*
CIE / Irish Rail	Site location / distance / exclusion zone / co-ordination zone	CIE noted: *The proposed site lies within the GSM-R (Mobile Network for Railways) exclusion zone and therefore is not permitted. Please see below:* *From a study carried out by the ANFR (Agence Nationale des Frequences in France), the output calls for 2 main recommendations by defining 2 main zones as follows:* *1-Exclusion zone: wind farm not less than 5 Km from antenna* *2-Coordination zone: : 5 Km<wind farm <30 Km: this area, coordination between operators is required to fix any issue and impact on the signal propagation.* *The Orange Line indicates ≈5 km distance from the edge of the proposed Windfarm, with the SET sites along the railway indicated on the extract for reference.*
Radio Services (KCLR FM / WLR FM / Beat FM)	Negative impact on transmissions.	Radio Services noted: *Received information [kmz & map] on the application boundary but it's not much use as we need more specific information on locations of masts of any proposed development in order to determine whether the positions of the turbines will impact our transmission.* *In the absence of the provision of that information to us, please assume that the proposed development will have a negative impact on our transmissions and plan accordingly. I understand*

		that in general, proposed developments are responsible for ensuring that no disruption is caused to licensed transmissions and that this would apply in this instance. I'd be grateful if you would keep me appraised of developments as the construction of any development that impacts on our transmission will have a serious impact on our business and the provision of services to our listeners in the area. Please do not hesitate to contact me if you would like any further information or clarification on our position.
ESB	Links, future provision of turbine details including coordinates of turbine, hub height, max blade length, and also the maximum micro-siting distance allowed.	The ESB noted: *We have 2 links which may be impacted by this development (see table below). In particular Glenpipe-Cheekpoint is a backhaul link, so this is deemed a critical link.* *As per the Calculation of the Clearance Zone 3.1.doc by JRC, the buffer clearance zone is the 2nd Fresnel zone clearance plus 150m, a buffer zone to allow for location accuracy of the link ends, turbine construction and ellipsoid conversion anomalies, plus 100m for Turbine micrositing. Please provided accurate turbine details including coordinates of turbine, hub height, max blade length, and also the maximum micrositing distance allowed. This will allow us to carry out further detailed analysis once we have accurate turbine information.*
		We have completed our assessment of the Ballyfasy Wind Farm development and have identified an exclusion zone necessary to protect our link. To avoid potential interference, it is essential that the turbine base be situated outside of this exclusion zone. Please find attached the GIS file in KML format for your reference.

2RN

A 2RN protocol agreement has been signed by the Applicant (see Appendix 11-4).

CIE / Irish Rail Telecommunications Impact Assessment

As noted in Table 11-2, during consultation with telecommunications consultees in October 2024, CIE / Irish Rail (IR) were contacted to determine if they had any concerns in relation to the proposed wind farm. In the response received from Irish Rail, it was stated that they operate a Global System for Mobile Communications - Railway (GSM-R) Train Radio communications system in the vicinity of the proposed wind farm site at Ballyfasy. Irish Rail also requested a 5 km Exclusion Zone around their transmitting radio antennas.

An Irish Rail Telecommunications Impact Assessment (see Appendix 11-2 Irish Rail Telecommunications Impact Assessment Report) was subsequently undertaken to evaluate the Irish Rail communications network and to assess the possible impacts that the proposed project could have on the Irish Rail radio network. Field and desktop surveys of the Irish Rail network in the vicinity of the proposed wind farm site at Ballyfasy were carried out for the telecommunications assessment.

GSM-R Train Radio is an international standard used by rail operators and operates in the Ultra-High Frequencies (UHF) band of frequencies. Obstacles generally do not interfere with radio signals in this band of frequencies unless the obstacle (e.g., a wind turbine) is very near to the

transmitting antenna (e.g., less than 500 m) when it can inhibit the radio signals ability to "launch" correctly. Results from the field survey found that there are GSM-R radio base stations at three mast locations (in the vicinity of the proposed wind farm site at Ballyfasy) along the rail line between Waterford City and Thomastown. GSM-R radio antennas are aligned in the direction of the rail lines to provide targeted signal coverage along the rail network. The nearest of the GSM-R base stations to the proposed wind farm is in the townland of Ballylusky. This base station is approximately 4 km from the nearest point of the proposed wind farm site. At this distance, there would be no impact to the Irish Rail GSM-R radio network.

The conclusions of the desktop surveys indicate that the 5 km Exclusion Zone requested by Irish Rail is excessive (see Section 6 of Appendix 11-2). GSM-R Radio operates in the UHF band of frequencies. Wind turbines generally do not cause interference to radio signals in this band, unless they are in close proximity to the transmitter (e.g. less than 500m). Other state operators (Emergency Services, Garda Síochána, etc.) and commercial operators (Vodafone, Three Irelandand Eir), only raise concerns when proposed turbines are very close to their transmitters (i.e., less than 500 m).

In addition it is also noted that there are existing wind farms throughout Ireland (including Ballymartin Wind Farm, which is immediately adjacent to the proposed wind farm site at Ballyfasy) with turbines that are less than 5 km from Irish rail tracks. These existing wind farms have no detrimental impact on the Irish Rail telecommunications network.

For the reasons outlined above, the proposed project is not expected to have any impacts on the Irish Rail communications network. Therefore, potential impacts from the proposed project on the Irish Rail radio network is not addressed further in this chapter. See Appendix 11-2 (Irish Rail Telecommunications Impact Assessment Report) of the EIAR for further information.

ComReg Siteviewer

The ComReg Siteviewer was reviewed as part of establishing the telecommunications baseline. The Siteviewer is an interactive map of Ireland containing the location of every mobile telephone mast; the operator which owns or controls each mast; and the types of mobile services provided at each mast (Comreg, 2025). The nearest sites to the proposed wind farm site identified on the ComReg Siteviewer are located at Glenpipe (one site used by Vodafone, located approximately 2.5 km north), at Mullinavat (two masts, one located at a site along the M9 operated by Eir, and one located off the R448 used by Vodafone, located approximately 3 to 3.5 km west), at Mullennahone (one site used by Eir, Three and Vodafone located approximately 3 km south east), and at Ballydaw (one site used by Eir, Three and Vodafone located approximately 5 km south west. These locations are outside the proposed wind farm site and are not assessed further.

ESB

A telecommunications mast is included in the project design at the onsite substation site to assist with links in the area, if needed. A Telecommunication Impact Assessment report has been completed by Ai Bridges (see Appendix 11-5). Using the information obtained during the field survey assessments and consultation responses, including from ESB, a desktop impact analysis was carried out, and each of the ESB radio links were analysed using radio planning \ modelling software (2D and 3D). The assessment has shown that radio link analysis indicates that an ESB Networks microwave radio link (between Glenpipe and Cheek Point),(ESB_L1), is already obstructed by one of the existing operational wind turbines at Ballymartin Wind Farm. One of

the proposed turbines at Ballyfasy (Turbine 3) would also partially obstruct the Fresnel Zone of the radio link between Glenpipe and Cheek Point (ESB_L1). The potential effects and solution, if required, for this are detailed in the Telecommunication Impact Assessment Report in Appendix 11-5. Also as noted in the Telecommunication Impact Assessment (Appendix 11-5), radio link analysis indicates that the UHF radio links (ESB_2 and ESB_L3) will not be impacted by the proposed wind farm turbines.

11.3.4 Aviation

The requirement for an assessment of the likely effects on aviation is set in the Wind Energy Development Guidelines for Planning Authorities 2006 (and Draft Revised Wind Energy Guidelines 2019) 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.'*.

The nearest airport to the proposed project is Waterford Airport, located approximately 20 km south of the proposed wind farm site, while Cork Airport is located approximately 100 km to the southwest. Shannon Airport is located approximately 125 km north west and Dublin Airport is located approximately 130 km north east. Kilkenny Airport, located approximately 32 km north at Holdensrath, County Kilkenny, is closed.

The Irish Hang Gliding and Paragliding Association (IHPA) was contacted during the scoping consultation and noted that the proposed project does not impact their activities of hang gliding and paragliding.

The consultation responses relating to the aviation consultees are included in Appendix 1-6 of this EIAR (Introduction) and discussed below.

The IAA responded to the consultation advising that the Applicant engage with Waterford Airport and AirNav (Air Navigation Services Provider (ANSP))[3], to make them aware of the project so they may screen it from an aviation safety perspective. AirNav Ireland were contacted, however no observation was made by them. The IAA also requested that in the event of permission being granted, they be notified to agree an aeronautical warning light scheme, provided a copy of the as-constructed turbine coordinates and that they be given 30 days' notice before any crane operations commence.

Waterford Airport provided observations in relation to flight procedures and Interference with Airport based Radio and Navigational Equipment and Radar; this is noted in Table 11-3.

[3] The air navigation services (Air Navigation Services Provider (ANSP)) of the IAA became a new organisation called AirNav Ireland in April 2023.

Table 11-3: Aviation Consultation information

Consultee	Key Issues	Summary of Response(s)
Defence Forces / Department of Defence	Military aviation, aviation safety and security, current and future operations, lighting/illumination requirements, IAC requirements, communication with DF & IAC	2023: *On initial investigation using the data supplied, it may be seen as the proposed area is located within a proximity to the M9 and N25 road network, which may require further investigation into the future by ourselves in the Defence Forces.* 2024: Having consulted with the Military authorities, the Department of Defence wishes to make the following observations: • *The Minister for Defence is responsible for the regulation of military aviation, whereas the Irish Aviation Authority (IAA) is responsible for the safety regulation of civil aviation including aerodromes. The IAA does not have remit for military aviation or installations. Safeguarding of military flight operations and installations is intended to protect both current and future aircraft operations and also to take account of the security requirements associated with some of those operations.* • *All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week.* • *Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light* • *Any Irish Air Corps (IAC) requirements for are separate to Irish Aviation Authority (IAA) requirements.*
IAA	Further consultation / engagement with AirNav/Airports, aviation safety, proposed agreements/planning conditions, lighting, height/elevation, coordinates	The IAA Noted: *The proposed wind farm development appears to be approximately 20 km North of Waterford Airport, as such, it is recommended that the developer engage directly with Waterford Airport to make them aware of the proposal and ensure appropriate screening from an aviation safety perspective.* *It is likely that the following general observations would be proffered by the Authority during a formal planning process:* *In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to:* *(1) agree an aeronautical obstacle warning light scheme for the wind farm development,* *(2) provide as-constructed coordinates in WGS84 format together with ground and blade tip height elevations at each wind turbine location and*

		(3) notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection. *The IAA would also recommend engaging directly with the air navigation service provider (ANSP) Air Nav Ireland to undertake a preliminary screening assessment to confirm that the proposed wind farm and the associated cranes that would be utilised during its construction would have no impact on enroute communication, navigation and surveillance equipment.*
Waterford Airport	Aviation safety, flight procedures, interference, present and future procedures, plans and radar operations	Waterford noted the following safety items: *The developer will need to engage an approved instrument flight procedure designer to ensure the proposed development does not have a safety effect on the existing published instrument flight procedures and associated airspace, including the items highlighted below for the current and planned future runway.* *<u>Flight Procedures</u>:* • *Potential impact to the current flight procedures obstacle clearance requirements.* • *Future: Potential impact to the flight procedures required to underpin the new runway* • *LPV and SBAS: Potential impact to current and future procedures for new runway and associated holds and airspace* • *Airport Minimum Sector Altitude: (MSA) – Potential impact to MSA's* • *Flight Calibration Processes (Current ILS and Future LPV / SBAS): interfere with mandatory flight checking operations.* *<u>Interference with Airport based Radio and Navigational Equipment and Radar</u>:* • *NDB / DME* • *Localiser and Glide Path – Including potential to interfere with flight checking operations.* • *Radar Operations (present or future) – The location of the proposed wind farm appears to be abutting the northwest section of the current airport air traffic control zone and associated controlled airspace. Waterford Airport have concerns that the proposed wind turbines will infringe the instrument flight procedures obstacle clearance requirements and effect the mandatory safety airborne flight checking patterns required to be flown to underpin the integrity of the instrument landing system at Waterford Airport. In addition, Waterford Airport has planning permission for development of its runway and associated areas which will alter the current instrument flights procedures and associated airspace requirements potentially beyond the current control zone.*

Further details of these scoping responses can be seen in Appendix 11-1 of this EIAR. On foot of the responses received, an Aviation Review was conducted (see Appendix 11-3 Aviation Review Statement).

In terms of other wind farms, the review notes none of the permitted wind farms (Rahora, Co. Kilkenny (planning ref: 03/1117) and Ballymartin, Co. Kilkenny (planning ref: 07/2141)) in the vicinity of the proposed wind farm site required a Full Assessment of Instrument Flight Procedures.

See Appendix 11-3 (Aviation Review Statement) of the EIAR for further information.

11.3.5 Other Material Assets

Utilities

Electrical

A review of ESB network data was undertaken. No ESB infrastructure was identified within the area of the proposed wind farm site, except for a 110 kV high voltage (HV) overhead line (OHL) (that includes a wooden pole set) which crosses through the east proposed wind farm site at the location of the proposed GCO Two connection (see Figure 1-1, of Chapter 1 (Introduction)). This OHL links to Great Island 220 kV power station approximately 11 km south east (Campile, Co. Wexford).

ESB utilities identified at and immediately surrounding proposed wind farm site and along the proposed GCO One are summarised below;

- To the north of the proposed wind farm site boundary, there are a number of 38 kV medium voltage (MV) and low voltage (LV) OHLs accompanied by poles;
- Over 100 m south-west of the proposed wind farm site boundary there is a LV OHL;
- At Three Friars Cross, there is a LV OHL with poles to the east and a pole mounted single phase substation, approximately 50 m distance from the proposed GCO One;
- As the proposed GCO One continues, at the Glenpipe Crossroads and surrounding area, there are a series of MV and LV OHLs accompanied with poles;
- As the proposed GCO One continues north along the L3418, there are more MV and LV OHLs accompanied with poles present at various locations;
- Ahead of reaching the proposed Castlebanny substation site, the proposed GCO One crosses under a MV OHL.

To summarise, the only HV OHL in the vicinity of the proposed wind farm site is situated to the east of the site. This is the location of the proposed GCO Two connection. There are a series of LV and MV OHLs that are accompanied with electricity poles within 50 m of the proposed GCO One. One of the MV OHLs can be observed to the north of the site location. The remainder LV and MV OHLs run along the proposed GCO One. The proposed GCO One crosses under a MV OHL at Castlebanny.

Water

Infrastructure information obtained from the Uisce Eireann 'data request' service in June 2025 was reviewed. No water network infrastructure (i.e., sewer or watermains) was identified within or immediately surrounding the proposed wind farm site or along the GCO One.

Chapter 9 (Hydrology and Hydrogeology) noted no surface water abstractions are located within the footprint of the proposed wind farm site or within a 2 km radius of its boundaries. The nearest surface water abstraction point is associated with the Mooncoin Regional Water Supply Scheme (WS 1012), located on the Blackwater River approximately 4 km to the west of the proposed wind farm site and hydraulically upgradient. Additionally, no elements of the

proposed TDR works areas are situated within a designated source protection zone or within 1 km of a public water supply (PWS).

Chapter 9 (Hydrology and Hydrogeology) notes a total of 13 groundwater sources, including 10 boreholes, one dug well, one spring, and one of unknown type, are located within 2 km of the proposed project site. These sources are primarily used for agricultural and domestic purposes, with a few for domestic use only or unknown usage. There are no Group Water Schemes (GWS) or Public Water Supplies (PWS) located within the immediate vicinity of the proposed project. However, the Glenmore PWS Source Protection Area (SPA) is situated within 2 km of the proposed wind farm site boundary, at a distance of approximately 2 km from turbines T6 and T5.

Gas Network

Infrastructure information obtained from the Gas Networks Ireland (GNI) 'dial before you dig service' in June 2025 was reviewed. No gas network infrastructure was identified within or immediately surrounding proposed wind farm site or along the GCO One.

Telecoms Infrastructure

Information in relation to telecoms infrastructure (e.g., cables / assets) obtained from OpenEir eMaps 'click before you dig service' was accessed in June 2025. No telecoms infrastructure was identified within or immediately surrounding the proposed wind farm site or along the GCO One.

Waste Management

A desk study of available EPA information was undertaken in June 2025 to identify licensed waste and industrial facilities within a 10 km radius of the proposed wind farm site. The nearest licensed waste site identified is CHI Environmental Limited situated approximately 9.8 km south west at Kilmacow, Co. Kilkenny. Other facilities identified were beyond 10 km from the proposed wind farm site, outlined in Table 11-4. These sites can be accessed via multiple transport routes including the M8, M9, N24, N30, N78, N80, N81 and M11 roads.

Table 11-4: Waste Licence Facilities in County Kilkenny and surrounding counties

County	Licence No.	Operator	Location	Status
Kilkenny	W0030-02	Kilkenny County Council	Dunmore Landfill, Dunmore, Kilkenny.	Licensed
Kilkenny	W0260-01	Crystalhill Inns Limited trading as CHI Environmental	CHI Environmental Limited, The Quarry, Grannagh, Kilmacow, Co. Kilkenny, Kilkenny.	Licensed
Waterford	W0018-01	Waterford City and County Council	Kilbarry Landfill Site, Kilbarry, Waterford City, Waterford.	Licensed
Waterford	W0032-03	Waterford City and County Council	Dungarvan Waste Disposal Site, Ballynamuck Middle, Dungarvan, Waterford.	Licensed
Waterford	W0234-01	Waterford City and County Council	Waterford City Composting Facility, Green Road, Kilbarry, Six Cross Roads Business Park, Waterford City, Waterford.	Licensed
Waterford	W0245-01	Molaisin Compost Limited	Molaisin Compost Limited, Kilmolash, Cappoquin, Waterford.	Licensed

County	Licence No.	Operator	Location	Status
Waterford	W0116-02 (IED)	Starrus Eco Holdings Limited	Starrus Eco Holdings Limited (Butlerstown), Six Cross Roads, Carriganard, Butlerstown, Waterford.	Licensed
Waterford	W0177-03 (IED)	Starrus Eco Holdings Limited	Starrus Eco Holdings Limited (Waterford City), Carrignard, Six Cross Roads, Business Park, Waterford City, Waterford.	Licensed
Carlow	W0139-01	Carlow County Council	Haroldstown Transfer Station, Haroldstown, Tullow, Carlow.	Licensed
Carlow	W0025-04 (IED)	Carlow County Council	Powerstown Landfill Site, Kilkenny Rd., Carlow.	Licensed
Tipperary	W0200-01	Tipperary County Council	Recycling Centre and Waste Transfer Station, Waller's Lot, Cashel, Tipperary.	Licensed
Tipperary	W0240-02	Bord Na Móna Recycling Limited	Bord Na Móna Recycling Limited, Solsborough, Springfort Cross, Nenagh, Tipperary.	Licensed
Tipperary	W0074-03 (IED)	Tipperary County Council	Donohill Landfill, Garryshane, Donohill, Tipperary.	Licensed
Tipperary	W0078-03 (IED)	Tipperary County Council	Ballaghveny Landfill, Ballymackey, Tipperary.	Licensed
Tipperary	W0249-01 (IED)	Starrus Eco Holdings Limited	Starrus Eco Holdings Limited (Littleton), Ballybeg, Littleton, Tipperary.	Licensed
Tipperary	W0267-01 (IED)	Hi-Volt Ireland Limited	Hi-Volt Ireland Limited, Ballyduff (townland Shanballyduff and Piercetown), Thurles, Tipperary.	Licensed
Tipperary	W0270-02 (IED)	Milltown Composting Systems Ltd	Milltown Composting Systems Limited, Miltownmore, Fethard, County Tipperary, Tipperary.	Licensed
Laois	W0046-01	Tegral Building Products Limited	Ballylinan Landfill Site, Ballylinan, Laois.	Licensed
Laois	W0026-03 (IED)	Laois County Council	Kyletalesha Landfill, Clonsoughy, Kyleclonhobert, Laois.	Licensed
Laois	W0184-02 (IED)	Enva Ireland Limited	Enva Ireland Limited (Portlaoise), Clonminam Industrial Estate, Portlaoise, Laois.	Licensed
Laois	W0194-02 (IED)	Bord Na Móna Recycling Limited	Bord Na Móna Recycling Limited, Kyletalesha & Kyleclonhobert, Portlaoise, Laois.	Licensed
Wexford	W0016-01	Wexford County Council	Killurin Landfill Site, Newtown Lower, Killurin, Wexford.	Licensed
Wexford	W0123-01	Custom Compost	Custom Compost, Ballyminaun Hill, Gorey, Co Wexford, Wexford.	Licensed

County	Licence No.	Operator	Location	Status
Wexford	W0191-01	Wexford County Council	Holmestown Waste Management Facility, Barntown, Wexford, Wexford.	Licensed
Wexford	W0229-01	Bord Na Móna Recycling Limited	Bord Na Móna Recycling Limited, Ballygillane Big/Ballyknockan, St. Helens, Kilrane, Rosslare Harbour, Wexford.	Licensed
Wexford	W0258-01	Murray Waste Recycling Limited	Murray Waste Recycling Limited, Coolatore, Ferns, Wexford.	Licensed
Wexford	W0280-01	Roadstone Limited	Brownswood Inert Waste Recovery Facility, Brownswood, Enniscorthy, County Wexford, Wexford.	Licensed
Wexford	W0016-02 (IED)	Wexford County Council	Killurin Landfill Site, Newtown Lower, Killurin, Wexford.	Licensed
Wexford	W0191-02 (IED)	Wexford County Council	Holmestown Waste Management Facility, Barntown, Wexford, Wexford.	Licensed
Wexford	W0220-01 (IED)	Starrus Eco Holdings Limited	Starrus Eco Holdings Limited (Gorey), Ramstown, Gorey, Wexford.	Licensed

In relation to EPA licensed industrial sites, IPC/ IEL sites, the nearest identified sites are located in New Ross, Wexford (P0829 Green Biofuels Ireland Limited – approximately 7.8 km west) and Grannagh, Kilkenny (P0179 Dawn Meats and P0175 Queally Pig Slaughtering Limited – approximately 10 km south west). Other licensed industrial sites identified were beyond 10 km of the proposed wind farm site, including sites located at Ferrybank and Belview Port to the south east.

The nearest Section 4 discharge licenced site identified is located approximately 3 km south of the proposed wind farm site at Kent Quarries, Catsrock, Co. Kilkenny. Other Section 4 discharge licenced sites noted are situated approximately 7 km or beyond, including in New Ross, Ferrybank and Belview Port.

Natural Resources - Minerals and Aggregates and Quarries

A number of quarries, concrete and aggregate facilities are present in vicinity of the proposed project and the wider area, including:

- Kent Quarries – Glenmore, Catsrock, Co. Kilkenny (2.8 km)
- Bennetsbridge Quarry, Co. Kilkenny: (39.2) km
- Clongrennane Quary, Co. Carlow (67.7 km)
- Butlers Grove Quarry, Co. Kilkenny: (53.6 km)
- Galbally Quarry, Co. Wexford: (38.0) km
- Oaklands Quarry, Co. Wexford: (14.4) km
- Brownswood New (P. Murphy Quarry) , Co. Wexford: (47.8 km)
- Brownswood (Original Quarry), Co. Wexford: (47.8) km

The nearest of these sites identified to the proposed wind farm site is Kent Quarries at Glenmore, Catsrock, County Kilkenny, situated approximately 2.8 km south of the proposed wind farm site.

Effects on Mineral/Aggregate Resources associated with the proposed project are discussed in Chapter 8 (Land, Soils and Geology).

11.4 Potential Effects

11.4.1 Do nothing scenario

In the Do-Nothing Scenario, should the proposed project not be constructed, there will be no potential for effect on aviation or telecommunications services, or other material assets. The existing lands will continue to be used for current/existing land uses, including agriculture and forestry, with little or no changes in the baseline at the proposed wind farm site, the proposed GCOs, and the proposed TDR works areas.

11.4.2 Construction Phase

11.4.2.1 Telecommunications Links

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 direct infrastructure effects during the construction phase. The proposed GCOs and proposed TDR works areas will not have direct impacts to telecommunication links as there is no known infrastructure in these areas and no physical obstructions to links will be created from the GCOs or TDR.

Potential interference through obstructions to communication links during the construction phase are unlikely. Any interference causing a disturbance to signal 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 an brief to temporary, slight, negative effect.

11.4.2.2 Aviation

This section assesses the likely significant effects on aviation as a result of the construction phase of the proposed project. The requirement for an assessment of the likely effects on aviation is set in the Wind Energy Development Guidelines for Planning Authorities 2006 (and Draft Revised Wind Energy Guidelines 2019). The assessment in terms of aviation is based on the proposed turbine locations and dimensions.

Considering the works proposed as part of the proposed project (including the wind farm site, along the proposed GCO One, proposed GCO Two, or at the proposed TDR works areas along the proposed TDR), the consultation feedback obtained, the proposed projects distance from aviation infrastructure, and the conclusions of the Aviation Review Statement (see Appendix 11-3), there are no likely significant effects anticipated during the construction phase in relation to aviation.

The conclusions of the Aviation Review Statement (see Appendix 11-3) are summarised below. As part of the review, the following subjects were considered:

- **Annex 14 - Obstacle Limitation Surfaces (OLS):** The review shows that the proposed wind farm would be located outside the Outer Horizontal Surface of the Waterford Airport Runway Obstacle Limitation Surfaces (OLS), as defined in ICAO (International Civil Aviation Organization) Annex 14. As the proposed wind farm site is situated outside the Outer Horizontal Surface and there is no penetration of the take-off or approach surfaces, it is unlikely that there will be any impacts to the OLS surfaces for Waterford Airport.
- **Annex 15 – Aerodrome Surfaces:** Following a review of "Terrain and obstacle requirements Area 1" as defined in ICAO Annex 15, wind turbines need to be registered if they are more than 100 meters above terrain. From the centre point (ARP – Airport Reference Point) of Waterford Airport to the boundary of the Area 1 of the Annex 15 Aerodrome Surface is 45 km. This area encloses the TMA area i.e. Total Manoeuvring Area and this is used for circling and manoeuvring by aircraft. Should the proposed windfarm be permitted, the turbines would be within 45 km of Waterford Airport's ARP and would be greater than 100 m in height. Therefore, the turbines would be required to be included in the IAA Electronic Air Navigation Obstacle Dataset.
- **Building Restricted Areas (BRA):** A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities. A review shows that the proposed wind farm is over 10 km from the BRA surfaces at Waterford Airport. At this distance there will be no impacts to the BRAs due to the proposed project wind turbines.
- **Minimum Sector Altitudes (MSA):** The Minimum Sector Altitudes (MSA) is the lowest altitude which may be used to provide a minimum obstacle clearance of 1000 ft above all obstacles within a sector of 25 nautical miles (46 km) from the NDB at Waterford Airport. The maximum turbine tip-height at the proposed wind farm site could be up to 1316 ft above mean sea level (AMSL). There is over 1000 ft from the maximum height of the wind farm to the relevant MSA altitude (3600 ft) and therefore there would appear to be no impact on the published MSA altitudes for Waterford Airport.
- **Instrument Flight Procedures:** There are 6 published Instrument Flight Procedures for flights to/from Waterford Airport. Due to the distance of the proposed wind farm from the airport, and due to the proximity of the existing wind farm at Ballymartin, which is the most significant aviation obstacle in the vicinity of Ballyfasy (as the turbines at the proposed wind farm site will be lower), there should be no impact to these flight procedures. Following the consultation process it was identified that there are plans to extend the length of the runway at Waterford Airport from 1433 m to 2287 m in the coming years. This extension may require the existing flight procedures for the airport to be updated/modified. It is highly unlikely that the proposed project wind turbines would have an impact on any amended flight procedures for flights to/from the extended runway, as the existing wind farm at Ballymartin, would remain the most significant aviation obstacle in the Ballyfasy area.
- **Communications and Navigation Systems:** As the proposed wind farm site is approximately 19 km from the localizer and transmitting antennas at Waterford Airport, it is highly unlikely that wind turbines at the proposed wind farm site will have any impact on these ATS communications and radio navigational aids.
- **Radar Surveillance Sensors:** For Radar Surveillance Systems, EUROCONTROL Guidelines require a 16 km safe distance from the surveillance radar system (SSR), for a

"Zone 4 - No Assessment" condition. It has been highlighted in the analysis that turbines located at the proposed wind farm site would be located at a distance of over 65 km from the radar stations at Shannon, Woodcock Hill and Dublin Airport and in Assessment Zone 4 of the EUROCONTROL Guidelines. As turbines at the proposed project would be located in Assessment Zone 4, a detailed impact assessment on Radar Surveillance Systems will not be required by the IAA.

- **Flight Inspection and Calibration:** Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Waterford Airport for calibration of instrument landing systems. It is unlikely that the Flight Inspection Procedures will be impacted as the proposed wind farm site is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g., terrain and existing wind farms).
- **IAA - Aeronautical Obstacle Warning Light Scheme:** In the event of a grant of planning consent the IAA are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed project would be considered as an en-route obstacle.
- **Department of Defence Aeronautical Safeguarding:** The Irish Air Corps position on wind farms / tall structures are outlined in the paper which was published in 2014: "Air Corps Wind Farm/ Tall Structures Position Paper". In the position paper the Irish Air Corps outlines restricted areas where they would object to the installation of wind turbines /tall structures. The areas defined by the Air Corps have been mapped and analysis shows that the proposed wind farm site is partially located within a critical low level flying route (i.e., within 3 NM of the M8 motorway). Although the proposed wind farm site is located within 3 NM of the M9 motorway and the N25 national primary road, it should be noted that low-level flights along these routes are likely to avoid the proposed wind farm site, due to high terrain and the existing wind farms at Ballymartin and Rahora. However, a further technical assessment may be requested by the Irish Air Corps.
- **Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS):** The standard concerns that are being raised in recent consultations with the Irish Air Corps also highlight the potential for obstacles that could impact the operations of the Garda Air Support Unit (GASU) and the Emergency Aeromedical Service (EAS). An assessment of GASU and EAS operations indicates that they are unlikely to be impacted by the proposed wind farm.

At the very end of the construction works, there is potential for the use of cranes and erection of the turbines to have effects similar to the operational phase. Any potential effects would be brief to temporary, not significant to slight, negative effect.

11.4.2.3 Other Material Assets

Utilities

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

Based on a review of utility data for the area of and immediately surrounding the proposed wind farm site, it is not anticipated that any underground utilities will be encountered during the

construction of the proposed project, with the exception of the locations within public road corridors, such as the locations of the proposed TDR works areas or associated with proposed GCO One.

In the unlikely event that any unknown utility assets are discovered, works would stop and the utility provider contacted. There is potential to affect local network supplies, causing a temporary, slight, negative effect.

Gas

No gas network infrastructure was identified within or immediately surrounding the proposed wind farm site or along GCO One. Therefore, there will be no effects on known gas infrastructure.

Location of gas network services will be re-consulted prior to commencement of construction.

During construction, the locations of any newly identified infrastructure will be marked to ensure there are no ground works within the immediate areas of the gas lines. Should any gas infrastructure be identified, works would stop and any excavation within the area of this would require a permit and appropriate wayleaves will be obtained.

It is unlikely that unknown underground gas 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 temporary, slight, negative effect.

Water

No water network infrastructure was identified within the area of the proposed project. Therefore there will no impacts on known water infrastructure. Prior to the construction phase, Uisce Éireann will be consulted and confirmatory studies completed to confirm the location of existing water network services.

Should any water network infrastructure be identified in the vicinity of proposed works, Uisce Eireann will be consulted and appropriate wayleaves will be obtained.

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 causing a temporary, slight, negative effect.

In terms, of water consumption, the average flow rate for design (per person/day) is approximately 60 litre for an open construction site[4] based on the Uisce Éireann 2020 Code of Practice. The maximum total wastewater required, based on this and on construction staff being onsite 48 weeks of a year and an average of 74 construction staff, would be approximately 1.28 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 shown during peak construction the quantities of wastewater are not anticipated to be significant, therefore a short-term, imperceptible, negative effect on local waste water management services is predicted.

[4] Code of Practice for Wastewater Infrastructure, Uisce Éireann, July 2020 (Revision 2) - https://www.water.ie/sites/default/files/docs/connections/faqs/Wastewater-Code-of-Practice.pdf

Electricity

ESB / electricity network infrastructure was identified at and immediately surrounding the proposed wind farm site and along the GCO One with the majority of infrastructure being identified along or in proximity to the GCO One.

Location of ESB / electricity network services will be reviewed and confirmed prior to commencement of construction to ensure information is up to date.

Prior to construction the ESB will be consulted with regarding any excavation in proximity to ESB / electricity infrastructure. Locations of the identified infrastructure will be marked to ensure there are no ground works within the immediate areas of the ESB / electricity infrastructure. Works will adhere to ESB / EirGrid requirements, and appropriate wayleaves will be obtained.

There will be no direct effect on any ESB/ electricity network infrastructure unless it is being directly connected to the project e.g. GCO Two or for substation site electricity supply. In this case, any works to connect the project, will cause a temporary, slight, negative effect and the timings of which will be agreed with the ESB/EirGrid in advance.

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 temporary, slight, negative effect.

Telecoms Infrastructure/Cables

Construction works requiring excavation have the potential to disrupt underground cables / assets if present. No underground telecommunications infrastructure were identified within or surrounding the proposed wind farm site or along the proposed GCO One. There will be no impact to known telecoms infrastructure.

During projects, there is the potential to encounter unidentified localised underground telecoms cables / assets within the road network. Should any unknown underground telecommunication cables / assets be identified within the proposed works areas, including at locations along the proposed GCO One and the proposed TDR works areas along the proposed TDR, there may be a potential to cause damage these, resulting in interruption to local service provision. This would have the potential for a brief to temporary, not significant to slight, negative, effect.

Waste and Natural Resources

During the construction phase, quantities of municipal waste (site office, canteen), waste water (site welfare facilities) and construction waste (soil and stones, wood, packaging, metal, etc.) will be generated, requiring management and collection and transport to appropriate waste management facilities.

The EPA reports on national waste generation statistics on a regular basis. The latest reference year available in terms of Construction and Demolition (C&D) waste statistics is 2022, released in September 2024. The EPA reports that 8.3 million tonnes of C&D waste was managed in Ireland in 2022, a decrease of 9% on the previous year (9 million tonnes) (EPA, 2024b). The overall composition of C&D waste generated has changed slightly between 2021 and 2022.

In 2022, soil and stones (and similar material) made up the vast majority (82%) of C&D waste collected, remaining at a similar level as 2020 (85.1%). The next largest C&D waste types generated in 2022 were concrete, brick, tile and gypsum waste at 7% (remaining similar to 2020 at 6.7%), and mixed C&D waste at 7% (an increase on 4% in 2021). The proportion of segregated (wood, paper, glass, plastic and metal) waste collected remained small at 4% (EPA, 2024b).

In Ireland, The vast majority of C&D waste (94%) underwent final treatment in Ireland in 2022, with 6% exported abroad for final treatment. Most C&D waste was backfilled (81%), with only 10% recycled and 7% and sent for disposal. Recycling was the main treatment operation for metals at a 100% recycling rate. In terms of non-hazardous C&D waste other than soil and stone, Ireland achieved 82% material recovery (EPA, 2024b).

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 (Land, Soils and Geology). 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 an suitably licenced facility by a permitted waste collector.

In terms of municipal waste, the amount generated in Ireland was 3.19 million tonnes in 2022, up slightly by 0.6% from the 2021 figure of 3.17 million tonnes (CSO, 2025). Due to population growth, the municipal waste per capita figure fell from 625 kg per capita in 2021 to 615 kg per capita in 2022[5] (CSO, 2025). 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 an average of 74 construction staff (Chapter 5, references approximately 74 jobs are anticipated during the peak construction phase) each year, the maximum municipal waste generated for the proposed project is expected to be in region of 45,510 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 2022, 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[6] (EPA, 2024a).

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:

- 11,833 kg will be recycled;
- 19,569 kg will be treated through energy recovery;
- 6,827 kg will be composted / undergo AD; and
- 6,371 kg will be sent to landfill.

During peak construction, the quantities of municipal waste and other C&D waste types (e.g., concrete, brick, tile and gypsum waste, mixed C&D waste, and wood, paper, glass, plastic and

[5] Latest reporting year for National Waste Statistics - https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/

[6] 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/

metal) are not anticipated to be significant. A short-term, negative, 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 (Land, Soils and Geology) of this EIAR. Effects on Mineral/Aggregate Resources associated with the proposed project are also discussed / assessed in Chapter 8.

11.4.3 Operational Phase

11.4.3.1Telecommunications Links

Turbines can interfere with microwave communications link systems, as they can cause electro-magnetic interference and/or reflect and physically block microwave link signals.

As detailed above, consultation has taken place as part of the project design process with telecoms providers to identify telecommunication links in the area. A telecoms mast at the onsite substation location has also been included in the site design to assist in avoiding impacts to telecoms links, if required in the future.

As noted in Appendix 11-5, there is a potential impact to the signal of an ESB link passing through the site. The Telecommunication Impact Assessment (see Appendix 11-5) has shown that radio link analysis indicates that an ESB Networks microwave radio link (between Glenpipe and Cheek Point),(ESB_L1), is already obstructed by one of the existing operational wind turbines at Ballymartin Wind Farm. One of the proposed turbines at Ballyfasy (Turbine 3) would also partially obstruct the Fresnel Zone of the radio link between Glenpipe and Cheek Point (ESB_L1). Pre mitigation measures there is potential for a slight, long-term, negative effect.

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 a slight, long-term, negative effect.

The proposed GCOs would have no potential for effects to telecommunications during the operation phase.

11.4.3.2Aviation

This section assesses the likely significant effects on aviation as a result of the operational phase of the proposed project. Considering operational phase activity, the consultation feedback obtained, the proposed projects distance from aviation infrastructure, and the conclusions of the Aviation Review Statement (see Appendix 11-3 of this EIAR), there will be no significant effects during the operational phase in relation to aviation.

No significant effects during the operational phase in relation to aviation are considered likely. In the absence of any mitigation, effects on aviation this would result in an unlikely, slight, long-term, negative effect.

Both GCO options would have no potential for effects on aviation during the operational phase.

11.4.3.3 Other Material Assets

No significant excavations or works are proposed during the operational phase, therefore no effects on underground services are predicted.

Once operational, it is estimated that the wind farm will support 2-3 long term, high quality technical jobs in operation and maintenance. Based on the Uisce Éireann 2020 Code of Practice[7] average flow rate of 50 litres (per person / activity / per day for 'Office / Factory without canteen'), wastewater for 3 no. staff using welfare facilities visiting the site once er month, is estimated to be 1,800 litres/year (based on up to three staff working 1 days per month). However as low-flow toilet cisterns and sink faucets would be used and the number of staff required for visits may vary, it is anticipated that this volume will be lower. Wastewater will be removed as required by a permitted waste collector.

The operational phase is anticipated to have an extremely low rate of production of municipal waste (compound office, canteen) and wastewater (site welfare facility) which will need to be processed at local waste processing facilities. The quantities of these wastes are anticipated to be significantly smaller than the construction phase, on the basis that there will be up to 3 no. staff working at the site periodically once operational.

Based on the latest National Waste Statistic data for Ireland (2022), the maximum municipal waste generated each year for the proposed project is expected to be in the region of 922.5 kg (based on 3 no. employees). This is a worse-case assessment for the proposed project based on national statistics for the average person.

Of this total, 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 estimated waste volumes over the construction period for the proposed project:

- 240 kg will be recycled;
- 423 kg will be treated through energy recovery;
- 138 kg will be composted / undergo AD; and
- 129 kg will be sent to landfill.

The operation of either of the proposed GCOs s 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, negative 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.

11.4.4 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

[7] https://www.water.ie/sites/default/files/docs/connections/faqs/Wastewater-Code-of-Practice.pdf

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 wind farm 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 stone 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 on-site substation and 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 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 stage. Therefore, for the purpose of this assessment, it is anticipated that the impacts on telecommunications, aviation and other material assets receptors associated with decommissioning phase will be no greater than those identified for the construction phase.

11.5 Mitigation Measures

11.5.1 Embedded Mitigation

Extensive consideration has been given to the layout of the proposed wind farm site and the positions of the 10 no. turbines in ensuring sufficient set-back distances from sensitive receptors, neighbouring wind farm turbines, existing telecommunication links and aviation impacts. A telecommunication mast at the onsite substation site is also part of the project design. Extensive consideration has been given to the proposed project design and proposed GCO options, proposed TDR and proposed TDR works areas to minimise the potential for effects.

11.5.2 Construction Phase

11.5.2.1Telecommunications

No significant effects on telecommunications are anticipated during the construction phase of the proposed project. In order to ensure there are no issues at construction, all telecommunications operators will be contacted in advance of construction to check that they have no new links in operation at that time. In the unlikely event that new links are identified or interfered with during construction, the operator will be contacted to be made aware, and where disrupted, agree repair/restoration which will be carried out as soon as possible at the Applicants cost. In addition, the Applicant has signed (see Appendix 11-4 of the EIAR) an

agreement with 2RN (who run Ireland's principal digital terrestrial television and radio broadcast networks) 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 effects in this regard.

11.5.2.2 Aviation

No significant effects on aviation are anticipated during the proposed construction phase Therefore no specific mitigation measures are proposed in terms of aviation. However, the following standard practices 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 Kilkenny County Council and other stakeholders, including the IAA, Irish Air Corps, and Waterford Airport, prior to erection of turbines to ensure that maps and databases are up-to-date for flight navigation;
- 30 days' notice will be given to the IAA prior to any crane operations commencing during the construction phase.

11.5.2.3Other 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 impacts 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/Gas Networks Ireland (GNI), telecoms 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[8] by hand to minimise the potential for accidental damage;
- 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';

[8] https://www.gasnetworks.ie/home/safety/dial-before-you-dig/
Transmission Policies and Standards (eirgridgroup.com)/ Publications (esbnetworks.ie)

- All works will be undertaken with 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; and
- Liaison with asset owners / service providers will continue as required throughout the construction phase.

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.

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. It is proposed to use low volume flush toilets (such as those in commonly used port-a loos) and low volume sink faucets to significantly reduce the volume of waste water produced.

Waste management measures are set out within the CEMP Appendix 2-6 of this EIAR.

11.5.3 Operational Phase

11.5.3.1Telecommunications

The proposed project is not anticipated to have any significant effect on any telecommunication links in the region. Section 6 in Appendix 11-5 details possible solutions if required, to mitigate any potential effects to the ESB link on site. To offset any potential impact on this link, and to allay any concerns that ESB Networks may have in relation to potential interference due to the proposed wind farm, it is recommended that the following technically viable mitigation measure proposal should be effected as a condition of planning in the event of a successful planning application. The Applicant would agree to cover the costs associated with the implementable and viable mitigation measure as outlined below.

Glenpipe to Cheek Point	A Transmission Link Re-route via an existing ESB Telecoms Mast.(i.e. re-routing of the existing ESB radio link via another existing telecoms mast structure, Glencoum Co. Kilkenny, within the ESB National Network.)

Also as mentioned, the applicant has signed an agreement with 2RN prior to commencement of construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project (see Appendix 11-4 for signed 2RN agreement). This is standard industry practice and will eliminate any potential effects in this regard.

11.5.3.2 Aviation

No significant effects on aviation are anticipated during the proposed operational phase Therefore no specific mitigation measures are proposed in terms of aviation. However, the following standard practices will be undertaken:

- The turbines will be included in the IAA Electronic Air Navigation Obstacle Dataset;
- Lighting of the proposed wind turbines in the interest of aviation safe-guarding (i.e., an aeronautical warning light scheme), as the proposed project would be considered as an en-route obstacle, will be required, and will be agreed with the IAA, and Irish Air Corps prior to construction; and
- As-constructed coordinates of the turbines will be provided to the IAA.

As mentioned, the details regarding lighting will be agreed with the IAA and Irish Air Corps and will be applied to the appropriate turbines and met mast. This will ensure the required visibility of the proposed project to any local aircraft during the operational phase. The final locations and dimensions of each turbine will be mapped and provided to Kilkenny County Council and other stakeholders (including the IAA, Irish Air Corps, and Waterford Airport) prior to erection of turbines to ensure that maps and databases are up-to-date for flight navigation.

11.5.3.3Other Material Assets

No significant effects on utilities are anticipated during the proposed operational phase. Therefore no specific mitigation measures are proposed in terms of utilities.

No significant effects on waste / waste management are anticipated during the proposed operational 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 during operation of the proposed wind farm site to maximise the potential for waste recycling and minimise any potential for effects on waste services. A licensed waste collector will be used to remove any waste that does occur as part of the operation of the proposed wind farm site. 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.

11.5.4 Decommissioning Phase

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 stage. The onsite 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.

11.6 Residual Effects

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

11.6.1 Construction Phase

11.6.1.1Telecommunications

There will be no residual significant effect on known telecommunications. Furthermore, an agreement with 2RN has been signed by the Applicant.

11.6.1.2Aviation

No significant effect related to aviation is anticipated during the construction phase and no specific mitigation measures are proposed, other than the embedded mitigation by design.

The Aviation Review Statement (Appendix 11-3 of this EIAR) concludes no residual effects on the above activities from the proposed wind farm.

It is noted that In the event of a grant of planning consent:

- The turbines will be included in the IAA Electronic Air Navigation Obstacle Dataset; and
- Lighting of the proposed wind turbines in the interest of aviation safe-guarding, as the proposed project would be considered as an en-route obstacle, will be implemented.

See Appendix 11-3 (Aviation Review Statement) of the EIAR for further information.

As such, no residual effect is predicted in relation to aviation.

11.6.1.3 Other Material Assets

No significant effect related to utilities is anticipated during the construction phase. Should any existing underground services be encountered during construction, particularly along the proposed GCO One, or at the locations of the proposed TDR works areas, the Standard measures / practices discussed in relation to underground services will be undertaken to reduce any potential residual effects to an unlikely, brief, negative, not significant effect.

A short-term, imperceptible, neutral, residual effect is predicted with regard to waste services, with this being permanent with regard to any waste generated which requires disposal at landfill. Waste management measures are set out within the CEMP Appendix 2-6 of this EIAR.

11.6.2 Operational Phase

11.6.2.1Telecommunications Links

No residual significant 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, negative effect until it is resolved. A procedure exists for identifying and solving 2RN problems and agreement is in place between the Applicant and 2RN specifically for the proposed wind farm should any issues in the area occur. A 2RN agreement has been signed (see Appendix 11-4).

11.6.2.2Aviation

No residual effects related to aviation are anticipated.

11.6.2.3Other Material Assets

No residual effects related to utilities or natural resources are anticipated. A long-term, imperceptible, neutral residual effect is predicted with regard to waste services related to any waste generated during the operation and maintenance of the proposed project. This effect would be permanent for any portion of the waste generated that goes to landfill.

11.6.3 Decommissioning Phase

No significant effects are anticipated during the decommissioning phase and no specific mitigation measures are proposed. No residual effects are predicted in relation to aviation, telecommunications and other material assets (i.e., utilities, waste and natural resources).

11.7 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 Chapter 1 (Introduction). A review these developments was undertaken including other renewable energy developments. 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.

There is potential for an operational phase cumulative effect associated with wind farms within the study area as the nearest wind farm identified are the Ballymartin (three turbines) and Smithstown Wind Farms (4 turbines) located immediately north west. The nearest turbine being at Ballymartin Wind Farm 587 m from proposed Turbine 3. As noted in Appendix 11-5, radio link analysis indicates that an ESB Networks microwave radio link (between Glenpipe and Cheek Point), ESB_L1, is already obstructed by one of the existing operational wind turbines at Ballymartin Wind Farm. The addition of proposed turbine T3 at Ballyfasy would also partially obstruct the Fresnel Zone of the radio link between Glenpipe and Cheek Point (ESB_L1). Measures proposed in Appendix 11-5 will assist in removing this potential cumulative impact.

The cumulative projects detailed in Chapter 1 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, licenced 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 and met mast). Many wastes streams generated from the decommissioning phase will be

recyclable and will be managed appropriately. Large items, such as turbines and the met mast, will be collected and processed by appropriately licensed specialist companies. Overall, a significant cumulative effect on waste services is not anticipated.

11.7.1 Cumulative Effects Summary

The developments/projects/activities identified during the material assets cumulative assessment are not anticipated to have a significant cumulative effect on material assets topics due to their type, scale and/or location with respect to the proposed project.

Overall, significant cumulative effects from the proposed project on material assets when considered alongside the other developments/projects/activities in the area are not anticipated.

11.8 Conclusion / Summary

Following consultation with material asset stakeholders (i.e., aviation, telecommunication and service operators), and a review of other material assets present in the local and wider area (i.e., water, electricity supply, gas, waste services, mineral/aggregates/quarry sites etc.), a number of potential areas of effects were identified and assessed. With the application of the embedded mitigation measures outlined in this chapter, it is not anticipated that the proposed project will result in significant effects in relation to the material assets described at any stage (i.e., construction, operational and decommissioning phases).

Design stage considerations, such as turbine locations, proposed GCOs and TDR routes, and embedded mitigation measures outlined in this chapter, other relevant technical chapters, and the CEMP will be put in place to ensure that effects from the proposed project are mitigated for and in compliance with the relevant standards and agreements to ensure that there will be no significant adverse effects on material assets.

Overall, following consideration of the residual effects as set out in Section 11.6, it is considered that the proposed project will not result in a significant negative effects on material assets in the local or wider area.

11.9 REFERENCES

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