White Hill Wind Farm Electricity Substation & Electricity Line

Environmental Impact Assessment Report

Non-Technical Summary

White Hill Wind Limited

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1.0 Introduction

White Hill Wind Limited ('the Developer') is applying for planning permission for the construction of a 110kV electricity substation comprising an enclosed compound containing two control buildings and 110kV electrical equipment together with two single circuit interface masts which will connect to the existing Kellis-Kilkenny 110kV overhead electricity transmission line, approximately 8.8 kilometres (km) of underground 110kV electricity line and an electrical control unit ('the project').

The project will form part of a wind farm development (known as the 'White Hill Wind Farm') located in County Carlow and County Kilkenny; which has previously been permitted by An Bord Pleanála; and will allow for electricity generated by the wind farm to be exported to the national electricity grid. Given that the project and the White Hill Wind Farm are inter-related; both projects are likely to be constructed simultaneously.

Planning legislation requires that that planning applications for such projects be accompanied by an Environmental Impact Assessment Report (EIAR). An EIAR is a statement of the effects, if any, which the project, if carried out, would have on the environment. It provides information which a planning authority, in this case An Bord Pleanála ('the Board'), can use in undertaking a formal Environmental Impact Assessment (EIA) and in informing their decision making process. The EIAR can also be used by third parties to evaluate the project and its likely effects.

Galetech Energy Services (GES) has been appointed by the Developer to manage and co-ordinate the management and preparation of this EIAR. The content of the EIAR has been prepared by individual specialist and technical consultants who were appointed in order to undertake assessments and prepare chapters on specific environmental topics.

Volume I of the EIAR is arranged in thirteen separate chapters which describe the project and addresses each component of the environment likely to be affected and their likely interactions. **Volume II** includes technical information and annexes associated with the EIAR.

A submission or observation in respect of the EIAR and the planning application may be made in writing to the Board; at 64 Marlborough Street, Dublin 1, D01 V902 or via the Board's website www.pleanala.ie/en-ie/observations; on payment of the €50 prescribed fee within the period of seven weeks and such submissions or observations will be considered by the Board in making the decision on the planning application.

2.0 Site Location

The project will be located approximately 11km northeast of Kilkenny City, c. 15km southwest of Carlow Town, c. 3km west of Muine Bheag (Bagenalstown) and c. 1km north of Paulstown. The electricity substation will be located within the townland of Shankill, County Kilkenny; Shankill and Ballygorteen, County Kilkenny; and Annagar, Lackan and Baunreagh, County Carlow. The electrical control unit will be located within the townland of Baunreagh, County Carlow. The underground electricity line will, from the electricity substation, be located within private lands and within the carriageways of locally-classed public roads.

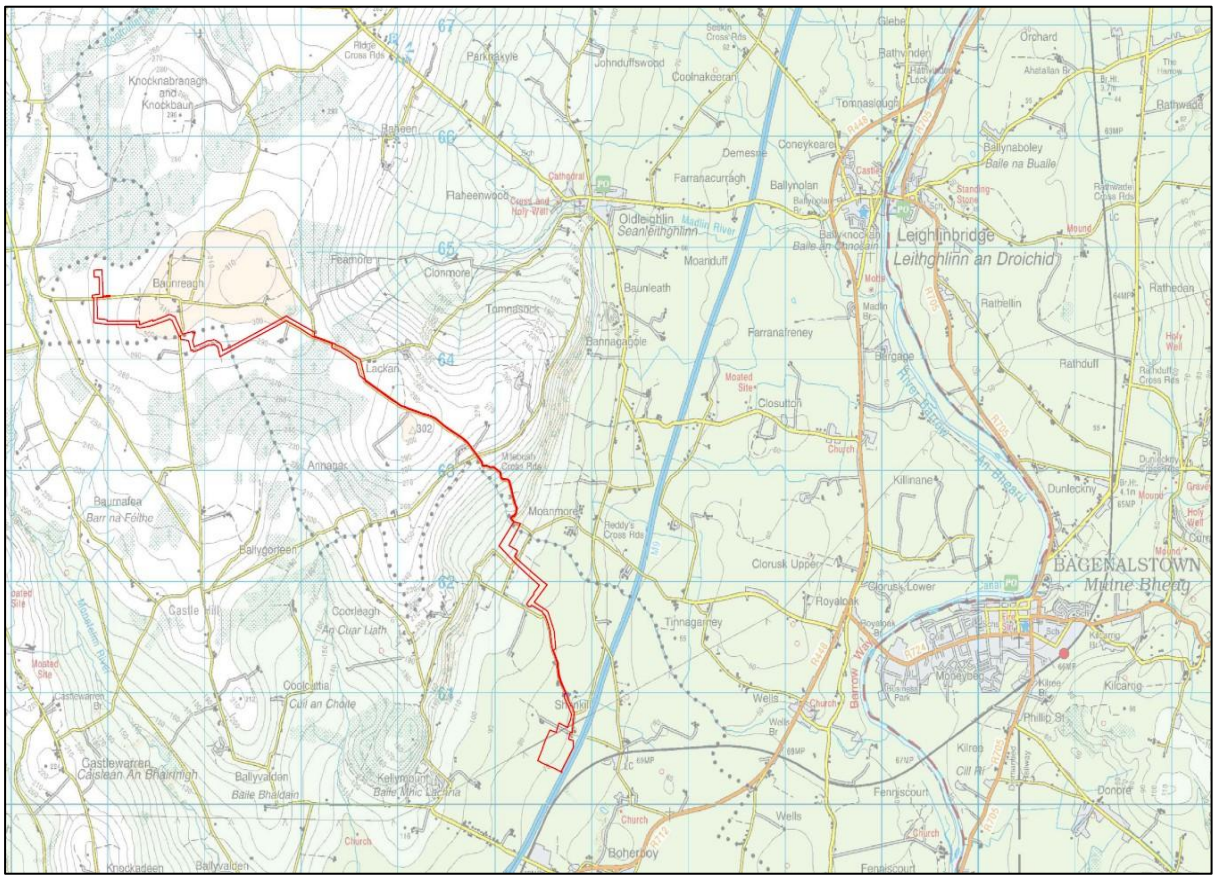

Figure 1: Overall Site Location

The environs of the project site are characterised by small nucleated settlements; such as Paulstown and Castlewarren; and the larger settlements of Muine Bheag and Leighlinbridge, with one-off rural dwellings and agricultural holdings located along the majority of public roads in the area. The public road network is predominately characterised by a network of single-carriageway local roads; while the R712, R912, R448 and R705 are also present in the environs of the project site. The M9 motorway is the dominant transport corridor in the vicinity of the project and is located c. 70m to the east of the electricity substation, The railway line between Dublin and Kilkenny is located c. 150m to the east of the proposed location of the electricity substation.

The project site is located at the southern extent of the Castlecomer Plateau. The Castlecomer Plateau is an elevated plateau located in south County Laois, northwest County Carlow and northeast County Kilkenny. The Castlecomer Plateau is characterised by undulating hills and steep escarpments at its fringes. Dissecting the lowlands on either side of the plateau are the Barrow and Nore rivers, which lie to the east and west respectively. The lowlands are a mixture of pasture and tillage with fields typically bordered by mature broadleaf tree lines and hedgerows. Agricultural land uses extend into the upland areas in the form of more marginal grazing with scrubby hedgerow field boundaries. Extensive commercial conifer plantations emerge on higher slopes throughout the Castlecomer Plateau.

The project site, and surrounding topography, are typical of this region and comprise an undulating landscape with the ground elevation rising considerably from the substation along the route of the underground electricity line to the electrical control unit and the permitted White Hill Wind Farm site. Ground elevations at the electricity

substation range between 68 metres (m) and 73m above ordnance datum (AOD). Ground elevations along the electricity cable route generally range between 68m and 310m. To the south and east of the project site, the terrain is gently undulating and generally trends towards the River Barrow located c. 3km to the east.

Current land use at the electricity substation site comprises agricultural pasture[1] with the wider environs of the site also predominately agricultural pasture. As the route of the electricity line proceeds north onto the slopes of the Castlecomer Plateau, there is an increased presence of marginal grassland and tracts of commercial forestry.

There are no natural watercourses within the site of the electricity substation; however, a stream (unnamed) is located at the northern boundary of the substation site, adjacent to the proposed site entrance. The underground electricity line will traverse five watercourses, namely the Paulstown Stream, Moanmore Stream, unnamed watercourse, Shankill Stream and a further unnamed watercourse. The primary drainage feature within the wider landscape is the River Barrow which flows in a southerly direction approximately 3km to the east.

3.0 Description of the Project

The project assessed within this EIAR comprises a 110kV electricity substation; including all associated development works to accommodate its construction, operation, maintenance and the export of electricity to the national grid via the existing Kellis-Kilkenny overhead electricity transmission line; c. 8.8km of underground electricity line and an electrical control unit. This will include:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electricity substation, including two single-storey control buildings (with a total gross floor area of c. 620 square metres [m^2]); transformers, busbars, insulators, circuit breakers, and lightning poles, within a secure compound (with a total footprint of c. 10,600m^2);
- Two lattice-type interface masts, each of which will be 16m in height, and approximately 320m of underground electricity line between the electricity substation and the interface masts to facilitate connection of the electricity substation to the existing Kellis-Kilkenny 110kV overhead electricity transmission line;
- A new site entrance from the L66732 and approximately 1.1km of access track to facilitate access to the electricity substation and interface masts;
- Electrical control unit with a total gross floor area of c. 40m^2 located at the permitted White Hill Wind Farm;
- A new site entrance from the L7117 and approximately 250m of access track to facilitate access to the electrical control unit;
- Approximately 8.8km of underground electricity line between the electricity substation and the electrical control unit; and,
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works; including a temporary construction compound and the provision of site drainage infrastructure and surface water protection measures.

A typical 110kV substation is illustrated at **Figure 4**.

[1] See the Environmental Protection Agency (EPA) 'Corine 2018' mapping database

Figure 4: Typical 110kV Electricity Substation

4.0 Assessment of Project Alternatives

A description of the reasonable alternatives to this project has been provided detailing the assessment, evaluation and analysis undertaken. A range of alternate development options have been assessed through an iterative project design and environmental assessment process including:-

- Alternative substation locations. Two alternative locations were assessed to determine their suitability to accommodate the electricity substation;
- Alternative substation designs. Currently, two substation designs are approved by EirGrid and each was assessed to examine which was most suitable for the requirements of this project;
- Electricity line routes. A number of possible electricity line routes were assessed to identify the most appropriate route from a technical and environmental perspective; and,
- Construction material delivery routes. A number of quarries have been identified from where stone and concrete may be sourced during the construction phase.

The objective of this process was to arrive at a project, which has inherent design characteristics, which has the least likely adverse environmental effects.

The final project evaluated in this EIAR has been selected as it strikes the best balance between the avoidance of any adverse environmental effects and achieving the objectives of the project.

5.0 Population & Human Health

5.1 Background

This chapter presents an assessment of the likely and significant effects of the project

on population and human health. Human beings comprise a significant and important environmental factor which must be comprehensively assessed. This includes effects on the existence, activities and wellbeing of people, including the local population.

5.2 Methodology

The methodology used to inform the assessment generally comprised research of existing documents and information sources to fully understand the population, social and economic characteristics of the local area. Information sources included information from the 2022 Census, local economic and community plans and tourism information for county Kilkenny and Carlow.

Consultation was also undertaken with a range of bodies including Failte Ireland, Kilkenny County Council, Carlow County Council, the Health and Safety Authority and Health Service Executive.

5.3 Existing Environment

The assessment of the existing environment found that the current population of County Kilkenny stands at 104,160, which is less than 2.1% of Irelands total population; while the current population of County Carlow stands at 61,968, which is less than 1.3% of Irelands total population. The Census data also showed that Professional Occupations are the most common occupations in County Kilkenny while Skilled Trades Occupations are most common in County Carlow.

Recent data from Failte Ireland demonstrates that the counties, as part of the 'South East' region, have a relatively vibrant tourism industry with substantial revenues being generated from tourism.

5.4 Description of Likely Effects

The assessment finds that the likelihood of effects during the construction phase are limited to effects on population sustainability, general amenity and well-being, economic and employment effects, effects on tourism, and the possibility of accidents or natural disasters. The assessment concludes that the project will result in both negative and positive effects on the above factors; however, the level of significance is at the lower end of the spectrum.

For example, amenity levels, in terms of local population, are likely to be subject to a minor adverse effect for the temporary duration of the construction phase; however, while these effects may be substantial at a personal level, they are not assessed to be significant in EIA terms, particularly given their short-term temporary duration.

Economic opportunities, through the provision of materials or services by local companies during the construction phase is likely to involve the employment of up to approximately 40 people over a period of c. 15-18 months. Additionally, plant and materials will be sourced locally. The socio-economic benefits resulting from the construction, operation and decommissioning of the project are likely to make a substantial positive effect on the local economy of the local area, through direct employment and rural diversification.

The operational phase of the project is not likely to result in any significant positive or negative effects in terms of population sustainability and residential amenity, general amenity and well-being, economic and employment effects and effects on tourism. While minor localised effects are likely to arise, both positive and negative;

these effects are not assessed as likely to be significant.

5.5 Mitigation Measures

A series of measures has been agreed with the involved landowner regarding the management of agricultural activities during the construction phase to ensure the sustainability of agri-business; however, no further measures are required during the construction phase. All necessary health and safety requirements will be implemented in full.

During the operational phase, the project will generally be unmanned. Operational monitoring activities will be carried out, remotely, on an ongoing basis. However, regular visits to the site will be undertaken for routine inspections and maintenance.

5.6 Overall Findings

The overall conclusion of the chapter is that any adverse effects of the project on population and human health are unlikely to be significant. No specific mitigation measures, other than full adherence to all health and safety and public health guidance, have therefore been identified as being required.

6.0 Biodiversity

6.1 Background

The chapter provides an assessment of the likely significant effects on biodiversity, including flora and fauna, as a result of the construction, operation and decommissioning of the project.

6.2 Methodology

A comprehensive desk study was undertaken to inform this ecological impact assessment, involving a thorough review of available information that is relevant to the ecology of the project site. Field surveys were undertaken by appropriately qualified ecologists between March and August 2024, and January 2025. These surveys applied best practice guidelines, as required for ecological assessment.

Surveys undertaken included:-

- Extended habitat survey to map habitats within the and adjacent to the project site, and search for terrestrial mammals (including bats), invertebrates, amphibians, reptiles and plants (including invasive and non-native species); and
- Breeding bird surveys encompassing the project footprint and wider area.

Ecological surveys for the project were undertaken following specific guidelines for habitats and species and with reference to the relevant national legislation and policy. The importance of the habitats and species present and likely residual effects was evaluated using guidance documents published by the Chartered Institute of Ecology and Environmental Management and the Environmental Protection Agency.

6.3 Existing Environment

There are no nationally or European designated sites located within the project site.

The project footprint will be primarily located within agricultural grasslands and

public roads.

No legally protected or threatened botanical species were recorded. Third Schedule invasive plant species Himalayan balsam and salmonberry was recorded nearby the electricity line route.

Bird surveys recorded a variety of bird species including raptors, waders and passerines: twelve species were recorded. In general, scrubby habitats in the vicinity of the electricity line route were the areas of greatest importance to birds, especially passerines.

A badger latrine was recorded during surveys but no setts were recorded. Overall, the project site contains limited roosting opportunities for bats.

6.4 Description of Likely Effects

There is a downstream hydrological connection and hydrogeological connection to River Barrow and River Nore SAC. There is also a potential ecological connection to the same via mobile aquatic species.

There is an airborne connection to Whitehall Quarries pNHA via dust.

In the absence of appropriate environmental controls, monitoring and mitigation; there is a likelihood of effects upon biodiversity features of importance.

The construction phase and to a less extent, the decommissioning phase, are identified as requiring the greatest degree of active environmental control. In the absence of mitigation, there is a likelihood of significant negative effects on designated sites, and local aquatic ecology due to run-off of sediment and other contaminants to hydrologically connected watercourses and groundwater bodies.

The constructions and decommissioning works are also likely to result in some localised loss of foraging and commuting habitats for bats.

The likelihood of operational phase effects upon habitats and species is also assessed. In general, significant operational effects on habitats and species are not likely.

6.5 Mitigation Measures

From the outset, an iterative process of constraints led design was employed for the project whereby independent ecological expertise was utilised at an early design stage in identifying the constraints and designing the site layout to take account of these constraints.

Mitigation measures, required to prevent adverse effects on downstream Natura 2000 sites are outlined in the accompanying, standalone Natura Impact Statement (NIS) for the project. The mitigation measures relate to protection of water quality flowing into the identified designated sites via the Paulstown Stream, Moanmore 14 and unnamed tributary, Shankill 14, and an unnamed watercourse. A detailed Construction and Environmental Management Plan (CEMP) presents detailed environmental controls to ensure best practice guidelines are implemented. If these measures are implemented in full, they will ensure that adverse effects on these Natura 2000 sites are avoided. These measures will also protect water quality locally within the watercourses draining the project site and therefore avoid any likely significant effects on local aquatic ecology.

Mitigation measures to reduce the significance of effects on other ecological

features are detailed. An Ecological Clerk of Works (ECoW) will be appointed to oversee the implementation of the construction phase mitigation. An invasive species management plan will be developed and implemented to avoid the spread of invasive plants. Dust suppression and management measures will be used to avoid smothering flora.

All hedgerow or trees felled will be replaced 'like for like' and all disruption to habitats outside of the construction footprint will be minimised. Pre-construction surveys will be carried out to ensure that the risk of disturbance of any protected species is minimised and that all vegetation clearance and construction works will be carried out in accordance with the mitigation recommendations, relevant guidance and legislative requirements.

6.6 Overall Findings

The mitigation measures described have been designed to minimise the effect of the project, from the construction of the project through the decommissioning phase on ecological receptors. The constraints-led design approach followed has been effective in identifying and, insofar as possible, avoiding likely effects to the receiving environment.

The biodiversity assessment has fully assessed the likelihood of adverse effects of all aspects of the project on the species and habitats in the receiving environment. Overall, it is assessed that the detailed monitoring and mitigation commitments will be effective in ensuring that there are no likely significant residual effects on biodiversity.

Separately, the NIS has fully assessed the likely effects of the project, on its own and in combination with other projects and plans, on designated Natura 2000 sites in the wider receiving environment. The implementation of detailed mitigation commitments will ensure that there are no significant effects on any European-designated nature conservation site.

7.0 Land & Soils

7.1 Background

The chapter comprises an assessment of the effect of the project on land and soils. The assessment provides a baseline assessment of the setting of the project in terms of the geological environment, and discusses the likely direct, indirect, and cumulative effects arising from the construction, operation and decommissioning of the project.

7.2 Methodology

The geological characteristics of the project site have been assessed using a combination of desk study and site investigation data. A walkover inspection and driven/windshield survey of the project site has been completed as well as intrusive site investigations comprising of give trial pits.

7.3 Existing Environment

The geology of the project site comprises glacial tills (mineral soil overburden) over several variations of competent bedrock including shale, siltstone and limestone.

During site investigations, subsoils encountered at electrical control unit consist

mainly of SILT with increasing gravel/stone content with depth due to the underling shallow weathered bedrock. Depth to bedrock at electrical control unit ranged from 0.5m to 1m. The subsoils encountered at the electricity substation comprised a layer of silt above very firm gravelly clay. Bedrock was not encountered at the substation site at the maximum trial pit depth of 2.5m.

No ground stability issues were identified by the trial pit investigation and all subsoils were found to be firm to very firm and cohesive which is generally typical of shale, sandstone and limestone tills. A walkover survey of the off-road sections of the underground electricity line confirmed the presence of mineral soils/subsoils and generally firm under foot ground conditions.

7.4 Description of Likely Effects

The volume of soil to be excavated is estimated to be c. 26,930m^3. Excavated soil will be used as fill, stored in the spoil deposition areas, used for landscaping with a material which is not usable for the above purposes being disposed of off-site.

Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods. Measures to prevent subsoil erosion during excavation and reinstatement will be undertaken to prevent adverse water quality effects.

Due to the nature of the electricity substation site, i.e. sloping terrain with glacial subsoils, there is no risk of a landslide occurring.

The project has a very small development footprint. Therefore, no significant effects on land will occur during the construction, operation or decommissioning phases of the project.

7.5 Mitigation Measures

A comprehensive set of measures have been proposed to ensure the appropriate management of excavated material, the avoidance of erosion of exposed soil and the avoidance of soil contamination through leakages or spillages.

Where excess topsoil or subsoil material is generated which cannot be utilised for landscaping or reinstatement purposes on site, it is proposed to develop dedicated soil storage areas immediately adjacent to the substation footprint where excess excavated material will be stored permanently.

In terms of soil erosion, the extent of soil exposed at any given time will be minimised and, in combination with appropriate surface water management measures to direct water away from exposed soil, the likelihood of erosion will be minimised.

Appropriate measures will be put in place to reduce the likelihood of spillages occurring while an emergency plan will be put in place should a pollution event occur.

7.6 Overall Findings

In conclusion, this assessment has determined that the project will not result in any likely significant effects on land and soil. Where effects are likely to occur, such as soil contamination and erosion, the implementation of appropriate mitigation measures will ensure that the significance of effects is reduced to an imperceptible level. Where it is not possible to implement mitigation measures to minimise the effects of the project, such as in respect of the loss of land and direct excavation of soil/subsoil, the level of effect is assessed to be not significant.

8.0 Water

8.1 Background

The chapter comprises an assessment of the effect of the project on water. The assessment provides a baseline assessment of the setting of the project in terms of the hydrological environment, and discusses the likely direct, indirect, and cumulative effects arising from the construction, operation and decommissioning of the project.

8.2 Methodology

The methodology involved in the assessment involved a desktop study of available information which was supplemented by a site walkover, field mapping, analysis of site investigations, and the undertaking of baseline water monitoring.

8.3 Existing Environment

On a regional scale, the electricity substation, electrical control unit and electricity line are located entirely within the River Barrow surface water catchment within Hydrometric Area 14. The River Barrow flows approximately 3.5km to the east of the electricity substation site.

On a more local scale, the substation is located in the Barrow_SC_120 sub-catchment and within the Moanmore Stream catchment. The electrical control unit is also mapped within the Barrow_SC_120 sub–catchment, whilst being situated more locally in the Monefelim River catchment.

The majority of the electricity line is also located in the Barrow_SC_120 sub–catchment with the exception of 1.3km which is located in the Barrow_SC_110 sub-catchment and more locally within the Old Leighlin Stream catchment. The project site is not located in any flood zone according to OPW mapping.

Groundwater at the site can be classed as sensitive in terms of effects from the project. However, due to the nature of the project, being near surface construction activity, effects on groundwater are generally imperceptible. The primary risk to groundwater at the project site would be from cementitious materials, hydrocarbon spillage and leakages, albeit the volumes present on-site will be small.

The electricity line route passes through the Castlewarren Group Water Scheme and Paulstown Public Water Supply groundwater source protection areas. The electricity line also passes through the groundwater catchment to the Shankill GWS. Also, according to Uisce Éireann, there is an abstraction point on the River Barrow at Muine Bheag (Bagenalstown) downstream of the electricity line.

8.4 Description of Likely Effects

Excavations and earthworks will be required at the substation, control unit and along the underground electricity line, although the latter will be temporary and transient (as it moves progressively along the route).

All contamination sources are to be carefully managed at the project site during the construction, operational and decommissioning phases and mitigation measures are proposed below will avoid and manage the likelihood of effects.

The majority of the project site is also covered in poorly draining soil, poorly productive bedrock or thick glacial tills which acts as a protective cover to the

underlying aquifer. Any contaminants which may be accidently released on-site are more likely to affect local surface water features, via runoff, rather than infiltrate groundwaters.

Two methods will be employed to control drainage water within the site during construction, thereby protecting downstream surface water quality and aquatic habitats. The first method involves 'keeping clean water clean' by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage waters from works areas within the site that might carry silt, to allow settlement and cleaning prior to its release. During the construction phase all runoff will be treated to a high quality prior to being released.

There will be no risk of increased flooding down-gradient of the site as a result of the project due to these drainage measures. Effects on water quality during the construction phase will be imperceptible to none. A surface water monitoring programme will be put in place during the construction phase.

Preventative measures also include fuel and concrete management and the preparation of a detailed Surface Water Management Plan which will be incorporated into a Construction Environmental Management Plan to be prepared prior to the commencement of development.

Due to the relatively small scale and shallow depth of the works within the groundwater source protection areas, the prevailing hydrology and hydrogeology (which limits pathways for effects) and the proven and effective measures to mitigate the risk of releases of sediment and contaminants to surface water and groundwater; no effects on these sources are assessed as likely to be significant. Due to the large dilution capacity of the River Barrow (large flows) at Muine Bheag (Bagenalstown), the fact that only c. 1.3km of the electricity line is located within the catchment to this source and the mitigation measures proposed; no effects on the abstraction are likely.

Downstream designated sites that receive surface water runoff from the proposed wind development include River Barrow and River Nore cSAC. This designated site can be considered very sensitive in terms of effects. However, comprehensive surface water mitigation and controls are proposed to ensure protection of all downstream receiving waters. Any introduced drainage works at the site will mimic the existing drainage regime thereby avoiding changes to flow volumes leaving the site.

During the operational phase drainage control measures will ensure that surface runoff from the site will continue to be of good quality and will therefore not impact on the quality of down-stream rivers and streams. The present drainage regime of the site will not be altered in any way. No effects on surface water quality are anticipated during the operational phase.

With respect to health effects and water quality, electricity lines and substations are not a recognised source of pollution and the likelihood of significant effects during the construction, operational and decommissioning phases is imperceptible.

8.5 Mitigation Measures

Drainage measures, pollution control and other preventative measures have been incorporated into the project design (electricity substation, electrical control unit and

underground electricity line) to minimise significant negative effects on surface waters, water quality and downstream designated sites. The implementation of all surface water drainage measures will be the principal means of significantly reducing sediment in drainage water arising from construction activities and for the control of runoff. The key drainage water control measure is that there will be no direct discharge of runoff from the site.

Preventative measures also include controls for fuel, concrete management and a waste management plan.

8.6 Overall Findings

Overall, no significant effects on the water environment (including Water Framework Directive status and flood risk) are assessed as likely during the construction, operation or decommissioning of the project.

9.0 Air Quality & Climate

9.1 Background

The chapter comprises an assessment of the effect of the project on air quality and climate. The assessment provides a baseline assessment of the setting of the project in terms of air quality and climate, and discusses the likely effects that the construction, operation and decommissioning of the project will have on them.

9.2 Methodology

The methodology involved in the assessment involves carrying out an evaluation of the likely effects of the development, in terms of the generation of dust and other emissions, in comparison with recognised suitable limits for such emissions. The assessment considers the generation of dust and vehicle emissions during the construction phase while assessing the whether the development could result in effects during its operational phase. As the project is associated with a wind farm, an evaluation is also made regarding the contribution to the generation of renewable electricity arising from the project.

9.3 Existing Environment

A key factor in assessing temporal and spatial variations in air quality are the prevailing meteorological conditions. In addition, data over the period indicates that 193-days per annum are typically classed as 'wet' which would significantly curtail the likelihood for significant emissions of dust. Dust emissions are dramatically reduced where rainfall has occurred due to the cohesion created between dust particles and water and the removal of suspended dust from the air. It is typical to assume that no dust is generated under 'wet' conditions where rainfall greater than 0.2mm has fallen. Thus, in excess of 50% of the time no significant dust generation will be likely due to meteorological conditions.

Baseline levels of key air quality indicators were found to be substantially below the acceptable levels across a range of criteria. The project site, located in rural counties Kilkenny and Carlow, is considered to have similar air quality characteristics as an Environmental Protection Agency (EPA) monitoring site at Kilkitt, County Monaghan.

9.4 Description of Likely Effects

Construction phase effects; including excavations and groundworks and construction activities; have been assessed in terms of the effects of dust in the environment and effects on human health. Overall, it is assessed that the construction of the project is not of a scale or will involve activities of a sufficient scale which would result in a significant effect on local air quality nor is it likely to generate significant quantities of dust.

During the operational phase, no dust emissions are likely to be generated by the development due to the general absence of activities at the development site. Vehicles which will be used during the maintenance of the site will not generate significant emissions and will be substantially outweighed by the export of renewable electricity generated at the White Hill Wind Farm to the national electricity grid.

9.5 Mitigation Measures

A range of mitigation measures, generally relating to the construction phase, have been proposed to minimise any effects. These measures are contained in a Planning-Stage Dust Minimisation Plan and include:-

- The maintenance of access tracks and public roads;
- Careful management of deliveries which may cause dust to rise;
- Regular inspections of the local road network; and,
- Removal of mud or debris from wheels of vehicles before leaving the project site.

9.6 Overall Findings

The assessment concludes that any adverse construction phase effects on air quality and climate will be negligible and therefore no likely significant adverse effect on the environment. During the operational phase, the development will result in a long term positive effect on both air quality and climate.

Overall, air quality and climate effects are not assessed as likely to be significant.

10.0 Landscape

10.1 Background

This chapter has been prepared to assess the likelihood of significant impacts or effects which the construction, operation and decommissioning of the project may have on the landscape. Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the project, which may alter its character, and how the landscape is experienced. Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes to the landscape

10.2 Methodology

This assessment uses methodology as prescribed in the following guidance documents:-

- European Union (2017) *Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU)*;
- Environmental Protection Agency (EPA) *Guidelines on the Information to be contained in Environmental Impact Statements (2022)* and the accompanying

Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (Draft 2015); and,

- Landscape Institute and the Institute of Environmental Management and Assessment *Guidelines for Landscape and Visual Impact Assessment - Third Addition (2013)*('GLVIA3').

The assessment involved desktop studies to understand the existing baseline environment; fieldwork recording the elements and characteristics of the landscape and selecting and capturing images to allow the preparation of photomontages; and the professional evaluation of the baseline environment and the effects that may occur as a result of the project with the aid of the accompanying photomontages.

The study area selected for this assessment is a 5km radius around the project site, as significant landscape or visual effects from this development are unlikely beyond this distance.

10.3 Existing Environment

The electricity substation site is contained between the River Barrow and the elevated Castlecomer Plateau. It is located at the c. 70m contour and where the terrain is relatively flat. To the west, the terrain begins to swiftly ascend towards the Castlecomer Plateau whilst, to the east, the terrain levels off and comprises flat-to-low rolling lands that drain in a general easterly direction towards the River Barrow corridor. Several small streams flow to the south and north of the electricity substation site. The electricity line culminates at the electrical control unit in more elevated terrain located within the Castlecomer Plateau situated at a maximum elevation of c. 310m AOD.

The predominant land use in respect of the project is pastoral farmland comprising small-to-medium-sized geometric fields bound by networks of clipped and mature hedgerows. Pockets of commercial conifer forestry are also located in the western extent of the study area and are principally associated with the elevated lands in the Castlecomer Plateau. A large quarry is one of the more notable single land uses and is located to the west of the electricity substation. Other notable single land uses include the corridors of both the M9 motorway and the national railway corridor, both situated to the east of the electricity substation site. The principal urban centre in the immediate environs of the project is the small settlement of Paulstown, situated c. 800m southeast of the electricity substation. The larger settlement of Muine Bheag (Bagenalstown) is located c. 3km east of the electricity substation. The village of Oldleighlin is located c. 2km north of the underground electricity line at its nearest point.

Otherwise, the surrounding landscape and study area comprises a loose arrangement of rural dwellings, with the most notable clusters of dwellings located in the less elevated lands to the east, in the vicinity of the motorway corridor, and its surrounding settlements. The nearest residential dwellings to the electricity substation compound are located c. 150m to the north, whilst a linear cluster of dwellings is situated c. 850m to the south.

The principal transport route in the study area is the M9 motorway located c. 70m to the east of the electricity substation. Otherwise, the study area comprises a network of interconnecting local and regional roads. The national railway line is also located in the study area and is situated c. 150m east of the electricity substation at its nearest point.

Whilst the immediate context of the electricity substation and underground electricity line is not highly synonymous with outdoor recreation, the predominant amenity feature within the study area is the River Barrow which hosts a waymarked walking trail and is popular among anglers. Shankill Castle and Demesne is an historic stately home and demesne located to the east of the M9 motorway and c. 500m to the east of the electricity substation. Shankill House and Demesne is open to the public throughout the Spring, Summer and Autumn months.

The assessment of visual effects is only concerned with those parts of the study area that potentially afford views of the project. Whilst theoretical visibility of both the substation and interface masts is theoretically afforded throughout much of the central portion of the study area, this tends to dissipate beyond c. 2km from the substation compound. To the west of the site, the visibility of the site is entirely screened by the rolling terrain here. Indeed, beyond c. 2km to the east of the site, the project will be almost entirely screened aside from several rolling hills located in the wider southwest quadrant of the study area.

All of the scenic routes and views that fall inside the ZTV pattern were investigated during fieldwork to determine whether actual views of the wind farm might be afforded. Where visibility may occur, a viewpoint has been selected for use in the visual impact appraisal later in this chapter.

Only one designated view in the Kilkenny CDP was considered relevant to the project. View V11 is located to the west of the site. A representative viewpoint from here is included within the visual impact assessment.

There are no scenic views or scenic routes within the study area in County Carlow.

10.4 Description of Likely Effects

During the construction phase, there will be a far higher intensity of activity at the site than during the operational phase and decommissioning phase. This will consist of heavy vehicle movements to and from the site as well as construction machinery within the site. There will be an increase in heavy goods vehicle movements within the road network near the project, which will be more noticeable along the local roads within the study area. Horizontal Directional Drilling techniques will be used at a number of watercourse crossings to avoid direct effects on the watercourses themselves. During the construction phase, temporary landscape effects may be experienced along the route. However, any effects would not be at a scale that would have any material effect on the overall landscape fabric or the landscape character in the study area.

Physical landscape impacts will occur during the construction phase at the electricity substation site. These will arise from disturbance to the landform and land cover for the various structures, building and access track. There will also be some removal of existing hedgerows totalling up to c. 140 linear meters, which will be removed to facilitate the full footprint of the electricity substation. Further sections of hedgerow will also be removed to accommodate the access tracks within the site. However, any such loss will be offset by the planting off c. 220 linear meters of new native hedgerow and bolstering of c. 920 linear meters of existing hedgerow, as necessary, to fill any existing gaps

Construction phase landscape effects will be temporary in duration and are of a negative quality. Overall, construction phase landscape impacts are not assessed as likely to be significant

During construction, the main visual impacts will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the site and using the site entrance. In addition, there will be construction machinery on site, which may rise above intervening vegetation and buildings. There will also be stockpiles of stripped topsoil and construction materials awaiting use. However, aside from the site's immediate vicinity, a large part of this temporary activity will remain fully or partially screened from view as a result of the surrounding mature layers of intervening vegetation. Furthermore, construction-related activity is temporary in nature and will cease once the project becomes fully operational.

Construction phase visual effects are assessed to be temporary in duration and of a negative quality. As a result, construction phase visual impacts are not assessed as likely to be significant.

In terms of the operational phase of the project, there will be no notable physical effects on the terrain of the site as it will generally remain unaltered. Whilst there will be a clear change in the land use at the site context, the scale of this change will be difficult to discern at surrounding receptors due to the layers of existing perimeter vegetation, some of which will be enhanced as part of the proposed landscaping measures. Indeed, the likelihood of the electricity substation or electrical control unit notably impacting the surrounding landscape character is heavily diminished by the fact that the substation and electrical control will be heavily screened and softened by the layers of existing and enhanced hedgerow vegetation. With regard to the proposed electrical control unit, it is well offset from the local road and will be afforded a notable degree of screening due to existing vegetation which diminishes the likelihood of a significant change to the local landscape character.

Operational phase effects arising from the project are assessed to be permanent in terms of duration and are of a negative quality. However, operational phase landscape effects generated by the project are not assessed to be significant.

Visual effects have been assessed at six viewpoints throughout the immediate and wider landscape context, representing various viewing distances, angles and receptor types. Indeed, some of the most sensitive and visually susceptible parts of the study area are associated with elevated lands in the western extent of the study area that afford broad views across the wider lowland landscape. The study area also encompasses a notable heritage asset which results in a localised heightened receptors sensitivity in its immediate vicinity. Otherwise, visual receptors within the study area tend to vary between Medium-low and low, highlighting the robust nature of this landscape context, which is influenced by numerous utilitarian features.

Overall, the highest residual significance of visual effect is assessed to be Slight-imperceptible (VP2), whilst the quality of effect is assessed as Neutral and the duration of effect as permanent. This is related to the nearest visual receptor to the project, which is a local residential dwelling situated north of the site. Nevertheless, this receptor will have very limited visibility of the project due to the high degree of existing vegetation in the direction of the electricity substation and interface masts, which will be further supplemented with new and enhanced areas of planting as part of the mitigation strategy. Otherwise, all other visual receptors within the study area are classified with a residual visual effect of Imperceptible, further reflecting the limited visibility and heavily contained nature of the electricity substation site.

Overall, it is assessed that the project will not generate significant residual landscape or visual effects.

10.5 Mitigation Measures

The main mitigation measure employed in this instance is mitigation by avoidance. As part of the design process, detailed consideration was given to the appropriate siting of the project to ensure that it would be located in a robust rural area capable of absorbing it and where it would not be prominent. The overall site design also sought to maximise, to the greatest possible degree, the retention of existing field boundaries within the site and bordering the site to avoid a sense of visual confusion, to aid visual screening, and maintain the existing field pattern.

In addition, planting is proposed around the perimeter of the electricity substation and at the electrical control unit through the planting of new hedgerows and bolstering and strengthening of existing hedgerows.

10.6 Overall Findings

Overall, it is assessed that the project will not give rise to significant adverse landscape or visual effects.

11.0 Cultural Heritage

11.1 Background

This chapter has been prepared to assess and define any likely significant impacts or effects which the construction, operation and decommissioning of the project may have on the archaeological, architectural and cultural heritage resource. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

11.2 Methodology

A 1km study area has been applied around the electricity substation to assess the presence of statutorily protected archaeological remains (RMP sites). In addition, a 2km study area has been applied around the electricity substation to assess the presence of any World Heritage Sites, sites included in the Tentative List as consideration for nomination to the World Heritage List, National Monuments, sites with Preservation Orders or Temporary Preservation Orders, Protected Structures, Conservation Areas, Proposed Conservation Areas, or structures recorded on the National Inventory of Architectural Heritage (NIAH).

A 100m study area either side of the route has been applied to look for the presence of statutorily protected archaeological, architectural and cultural heritage features.

Research has been undertaken in two phases. The first phase comprised a desk review, namely a paper and digital survey of archaeological, historical and cartographic sources. The second phase involved field inspections, a geophysical survey and archaeological testing of the project site.

11.3 Existing Environment

There are no Recorded Monuments or any additional statutorily protected archaeological features within the footprint of the project (electricity substation, electrical control unit and route of electricity line). There is one Recorded Monument within 100m of the electricity substation. There are an additional seventeen Recorded Monuments within 1km of the electricity substation. A Redundant Record

is recorded approximately 920m south west of the electrical control unit.

There are no Protected Structures or structures recorded on the NIAH within the footprint of the project (electricity substation, electrical control unit and route of electricity line). There are nine Protected Structures within 2km of the electricity substation (all of which are recorded on the National Inventory of Architectural Heritage). There are sixteen structures recorded on the National Inventory of Architectural Heritage within 2km of the electricity substation (nine of which are recorded as Protected Structures). There are no Protected Structures or NIAH structures within 2km of the electrical control unit.

11.4 Description of Likely Effects

It is assessed that there will be a likely permanent, direct and imperceptible construction phase effect on any previously unrecorded archaeological remains that may exist within the project site and which may be discovered during the construction phase.

It is assessed that there will be a likely temporary, reversible and imperceptible construction phase visual and noise effect on the archaeological resource.

It is assessed that there will be a likely permanent, direct and imperceptible construction phase effect on any townland, parish, barony or county boundaries that may be affected by the project.

There will be no direct or indirect construction phase effect on any watercourses. The underground electricity line will traverse five watercourses via horizontal directional drilling (HDD). As such, no in-stream works are required and there will be no effect on underwater archaeology.

It is assessed that there will be no direct construction phase effect on the architectural resource.

It is assessed that there will be a likely temporary, reversible and imperceptible construction phase visual and noise effect on the architectural resource.

It is assessed that, due to the proximity of the electricity substation, there will be a likely long-term, reversible and slight operational phase visual effect on one Recorded Monument.

It is assessed that there will be a likely long-term, reversible and not significant operational phase visual effect on the additional seventeen Recorded Monuments within 1km of the electricity substation.

It is assessed that there will be a likely long-term, reversible and imperceptible operational phase noise effect on the archaeological resource.

It is assessed that there will be a likely long-term, reversible and not significant operational phase visual effect on the architectural resource.

It is assessed that there will be a likely long-term, reversible and imperceptible operational phase noise effect on the architectural resource.

The electricity substation will form part of the national electricity network and decommissioning of the project is not proposed. Therefore, decommissioning phase effects associated with the electricity substation will not occur. The electrical control unit and underground electricity line will be decommissioned upon the decommissioning of White Hill Wind Farm. It is assessed that there will be no decommissioning phase effects on archaeological, architectural or cultural heritage

resource.

11.5 Mitigation Measures

Archaeological monitoring of all excavations associated with construction of the electricity substation, electrical control unit and underground electricity line shall be carried out.

Archaeological monitoring of all excavations at townland, parish, barony and county boundaries shall be carried out.

Written and photographic records will be created of any townland, parish, barony and county boundaries that may be affected. The written and photographic records will be created in advance of excavations commencing on site.

Given its proximity to a Recorded Monument, it is confirmed that micrositing of infrastructure will not be considered at the site of the electricity substation should it result in infrastructure moving closer to the site of the Recorded Monument.

11.6 Overall Findings

Overall, it is assessed that there will be no likely significant residual effects during the construction, operational or decommissioning phases of the project.

12.0 Noise & Vibration

12.1 Background

This chapter has been prepared to assess and define any likely significant noise and vibration impacts or effects which the construction, operation and decommissioning of the project may have on nearby sensitive receptors. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

12.2 Methodology

The methodology followed in preparing this chapter included a desk based review of appropriate guidance and criteria, undertaking of a baseline noise monitoring survey, prediction of construction, operation and decommissioning phase noise levels and discussion on the implementation of mitigation measures as required.

12.3 Existing Environment

Baseline noise monitoring was undertaken at the electricity substation site by installing an unattended sound level meter within the project site. The noise survey found that the existing environment is typical of rural Ireland which noise being generated by wind noise in foliage, birdsong, local road traffic noise and other agricultural activities.

An attended noise survey was undertaken at five locations along the route of the underground electricity line. Similar results to those at the electricity substation site were recorded but with reduced influence from road traffic noise.

No existing sources of vibration are presented within the project site or its vicinity.

12.4 Description of Likely Effects

When assessing a project of this nature, it is necessary to assess the short-term construction effects and long-term operational effects.

During the construction phase, noise will be generated by plant and machinery and by HGVs associated with the delivery of materials to the construction site. The electricity substation site, at which the vast majority of construction activity will take place, is located a sufficient distance from dwellings that significant noise effects are not assessed as likely to be significant. Construction work associated with the underground electricity line will be undertaken in close proximity to a number of dwellings; however, due to the nature of construction activities, works will only be undertaken in the vicinity of a particular dwelling for a short period of time. Therefore, construction phase effects are not predicted to be significant.

During the operational phase, the likely noise effects to the surrounding environment are not significant. Noise levels from the electricity substation at the nearest noise-sensitive location will be below relevant limits and the effects will not be significant.

The underground electricity line and electrical control unit will not emit any noise during the operational phase and therefore the effect at sensitive receptors is imperceptible.

The operational phase of the project will not generate any vibration.

12.5 Mitigation Measures

As the project will not result in the generation of significant noise or vibration levels, specific mitigation measures are not required. However, the project will be constructed in accordance with all best practice guidelines regarding the management of construction sites which will include measures related to the minimisation of noise and vibration.

12.6 Overall Findings

It is assessed that the project, individually or in combination with other developments will not result in significant levels of noise or vibration during either the construction, operational or decommissioning phases.

13.0 Material Assets

13.1 Transport & Access

13.1.1 Background

This chapter has been prepared to assess and define any likely significant impacts or effects which the construction, operation and decommissioning of the project may have on transport and access. The chapter includes an identification of likely significant impacts or effects which may arise and outlines mitigation measures, based on current information, which may be used to avoid, reduce or offset any likely adverse effects.

13.1.2 Methodology

The methodology followed in the preparation of this chapter included a desktop review of relevant transportation policy and appropriate guidance; a site walkover of the project site and a driven survey of the electricity line route; and the subsequent evaluation of likely effects and identification of suitable mitigation

measures.

13.1.3 Existing Environment

The road network in the vicinity of the project comprises a mix of motorway, regional and local roads. The M9 motorway is located c. 50m to the east of the project and is likely to be utilised in the delivery of electrical equipment and other construction materials to the project site, subject to the selection of suppliers. From the M9 motorway (Junction 7), construction traffic will utilise the R912, R712 and R448 regional roads and a number of local roads to the access the project site.

The R912 regional road will be utilised over a short distance (c. 500m) from Junction 7 of the M9 to a roundabout with the R712. The road is a high quality two-lane carriageway with a central median and hard shoulders. Due to its elevated setting traversing the M9 motorway, the road is bounded by safety barriers. From Junction 7, the road has a speed limit of 80kph[2]; however, as the road approaches the roundabout with the R448, the speed limit reduces to 50kph. The road is accompanied by street lighting; however, no pedestrian footpaths are present.

From the R448, it is likely that construction traffic will follow the L6674, L6673 and L66732 to the electricity substation site entrance. Due to the relatively narrow carriageway widths of the L6674, it is proposed that construction traffic leaving the project site will follow an alternative route to avoid HGVs meeting along this local road. The alternative route, from the site entrance to the R448, will follow the L66732, L6673, L6674, L3036, and L7117.

It should be noted, however, that the precise traffic routes to and from the project site can only be determined prior to the commencement of construction. Accordingly, therefore, it is proposed that the final routes will form part of a Traffic Management Plan to be prepared prior to the commencement of development following consultation with the Planning Authority.

The underground electricity line will be located within private lands, for c. 5.9km, and within the L6673, L6738, L7117 and L71172 for a combined distance of c. 2.9km.

13.1.4 Description of Likely Effects

The construction phase of the project is estimated to last approximately 15-18 months, with the majority of traffic trips being associated with the construction of the substation compound, the delivery of backfilling/reinstatement material for the trench and delivery of access track and compound construction material for the electrical control unit. During this period, there will also be trips associated with the arrival and departure of construction staff and with the delivery of reinforcing steel, ready-mix concrete and electrical equipment. Staff trips will mainly be made using cars and vans, while deliveries of steel, concrete, electrical equipment and other general construction materials will be made by HGV.

The construction phase of the project will comprise a 6-day week with normal working hours from 07.00 to 19.00 Monday to Friday and 07.00 to 13.00 on Saturdays.

Two new site entrances will be constructed to provide access to the electricity substation and the electrical control unit, respectively. Access to the electricity substation site will be provided via a new site entrance from the L66732 local road.

[2] All speed limits referred to are correct as of 31 January 2025 and prior to the changes to be implemented under the Road Traffic Act 2024. During construction, all speed limits will be complied with in full.

The site entrance will not be required to accommodate any abnormal size loads but will be constructed to ensure ease of access and egress for standard HGVs which will deliver construction materials and electrical apparatus to the site. Works at the site entrance will comprise the removal of c. 15m of existing roadside vegetation to create the site entrance. The electrical control unit compound will be accessed via a new site entrance, from the L7117 local road. The site entrance will require c. 10m of roadside hedgerow being removed

The installation of the underground electricity line will result in both direct and indirect effects on transport and access. In terms of direct effects, trenches will be excavated within the paved surface of the respective carriageways to accommodate the installation of ducting and the electricity line. Following the installation of the electricity line ducting, the trench will be backfilled with appropriate material and temporarily reinstated. Following the installation of the underground electricity line, all public roads within which it is proposed to install the underground electricity line will be subject to a full-width carriageway reinstatement (re-surfacing) of the relevant road section thus ensuring that there are no long-term effects on the public road network.

It is likely that the movement of construction traffic along the route of the underground electricity line (e.g. tracked excavators) will result in a deterioration of the paved surface of the respective public roads. However, the full-width carriageway reinstatement referred to above will ensure that any deterioration is appropriately remediated such that there are no long-term effects on the public road network. It is assessed, therefore, that direct effects on transport and access (i.e. the road network) will be slight, negative and short-term (temporary).

During the installation of the underground electricity line, and due to the narrow width of the local roads involved, full road closures will be implemented as construction activities progress along the route. However, the section of road to be closed at any particular time will be short (c. 100m) and appropriate measures (such as diversionary routes and the maintenance of local access) will be implemented.

It is estimated that approximately 2,723 loads of construction (and associated) materials will be delivered to site. Assuming an 18-month construction phase, this equates to approximately 152 loads per month or an average of seven loads per day excluding Sundays and public holidays. The majority of civil construction material, such as aggregates, concrete and building materials will be delivered to site using standard rigid trucks, HGVs and ready-mix trucks.

Following the completion of construction works, it is estimated that approximately 40 loads will be needed to remove all temporary equipment, plant and machinery and materials used on site.

Operational phase monitoring activities will be carried out, remotely, on an ongoing basis. However, regular visits to the site will be undertaken for routine inspections and maintenance. Under normal circumstances, the operation of the project will require 1-2 visits to the site per week by maintenance personnel.

13.1.5 Mitigation Measures

A range of mitigation measures have been proposed to ensure that traffic is appropriately managed, and that the effects on the road network and on access for local residents are minimised. These measures include the implementation of a comprehensive Traffic Management Plan including traffic diversions as necessary,

strict working hours, careful scheduling of traffic movements and wheel washing to ensure debris is not transferred to the local road network. The local road network will also be monitored to ensure that no structural damage is caused and, where necessary, remedial works will be undertaken.

13.1.6 Overall Findings

It is assessed that there will be no likely significant residual effects during the construction phase or operational phase of the project. The implementation of the above measures will ensure that there are no significant or long-term effects on the road network.

13.2 Aviation

13.2.1 Background

The project is not, due to the absence of particularly tall structures, a type of development which is likely to give rise to effects on or interactions with aviation.

13.2.2 Methodology

Consultation was undertaken with the Irish Aviation Authority (IAA) and Department of Defence to establish if any effects on aviation were likely. The Irish Aviation Authority responded, stating that it had no observations to make on the project while no response was received from the Department of Defence. In addition, a publication by the Air Corps regarding wind turbines and tall structures was also examined.

13.2.3 Existing Environment

There are no major airports in the vicinity of the project and the site is therefore assessed as being unconstrained. The proposed wind turbines are located c. 95km south-west of Dublin Airport, c. 55km north of Waterford Airport, and c. 125km east of Shannon Airport.

According to the IAA, there are a number aerodromes, airfields and airstrips in counties Kilkenny and Carlow. The nearest such installation is at Maganey (Carlow) at an approximate distance of 20km.

The project site is not located within any 'Danger', 'Restricted' or 'Military Operating' area as identified at Annex A, B or C of the Air Corp Position Paper. The project is located within 3-nautical miles of the M9 motorway corridor; identified as a critical low-level route identified at para. 2(2)(c) and illustrated at Annex D of the Paper.

13.2.4 Description of Likely Effects

The assessment concludes that the project is unlikely to result in any significant effect on aviation.

13.2.5 Mitigation Measures

No mitigation measures, specific to the project are required.

13.2.6 Overall Findings

This assessment concludes that the project is unlikely to result in any significant effect on aviation. The project does not comprise particularly tall structures which could

pose a risk to military or civilian aviation operations.

13.3 Telecommunications

13.3.1 Background

This section considers the likely effects of the project upon a range of communications infrastructure, including telecommunication networks, broadcast radio and television and fixed infrastructure such as telecommunication masts. In theory, given the nature of the project and the absence of tall structures, interference or adverse effects are unlikely.

13.3.2 Methodology

The methodology followed to assess the likelihood of significant effects on telecommunication networks consisted of desk based research and consultation with various telecommunication companies and relevant authorities.

13.3.3 Existing Environment

The consultations and desk research demonstrated that the project site is not a significant location for telecommunication links. The locations of existing telecommunication masts in the local area can be found at the Commission for Communications Regulations website.

13.3.4 Description of Likely Effects

While there are telecommunication masts located within the local area, including mobile phone masts, the detailed consultation process has not identified the likelihood of any interference with existing telecommunication links.

13.3.5 Mitigation Measures

The project is not likely to result in any effects on telecommunications and, therefore, no mitigation measures are necessary.

13.3.6 Overall Findings

It can be concluded that, on the basis of a desktop assessment and extensive consultation with stakeholders, the project will not result in likely significant effects on the telecommunications network.

13.4 Resources & Utility Infrastructure

13.4.1 Background

This section provides details of the likelihood of significant effects or interactions with existing renewable and non-renewable resources and existing utility infrastructure; including existing or permitted wind farms, quarries, mining operations and utility infrastructure (electricity lines and phone lines).

13.4.2 Methodology

The methodology followed in this assessment involved a desk based study to identify resources and utility infrastructure which could be affected by the project followed by an evaluation, based on experience, as to whether these resources were likely to be affected.

13.4.3 Existing Environment

Within counties Kilkenny and Carlow, there are a number of existing operational and permitted wind farm developments. Existing quarries are scattered throughout the counties and some will be used to source construction materials.

There is also the presence of utility infrastructure, with overhead electricity lines connecting to the majority of dwellings, medium and high voltage electricity lines traversing the landscape and telecommunication lines located adjacent to the majority of local roads.

During consultation with Gas Networks Ireland, it was identified that a high-pressure gas pipeline is located c. 250m east of the electricity substation and will be crossed by the underground electricity line. Gas Networks Ireland advised that a minimum separation between the gas line and the electricity line of 0.6m would be required. Due to the below-ground depths of the existing gas line (3.2m) and the proposed electricity line (1.1m to ducts), a separation of 2.1m is achievable and will be provided for.

13.4.4 Description of Likely Effects

The construction phase of the project is not likely to have any significant effects on existing resources or utility infrastructure. The construction phase will not restrict the export of energy generated from other sources nor will it affect existing utility services. While there is a possibility interaction with utility services (e.g. accidental collision with overhead wires during the construction phase), this can be mitigated through good construction practices.

The construction phase will result in the extraction of non-renewable resources in the form of stone and gravel for the construction of access tracks and concrete for building foundations and electrical equipment plinths. However, stone and gravel will only be sourced from quarries with have full planning permission.

Notwithstanding that the depth of the underground electricity line trench (1.2m to base of trench) is likely to avoid any interaction with the gas pipeline (depth of 3.2m), there is a risk of adverse effects in the event of accidental collision with the pipeline during excavations.

The operational phase of the project will not result in any effect on existing utility infrastructure or renewable or non-renewable resources. The connection of the project to the national grid will strengthen the electricity network infrastructure in the wider region.

13.4.5 Mitigation Measures

The installation of the underground electricity line will be undertaken in strict accordance with the *Code of Practice for Working in the Vicinity of the Transmission Network* (Gas Networks Ireland, 2021) and particularly with respect to the use of hand-held equipment within 1.5m (linear distance) of the pipeline. During the operational phase, the operation of the gas pipeline will continue to be monitored to ensure no adverse effects arise.

No other specific mitigation measures are proposed or required during the construction, operational or decommissioning phases.

13.4.6 Overall Findings

This assessment concludes that the project is unlikely to result in negative effects on renewable and non-renewable resources or on utilities infrastructure. The operation of the project will bring about a benefit in terms exporting electricity generated from a renewable source to the national grid and a strengthening of national electricity grid infrastructure in counties Kilkenny and Carlow.

14.0 Interactions of the Foregoing

All environmental factors are interrelated to some degree. The assessment of these interactions is an important requirement of the environmental impact assessment process. Having assessed the interaction of likely effects during the construction, operation and decommissioning phases, the likely interactions are not assessed as likely to result in any effects that could magnify effects through the interaction or accumulation of effects.

15.0 Summary of Effects

This Non-Technical Summary has outlined, in summary format, the findings of the EIAR for the project. Full details are set out in the EIAR and its accompanying technical appendices.

The EIAR has assessed that any likely adverse effects of the project, and their interactions, can be managed and mitigated and that there are lasting social and environmental benefits as a result of the project. Whilst the project will have some minor residual adverse effects on the local environment, these will be addressed through mitigation measures, good management and proposed construction techniques and are not assessed as likely to be significant.

The project, in combination with the permitted White Hill Wind Farm, will make a positive contribution to sustainable energy generation in Ireland and will also help diversify and sustain the rural economy through construction, as well as operation and maintenance, activities. Overall, the combined effects which have been assessed within this EIAR demonstrate that the project will not result in a likely significant adverse effect on the environment.