



An  
Bord  
Pleanála

## Inspector's Report ABP-315176-22

### Development

10 year permission for a wind farm consisting of construction of up to 7 wind turbines and a permanent meteorological mast. All ancillary and associated site development works. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development and will be submitted with the application

### Location

Knockroe, Kilnagranagh,  
Newtowndrangan, Tullowcussaun,  
Ballyvadlea, Ballyhomuck, Kilburry  
West, Milestown, Bannixtown,  
Quartercross, Clare More, Killusty  
North, Killusty South, Kiltinan,  
Loughcapple, Grange Beg, Miltown  
Britton, Mullenranky, Kilmore,

### Planning Authority

Tipperary County Council

### Planning Authority Reg. Ref.

211502

### Applicant (s)

ABO Wind Ireland Ltd

<b>Type of Application</b>	Planning Permission
<b>Planning Authority Decision</b>	Grant with conditions
<b>Type of Appeal</b>	Third Party Appeal First Party Appeal
<b>Appellant(s)</b>	Helen and Richie Butler ABO Wind Ireland Ltd
<b>Observer(s)</b>	None
<b>Date of Site Inspection</b>	3 <sup>rd</sup> October 2023
<b>Inspector</b>	Susan Clarke

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## 1.0 Site Location and Description

- 1.1. The proposed wind energy project, to be known as 'Knockroe Wind Farm', is located in the townlands of: Knockroe, Kilnagranagh, Newtowndrangan, Tullowcossaun, Ballyvadlea, Ballyhomuck, Kilburry West, Milestown, Bannixtown, Quartercross, Clare More, Killusty North, Killusty South, Kiltinan, Loughcapple, Grange Beg, Milltown Britton, Mullenaranky, Kilmore, Ballinvoher, Redmondstown and Ballyvaughan.
- 1.2. The wind farm site comprises fields and hedgerows and is bordered by more grassland with small pockets of forestry further to the east and west. The wind farm site is located on a hill with ground elevations ranging from approx. 160m to 190m OD. The land within the wind farm slopes away in all directions. The wind farm site is accessible via a network of farm tracks which enter through homesteads from the west and a public road which runs from the north through Drangan village.
- 1.3. The proposed underground grid connection cable route, which is 19km in length, follows local public roads and the R706 to connect to the existing Doon 110kV substation in the townland of Ballyvaughan 13.7km to the southwest of the wind farm site.

## 2.0 Proposed Development

- 2.1. The proposed development consists of:
  - Construction of up to 7 No. wind turbines with a maximum overall tip height of 150m, comprising a tower of between 75-95m high, to which three blades of between 55-70m in length will be attached;
  - Associated hard stand areas at each turbine;
  - A 30m permanent meteorological mast and all associated infrastructure and works;
  - A 38kV electrical substation and all associated infrastructure and works;
  - 20kV underground cables facilitating the connection of turbines to 38kV electrical substation and all associated infrastructure and works;
  - Circa 19km of 38kV underground cabling and all associated works along public roads to facilitate the connection of the proposed 38kV wind farm electrical

substation to the existing 38/110kV Doon substation in the townland of Ballyvaughan;

- Provision of a new vehicular entrance on the L2305;
- Upgrading of existing agricultural tracks and construction of new site tracks and all associated works as required;
- A temporary site compound and all associated works;
- Demolition of two derelict buildings;
- Provision of two Cattle Underpasses circa 400m and circa 580m to the East of the new Site Entrance;
- All associated infrastructure and site development works.

2.1.1. The total Maximum Export Capacity (MEC) of the proposed wind farm is anticipated to be approximately 35MW, however this is subject to the output power of the turbine model available at procurement stage.

2.1.2. Planning permission is sought for a 10 year life, with construction estimated to take 12 months, with a 30 year operational life from the date of commissioning of the entire wind farm.

2.1.1. The 19km GCR will follow existing roads: Wind Farm substation to the L2305 (via the L2305-1), L2305 Cloneen to Drangan Road, R692 Fethard/Cashel Road, L2309 Milestown/Killusty Road, R706 Fethard – Clonmel Road, Local Road, Thorny Bridge to Ballyvaughan Road and Local Road, Ballyvaughan to Doon Road.

2.1.2. The TDR will commence from Waterford Port via the National Routes, N29, N25, M9, N10 and N76 to the R690 Regional Road at Nilemilehouse. From here, there are two potential turbine delivery routes to the site:

- Route A continues along the R690 to Mullinoly and then joins the R692 and continues along the R692 to Cloneen. From here it turns north on the Local Road L2305 to the wind farm site.
- Route B continues along the R690 to Kilvemnon and then turns onto the Local Road for approx. 1.2km before joining the R692. The route then continues along the R692 to Cloneen and the L2305 the same as Route A.

Temporary accommodating works will be required at selected locations along the TDR to facilitate the delivery of large components to the site. These works do not form part of the proposed development for which planning permission is sought, but it is stated by the Applicant that these elements are assessed as appropriate within the EIAR and NIS.

2.1.3. An Environmental Impact Assessment Report and Natura Impact Statement (Stage 2 Appropriate Assessment) have been prepared in respect of this application.

2.1.4. There were no significant amendments proposed to the development as part of the Response to Further Information (RFI) or the Response to a Clarification of Information (CFI) (notwithstanding that the statutory notices were re-advertised following the submission of the RFI Response).

## 3.0 Planning Authority Decision

### 3.1. Decision

Tipperary County Council issued a Notification of Decision to Grant Permission on 27<sup>th</sup> October 2022, subject to 23 No. conditions.

3.1.1. Condition No. 15 states:

***Horizontal Directional Drilling (HDD) shall be used at all bridges along the 19km Grid connection route. As part of the Road Opening License application, the Applicant shall submit, inter alia: (a) details of the method of construction of the grid connection infrastructure at each Culvert/Drain. (b) Method statements for construction of all Junction Boxes at agreed positions along grid route. (c) Design details of all Joint Bays Joint Boxes and cables are to be designed and constructed with sufficient flexibility in the design of chamber covers to allow the road surface to be raised or lowered if required.***

*REASON: in the interest of orderly development. (Bold: My emphasis.)*

3.1.2. Condition No. 16 states:

*(a) Prior to commencement of development, details of the following shall be submitted to, and agreed in writing with the Planning Authority:*



(i) A **Construction Traffic Management Plan (CTMP)**, including final details of the road network/haulage routes and the vehicle types to be used to transport materials on and off site and a schedule of control measures for exceptionally wide and heavy delivery loads. The CTMP shall include for maintaining a 1-way shuttle system to maintain traffic flow on public roads during construction works on the grid connection element of the project.

(ii) A **detailed condition survey of the roads, bridges and culverts along the haul routes** shall be carried out at the developer's expense by a suitably qualified person both before and after construction of the proposed development. The extent and scope of the survey and the schedule of works shall be agreed with the planning authority prior to commencement of development and shall include:

- Digital Video and Photographic surveys,
- International Roughness Index (IRI) roughness/ride quality surveys,
- Video Pavement Condition Index (VPCD) visual condition surveys,
- Falling Weight Deflectometer (FWD) tests and analyses.
- A measured survey drawing of all over and underground public services and drainage infrastructure, including watermains, service ducts, roadside drains, culverts etc. running along and crossing the grid connection route. The survey shall identify the location and depth of all services and drains on plan and section drawings produced to an appropriate scale of not less than 1:250 and by photographic record cross referenced with the plans provided.

(iii) Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the Planning Authority.

(v) Detailed arrangements for temporary traffic arrangements/controls on roads incorporating the measures outlined in the EIAR.

(vi) A phasing programme indicating the timescale within which it is intended to use each public route to facilitate construction of the proposed development and a phasing programme for the construction of the grid connection

*infrastructure. Each phase of grid connection works shall include for road and drainage reinstatement to the technical satisfaction of Tipperary County Council prior to progression to the next phase.*

*(b) On completion of each phase of the grid connection element an “as constructed” survey shall be prepared and submitted to the Planning Authority within 6 weeks of the completion of each phase. Save where otherwise agreed with the Planning Authority the survey shall identify the location and depth of all services and drains on plan and section drawings produced to an appropriate scale of not less than 1:250 and by photographic record cross referenced with the plans provided.*

*(c) An Engineering Technician/Clerk of Works shall be employed at Developer’s expense to monitor the construction activity along the grid connection route and reinstatement of public roads. Details of his/her qualifications and experience shall be submitted to the Planning Authority for its written agreement. The appointed Engineering Technician/Clerk of Works shall report to both Clonmel and Carrick on Suir District Engineers as appropriate for their areas for the duration of the works.*

*REASON: To protect the public road network and to clarify the extent of the permission in the interest of traffic safety and orderly development. (Bold: My emphasis.)*

3.1.3. Condition No. 19 states:

*The developer shall engage a **suitably qualified geotechnical expert** (e.g. Professional Geologist (PGeo), Chartered Geologist (CGeo), European Geologist (EurGeol), or other suitably qualified Geotechnical Engineer) to:*

*(a) prepare a design brief for the construction of the wind farm (including all soil, subsoil and rock stripping or excavation, construction of all access roads / tracks, turbine foundations, mobile crane foundations including temporary support pads, compounds, sub stations, trenches for all cabling including appropriate reinstatement for avoidance of erosion and inundation with water, slope stability checks and all associated water drainage from the site) insofar as it relates to geology and hydrology of development on the site,*

*(b)confirm details of spoil materials and to propose appropriate deposition / removal from site as appropriate;*

*(c)carry out on site testing to confirm design methods chosen are the most appropriate solution to the construction of the development as indicated in (a) above, suitable and appropriate for the protection of the receiving environment;*

*(d)complete detailed design of the wind farm (as indicated in (a) above) incorporating revisions identified following the on-site testing;*

*(e)prepare detailed construction method statements for the development (as indicated in (a) above),*

*(f)supervise all construction within the site of the development (as indicated in (a) above), including all earth movements, stockpiling of soils, etc. based upon detailed pre-construction geotechnical site investigations, the geotechnical expert shall monitor all earthworks on the site on a location by location basis in addition to advising on the best excavation practices, and following mitigation measures identified in the EIAR,*

*(g)Complete a report on the ongoing inspection regimes and maintenance of the wind farm (as indicated in (a) above).*

*A written report from the said geotechnical expert in relation to the findings and recommendations on each of the above stages shall be submitted to the Planning Authority prior to the commencement of the next phase. The said geotechnical expert shall at each stage of the procedure outlined above consider the:*

- Avoidance, Remedial Reductive and Monitoring Measures indicated in the EIAR*
- All relevant conditions attached to this grant of permission.*

*All recommendations of the geotechnical expert shall be retained by the developer / operator of the wind turbines and shall be made available to the Planning Authority and or their agents, following a request to the developer / operator to do so.*

*REASON: In the interest of orderly development. (Bold: My emphasis.)*

#### 3.1.4. Further Information

A **Request for Further Information** was issued on 3<sup>rd</sup> December 2021. In summary, the RFI requested information relating to *inter alia*: drainage proposals and associated mitigation measures, management of invasive species, the number and location of stream crossings along the GCR, assessment of the battery storage unit in the NIS, traffic impact assessment, construction traffic management measures, alternative grid connection routes, interaction between the proposed development and the N24 upgrade project, interaction between services along the public roads and the grid connection, location of drains crossed by access tracks and associated methods for crossing same, HDD, sightlines, mitigation measures for bird collisions with turbines, land slippage risks, identification of noise sensitive locations, potential noise impacts from the battery storage element, vibration impacts associated with the GCR, identification of residential properties potentially subject to shadow flicker, replacement planting, potential impacts on bats roosting near bridges along the GCR, presentation of photomontages with a clear blue sky and revised unobscured viewpoints required, potential omission of WTG1 due to its visual impact on Dragan, reduction of the proposed turbine height, and potential risks associated with accidents or disasters arising from land slippage, turbine collapse, or natural disasters.

A **Clarification of Further Information** was issued on 21<sup>st</sup> July 2022 in relation to the two items: (i) the potential traffic impacts from the construction of the grid connection within the public roads and sought clarification as to whether installing the connection on private lands beside the public road was considered; and (ii) HDD.

#### 3.1.5. Planning Reports

Original Report 3<sup>rd</sup> December 2021)

- Principle of the proposed development acceptable having regard to the designation of the site as Open for Consideration for wind energy development.
- Notes the District Engineer's concerns regarding the use of the public road for the GCR and recommends that alternative options be explored.

The following is a summary of the main points raised in the Planner's Report concerning the EIAR submitted with the application:

- Description of proposed development is considered reasonable, however notes that the final turbine model has not been selected but that the EIAR is based on a worst case scenario with turbines up to a maximum height of 150m.
- No concerns raised in relation to reasonable alternatives (wind turbine locations, layout and design, scale, grid connection, haul route and site access). However, notes no discussion in relation to alternatives for the battery storage.
- Population - Considered that there are no likely significant effects to population – cumulative impact was also considered.
- Shadow Flicker- notes discrepancies with regards to the identification of receptors. Considered method of mitigating shadow flicker impacts acceptable.
- Noise – Considered noise and vibration impacts from the construction of the wind farm element to be acceptable. However concerns in relation to potential vibration impacts on properties and structures along the GCR. Unclear how noise sensitive receptors were identified. Notes that there are discrepancies with respect to the location of the potential future battery storage infrastructure.
- Ornithology – Concerns in relation to monitoring bird collisions post construction as a mitigation measure. Suggests reducing the turbine height or number of turbines to mitigate impacts on birds.
- Biodiversity – No maps provided showing replanting areas. Mitigation impacts proposed to protected flora during construction phase considered acceptable. Further mitigation measures required post construction with respect to bat fatalities required (e.g. curtailment of turbines during certain periods). No commentary provided on the potential to impact bat roost sites during the construction of the grid connection route. Inconsistencies with respect to the proposed mitigation measures for management of invasive species. Unclear how implementable the eradication and prevention of invasive species spreading is as a mitigation measure given the confines of the GCR.
- Soils and Geology – The peat landslide hazard risk assessment assesses the main project elements, but the development description is not consistent with the EIAR. The EIAR does not consider land slippage.

- Hydrology, Hydrogeology and Water Quality – unclear what mitigation measures would be implemented to protect water quality of land drains that feed into waterbodies. Unclear if a siltbuster coagulant system would be used on site and how it would be laid out and managed. Mitigation measures to protect surface water are unclear. Additional information required in relation to directional drilling.
- Air and Climate - Considered that there are no likely significant effects.
- Landscape - Worst case scenario of potential visual impact should be presented by providing photomontages showing the development against a blue sky background for certain viewpoints. Revised viewpoints should be provided as a number are obscured. Significant concern in relation to the visual impact illustrated in VP8 of WTG1 and as such recommends considering omitting this turbine. Consider reducing the height of the turbines and blade length as a landscape mitigation measure.
- Archaeology and Cultural Heritage - Considered that there are no likely significant effects.
- Material Assets - Considered that there are no likely significant effects.
- Traffic and Transport – Notes the concerns raised by the Carrick on Suir and Clonmel Borough Municipal District Engineers.
- Risk and Accidents – the EIAR does not adequately examine the risks of accidents or disasters arising from land slippage, turbine collapse or natural disasters.
- In relation to the NIS submitted with the application, the Planner stated that further information is required regarding the proposed water management measures in order to undertake an appropriate assessment regarding the potential impacts of the development on key species and habitats.
- The report concludes recommending that further information is sought.

#### RFI Report (19<sup>th</sup> July 2022)

- Satisfied that the main traffic impacts would be confined to the construction phase of the development.

- Routing of the grid connection in its entirety under the public road would cause significant traffic disruption.
- Locating the grid connection in the public road and over bridge decks will hinder the Local Authority undertaking its duties of road and bridge maintenance or future road improvement works.
- Locating a high voltage grid connection in the road will impact on and will limit other services being laid and maintained in the road.
- The grid connection element will impact on roadside drainage creating a knock-on impact for road maintenance costs.
- Grid connection joint boxes relative to the preferred solution for the N24 project could be addressed by way of condition, should permission be granted.
- Notes that all drilling can be undertaken within the red line boundary, however, highlights that should HDD be required outside the subject site, a separate planning application would be required.
- Clarification required as to whether HDD can be achieved through hard rock and on the size of the drill and time required for such works.
- A suitably designed T junction at the site entrance could be required, by way of condition should permission be granted, to provide sufficient sightlines.
- Notes that no construction traffic will utilise the L23033.
- Recommends CFI be issued in relation to the grid connection and HDD works.

CFI Report (27<sup>th</sup> October 2022)

- Comprehensive rationale provided for road based GCR. Accepts that the distance to be covered by the grid connection and the number of legal agreements that would be required militate the delivery of the connection on private lands. Also notes ESB Networks' policy in relation to the provision of grid connections within private lands.
- Notes that a one-way shuttle traffic management system will be implemented during the construction of the grid connection. Full road closure will only be required for the construction of the last 1.3km section of the grid route.

- The potential impact of the proposed development can be adequately mitigated and is not likely to result in a significant impact on the environment.
- The proposed development would not by itself or in combination with other plans or projects adversely affect the integrity of European Sites.
- Recommends permission is granted as per the conditions attached to the Notification of Decision to Grant Permission.

### 3.1.6. **Other Technical Reports**

**District Engineer** (25<sup>th</sup> November 2021, 12<sup>th</sup> July 2022, and 12<sup>th</sup> October 2022): Raised initial concerns in relation to: the potential impact the GCR would have on the road conditions and other local infrastructure/services during the construction and operational phases; alternative GCR options; traffic disruption during construction and the impacts from same on local residents and businesses operating in the area; implications for landowners should private roads become taken-in-charge, and HDD under seven bridges along the GCR. On receipt of the responses to the RFI and CFI, the District Engineer recommended that the proposed development be conditioned should planning permission be granted.

**Tramore House Regional Design Office** (15<sup>th</sup> November 2021 and 15<sup>th</sup> June 2022): No conflict between the N24 Waterford to Cahir Project and the construction of the wind turbines or permanent meteorological mast. However, the grid connection proposed along the public road intersects at least once with all of the Option Corridors under consideration for the N24 Waterford to Cahir project. It has been agreed with the Applicant that if the application is approved, then further consultation and coordination with the N24 design team will be required in advance of the completion of the detailed design of the grid connection for submission to ESB. The locations of grid connection joint boxes relative to the preferred solution for the N24 project shall be agreed with the design team, should the final solution be a road-based option which crosses the line of the cable routing for Knockroe wind farm.



### 3.2. Prescribed Bodies

- IAA (2<sup>nd</sup> and 8<sup>th</sup> November 2021, 5<sup>th</sup> and 11<sup>th</sup> July 2022 and 18<sup>th</sup> October 2023): No objection subject to condition and recommends engagement with the IAA ANSD.
- Irish Water (13<sup>th</sup> October 2022): No objection, subject to condition.
- Transport Infrastructure Ireland (9<sup>th</sup> November 2021, 8<sup>th</sup> June 2022 and 9<sup>th</sup> September 2022): Proposed development is located in an area of a proposed future national road scheme. This scheme should be safeguarded.
- Health Service Executive: No comments received.
- An Taisce: No comments received.
- Arts Council: No comments received.
- Minister for Housing, Local Government and Heritage: No comments received.
- Heritage Council: No comments received.
- Failte Ireland: No comments received.
- Commission for Energy Regulation: No comments received.

### 3.3. Third Party Observations

A number of observations were submitted to the Local Authority opposing the proposed development (see Appendix A). The key points raised can be summarised as follows:

- Majority of observations support for sustainable renewable energy developments, but the subject location is not suitable for such development. However, a number of observations question the output of power from wind farm development when compared to other sources. One observation questions the development of such infrastructure and suggests nuclear power should be explored as an alternative.
- Application does not make reference to the Killusty Water Treatment Plant and the proposed development represents a risk to water supply.

- Proposal threatens species in the Anner Catchment and the Lower River Suir SAC.
- Disruption to local watercourses.
- Significant quantum of hedgerow removal and demolition of walls fronting along Anner Park GAA in Cloneen.
- Negative visual impact, including on Slievenamon Mountain and Scenic Views in the area.
- Noise pollution (during both the construction and operational phases) and vibration impacts on the local area.
- Adverse impact on the fish, plants and wildlife including bats, birds, fish, bees, squirrels, and the local equine industry.
- Confusion as to the length of the proposed development's life.
- Queries whether the application is "project splitting" the future battery storage element.
- Proposal represents a traffic safety hazard and traffic disruption. Local road network is unsuitable for such development.
- Inadequacies with the application in relation to inter alia, wind speeds and volumes, omission of dwellings, water abstraction locations, bat roosting locations.
- Sufficient wind farm developments in the County already. Wind farms should be developed off shore.
- Lack of public consultation
- Negative impact on the area's natural and cultural heritage and tourism industry.
- Negative health implications from the proposed development.
- GCR partially located on private lands.
- Devalue property.
- Negatively impact residential amenity.

- Highlights the Local Authority's assessment criteria for deciding the case (proper planning and sustainable development, AA, EIA, WFD).

A further observation was submitted on receipt of the RFI. In summary, the Observation raises concerns regarding the principle of developing wind energy projects.

## 4.0 **Planning History**

No planning applications were identified relating to the subject site.

## 5.0 **Policy Context**

### 5.1. **Introduction**

- 5.1.1. Selected renewable energy, climate change and planning policy documents from a European, National, regional and local perspective are outlined below. Chapter 4 of the EIAR submitted provides detailed and extensive further information relating to the policy context for wind energy developments in Ireland.

### 5.2. **EU Legislation/Policy**

#### **Renewable Energy Directive 2018/2001/EU**

- 5.2.1. The Directive sets out a target for share of energy from renewable sources in the EU to at least 32% for 2030, with a review for increasing this target through legislation by 2023. A major shift within the revised Directive is the way in which Member States will contribute to the overall EU goal. Where previously (for 2020 target) member states had an individual national binding target, the 2030 framework is solely based on an EU-level binding target of 32%. It requires Member States to set national contributions to meet the binding target as part of their integrated national energy and climate plans.

#### **Climate and Energy Policy Framework 2030**

- 5.2.2. The Climate and Energy Policy Framework 2030 was adopted in 2014 and includes EU-wide targets and policy objectives for the period between 2021-2030. It seeks to drive continued progress towards a low-carbon economy and build a competitive and secure energy system that ensures affordable energy for all consumers and increase the security of supply of the EU's energy supply. It sets targets of at least 40%

reduction in green-house gas emissions and at least 32% share of renewable energy from all energy consumed in the EU by 2030.

### **Effort Sharing Regulation (EU) 2018/842**

- 5.2.3. The Effort Sharing Regulation (EU) 2018/842 lays down obligations on Member States with respect to minimum requirements to fulfil the EU's target of reducing its greenhouse gas emissions 30% below 2005 levels in 2030 in the various sectors and contributes to achieving the objectives of the Paris Agreement. A GHG reduction target of at least 30% applies to Ireland.

## **5.3. National Policy and Guidance**

### **National Planning Framework and National Development Plan**

- 5.3.1. The National Planning Framework (NPF) 2018 identifies the importance of climate change in National Strategic Outcome (NSO) 8, which relates to ensuring a 'Transition to a Low Carbon and Climate Resilient Society'.
- 5.3.2. National Policy Objective 55 seeks to 'Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.'
- 5.3.3. The National Development Plan (NDP) 2021-2030 sets out the investment priorities that will underpin the implementation of the NPF, one of which is climate action, the plan commits to increasing the share of renewable electricity up to 80% by 2030. This is an unprecedented commitment to the decarbonisation of electricity supplies.

### **Climate Action Plan 2023**

- 5.3.4. The Climate Action Plan 2023 is prepared in accordance with the Climate Action and Low Carbon Development (Amendment) Act 2021 and follows the introduction of economy-wide carbon budgets and sectoral emissions ceilings. The plan implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. Notably Section 12 (Electricity) of the CAP provides a Key Performance Indicator (KPI) of providing 9 GW Onshore wind by 2030.

### **Wind Energy Development Guidelines (2006)**

- 5.3.5. The Guidelines advise that a reasonable balance must be achieved between meeting Government Policy on renewable energy and the proper planning and sustainable development of an area, and it provides advice in relation to the information that should be submitted with planning applications. The impacts on residential amenity, the environment, nature conservation, birds and the landscape should be addressed. It states that particular landscapes of very high sensitivity may not be appropriate for wind energy development.

### **Draft Wind Energy Development Guidelines 2019**

- 5.3.6. In December 2013, the Minister for Housing and Planning announced a public consultation process with respect to a focused review of the 2006 Guidelines and a 'preferred draft approach' to the review was announced in June 2017.
- 5.3.7. Consultation on the draft Guidelines ended in February 2020. The draft guidelines identify Specific Planning Policy Requirements (SPPR), and subject to formal adoption of the Guidelines, it is intended that these SPPRs would be applied by planning authorities and An Bord Pleanála in the performance of their functions, as well as having regard to additional matters for consideration in assessing wind energy developments. Notable changes in the draft guidelines when compared with the 2006 wind energy guidelines are summarised as follows:

#### Noise

- Section 5.7.4 - The "preferred draft approach", proposes noise restriction limits consistent with World Health Organisation Guidelines, proposing a relative rated noise limit of 5dB(A) above existing background noise within the range of 35 to 43dB(A), with 43dB(A) being the maximum noise limit permitted, day or night. The noise limits will apply to outdoor locations at any residential or noise sensitive properties.

#### Shadow Flicker

- Section 5.8.1 - The relevant planning authority or An Bord Pleanála should require that the Applicant shall provide evidence as part of the planning application that shadow flicker control mechanisms will be in place for the operational duration of the wind energy development project.

## Community Investment

- Section 5.10 - The Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement issued by the Department of Communications, Climate Action and Environment (December 2016) sets out to ensure that wind energy development in Ireland is undertaken in observance with the best industry practices, and with the full engagement of communities around the country. Community dividend – measures to ensure enduring economic benefit to the community.

## Visual Impact

- Section 6.4- Sitting of wind energy projects.

## Set back.

- Section 6.18.1 Appropriate Setback Distance to apply - The potential for visual disturbance can be considered as dependent on the scale of the proposed turbine and the associated distance. Thus, a setback which is the function of size of the turbine should be key to setting the appropriate setback. Taking account of the various factors outlined above, a setback distance for visual amenity purposes of 4 times the tip height should apply between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres. Policy SPPR 2 – Set back.
- Section 6.18.2 Exceptions to the mandatory minimum setbacks - An exception may be provided for a lower setback requirement from existing or permitted dwellings or other sensitive properties to new turbines where the owner(s) and occupier(s) of the relevant property or properties are agreeable to same, but the noise requirements of these Guidelines must be capable of being complied with in all cases.
- Grid connections – underground to be the standard approach.

## **National Landscape Strategy for Ireland, 2015-2025**

- 5.3.8. This document seeks to integrate landscape into our approach to sustainable development, carry out an evidence-based identification and description of landscape

character, provide for an integrated policy framework to protect and manage the landscape and to avoid conflicting policy objectives.

#### 5.4. **Regional Policy**

##### **Southern Regional Spatial and Economic Strategy (RSES)**

Chapter 5 of the Regional Spatial and Economic Strategy (RSES) states that the Regional Assembly is committed to implement regional policy consistent with the Climate Action Plan. It goes on to state that the RSES recognises and supports the many opportunities for wind as a major source of renewable energy. Opportunities for both commercial and community wind energy projects should be harnessed, having regard to the requirements of DoHPLG Guidelines on Wind Energy. Wind Energy technology has an important role in delivering value and clean electricity for Ireland.

The following Regional Policy Objectives are noted:

- RPO 87 Low Carbon Energy Future: The RSES is committed to the implementation of the Government's policy under Ireland's Transition to a Low Carbon Energy Future 2015-30 and Climate Action Plan 2019. It is an objective to promote change across business, public and residential sectors to achieve reduced GHG emissions in accordance with current and future national targets, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture.
- RPO 95 Sustainable Renewable Energy Generation: It is an objective to support implementation of the National Renewable Energy Action Plan (NREAP), and the Offshore Renewable Energy Plan and the implementation of mitigation measures outlined in their respective SEA and AA and leverage the Region as a leader and innovator in sustainable renewable energy generation.
- RPO 98 Regional Renewable Energy Strategy: It is an objective to support the development of a Regional Renewable Energy Strategy with relevant stakeholders.
- RPO 99 Renewable Wind Energy: It is an objective to support the sustainable development of renewable wind energy (on shore and offshore) at appropriate

locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines.

- RPO 219 New Energy Infrastructure: It is an objective to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs.
- RPO 221 Renewable Energy Generation and Transmission Network:
  - a. Local Authority City and County Development Plans shall support the sustainable development of renewable energy generation and demand centres such as data centres which can be serviced with a renewable energy source (subject to appropriate environmental assessment and the planning process) to spatially suitable locations to ensure efficient use of the existing transmission network;
  - b. The RSES supports strengthened and sustainable local/community renewable energy networks, micro renewable generation, climate smart countryside projects and connections from such initiatives to the grid. The potential for sustainable local/community energy projects and micro generation to both mitigate climate change and to reduce fuel poverty is also supported;
  - c. The RSES supports the Southern Region as a Carbon Neutral Energy Region.

#### 5.5. Other relevant policy documents

- EU Energy Directives and Roadmaps and associated national targets for renewable energy by sector.
- National Renewable Energy Action Plan 2010.
- Strategy for Renewable Energy 2012-2020.



- EU Guidance (2013) Wind Energy Developments and Natura 2000 Sites.
- Ireland’s Transition to a Low Carbon Energy Future, DCENR, 2015-2030.
- Renewable Energy Policy and Development Framework. DCENR, 2016.
- Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure, DCENR, 2012.
- EU Directives on Flooding and the Water Framework Directive.
- The Planning System and Flood Risk Management, 2009.

## 5.6. Local Policy - Tipperary County Development Plan 2022 – 2028

### **Introduction**

- 5.6.1. The relevant development plan to this assessment is the Tipperary County Development Plan 2022 – 2028, which was adopted on 11<sup>th</sup> July 2022 and came into effect on 22<sup>nd</sup> August 2022.

### **Renewable Energy Strategy**

- 5.6.2. The Development Plan’s Renewable Energy Strategy is outlined in Volume Three, Appendix 2, while the Tipperary Wind Energy Strategy 2016 is attached as an appendix (Appendix 1) to same and sets out a planning framework for development of wind energy in the County. Wind energy policies for Tipperary are set out in Section 7.

**Policy TWIND 1:** *It is the policy of the Council to support, in principle and in appropriate locations, the development of wind energy resources in county Tipperary. The Council recognises that there is a need to promote the development of ‘green electricity’ resources and to reduce fossil fuel dependency and greenhouse gas emissions in order to address the global issue of climate change, and to comply with European and International policies with regards to renewable and sustainable energy resources.*

**Policy RE2: Landscape Capacity and Renewable Energy Development:** *It is the policy of the Council to facilitate new development which integrates with and respects the character, sensitivity and value of the landscape in accordance with the guidelines set out in the Tipperary Landscape Character Assessment 2016 and the policies as set*

*out in the County Development Plan (as varied) and the Development Management standards set out in Chapter 10.*

- 5.6.3. The site is within an area identified in the Wind Energy Strategy as being “open for consideration” for wind energy development (Map 11) (Policies TWIND 4.1 to 4.12).

**Policy TWIND4.2:** *Proposals in Areas ‘Open for Consideration’ shall be sited having consideration to the landscape sensitivity and capacity analysis set out in the Tipperary Landscape Character Assessment 2016 and the provisions of the County Development Plan (as varied) in relation to landscape (Chapter 7). All applications shall have regard to the visual impact of turbines and ancillary development (such as access roads, boundary fencing, control buildings and grid connections).*

### **Landscape Character**

- 5.6.4. The site is located within a “secondary amenity area” rural designation. Policy 11-17 states:

*Ensure the protection of the visual amenity, landscape quality and character of designated ‘Primary’ and ‘Secondary’ amenity areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. New development shall have regard to the following:*

*a) Developments should avoid visually prominent locations and be designed to use existing topography to minimise adverse visual impact on the character of primary and secondary amenity areas.*

*b) Buildings and structures shall integrate with the landscape through careful use of scale, form and finishes.*

*c) Existing landscape features, including trees, hedgerows and distinctive boundary treatment shall be protected and integrated into the design proposal.*

- 5.6.5. In addition, there are a number of scenic routes (V12 and V28) in the surrounding area. Policy 11-16 states:

*Facilitate new development which integrates and respects the character, sensitivity and value of the landscape in accordance with the designations of the Landscape Character Assessment, and the schedule of Views and Scenic Routes (or any review thereof). Developments which would have a significant adverse material impact on visual amenities will not be supported.*

5.6.6. The site is within the Slieveardagh Marginal Mosaic landscape character area (16) within the Landscape Character Assessment. The landscape character area is considered to have a medium compatibility with windfarms (Table 6.2).

### Other Key Policies

5.6.7. Other policies of relevance are contained in the Development Plan relating to Habitats Directive (Policy 11 - 1), biodiversity (11 - 4), water quality (11 - 7), flooding (11 - 9), and invasive species (11 - 13).

### 5.7. Natural Heritage Designations

5.7.1. The approximate distance and direction to a selection of the nearest European designated natural heritage sites to the appeal site, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), are listed in Table 1.

**Table 1 Natural Heritage Designations within 15km of the wind turbine site**

Site Name	Site Code	Approx. Distance (nearest point to subject site (red line boundary), as-the-crow-flies)
Lower River Suir SAC	002137	GCR overlaps in a number of locations
River Barrow And River Nore SAC	002162	c. 5.4km to wind farm site
Lizzy Smyth's Bog pNHA	001980	c.1.9km to GCR
Kyleadohir Wood Nature Reserve pNHA	000405	c. 8.3km to wind farm site
Garryrickin Nature Reserve pNHA	000403	c.10km to wind farm site
Grove Wood pNHA	000954	c.2.5km to GCR
Slievenamon Bog NHA	002388	c.1.6km to GCR
Laffansbridge pNHA	000965	c. 10.5km to wind farm site
Power's Wood pNHA	000969	c. 8.2km to GCR
Templetney Quarry pNHA	001982	c. 2.3km to GCR

## 6.0 The Appeal

### 6.1. Third-Party Appeal

6.1.1. A Third-Party Appeal was submitted to An Bord Pleanála on 22<sup>nd</sup> November 2022 by Helen and Richie Butler opposing the Local Authority's decision. The grounds of appeal can be summarised as follows:

- Concern regarding the major lack of discussion, awareness and understanding within the community with regard to the full content, scale, proximity and impact that the proposed development may have on the local community.
- The Applicant has failed to adequately fulfil their duty to inform the local community of the proposed development.
- The proposed 150m tall turbines are not common in Ireland.
- The proposed development will have profound impacts on the area due to:
  - Significant hedge and tree removal.
  - Road safety issues due to insufficient sightlines.
  - Noise impacts during construction stage, particularly noise and vibration impacts from breaking hard rock.
  - Displacement of large quantities of earth and rock and transportation of concrete which will significantly disrupt local roads and habitats.
  - Risk of silt spills and contamination of watercourses may directly impact the River Anner and River Suir SAC.
  - Disruption to local road network and services along the GCR.
  - Potential for mis-management of invasive species.
  - Queries (i) the timing of the pre-construction survey of any breeding/nesting sites post planning, (ii) whether the fact that residual risks to ornithology cannot be fully avoided is 'acceptable', and (iii) the impact the proposal could have on bats.
- Concern regarding potential noise from rotors and blade movement, and the health implications from same.
- Noise impacts will be significant, which highlights the unsuitability of the site selection process. Conditions limiting the hours of operation are not acceptable.

- A significant number of dwellings were missed from the noise assessment.
- Would be helpful to have a clear and proper contour modelling for shadow flicker.
- The Local Authority has a duty to protect scenic views.
- Proposal will have a profound impact on the visual and residential amenities of the local area and wider visual catchment.
- Not only the height and scale of the proposed turbines, but their continuous movement will be distracting and will negatively impact on the visual amenity of the area.
- Questions how the Local Authority can justify WTG1.
- Proposal will devalue homes.
- The GCR will have a major impact on the ability to provide future public infrastructure over the route. Highlights that there is very few fibre broadband providers in the area.
- Highlights difficulties in assessing the planning application documentation on Tipperary County Council's website.
- Questions the adequacy of some of the photomontages (VP4, VP9, VP10, VP15, VP21, and VP29).
- Highlights contradictions in Chapter 13 with respect to the GCR and TDR works: text states that little removal works will be required save the temporary removal of the odd road sign, yet the technical drawings (Figures 13-1 to 7) indicate significant hedge, tree and wall removal.
- Not satisfied that the application documents fully depict the correct number of dwellings that could be impacted by the proposal.
- Noise contour maps should have been produced for the construction and operation phase in no wind situations and prevailing wind situations for both phases of the development.
- Lack of levels with no dimensions to boundaries on the site plans, no marked contours, no levels for each turbine base. Some of the drawings are not sufficiently robust in specific local detail.
- Major concern regarding the lack of detail on drawings for the GCR.

- Difficult to understand how sound, visual, and flicker impacts can be sufficiently assessed without properly defining and establishing the exact structure profiles at each of the turbine locations.
- A number of the Conditions attached to the Notification of Decision to Grant Permission (Nos. 12, 15 and 16) seem to defer the proper assessment to the construction stage.
- The application fails to take into consideration the effects of cumulative effects from other developments in the area.

### 6.1.2. **First-Party Response to Third-Party Appeal**

A First-Party Response to the Third-Party Appeal was submitted to the Board on 22<sup>nd</sup> December 2022, which includes a number of technical notes and site layout drawings addressing specific points raised by the Third-Party Appellant.

The key points from the Response can be summarized as follows:

- The Community Report was prepared in line with the requirements set out in the Draft Wind Energy Development Guidelines. The application was submitted during a period when Covid 19 public health measures restricted the gathering of community type events. A local Councillor requested a town hall meeting after the lodgement of the application.
- The wind farm is consistent with the Wind Energy Guidelines (2006 and 2019) and will not appear incongruous in this robust rural context. There are many examples of wind farms whereby the tip height is greater than 150m.
- Works along the turbine delivery route are not proposed as part of the application but are assessed as part of the EIAR.
- Only a small section of hedgerow is proposed to be removed to form the new site entrance.
- A new site entrance drawing (KCO 45.202) was provided as part of the RFI addressing the Local Authority's concerns in relation to sightlines.
- A robust and comprehensive noise and vibration assessment was completed. However, a technical note included with the First-Party Response concludes that the predicted noise levels at noise-sensitive locations are below 65

dBLAeq,T, which is below the threshold for significant impacts outlined in BS5228, therefore it is not considered that a significant noise effect will be associated with construction noise at any of the noise sensitive locations identified.

- Concerns raised by the Third-party Appellant in relation to displacement of earth and rock and associated impacts on the environment have been addressed in the EIAR.
- A robust and comprehensive assessment of the risk from silt spills and contamination of watercourses was completed. However, a technical note prepared by HES is included with the First-Party Response to address the Third-Party Appellant's concerns in this regard.
- Impacts from the grid connection, including those to bridges, have been adequately assessed in the EIAR.
- Japanese knotweed has been assessed in the EIAR and the contractor will develop an invasive species management plan.
- The Third-party Appellant misquotes numerous sections of the EIAR. All relevant potential ecological impacts are identified and described and the likelihood of some impacts on bats as a result of the proposed development is properly acknowledged.
- Inaccuracies in the submission in relation to shadow flicker were addressed in Addendum to Chapter 10, which ensures that all properties within ten rotor diameters from any turbine were fully considered as part of the assessment.
- There is no significant impact on any scenic views or routes. A technical note has been included with the in response to the concerns relating to the visual impact of the proposal.
- There is no evidence either way that wind farm developments impact property prices.
- The provision of electricity infrastructure within the public road network is an essential service to the public and will not limit the ability of other potential future services to be laid in the road network. The precise technical details with regard

to the location and spacing etc. of other essential services should be discussed with the Roads Department during the Road Opening License process.

- Sufficient information was submitted with the application for the Local Authority to make a decision. However additional site layout drawings are provided.
- The GCR was adequately assessed in the EIAR.
- As the project is at early planning stage and given the length of time that lapses between the submission of a planning application, the determination of the planning application, the provision of a grid connection from the network operator, and the participation and awarding of a tariff in the RESS auction, a decision on the final turbine model selection cannot be made until each of these steps have been successfully navigated. Turbines with a hub height of 75-95m and rotor blade 55-70m (150m overall tip height) have been considered in order to comprehensively make an assessment of the impact from the proposal. The turbines with the largest rotor diameter constitute the worst-case scenario in terms of shadow flicker and as such they were used for the purposes of the assessment. The rotor diameter of 138m assessed as part of the Shadow Flicker Addendum 10.1 equates to a blade length of 69m. This is one metre shorter than the upper limit of the blade length (i.e. 70m). This was an administrative error and as such the blade length applied for should have range from between 55-69m (not 55-70m). As such, updated shadow flicker calculations have been undertaken in respect of a blade length of 70m. The results show that there is an increase of 6 dwellings which may experience shadow flicker per day (7 per year) when a 70m blade is assessed in comparison to a 69m blade length. However, when considering weather and wind conditions, the Real Case Calculations assessment demonstrates that only one property would be affected (B14) for both a 69m and 70m blade length.

## 6.2. First-Party Appeal

- 6.2.1. A First-Party Appeal was submitted to the Board on 23<sup>rd</sup> November 2022 in respect of Condition Nos. 15, 16 and 19 attached to the Notification of Decision to Grant Permission.



### 6.2.2. **Condition No. 15: Horizontal Directional Drilling (HDD)**

As outlined in Section 3.1.1 above, Condition No. 15 requires that HDD be used at all bridges along the GCR.

The grounds of appeal in respect of this Condition can be summarised as follows:

- Appendix 3.3 of the EIAR provides for an “Inventory of Bridge Structures along the Grid Connection Route” and Chapter 3 of the EIAR discuss the proposed bridge crossing methodologies, stating that the preferred method for crossing bridges is in a standard trench with ducts in trefoil formation or in flat formation for reduced cover. Where the depth of cover is below the limit permissible for a reduced cover/flat formation detail, alternative methods such as HDD will be used.
- As such HDD may not be required at all bridge crossings along the GCR.
- The precise methodology for each bridge crossing may not be fully understood until detailed pre-commencement investigations have been conducted.
- As such, it is requested that the first part of Condition No. 15 be reworded to provide greater flexibility:

*“Details of the methodology to cross each of the bridges along the 19km grid connection route shall be submitted to and agreed with the local Planning Authority prior to the commencement of the development of the grid connection route....”*

### 6.2.3. **Condition No. 16: Measurement Survey**

As outlined in Section 3.1.2 above, bullet point five of Condition No. 16 (a)(ii) requires that *“a measured survey drawing of all over and underground public services and drainage infrastructure, including watermains, services ducts, roadside drains, culverts etc. running along and crossing the grid connection route. The survey shall identify the location and depth of all services and drains on plan and section drawings produced to an appropriate scale of not less than 1:250 and by photographic record cross referenced with the plans provided”*.

The grounds of appeal in respect of this Condition can be summarised as follows:

- The wording of this Condition should in fact be listed as a separate item instead of its inclusion as a bullet point within Condition No. 16 (a)(ii) which relates to the haul route (not the GCR).
- It is requested for clarity and convenience that the structure of Condition No. 16 is amended to provide for a separate new subsection specifically referring to the measured drawing survey for the GCR.

#### 6.2.4. **Condition No. 19: Geotechnical Expert**

As outlined in Section 3.1.3 above, Condition No. 19 requires that a geotechnical expert be engaged for the construction phase of the proposed development.

The grounds of appeal in respect of this Condition can be summarised as follows:

- The condition is inappropriate and unnecessary. Chapter 7 of the EIAR concluded that potential risk of accidents or disasters from land slippage are low at the site. There is no evidence to suggest that the Knockroe Wind Farm is susceptible to peat landslides as peat is very unlikely to be encountered. There are no records of previous landslides in the area.
- Geotechnical risks, such as slope stability, will be documented and monitored as standard practice in a Geotechnical Risk Register from design stage through to construction.
- It is unnecessary for a geotechnical expert to supervise all construction within the development site when the site will be monitored by an assortment of construction professionals. A geotechnical expert would not have the expertise to monitor or supervise many aspects of the construction of such a project.
- ABO Wind Ireland Ltd as a developer with experience having constructed multiple wind farm projects throughout the Country propose to supervise all construction within the site of the development ensuring that appropriate construction professionals are instructed to monitor and inspect works at their relevant stages of the construction processes. All monitoring and mitigation measures proposed in the EIAR will be complied with and the CEMP will be submitted to the Local Authority prior to the commencement of development.
- However, the Applicant is willing to engage an external expert to prepare a Geotechnical Audit to satisfy any concerns that may be outstanding. In addition,

the Applicant is willing to accept that geotechnical monitoring of all excavation works be carried out. Furthermore, a Construction Spoil Management Plan could also be submitted to the Local Authority prior to commencement of the development.

- Should the Board consider that an amended version of the Condition is required, it is suggested that wording be amended to match that attached to ABP Reg. Ref. PL05.E.244417:

*“During construction stage, the developer shall employ a suitably qualified and experienced geotechnical engineer to monitor the stability of all existing slopes adjacent to the works and all temporary slopes created by the works. Should any land slippage occur during the course of the works the developer shall immediately inform the planning authority and provide details on how further slippage shall be prevented and necessary measures to remediate the site.*

*Reason: In the interest of environmental protection and orderly development”.*

- 6.2.5. In addition, the First-Party Appeal highlights that Page No. 2 of the Notification of Decision to Grant Permission states that the development shall be carried out within five years of the grant of permission. The Applicant highlights that this is a typographical error and that Condition No. 3 of the Notification of Decision to Grant Permission correctly states that the permission is for 10 years.

### **6.3. Planning Authority Response**

#### **6.3.1. Response to Third-Party Appeal**

The Planning Authority submitted a response to the Board in relation to the Third-Party on 23<sup>rd</sup> December 2022. The key points raised can be summarised as follows:

- The Planning Authority considered the visual and landscape impacts and concluded that the proposed development was acceptable.
- The impact of hedgerow removal along the haul route and at the site entrance was fully considered in the EIA.
- The sightlines are considered acceptable.

- The matters of construction noise, the extent of excavation and concrete required, the risks of water contamination, the traffic disruption associated with the grid connection works, the impact of directional drilling and presence of Japanese Knotweed were fully considered in the EIA with measures proposed to mitigate impacts. Post-construction impacts were also considered in the EIA.
- The Planning Authority consider the level of information provided with the application was sufficient to allow an adequate assessment of the proposed development and its associated environmental impacts.
- The Planning Authority request that the Board upholds the decision to grant permission.

### 6.3.2. **Response to First-Party Appeal**

The Planning Authority submitted a response to the Board in relation to the First-Party on 21<sup>st</sup> December 2022. The key points raised can be summarised as follows:

- The Local Authority needs unhindered access to its infrastructure in particular bridges and as such HDD is required by Condition No. 15.
- Confirm that the inclusion of the requirement for a measured survey drawing of all over and underground services and drainage infrastructure etc. running along the crossing the grid connection route as a bullet point under Condition 16(a)(ii) is a typographical error. It should be listed as a separate item.
- The Planning Authority is agreeable to the Board replacing/amending Condition No. 19 to ensure best industry practices are in place and to ensure geotechnical risks during the wind farm construction are monitored and mitigated.
- Notes that references to five years in the Notification of Decision to Grant Permission is a typographical error that should read 10 years.

### 6.4. **Observations**

None.

## 6.5. Further Responses

### 6.5.1. Third-Party Appellant

The Third-Party Appellant submitted a further response to the Board on 3<sup>rd</sup> February 2023, which includes a report from Hydro S, Engineering Hydrology Consultants on the potential flooding effects of the proposed development on another local resident's (Mr Fintan Morrissey) property (referred to as the "subject site" located in Kilbury) and a copy of The Planning System and Floor Risk Management – Guidelines, November 2009. The key new points can be summarised as follows:

- Not aware of any 'local door knocks' by the Applicant. A greater effort for public consultation should have been made.
- Do not concur with the EIAR statement that the proposed wind farm development will not result in a significant visual impact.
- Question the ability to properly assess the impact of the overall application when significant works, such as those relating to transport the components, require future planning applications.
- Relaxation of the sightlines requirements in the Development Plan is not appropriate.
- Protection of water quality and water flows in the downstream receiving waters is of major concern.
- The flood risk assessment that accompanied the application is inadequate. A Hydrology Report is submitted with the Response from Hydro S, Engineering Hydrology Consultants, and shows that the proposed development has a significant effect on causing or exacerbating a flood risk at Kilbury, where properties are situated in an area of fluvial flooding, the area lying within the catchment of a stream from the proposed development. The Report finds that due to the slope of the stream from the development site it has a significant steep slope, and that the slit pits an attenuation that is proposed will not contain the flow. The Report also finds that the proposed mitigation measures could have an opposite effect and exacerbate the flood risk on a significant manner during an extreme flood event and as such the proposal is not consistent with

The Planning System and Flood Risk Management – Guidelines, November 2009.

- No photomontages have been provided from the five roadways that lead towards the area of the windfarm.
- The proximity of turbines to dwellings would have an impact on property values.
- The Applicant's acknowledgment that the incorrect blade length was used further highlights the discrepancies in the application documentation.

#### 6.5.2. First-Party Appellant

The Applicant submitted a further response to the Board on 28<sup>th</sup> February 2023, which includes correspondence from Hydro Environmental Services in relation to the Appellant's concerns regarding flood risk. The key new points can be summarised as follows:

- The Community Report submitted as Appendix 2.3 to the EIAR was prepared in accordance with the Draft Wind Energy Development Guidelines 2019 (DWEDG).
- The Slievenamon Valley is a highly scenic panorama of a broad working rural landscape influenced by numerous commercial land uses and landscape features such as commercial forestry and existing distant wind energy development. As such, the proposal will not unduly draw from the scene.
- The required works for the TDR have been assessed as part of the EIAR.
- Sightlines comply with the requirements of TCC District Engineer.
- The submitted viewpoint selection and subsequent assessment represent a robust visual impact assessment.
- No definitive evidence that wind farms impact property prices.
- Hydro Environmental Services' report lists a number of criticisms about Hydro S, Engineering Hydrology Consultants report including *inter alia* that no calculations have been provided to support the claim the proposal represents a flood risk. The 10%-20% flow increases estimated by Hydro S for Stream C are significantly overestimated. As a worst-case scenario the Qbar flows at the "subject site" will increase by 0.6%, which is not considered significant.

Furthermore, the proposal has no potential to cause or exasperate the existing flood risk at the subject site at Kilbury. HES is satisfied that the Flood Risk Assessment submitted with the planning application is consistent with The Planning System and Flood Risk Management – Guidelines, November 2009. The potential contamination risks regarding silt and hydrocarbons have been fully assessed and mitigated. The proposal will not impact sewage risk at the “subject site” (Kilbury).

## **7.0 Planning Assessment**

### **7.1. Introduction**

7.1.1. Having regard to the requirements of the Planning and Development Act, 2000 (as amended), this assessment is divided into three main parts, the planning assessment, environmental impact assessment and appropriate assessment.

7.1.2. There are issues which are common to the planning assessment and the environmental impact assessment and in order to avoid repetition these are considered in the environmental impact assessment section of this report.

7.1.3. I have examined the file and the planning history, considered national, regional and local policy and I have inspected the site and its surrounds. I have assessed the proposed development and considered the various submissions received from the Third-Party Applicant, the planning authority, prescribed bodies and observers. I consider that the key issues arising for determination by the Board in respect of the planning assessment include the following:

- Principle of the Development
- Public Consultation
- Residential Amenity
- Ornithology and Biodiversity
- Water
- Traffic
- Property Values

- Planning Conditions
- Other Matters

## 7.2. Principle of the Development

- 7.2.1. In terms of tackling climate change, reducing dependency on fossil fuels in energy production and achieving reduced greenhouse gas emissions, there is clear policy support at international, national, regional and local level for renewable energy development.
- 7.2.2. Government policies identify the development of renewable energy as a primary contributor in implementing Ireland's climate change strategy and national energy policy. The crucial role of wind energy in electricity production is recognised at national level in the various plans and strategies published by Government including the published 'Climate Action Plan 2023', 'National Renewable Energy Action Plan', 'Ireland's Transition to a Low Carbon Future', 'Strategy for Renewable Energy 2012-2020', and the 'National Planning Framework'.
- 7.2.3. Whilst significant progress has been made, Ireland did not meet its 2020 renewable energy targets. The overall share of renewables stood at 13% which was below the country's EU binding target of 16%. The share of renewable electricity (RES-E) was c. 39.1 % and Ireland had a national target of 40%.<sup>1</sup> The Climate Action Plan 2023 seeks a 75% reduction in emissions by 2030 in the power sector. Acceleration of the delivery of onshore wind, offshore wind, and solar is listed as a key tool to achieving this target. The Plan aims to increase the proportion of renewable electricity to 80% by 2030 and a target of 9 GW from onshore wind, (8 GW from solar, and at least 5 GW of offshore wind energy by 2030).
- 7.2.4. It is acknowledged that wind energy has been the largest driver of growth in renewable electricity in the country and will continue to be the main contributor going forward. Significant increases in installed capacity will be required to meet mandatory targets. The proposed development will deliver an additional renewable energy source and contribute to an overarching aim of international/national policy of tackling climate breakdown by reducing greenhouse gases. It will drive continued progress towards a

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<sup>1</sup> SEAI Energy in Ireland 2021 Report



low carbon economy, reduce dependence on fossil fuels, and the decarbonisation of the electricity sector, in line with climate change strategies and energy policies.

- 7.2.5. An increase in the amount of renewable energy is also supported at regional and county level through the Eastern and Midlands Spatial and Economic Strategy and the Tipperary County Development Plan 2022-2028. Both emphasise the importance of energy to economic activity, the necessity to reduce dependence on fossil fuels in energy production and to increase the quantity of energy from renewables, including wind. The proposed development is situated in an area identified in the current Tipperary County Development Plan 2022-2028 and the Renewable Energy Strategy as 'Open to Consideration' for wind energy development.
- 7.2.6. Having regard to the national, regional and local policy support for renewable energy including wind, the location of the proposed development in an area identified as 'Open to Consideration' in the development plan, and compliance with the policy objectives for renewable energy development set out in the development plan, I accept that the proposed development is acceptable in principle in this location.
- 7.2.7. In terms of the overall suitability of the site for the proposed development there are other planning and environmental considerations which are addressed below in the Environmental Impact Assessment and Appropriate Assessment sections of this report.

### 7.3. **Public Consultation**

- 7.3.1. One of the primary issues raised by the Third-Party Appellant relates to the lack of effective consultation and engagement by the Applicant with the public. Section 4.4 of the WEDG, which relates to 'Public Consultation with the Local Community', states that: *"Planning authorities should encourage developers to engage in public consultation with the local community. While it is not a mandatory requirement, it is strongly recommended that the developer of a wind energy project should engage in active consultation and dialogue with the local community at an early stage in the planning process, ideally prior to submitting a planning application."* Appendix 2 of the WEDG provides advice for developers on best practice in the pre-application public consultation process. It notes that providing the public with a good flow of information about a proposed development can avoid conflict in the future. It also refers to it being

helpful to circulate information pertaining to a wind farm proposal to residents within c. 1km and to community groups, churches and clubs within c. 10km radius.

- 7.3.2. The Applicant submitted a Community Report (Appendix 2.3 of the EIAR) in line with the requirements of the DWEDG 2019. A stakeholder mapping exercise was carried out within 10km of the wind farm site to identify key community groups, members of the community and elected representatives. The Report highlights that a number of measures were undertaken, including appointment of a Community Liaison Officer door-to-door calls (10<sup>th</sup> December 2020), a project website, emails to community groups/stakeholders, calls and emails to councillors, meetings with the Nationalist Newspaper and development of a Virtual Public Exhibition. The Applicant advises that the contact details were taken and added to a database of any member of the community who requested to be updated on the progress of the project or who had made an enquiry about the project. The Applicant states that the planning application was submitted during a period when Covid-19 health measures restricted the gathering of community type events. With respect to comments raised in relation to a request from a local councillor to hold a public meeting, the Applicant states that the application was lodged at the time the subject request was made and that the planning application documentation was available online.
- 7.3.3. Having regard to the process outlined above, I accept that the Applicant has taken all reasonable steps to engage with the local community, including during the particular challenges posed by Covid 19 restrictions. I consider that the approach was broadly consistent with the Code of Practice for Wind Energy Development in Ireland Guidelines for Community Engagement and WEDG and that they have complied with their statutory requirements with regard to publication of site and newspaper notices. I accept these measures have been effective in terms of alerting the public to the proposed development. I note that the Third-Party Appellant states that the documentation was difficult to navigate online, however, the documentation was available, nonetheless. I do not therefore consider that the rights of local residents have been compromised in any way and this is evident from local engagement following the lodgement of the application.
- 7.3.4. I am satisfied therefore that the participation of the public has been effective, and the application has been accessible to the public with adequate times afforded for submissions in accordance with the requirements of Article 6 of the Directive.

#### **7.4. Residential Amenity**

- 7.4.1. The Third-party Appellant raises a number of concerns regarding the potential impacts that could arise from noise, shadow flicker and visual effects which could impact on their residential amenity. These matters are considered in more detail below in proceeding sections of the report.
- 7.4.2. With regard to noise and vibration, the construction stage has the potential to cause disturbance and annoyance to local residents. However, these impacts will be temporary, of short duration and capable of effective mitigation to reduce potential impacts on the residential amenity of adjoining residential property.
- 7.4.3. With regard to noise and vibration, the construction stage has the potential to cause disturbance and annoyance to local residents. However, these impacts will be temporary, of short duration and capable of effective mitigation to reduce potential impacts on the residential amenity of adjoining residential property.
- 7.4.4. During the operational phase the wind turbine noise levels at all identified receptors will not exceed the relevant noise limit criteria. No specific noise mitigation measures are therefore required. There are no significant vibrations from an operational wind farm and no mitigation measures are required. No significant effects associated with noise and vibration are therefore likely to arise which would be detrimental to the amenity of property in the vicinity. Notwithstanding this, I recommend that a suitable condition be included to limit daytime and night-time noise at noise sensitive receptors in line with the WEDG 2006 and that the Applicant be required to submit and agree a noise compliance monitoring programme for the proposed development with the planning authority, to include the final turbine type and the mitigation measures required to achieve compliance with the noise limits, such as the curtailing of particular turbines. The condition should also require that the results of the initial noise compliance monitoring be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm. In terms of low frequency, there is no evidence before the Board to indicate that the proposed development would result in infrasound, low frequency noise or vibration of a type or magnitude that would impact on the environment or people in the vicinity. These matters are considered in more detail in Section 8.13 below (Noise & Vibration).

- 7.4.5. Shadow flicker can cause annoyance and impact on the amenity of residential receptors. The Applicant has committed to a curtailment strategy for all turbines that cause an exceedance in the existing daily and annual shadow flicker thresholds at a distance of up to 10 rotor diameters from the proposed development. This is standard best practice on windfarm sites and subject to the implementation of these measures, I am satisfied that shadow flicker would not result in an unacceptable negative impact on the amenity value of dwellings or other structures. This matter is considered in more detail below under Section 8.16 (Population and Human Health).
- 7.4.6. Regarding visual impacts, the site of the proposed development is zoned 'Open for Consideration' and is therefore considered suitable for wind energy development, subject to full assessment. I consider that the visual impact of the development both on its own, and, cumulatively with other existing/permitted wind farms in the area has been comprehensively assessed and, in this regard, I refer the Board to Section 8.12 (Landscape) of this report. The majority of the viewpoints (VP) demonstrate that the wind turbines will not be overly dominant or have a significant overbearing impact on the landscape. This is largely due to the combination of the topography, the separation distance between the viewing points and the proposed turbines, and the natural and manmade structures in the landscape.
- 7.4.7. The proposed turbines will be visible to varying extents, however, in my opinion, the landscape has the capacity to absorb them. VP 8 is taken from Dragan Village, c 960m from the nearest turbine. I accept that the proposed development will have a 'Moderate' visual impact at this specific point, and that it is not possible to mitigate these effects due to the size of the proposed turbines. However, having visited the village, in my opinion, the proposed development will not significantly impact on the visual amenity of the village, due to the build-up nature of same, particularly the main street which would block views of the proposed turbines. Furthermore, I highlight whilst the turbines will introduce tall new features into the immediate landscape, there are already turbines of various sizes in the wider area. As such, I do not consider that the proposed turbines would appear alien. Having regard to the foregoing, I do not consider that there will be a significant impact on the area's residential amenity. I highlight that I also consider that the proposed development will not significantly impact on a designated scenic view in the area.

7.4.8. Having regard to national policy to increase the quantum of electricity produced from renewable sources, the rural character of the area, the dispersed settlement pattern, and the relatively low number of residential properties that are likely to be negatively impacted, I consider that the overall visual impact of the development is acceptable.

### **Conclusion**

7.4.9. No mitigation measures are required for noise and vibration during the operational stage of the development. The impacts during the construction phase will be short term and temporary and capable of mitigation. I am satisfied that potential shadow flicker effects would be effectively mitigated by the measures proposed as part of the scheme. Visual impacts will be experienced particularly in close proximity to the site but in the majority of cases these are not considered to be significant. I am therefore satisfied that the proposed development would not result in significant effects on the amenity of properties in the vicinity to warrant refusal of the application.

## **7.5. Ornithology and Biodiversity**

7.5.1. The Third-Party Appellant raises a number of concerns in relation to ornithology and biodiversity including *inter alia* hedge and tree removal, spread of invasive species, and impacts on birds and bats. I have addressed the potential impacts on ornithology and biodiversity in Sections 8.8 and 8.9, respectively, below. Overall, I have concluded that the potential for significant adverse impacts can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on ornithology and biodiversity. Furthermore, Section 9.0 addresses potential impacts on designated European Sites and their qualifying interests.

## **7.6. Water**

7.6.1. The Third-Party Appellant raises a number of concerns in relation to water quality impacts and in particular impacts on the River Anner and River Suir. I have addressed the potential impacts on water in Section 8.10 below. I have concluded that the potential for significant adverse impacts can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through

suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on water quality.

7.6.2. As part of the Third-Party Response, the Appellant raises flooding concerns. The Appellant provides a Hydrology Report prepared by Hydro S, Engineering Hydrology Consultant, which contends that the proposed development would represent a significant flood risk for Kilbury, located downstream of the wind farm site where numerous residential properties exist. This area is located within an existing fluvial flood zone. However, as discussed below, I do not consider that the Appellant has provided sufficient evidence to demonstrate that the proposed development and associated mitigation measures, which would be considered standard best practice techniques, would cause a standalone significant flood risk for lands surrounding the wind farm site or along the GDR. I am satisfied with the level of assessment provided in the EIAR and accompanying planning documentation that the proposed development, including the proposed mitigation measures, will not cause a significant flood risk downstream.

7.6.3. Appropriate Assessment is addressed separately in Section 9 of this report. In summary, I consider that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the Lower River Suir SAC, or any other European site, in view of their sites' Conservation Objectives.

## **7.7. Traffic**

7.7.1. The Third-Party Appellant contends that the local road network is incapable of accommodating the proposed development. This issue is addressed in Section 8.15 below, where I have concluded that, subject to suitable conditions including:

- Preparation of a construction traffic management plan which shall be submitted and agreed with the Local Authority,
- pre- and post-construction road condition surveys;
- imposition of a bond to ensure road reinstatement;
- appointment of a dedicated Traffic Management Co-ordinator;

and noting:

- the temporary nature of construction works;

- the minimal operational traffic associated with the proposed development;

I am satisfied that construction of the proposed development can be achieved without impacting on public safety by reason of a traffic hazard or otherwise having a significant residual impact on traffic and transportation. With respect to the TDR works, I highlight that whilst these works are assessed in the EIAR and NIS, they do not form part of the proposed development and will be subject to future planning applications, if necessary.

7.7.2. The Third-Party Appellant raises similar concerns to the Local Authority's District Engineer with respect to potential future impacts of the GCR being located in the public road. Firstly, as discussed below, I am satisfied that the EIAR has adequately and robustly assessed all the potential impacts from the GCR works, including the assessment of alternatives to locate the GCR on private lands. I highlight that the DWEDGs state that underground cables are the preferred option for the connection of wind energy developments to the national grid.

7.7.3. Furthermore as set out in ESB Networks' General Specification for Contestably Built Underground Networks, dated January 2021, ESB requires easy access to all sections of the grid cable infrastructure for remedial and maintenance works. Specifically, Section 5.3 states that it is policy of ESB Networks to install underground cables in property which is in public ownership or is in the charge of the local government authority. I am satisfied that the technical detail with regards to the subject works can be agreed with the Local Authority during the Road Opening Licence process. There is no evidence on file to suggest that the proposed development prohibits upgrades/maintenance works or the provision of future infrastructure/utilities in the public roads. As such, I do not consider that planning permission should be refused on this basis.

## 7.8. **Property Values**

7.8.1. The Third-Party Appellant contends that the proposed development will have a negative impact on property values. Whilst details of research to support their position has not been provided, the Appellant states that they have driven in areas where houses are in close proximity to windfarms, and it would, deter them from residing in those areas. This is a recurring issue in wind farm applications and note that there is

research which supports both sides of the argument. I accept that the factors impacting on property value are many and varied, however, I am not persuaded that it can be conclusively determined that windfarms impact negatively on property values.

## 7.9. **Planning Conditions**

### **Condition No. 15: Horizontal Directional Drilling (HDD)**

- 7.9.1. As outlined in Section 3.1.1 above, Condition No. 15 requires that HDD be used at all bridges along the GCR.
- 7.9.2. The Applicant states that the preferred method for crossing bridges is in a standard trench with ducts in trefoil formation or in flat formation for reduced cover. However, where the depth of cover is below the limit permissible for a reduced cover/flat formation detail, alternative methods such as HDD will be used. As such, the Applicant argues that HDD may not be required at all bridge crossings along the GCR and that the precise methodology for each bridge crossing may not be fully understood until detailed pre-commencement investigations have been conducted. In this regard, the Applicant submitted a Grid Route Bridge Inspections Report (Annex B), which outlines the envisaged construction technique for each of the bridge crossings along the GCR. The Applicant advised at RFI stage that all drilling could be undertaken within the red line boundary, however highlights that should HDD be required outside the subject site, a separate planning application would be required. Furthermore, the Applicant states that a standard HDD under a typical bridge would take approx. 3-5 days. In addition, the Applicant outlined in the CFI response that it would be possible to keep the roads open during the HDD by using a one-way shuttle operating with half of the road available for HDD operation.
- 7.9.3. The Local Authority argues that it requires unhindered access to its infrastructure in particular bridges and as such HDD is required. I acknowledge that the provision of utilities, including electrical infrastructure, in the public roads increases the complexity of undertaking upgrade/maintenance works, however I do not consider that it would prohibit such works and furthermore I highlight that the provision of such electrical services and other utilities such as gas and water in public roads is standard practice. As discussed above, it is ESB's policy to install underground cables in property which is in public ownership or is in the charge of the local government authority. The route



of the underground power cables shall not be on private property insofar as this is physically possible (Source: ESB Networks' General Specification for Contestably Built Underground Networks, dated January 2021). Whilst I note that HDD is a standard construction technique utilised on many wind farm and large infrastructural projects, it is not the only method of traversing watercourses (and other natural and manmade features). In my opinion, it is reasonable for the ultimate construction technique to be determined further to undertaking technical design analysis. I am satisfied that subject to the implementation to mitigation measures outlined in the EIAR, that the potential for significant adverse impacts can be avoided, managed and/or mitigated, irrespective of whether the standard trench with ducts in trefoil formation or in flat formation or HDD is ultimately selected.

#### **Condition No. 16: Measurement Survey**

- 7.9.4. As outlined above in Section 3.1.2 above, bullet point five of Condition No. 16 (a)(ii) requires that "*a measured survey drawing of all over and underground public services and drainage infrastructure, including watermains, services ducts, roadside drains, culverts etc. running along and crossing the grid connection route. The survey shall identify the location and depth of all services and drains on plan and section drawings produced to an appropriate scale of not less than 1:250 and by photographic record cross referenced with the plans provided*". The Applicant highlights that the wording of this Condition should in fact be listed as a separate item instead of its inclusion as a bullet point within Condition No. 16 (a)(ii) which relates to the haul route (not the GCR). The Local Authority has no objection to the proposed amendment. I am satisfied that this matter can be dealt with by way of condition.

#### **Condition No. 19: Geotechnical Expert**

- 7.9.5. As outlined in Section 3.1.3 above, Condition No. 19 requires that a geotechnical expert be engaged for the construction phase of the proposed development. In summary, the Applicant argues that it is unnecessary and inappropriate for a geotechnical expert to supervise all construction within the development site, when the site will be monitored by an assortment of construction professionals. The Applicant suggests that an amended version of the Condition, similar to that attached to ABP Reg. Ref. PL05.E.244417 is required:

*“During construction stage, the developer shall employ a suitably qualified and experienced geotechnical engineer to monitor the stability of all existing slopes adjacent to the works and all temporary slopes created by the works. Should any land slippage occur during the course of the works the developer shall immediately inform the planning authority and provide details on how further slippage shall be prevented and necessary measures to remediate the site.*

*Reason: In the interest of environmental protection and orderly development”.*

- 7.9.6. In addition, the Applicant proposes to prepare a Geotechnical Audit and a Construction Spoil Management Plan for submission to the Local Authority to further mitigate potential negative geotechnical impacts.

The Local Authority has no objection to the proposed suggestion. As discussed in Section 8.10 below, the peat landslide hazard risk assessment screening report highlights that the wind farm site has a low susceptibility to landslides with the exception of turbine seven, where the contours are tighter. At this point, the susceptibility is indicated as a moderately low to moderately high. The Applicant states that according to the Quaternary map, these slopes are made of bedrock/subcrop and the adjacent trial pits indicate a very thin layer (30cm) of Topsoil and Silt/Clay overlying 40cm weathered siltstone rock. As such, the Applicant argues that it is clear the landslide susceptibility classification is not related to peat landslide hazard. The Applicant states that in reality turbine 7 is located on agricultural land with topsoil and a thin silt/clay cover. There are no records of previous landslides occurring close to the wind farm site. The Applicant states that the risk can be avoided through further investigation of slope stability and a detailed geotechnical design of the all windfarm infrastructure to a standard level of geotechnical investigation and design. It is argued that this is standard for wind farm development and so will be undertaken as best practice. Having reviewed the analysis and having regard to the proposed mitigation measures, I am satisfied that there is no significant risk of landslide and as such, in my opinion, the suggested condition is appropriate, should the Board be minded to grant permission.

### **Duration of Permission**

- 7.9.7. As highlighted by the Applicant the Notification of Decision to Grant Permission makes reference to a 5 year permission, notwithstanding that Condition No. 3 states that the

permission is for 10 years. As outlined in Section 2.0 above, permission is being sought for 10 years with an operational life of 30 years. This matter can be addressed via condition should the Board be minded to grant permission.

## **7.10. Other Matters**

### **7.10.1. Validity of the Planning Application**

7.10.2. The Appellant raises concerns in relation to accuracy and adequacy of the documentation submitted with this application during its determination by the Planning Authority. On this matter, I note that the Planning Authority deemed that the documentation met the legislative provisions for what constituted a valid planning application. The documentation on file together with my inspection of the site should in my considered opinion suffice for the Board to make an informed decision on the appropriateness of the development sought under this application at this location.

## 8.0 Environmental Impact Assessment

### 8.1. Introduction

- 8.1.1. The application is accompanied by an Environmental Impact Assessment Report (EIAR). This section of my report comprises an environmental impact assessment of the proposed development. This EIA considers the environmental information contained in the original EIAR and the information submitted by the Applicant in response to the Local Authority's RFI, CFI and the information submitted as part of the First-Party Appeal and First-Party Response to Third-Party Appeal. This includes the various turbine dimension options 75-95m hub heights and 55-70m blade lengths, but an overall maximum height of 150m. As noted in Section 7.0 above, some of the matters considered have already been addressed in the Planning Assessment above. This section of the report should therefore be read, where necessary, in conjunction with the relevant sections of the Planning Assessment.
- 8.1.2. The Board should note that the EIAR assesses potential environmental impacts associated with the proposed wind farm for which permission is sought as well as the potential impacts associated with other elements of the overall project, which do not form of the proposed development. These other elements comprise the turbine delivery route works and the battery storage units.

### 8.2. Statutory Provisions

- 8.2.1. The European Union Directive 2014/52/EU, amending Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment, requires Member States to ensure that a competent authority carries out an appraisal of the environmental impacts of certain types of projects, as listed in the Directive, prior to development consent being given for the project. The EIA Directive was transposed into Irish law under the Planning and Development Regulations 2001 (As Amended). Part 1 of Schedule 5 of the 2001 Regulations, includes a list of projects for which mandatory EIA is required. Part 2 of Schedule 5 provides a list of projects where, if specified thresholds are exceeded, an EIA is required.
- 8.2.2. The proposed development falls within the definition of a project under the EIA Directive as amended by Directive 2014/52 and falls within the scope of Class 3 (j) of

Part 2 of the Fifth Schedule of the Planning and Development Regulations 2001, as amended:

Energy Industry

(j) 'Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output of greater than 5 megawatts'.

8.2.3. The proposed development with a total of 7 no. turbines with an estimated output of 35 megawatts exceeds these thresholds and is therefore subject to mandatory EIA.

### 8.3. **Format of EIAR**

8.3.1. The EIAR submitted with the application consists of five volumes.

- Volume 1: EIAR Non-Technical Summary
- Volume 2: EIAR Main Text
- Volume 3: EIAR Figures
- Volume 4: EIAR Appendices
- Volume 5: EIAR Landscape Figures

8.3.2. The EIAR:

- Describes the project and provides information on the site, design, size and particular features of the proposed development;
- Describes the likely significant effects of the project on the environment;
- Describes the features of the project and/or measures envisaged to avoid, prevent, reduce, and if possible, remedy significant impacts;
- Provides a description of the main alternatives studied, and an indication of the main reasons for the choice of alternative put forward, taking into account environmental effects; and
- Includes a non-technical summary of the above information.

8.3.3. As is required under Article 3(1) of the amending Directive, the EIAR describes and assesses the direct and indirect significant effects of the project on the following

factors: (a) population and human health; (b) biodiversity with particular attention to the species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape. It also considers the interaction between the factors referred to in points (a) to (d).

8.3.4. I have carried out an examination of the information presented by the Applicant, including the EIAR, the RFI Response, the CFI Response, and the submissions made during the course of the application and subsequent appeals.

8.3.5. The Third-Party Appellant contends that the Local Authority did not have sufficient information before it on the various environmental factors to complete an EIA. However, I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality, and that the information contained in the EIAR and supplementary information provided by the developer, including the additional information submitted at RFI and CFI stage and the First-Party Response to Third-Party Appeal, is up to date, adequately identifies and describes the direct and indirect effects of the proposed development on the environment, and complies with article 94 of the Planning and Development Regulations 2001, as amended.

8.3.6. I am satisfied that the information before the Board is sufficient to allow the Board to reach a reasoned conclusion on the likely significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment.

#### 8.4. **Alternatives**

8.4.1. The issue of site selection and alternatives is addressed in Chapter 2 of the EIAR. In addition, Addendum 2.1 was submitted at RFI stage. I note that Article 5(1)(d) of the 2014 EIA Directive requires:

“(d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;”

8.4.2. Annex IV of the Directive (Information for the EIAR) provides more detail on ‘reasonable alternatives’:

“A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

8.4.3. The alternatives are considered under eight different headings as follows:

- **The ‘Do-Nothing’ Scenario:** Under this scenario, the site would remain mostly as an agricultural farmland, however there would be no contribution to increasing renewable energy use, no additional employment in the area and benefits to the local economy would be lost.
- **Alternative Locations:** The most suitable locations were considered using a ‘sieve mapping analysis’. A large range of criteria were considered including planning policy, established and future land uses, grid connection, grid capacity, residential amenity, wind speed, environmental designations, archaeology and built heritage, landscape sensitivity, and accessibility/supporting transport infrastructure. Four sites were examined: Noard, Co. Tipperary, Market Hill and Baunaughra, Co. Tipperary/Laois, Castlecomer, Co. Kilkenny, and Knockroe, Co. Tipperary. The subject site was selected due to good wind resource, appropriate established and future land use, distance from residential dwellings, proximity to environmental conservation and natural heritage designations, ease of access and proximity to the national grid.
- **Alternative Windfarm Layout and Design:** The design and layout of the windfarm has evolved throughout the design process and the preparation of the EIAR. Three layouts were considered: Layout 1 comprising 13, 165m high, turbines; Layout 2 comprising 8, 150m high turbines, and Layout 3 comprising 7, 150m high, turbines and the relocation of two turbines within the site. In addition, alternative locations were examined for the construction compound, on-site electrical substation, and wind farm road layout.
- **Alternative Turbine Scale:** For the purpose of the EIAR, a range of turbines have been considered with an overall maximum tip height of 150m. The Applicant highlights that specifications of wind turbines are undergoing a continuous process of development and a final decision on the particular model of turbine to be installed

will be confirmed closer to the construction stage. Turbines with hub heights between 75-69m high, and rotor diameters between 55-70m in length will be considered, not exceeding a maximum height of 150m. The Applicant states that the use of smaller height turbines would not make the most efficient use of the available wind.

The Local Authority considered that the EIAR was not sufficient in this regard and requested the Applicant to explore reasonable alternatives in the context of environmental effects and not commercial considerations. In Section 2.4.4 of Addendum 2.1, the Applicant outlined that 11 No. 126.5m (stated to be the smallest turbines available on the market) would be required to generate a similar level of energy output to the proposed project. However, early-feasibility studies identified that 11 No. turbines had the potential to generate an increased intensity of development in the local landscape and a highly cluttered and ambiguous turbine layout when viewed from surrounding sensitive receptors. The Applicant also argued that a greater number of smaller scale turbines would generate additional ancillary environmental effects e.g. the amount of access tracks and spur roads. The Applicant states that it is considered that the seven turbines at a maximum height of 150m was the optimal layout.

- **Alternative Turbine Delivery Route:** Having examined three port options (Dublin, Waterford, or Bellview), Waterford was selected to reduce the length of the transportation route and for logistical reasons. National and Regional roads will be used as much as possible for the delivery of these turbines and associated equipment.
- **Alternative Site Access:** Two site access points were examined: on the L2305 and on the New House Road. Use of the latter road would involve all deliveries navigating through the village of Drangan and as such, this option was not selected.
- **Alternative Processes/Sources of Energy:** Solar energy technology was considered as an alternative method of facilitating renewable energy from the site, however a considerable greater development area would be required to produce an equivalent amount of energy to wind energy.



As part of the RFI, the Local Authority's requested the Applicant to explore alternatives to the battery storage facility. In Section 2.4.3 of Addendum 2.1, the Applicant highlighted that permission was not being sought for the battery storage facility as part of this permission, notwithstanding that it is included as part of the EIAR assessment. The Applicant stated that the only alternative to the provision of battery storage is if a future planning application for the facility is not submitted, and therefore not constructed. In such a scenario, the site of the battery storage facility would remain unchanged and the opportunity to store renewable energy would not be realised.

- **Alternative Land Use:** The land is currently used for agricultural purposes and will not be significantly altered as a result of the development (7% of the total wind farm site is to be utilised on a permanent basis for the purposes of the wind farm). As such, the Applicant considers the propose use compatible. Furthermore, the site is not designated for residential, commercial, or other uses.
- **Alternative Mitigation Measures:** Mitigation through avoidance has been the primary measure employed for the project and as such, the Applicant argues that it has been possible to avoid ecologically and environmentally sensitive areas and thus limit the impact on associated receptors. It is stated that where it was not possible to completely avoid potential environmental impacts, best practice design and mitigation measures have been adopted.
- **Alternative Grid Connection Options:** Four grid connection points were considered: Doon, Ballydine, Thurles and Kilkenny. The latter two options were discounted at an early stage due to their distance from the site (i.e. >31km). The undergrounding of the cable was considered to be appropriate in terms of visual impact. Three routes were considered. Table 2.3 outlines the factors considered in selecting the preferred route. Option 1 (underground cabling to Doon, circa 19.2km from the wind farm site) was selected for logistical reasons.

As part of the RFI, the Local Authority's requested the Applicant to explore an alternative route for grid connection that did not involve the use of the public road to lay underground cables. Sections 2.2.1 and 2.3.1 of Addendum 2.1 (to Chapter 2 of the EIAR) outline that three different GCR options to connect the wind farm to the national grid via private wayleaves were examined (Figure 2.1). In summary,

the Applicant advised that legal arrangements would be required from between 56 and 227 No. third party landowners under the three scenarios. The Applicant argued that achieving agreement with this number of landowners would not be possible and highlighted that ESB requires a 3m minimum width roadway directly over the cable infrastructure, which would significantly alter the use and management of land in agricultural use. (Section 5.3 of ESB Networks' General Specification for Contestably Built Underground Networks, dated January 2021, which is attached to Addendum 2.1 is noted in this regard.) Overhead lines were also considered, however, the Applicant reiterated the implications for landowners and made referenced to the DWEDGs, which states that underground grid connections are the most appropriate solution.

With respect to the Local Authority's suggestion to share grid connection infrastructure with existing wind farms in the area, the Applicant advised in Section 2.4.1 of Addendum 2.1 that wind farms export electricity to the national grid via a distribution connection (<40MW) or via a transmission connection (>40MW). A 38kV export cable (the largest distribution voltage) will typically carry between 30MW to 45MW of generation (dependent on the length of the cable). The Applicant considers that a dedicated 38kV export cable to Doon substation will be required to deliver Knockroe Wind Farm's expected capacity (35MW). The Applicant stated that if the Knockroe Wind Farm (with an expected capacity of 35MW) was to utilise the existing infrastructure of neighbouring wind farm projects, almost the entire capacity of their 38kV export cable would need to be available for use of the subject wind farm. The Applicant advises that no such capacity exists within the infrastructure of nearby renewable energy projects, but if it was, this option would have been considered in an effort to reduce project costs.

Section 8.15 below addresses the potential impacts from the GCR works on the public roads.

The consideration of alternatives is an information requirement of Annex IV of the EIA Directive, and the single most effective means of avoiding significant environmental effects. I consider that the matter of examination of alternatives has been satisfactorily addressed in the original EIAR and associated addendums forming part of the RFI Response. I consider that the level of detail is reasonable and commensurate with the project. I accept that the design and location of the final proposed development

followed a comprehensive and transparent process. It indicates how the proposed development evolved and how it was adjusted to take into consideration environmental effects. I am satisfied that the process is robust and that the requirements of the Directive are fully complied with.

## 8.5. Development Description

- 8.5.1. Chapter 3 provides a detailed description of the different elements of the development as proposed. In summary, planning permission, with a 10 year life, is being sought for seven wind turbines with a maximum overall tip height of 150m comprising a tower of between 75-95m high with three blades of between 55-70m in length attached, with an operational life of 30 years. In addition the proposal includes *inter alia*: a 30m meteorological mast, a 38kV substation, 19km of 38kV underground cabling to connect the wind farm site to Doon substation, a new site entrance onto the L2305 and access tracks, demolition of two derelict buildings, and the provision of two cattle underpasses. Full details of the different stages are provided in the EIAR. The construction phase will be approximately 12 months long from commencement to installation to commissioning of each of the turbines. Appendix 3.4 provides a Decommissioning Plan for the project.
- 8.5.2. With respect to the specification of the proposed turbines, the Applicant states that a planning condition requiring the final specification of the proposed turbines to be submitted to the planning authority for their assessment and agreement, would be welcomed. I am satisfied that the EIAR and supporting documentation adequately addresses the potential impacts from the range of turbine sizes proposed. I concur that should planning permission be granted for the proposed development, in the interest of clarity, a condition requiring the Applicant to specify the final design details with the Local Authority prior to construction, should be attached.
- 8.5.3. Section 3.5 of Chapter 3 relates to the potential future battery storage facility. The Applicant states the EIAR gives consideration to such a facility, however it does not form part of the planning application. I note that the Local Authority highlighted that the individual subsections of the EIAR contain little reference to this element of the project. In response, the Applicant stated in Addendum 3.1 that battery storage units are not a class of development that requires EIA, but nonetheless outlined the various

sections of the EIAR that relate to the facility. I am satisfied that the EIAR and associated planning documentation adequately addresses the potential impacts from the battery storage facility for the purposes of EIA, notwithstanding that planning permission is not being specifically sought for the facility as part of this planning application.

## **8.6. Policy and Legislation**

8.6.1. Chapter 4 provides detail on existing and relevant policy and legislation for the development of this windfarm. This is broken down to International (section 4.2), European (section 4.3), National (section 4.4), Regional (section 4.5) and County (section 4.6) contexts. Whilst the South Tipperary County Development Plan 2009-2015 (as varied) was in force at the time the planning application was lodged, the Tipperary County Development 2022 – 2028 is now the operative development plan. The Development Plan's Renewable Energy Strategy is outlined in Appendix 2, while the Tipperary Wind Energy Strategy 2016 is attached as an appendix to same and sets out a planning framework for development of wind energy in the County (see Section 5.6 above.)

## **8.7. Likely Significant Effect on the Environment**

8.7.1. This section of the EIA identifies, describes and assesses the potential direct, indirect and cumulative effects of the project under each of the environmental factors referred to in Article 3(1) of the Directive. The assessment generally follows the headings used in the EIAR which are as follows:

- Biodiversity – Ornithology
- Biodiversity – Terrestrial and Aquatic Ecology
- Land, Soils, Hydrogeology, and Hydrology and Water Quality
- Material Assets – Aviation, Telecommunications and Electromagnetic Interference
- Landscape
- Noise and Vibration

- Cultural Heritage
- Traffic and Transportation
- Population and Human Health
- Air Quality and Climate

## 8.8. Biodiversity – Ornithology

8.8.1. Chapter 5 of the EIAR assesses the potential for significant effects on avian receptors. The site of the wind turbines and the grid connection corridor have been included in this assessment. The chapter is supported by Appendix 5.1 to 5.5 (Volume 4) which detail the results of the bird surveys carried out over the period between June 2019 and July 2021 as follows:

- Appendix 5.1: Summary of vantage point watch variables
- Appendix 5.2: Vantage point raw data and flight activity
- Appendix 5.3: Transect surveys raw data
- Appendix 5.4: Breeding status codes as used in Bird Atlas
- Appendix 5.5: Flightline maps, vantage point surveys, June 2019-July 2021.

8.8.2. In addition, Addendum 5.1 was submitted at RFI stage.

8.8.3. The Applicant states that a comprehensive desktop and literature review was carried out to identify past ecological references to the general site area. Bird surveys were carried out over a 26 month period between June 2019 and July 2021 (inclusive) from two vantage point locations that provided extensive views of the wind farm site and surrounding areas (Figure 5.1). It is stated that the purpose of these surveys was to mainly detect birds of prey and passing waterbirds (swans, geese, duck, waders, gulls), though all birds observed were recorded. Table 5.1 provides a summary of the walkover survey (which followed along the main track/road through the site), including dates, season, times, and weather conditions. A mix of Breeding and Winter seasons, at various times throughout the day, were used, and weather conditions were dry with good visibility. The grid route was surveyed in May 2020 by driving the route and stopping in appropriate locations. The Applicant highlights that the section of the grid

route which runs west of the Anner River between Melbourne Bridge and Thorny Bridge was included in the hinterland surveys in winter 2019/20 and 2020/21.

8.8.4. The hinterland survey highlighted that there are several main rivers (c. 10km distance) that could potentially support winter wetland birds such as Whooper Swan, especially during times of flood. However, it is stated that there are no known permanent wetland sites in the area that support significant populations of wintering wetland birds on a regular basis. Sections of the Clashawley River, Anner River tributary from Drangan to Ballycullin Bridge, Anner River from Ballycullin Bridge to Melbourne Bridge, Anner River Melbourne Bridge to Thorny Bridge, Kings River from Wilford Bridge to Kyleaduhir, and Walsh's Sandpit, Rathcool were surveyed for presence of wetland birds on four occasions in each winter 2019/20 and 2020/21. The emphasis of these surveys was placed on the afternoon/ evening periods when wetland birds such as gulls might come in to roost on the river and the adjoining wetlands especially during times of flood.

8.8.5. No limitations on surveys were identified.

8.8.6. A list of target species has been provided, these would be considered to be sensitive to collision and/ or disturbance:

- Waders such as Lapwing, Curlew and Snipe
- Other waterbirds, such as ducks and gull species
- Merlin, Hen Harrier, and other birds of prey
- Any other Annex 1 species of the EU Birds Directive
- Any other Amber or Red-listed species.

#### 8.8.7. **Receiving Environment**

8.8.8. The receiving environment is described in Section 5.5. The Applicant highlights that no part of Knockroe site is within or adjoins a site designated for the protection of birds. The nearest designated Special Protection Area (SPA) is the River Nore SPA (site code 004233), which is located 14km east-northeast of Knockroe. Appendix 5.2 and Appendix 5.5 provide flight line details of target species. The following are noted:

- Sparrowhawk regularly recorded on the site with nesting expected to have taken place in the conifer plantation along the western side of the site and

possibly in woodland to the northeast of the site. Birds observed displaying/ circling overhead and/ or birds hunting within the site.

- Kestrel (a red-listed species) recorded regularly in both summer and winter hunting within and around the site. It is not expected that kestrel nests are within the site, but the frequency of records would indicate local nesting.
- Buzzard recorded regularly within the site and a pair may nest in woodland to the northeast or north of the site. Records were spread throughout the year with up to three birds seen together.
- There were single records of a Peregrine and a flock of Golden Plover (>150) (both Annex I species) flying over the site.
- Lesser Black-backed Gull (amber listed) were recorded on a fairly regular basis passing over the site, mainly in the autumn and winter period. The highest count recorded was a flock of 20 in November 2020. These are considered to be associated with the Suir River Valley where birds occur in autumn and winter.

8.8.9. A list of Breeding/ Summer Birds is provided in Table 5.2 of the EIAR. The Applicant states that the bird species recorded on site during the summer period were typical of agricultural grassland with hedgerows and local strands of conifer plantations. Species recorded include Woodpigeon, Goldcrest, the three common tit species, Willow Warbler, Wren, Blackbird, Song Thrush, Robin, Dunnock, Chaffinch, Bullfinch and Lesser Redpoll. House Sparrow bred in small numbers in a hedgerow on the southeast sector of the site. Several pairs of Skylark were recorded in the less managed fields where a tall sward was present. Swift was recorded feeding over the site on several dates, while Swallow is expected to nest in some of the old buildings on site. Sand Martins were recorded passing through the site and may breed in local sand quarries.

8.8.10. In terms of the winter period, the Applicant states that there is a low level of bird activity, reflecting the dominance of agricultural grassland. Widespread species within the fields included Woodpigeon, Rook, Jackdaw, and to a lesser extent Starling. The hedgerows supported resident's species such as Wren, Blackbird, Robin, Chaffinch, and common tit species and a small flock of House Sparrow. Flocks of winter thrushes, Fieldfare and Redwing were present in the area on several dates from

December to February both in hedgerows and fields. It is stated that numbers varied widely between dates but were in the low hundreds on at least two occasions.

8.8.11. The Applicant states that there was no evidence of the presence of owl species or Woodcock on site during either the breeding or wintering survey periods.

8.8.12. In terms of the hinterland surveys along the river channels in the vicinity of the site, Lesser Black-backed Gulls and Black-headed Gulls were recorded in varying numbers during the winter period. Numbers and distribution appeared to vary according to the flooding of the river and wetness of adjoining fields: in terms of the Lesser Black-backed Gulls figures ranged from 20 to in excess of 100 along Anner River south of Melbourne Bridge and for the Black-headed Gull figures ranged from 20 along Clashawley River to 120 along Anner River between Drummam Bridge and Melbourne Bridge. The Applicant notes that apart from gulls, small numbers of Mallard and Grey Heron were recorded along the various river stretches but there were no regular concentrations of wetland birds at any location. Various wetland species were recorded on the artificial quarry land at Walsh's Sandpit including Little Grebe, Grey Heron, Mute Swan, Wigeon, Teal, Mallard, Tufted Duck, Coot, Lapwing, Black-headed Gull, and Lesser Black Gull.

8.8.13. The grid route follows local roads which are through agricultural land, in proximity to the Anner River for the most part. The Applicant states that the following species are associated with the hedgerows: blackbird, robin, wren, great tit, blue tit, coal tit, willow warbler and chaffinch. It is stated that Grey Wagtail nests at Loughcapple Bridge and that Kingfisher can be expected along this entire stretch of river.

8.8.14. Table 5.3 provides a summary of the bird species of conservation importance recorded at Knockroe and surroundings from June 2019 to July 2021. The Applicant states that it is considered that the site for the proposed wind farm supports a bird fauna that is typical of agricultural land dominated by pasture in Ireland. The regular presence through the year of Kestrel and Redwing in winter are considered the most significant features of the site from a bird conservation perspective.

8.8.15. **Likely significant effects during construction of wind farm site**

8.8.16. The Applicant states that the loss of improved grassland is not expected to have an adverse impact on the populations of any of the bird species associated with the site, as similar habitat will still comprise the dominant habitat and such habitat is widely



presence elsewhere in the County and Country. It is argued that the length of hedgerow removal (850m) is relatively low and similar hedgerows are available widespread in the area. The impact from the loss of hedgerow is rated as Slight, Negative Effect.

8.8.17. Construction work during the bird breeding season has potential to have localised disturbance effects on bird species. The Applicant states that a possible breeding pair of Sparrowhawk could be affected by works in proximate to the possible nesting location in the conifer plantation to the southwest of the site.

**8.8.18. Likely significant effects during operational stage of wind farm site**

8.8.19. The significance of any potential disturbance or avoidance effect is rated as Imperceptible for passerine bird species and wintering bird species including Redwing.

8.8.20. Breeding Sparrowhawk and hunting Kestrel and Buzzard may avoid the immediate area however these species are expected to habituate to the presence of the wind farm in the medium term.

8.8.21. The Applicant states that there is no evidence to show that the Knockroe site is within a regularly used migration route by birds or a route used by wintering waterfowl between feeding and roosting sites. During 26 months of monthly surveying, there were no flightlines of swans, geese or ducks over site. The one flock of Golden Plover recorded in November 2019 was flying at a height of >150m. It is stated that there is some risk of collision in poor visibility conditions for Lesser Black-headed Gulls. Birds of prey, including Sparrowhawk, Kestrel and Buzzard are potentially prone to collision with turbines.

8.8.22. The significance of potential losses of Lesser Black-backed Gull, Sparrowhawk, and Buzzard at the local population levels is rated as a Slight Effect. The significance of potential losses of individual Kestrels by collision at the local population level is rated as a Moderate Effect.

**8.8.23. Likely significant effects from grid connection works**

8.8.24. In terms of the grid connection, the Applicant states that if works are carried out during the bird nesting season, mitigation will be required to avoid disturbance to nesting birds. Otherwise impacts on birds by the construction and operation of the grid connection are not anticipated. HDD works at bridge crossings are not expected to

disturb nesting Grey Wagtail as the works will not affect the structure of the bridges. However, should works take place within the bridge structure during the breeding season, disturbance (including from the effect of vibrations) could be caused to nesting birds associated with the bridge.

8.8.25. With a distance of approx. 14km between the subject site and SPA, and with no direct hydrological connectivity, the Applicant states that it can be concluded that the proposed wind farm project does not pose any risk to the Kingfisher. Similarly due to the distance (8km) between Walsh's Sandpit and Knockroe, it can be concluded that the proposed development does not pose any risk to birds which frequent the quarry lake.

#### 8.8.26. **Cumulative Effects**

8.8.27. The proposed development was examined with regard to four wind farms (both operational and consented) within 10-15km of the subject site. Due to the separation distance between the sites, no significant impacts were identified.

#### 8.8.28. **Mitigation**

8.8.29. A suite of mitigation measures is proposed to protect ornithological interests on the site and the surrounding areas. The measures include the following:

- Removal of vegetation and scrub outside of the bird breeding season (March 1st to August 31st inclusive).
- With respect to Sparrowhawk, a preconstruction survey will be required in the breeding season by an ecologist. From the survey, and depending on the local topography, a suitable restrictive distance around any nesting area if identified, where works would be restricted until nesting has been complete.
- Pre-construction surveys of bridges which are to be crossed by cable route will be undertaken to establish whether riparian species, mainly Grey Wagtail, are nesting within the bridge structure. If such species are present, works on the bridge should only take place outside of the nesting season.
- Post construction bird monitoring will take place during the wind farm operation to determine: (i) if the wind farm has resulted in any significant change in the breeding and wintering birds associated with the site and (ii) if birds are colliding with the turbines on a regular basis. To monitor possible changes in birds

present, it is recommended that two transects surveys take place in summer (April-June) and winter (November-February) for the first three years of the operation of the wind farm using the same route as the present transect survey. Annual reports will be prepared with an overall review report after three years. From the latter it will be determined if further monitoring is necessary. To monitor numbers of collisions, carcass searches will be carried out in Years 1, 2, 3, 5, 10 and 15 of the operational phase of the wind farm. It is proposed that four carcass searches will be carried out in each year of the programme (spring, summer, autumn, and winter) using trained dogs in the care of an experienced handler. Should monitoring determine that some bird species are regularly colliding in significant numbers with one or more turbines, the data will be analysed for trends such as time of year, age of birds, etc. and a strategy will be considered to reduce mortalities.

#### 8.8.30. **Residual Effects**

8.8.31. With full implementation of mitigation measures significant residual effects on bird species are not expected within the site or in the surrounding area.

#### 8.8.32. **EIAR Conclusion**

8.8.33. With recommended mitigation applied, which includes a comprehensive bird monitoring programme, it is not expected that the proposed project would have a significant residual negative effect on bird species associated with the site and surrounding areas. It is noted that the proposed project does not have the potential to have effects on any Special Protection Area.

#### 8.8.34. **Assessment**

#### 8.8.35. **Decommissioning Phase**

8.8.36. I am satisfied that the EIAR adequately addresses the potential impacts during the construction and operational phases of the proposed development. However, I note that it does not address the decommissioning phase. Notwithstanding this, it is reasonable to assume that the potential impacts from the decommissioning phase would be similar, if not less, than the construction phase. In particular, should many elements such as turbine bases and cabling be left in place, the impacts on birds would be less in comparison to the construction phase. Appendix 3.4 (Decommissioning

Plan) submitted as part of the RFI outlines various scenarios for the wind farm beyond its 30 year operational life (i.e. that the lands are reinstated or repowering of the wind farm). Under current planning legislation should repowering be selected, planning permission for same would be required, which would include an assessment of potential impacts on birds. Should the Board grant permission for the subject proposed development, I recommend that the mitigation measures identified for the construction phase, be required during the decommissioning of the wind farm, by way of planning condition.

#### 8.8.37. **Mitigation/Collision Risk**

8.8.38. I am satisfied that the bird survey results correlate with the Applicant's contention that the wind farm site supports a bird fauna that is typical of agricultural land dominated by pasture in Ireland. Whilst a Peregrine and a flock of Golden Plover were recorded, it was only on one occasion over a two year survey period, demonstrating that the site is not of particular importance to these species. As highlighted by the Applicant a regular corridor of flight has not been identified for 'at risk' birds. I note the potential impacts during the construction and operational phases to Sparrowhawk, Kestrel, Buzzard, Redwing, Lesser Black-headed Gull and Black-headed Gulls, however I consider that the proposed mitigation measures to be standard and appropriate in this instance to ensure that there would not be adverse significant impacts on these species. Furthermore, I am satisfied that the mitigation measures proposed for the grid connection works, including those to protect Grey Wagtail, are adequate.

8.8.39. The Third-party Appellant raises concerns in relation to the timing of the pre-construction survey of any breeding/nesting sites after planning permission has been granted. Similarly, the Local Authority questioned the effectiveness of monitoring and evaluating as a measure of mitigating collision risk for the Lesser Black-headed Gull, Buzzard, Sparrowhawk, Kestrel). In response the Applicant highlighted (in Addendum 5.1) that the monitoring frequency is in line with standard guidance (Scottish Natural Heritage 2009). Three scenarios are outlined:

- Scenario 1: in a worst case scenario, such as more than one kestrel being hit by the same turbine, a recommendation could be made to plan for a close down of the turbine during daylight hours for a number of weeks in the following year until the birds have dispersed from the area.

- Scenario 2: if several birds of interest are found to have collided at different turbines, the likely causative factor which is attracting the birds to the area would be investigated. The objective would be to implement measures to discourage the birds from hunting or feeding near the turbines.
- Scenario 3: if the analysis shows that none of the casualties are classified as birds of conservation importance, then nothing more would be done other than continued monitoring according to the accepted programme.

8.8.40. Whilst collision risk modelling was not undertaken, I consider this response to be sufficient and in line with standard practice and as such, I do not recommend that the number of turbines proposed, or their size be reduced to mitigate impacts on birds. Notwithstanding that the significance of potential losses of individual Kestrels by collision at the local population level is rated as a Moderate Effect, I reiterate that there was no evidence that the wind farm site is within a regularly used migration route by birds or a route used by wintering waterfowl between feeding and roosting sites. During 26 months of monthly surveying, there were no flightlines of swans, geese or ducks over site. The conservation measure will further reduce the potential for any negative impacts on breeding/nesting species.

#### 8.8.41. **Conclusion**

8.8.42. Whilst the citations for the desktop and literature review are not explicitly referenced in Chapter 5, in general, I consider that the information provided in the EIAR, which is supported by a range of surveys, which were undertaken in accordance with best practice guidance, and are comprehensive and proportionate, is sufficient to allow the impacts of the proposed development to be fully assessed.

8.8.43. I note the Third-Party concerns in relation to whether the fact that residual risks to ornithology can be described acceptable. While I accept that the development of the windfarm on the site will impact on bird species using the site, having regard to the limited footprint of the development and the abundance of similar habitat both on the site and within the wider area, I do not consider that the proposed development either individually or in combination with existing and permitted wind farm development would result in significant effects on birds in terms of habitat loss, displacement or collision risk.

8.8.44. The potential impacts on the River Suir SPA (approx. 14km from the wind farm site), has also been assessed. This matter is considered in more detail under Appropriate Assessment.

8.8.45. I have considered all the submissions made in relation to ornithology and I am satisfied that they have been appropriately addressed in terms of the application and that no significant adverse effect is likely to arise.

8.8.46. I consider that the information provided in the planning application documentation is sufficient to allow the impacts of the proposed development to be fully assessed. I am satisfied that the impacts identified on ornithology would be avoided, managed or mitigated by measures forming part of the proposed scheme and I am, therefore, satisfied that the proposed development would not have any unacceptable direct indirect or cumulative impacts on bird species that use the site.

## 8.9. **Biodiversity**

8.9.1. Chapter 6 of the EIAR assesses the potential impacts of the proposed development on biodiversity. It is supported by 5 No. appendices included in Volume 4 of the EIAR;

- Appendix 6.1: Fisheries Report
- Appendix 6.2: Freshwater Pearl Mussel Survey Report
- Appendix 6.3: Biodiversity Evaluation Scheme (Nairn & Fossett, 2004)
- Appendix 6.4: Biological Water Quality Sampling Results
- Appendix 6.5: Outline Invasive Species Management Plan.

In addition, Addendum 6.1 was submitted at RFI stage. Furthermore, Appendix 6.5 (Outline Invasive Species Management Plan) was revised at RFI stage.

The Applicant advises that a constraints-based approach was taken to the design of the wind farm and grid connection route and assessment of the TDR with early involvement of ecologists. Details on the existing environment were obtained from a desk study coupled with a range of field surveys which included multidisciplinary ecological surveys and targeted surveys for habitats, mammals, invasive species, amphibians/reptiles and invertebrates. Aquatic surveys were also conducted.

#### 8.9.2. **Desk top study**

8.9.3. The information on the receiving environment provided by the desk top study indicates the Natura 2000 sites that occur within 15km of the site. The Applicant highlights that from the scoping exercise the Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media advised that they had no specific observations on the proposed site of the turbines but note that the grid connection route crosses the Lower River Suir SAC and flagged the potential for impacts on the designated site and its conservation objectives. In addition, the Department of Agriculture, Food and the Marine highlighted that the requirement to apply for a felling licence prior to felling or removal of any trees associated with the development of the project.

#### 8.9.4. **Field Surveys**

8.9.5. Section 6.3 outlines the various surveys that were conducted.

#### 8.9.6. Habitat and Botanical Survey

8.9.7. The habitat and flora survey involved undertaking a desktop review and a baseline field assessment of the habitats and flora within the study area. A walkover of the Study Area where the dominant habitats present were mapped and classified according to Fossitt (2000). Evaluation of the habitats present in terms of their biodiversity value was assessed using criteria amended after NRA 2009 and Nairn and Fossitt 2004.

8.9.8. The Applicant advised that according to the GSI and EPA Map viewers the underlying bedrock is that of Namurian sandstone, shale within the main wind farm study area, south of Drangan, and pale-grey massive limestone and Courceyan limestone south along the grid route. The soil in the area is primarily composed of surface water Gleys/Groundwater Gleys Acidic and acid brown earths/Brown podzolics within the wind farm study area together with Mineral alluvium along watercourses and Grey brown podzolics/Brown earths basic and Renzinas/Lithosols.

8.9.9. Table 6.1 outlines the eight rare or protected plant species that have previously been recorded from the 10km grid squares (Irish Whitebeam, Meadow barley, Meadow Cranesbill, Corn Marigold, Milk thistle, Pale flax, Good King Henry, and Green winged orchid. The Applicant states that while a number of these habitats occur within the study area, none of them were recorded during the field element of the habitat and

botanical survey in 2021. Furthermore, the NBDC database and BSBD Database 10km grid squares which overlap with the wind farm site and grid connection route identify 18 non-native invasive plant species.

#### 8.9.10. Aquatic Ecology Survey

8.9.11. All freshwater watercourses which could be affected directly or indirectly by the proposed wind farm development were considered as part of the assessment. A total of 20 No. sites were selected for detailed aquatic assessment (Table 6.3). Surveys of each of these sites included a fisheries assessment (electro-fishing, habitat appraisal) and (where suitable) biological water quality sampling (Q-smampling). White-clawed crayfish surveys and an appraisal for freshwater pearl mussel were undertaken at each survey site. Detailed (stage 1) freshwater pearl mussel surveys were undertaken at numerous sites along the Anner River and unnamed tributary near Drangan, as well as the Ballyhomuck Stream (Figure 6.3). In addition, the presence of otter at each aquatic survey site was determined through the recording of otter signs within 150m of the site.

#### 8.9.12. Non-volant Mammal Surveys

8.9.13. The Applicant outlines in Section 6.3.4 that non-volant mammals, were carried out in the study area using a variety of techniques from daytime walkovers to the use of trail cameras.

#### 8.9.14. Bat Surveys

8.9.15. Section 6.3.5 outlines that a combination of daytime visual assessments and both active and passive bat detector surveys were undertaken. Target surveys were carried out to determine the presence of bats of Potential Roosting Features (PRFs) where proposed works may impact directly or indirectly on a PRF. Features included bridges, buildings and trees.

#### 8.9.16. **Receiving Environment**

#### 8.9.17. Habitats and Botanical

8.9.18. A total of five designated Natura 2000 sites, one Natural Heritage Area and 13 No. pNHAs are located within 15km of the redline boundary (Figure 6.7 and 6.8). The wind farm site does not lie within any of these sites, however it is hydrologically connected to the Lower River Suir SAC via the Anner\_010, Anner\_020 and Anner\_040



watercourses. The grid connection route spans the Lower River Suir SAC at Loughcapple Bridge where it spans the Clashawley\_040 and Anner\_050, and further south at Brackford Bridge where it spans the Ballyclerihan Stream\_010. Slievenamon NHA is located 4.9km south of the proposed wind farm site and 1.5km east to the nearest point of the GCR.

8.9.19. The Applicant states that no Annex I habitats listed under the EU Habitats Directive were recorded within the Study area. It is stated that the habitats within the Study Area reflect a landscape that has been the subject of considerable anthropogenic influence largely for agricultural land use and in more recent times for commercial forestry operations (Table 6.12). The dominant habitat of improved agricultural grassland is highly modified, subject to ongoing fertilisation, management and drainage for intensive agriculture (dairy and beef cattle farming). The proposed wind farm development footprint will be primarily located on intensively farmed improved agricultural grassland (GA1) set out in large open fields, with smaller areas of spoil and bare ground (ED2) also present in the form of a network of farm access tracks. Field boundaries comprise of treelines (WL2) and hedgerows (WL1), many of the hedgerows are highly managed and kept tightly trimmed particularly along roadways and access tracks. Areas of semi-natural habitat which were recorded within the Study Area included hedgerows (WL1), treelines (WL2) and small patches of semi natural woodland- Oak-ash-hazel woodland (WN2) and Mixed broadleaved woodland (WD1), Immature woodland (WS2), eroding upland streams (FW1) mesotrophic lakes (FL4), wet grassland (GS4) and dry meadows and grassy verges (GS2). Three eroding upland streams (FW1) were recorded within the Study Area all of which are tributaries of the River Anner. These included;

- Ballyhomuck Stream (Anner\_040) - located in the centre west of the site, c70m south-west of the proposed Turbine T3;
- Tulaigh Casain Stream (Anner\_040) located along the southwestern boundary of the site, c430m west of proposed Turbine T5;
- Priesttown Stream (Anner\_020) - located along the south eastern boundary of the site, c230m north east of the proposed Turbine T7.

8.9.20. The majority of the habitats on the wind farm site are classified as of being Local Importance (Lower value) and Local Importance (Higher value).

8.9.21. Habitats present within the proposed grid cable route works footprint or immediately adjacent to the works footprint include roads (BL3), roadside verges (i.e. dry meadow and grassy verge GS2) and stone wall and other stonework (BL1) (i.e. bridges), improved agricultural grassland (GW1), conifer plantation (WD4), scrub (WS1), Arable crops (BC1), Mixed broadleaf woodland (WD1), hedgerows (WL1) and /or treelines (WL2) and residential properties (i.e. buildings and artificial surfaces (BL3), amenity grassland (GA2), non-native shrubberies (WS3). Eroding/upland rivers (FW1) (Annex I habitat 'watercourse of plain to montane levels of Ranuncullion fluitantis and Callitricho-Batrachion vegetation [3260]) and Reed and large sedge swamp (FS1), both classified as Local Importance (Higher International Value) were recorded on the study area along the GCR.

8.9.22. Habitats present within the points of interest (POIs) along the TDR are summarised in Table 6.15 and include roads (BL3), roadside verges (i.e. dry meadow and grassy verge (GS2) and stone walls and other stonework (BL1) (i.e. bridges), improved agricultural grassland (GA1), hedgerows (WL1) and/or treelines (WL2) and residential properties (i.e. buildings and artificial surfaces (BL3), amenity grassland (GA2), non-native shrubberies (WS3) and Eroding upland rivers (FL1).

8.9.23. One non-native invasive plant species, Sycamore was recorded within the wind farm study area, however a number of such species were recorded along the GCR (Table 6.13).

#### 8.9.24. Aquatic

8.9.25. The results from a sensitive species data request to the NPWS highlight the crayfish records were available for Loughcapple Bridge on the Clashawley River which overlaps the GCR. Numerous records for white-clawed crayfish were available for the Anner River and Clashawley River. No freshwater pearl mussel records were available from the NPWS, while otter were widespread throughout the relevant grid squares.

8.9.26. Table 6.16 outlines the aquatic ecological summary of the survey sites according to NRA (2009) criteria. Atlantic salmon were recorded from sites B1 (Garrankyle River) and B4 (Clashawley River). Lampetra sp. ammocoetes were recorded from sites B4 (Clashawley River), B6 (Moyle River), B8 and B9 (Ballyclerihan Stream). European eel were recorded from sites B4 (Clashawley River) and B6 (Moyle River). Otter spraint was recorded from a single site at Garrankyle River at site B1. No white-clawed

crayfish were recorded and no suitability for freshwater pearl mussel was present at any site. The Applicant highlights that a good example of the Annex I habitat 'watercourses of plain to montane levels with the *Ranuncullioin fluitantis* and *Callitricho-Batrachion* vegetation [3260] (floating river vegetation)' was present at site B4 (Clashawley River, Loughcapple Bridge) – no other sites supported good examples of this Annex I habitat. The Annex I habitat 'Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]' was recorded from the Clashawley River at Loughcapple Bridge (aquatic site B4). With the exception of site B4 on the Clashawley River (located within Lower River Suir SAC so of international importance), none of the aquatic survey sites were evaluated as greater than local importance (higher value).

#### 8.9.27. Mammal

8.9.28. Badger, Eurasian Rabbit, Pine Martin, and Red Fox were recorded during the study. A badger sett, with a single entrance was recorded within the wind farm site. Whilst two badgers were recorded at the entrance to the sett, it was not occupied. The Applicant states that badger activity at the wind farm site was generally low and badgers were not detected during trial camera surveys. The Applicant advises that wood mouse, brown rat, and pygmy shrew are likely to occur throughout the site where suitable habitats and conditions for each individual species exist. Whilst not recorded, it is stated that the treelines, as well as the edge of the woodland and scrub habitats are suitable for Irish stoat and hedgehog. Evidence of mammals including Otter and badger were found at a number of bridge crossing locations along the GCR.

8.9.29. The passive bat detection survey recorded a moderate level of activity and a moderate to high level of species diversity (Table 6.23). The Applicant states that the wind farm site generally lacks bat roosting opportunities and primarily represents a foraging habitat. Common Pipistrelle was the most commonly recorded species (46% of all registration recordings), while the Soprano Pipistrelle accounted for 21% of all registration recordings. Leisler's Bat accounted for 26% of all registration recordings. It is stated that the wind farm site is likely to represent optimal foraging habitat due to the pasture and freshwater habitats. The same species were recorded during the active bat surveys on the wind farm site (Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat and Whiskered Bat). Overall activity along the GCR was recorded as moderate (89 bat registrations). The Applicant states that no patterns of behaviour

were noted which would suggest that presence of important or significant commuting patterns on either the wind farm site or along the GCR.

8.9.30. The Applicant states that no key features likely to support significant roost are present on the wind farm site. Eight man-made structures were inspected within the search area relevant to the proposed wind farm site, and no bat roosts were identified. It is highlighted that a derelict structure surrounded by trees (B02) is proposed to be demolished in order to avoid the presence of a significant bat roost occurring in the future. The Applicant states that no bat roosts were identified in any tree and no trees with roosting features considered to be of 'high' or 'moderate' suitability to roosting bats were present. Bat roosting was recorded in two bridges on the GCR. No other confirmed bat roosts were recorded on the GCR. The Applicant states that the only relevant potential roosting features within the zone of influence of the TDR works are trees at POI and that preliminary ground level assessment of these trees confirmed that they are low or negligible in terms of bat suitability.

8.9.31. Table 6.28 outlines the NBDC records for the 10km grid squares which overlap the application site boundary for other taxa.

8.9.32. **Likely significant effects during construction phase**

8.9.33. The Applicant states that if the proposed development were not to proceed, the majority of the lands within the site would continue to be managed as agricultural grassland and as such, the general biodiversity would likely remain fairly similar to its current state.

8.9.34. Natura 2000 Sites

8.9.35. The windfarm site is not within any designated Natura 2000 site, but the grid connection route crosses the Lower River Suir, which is a SAC. The Applicant state that the potential impacts on the designated conservation sites and their qualifying interests are considered in detail in the NIS, which concludes that with the implementation of the environmental controls and reinstatement plans in the construction phase, that there will be no significant adverse impacts on any of the Natura 2000 sites or their qualifying interests arising from the proposed development.

8.9.36. Habitats and Flora

- 8.9.37. The proposed wind farm layout will be largely confined to the existing improved agricultural grassland (GA1) of Local importance (Lower value) and associated access tracks (i.e., buildings and artificial surfaces (BL3)) of Local importance (Lower-negligible value). The Applicant argues that the permanent loss of sections of such habitats, as a result of the proposed development will lead to a neutral-imperceptible-impact.
- 8.9.38. Sections of hedgerow (WL1) and a number of mature and semi mature trees from treelines (WL2) and mixed broadleaved woodland (WD1) habitat will also be permanently removed to accommodate the proposed new site access road and turbine hardstanding areas. The Applicant states that the removal of these will have a long-term significant negative impact on this habitat as it is a permanent loss of a habitat type that is of Local Importance (higher value), supporting a wide range of flora and fauna in the local area. There will be a loss of a small number of mature and semi-mature beech, oak and horse chestnut trees along with the accompanying understory habitat and the fauna it supports, this represents a long-term significant-negative impact on this habitat type locally which is relatively scarce in the surrounding intensively farmed landscape. However, the Applicant argues that the tree removal is small in scale and the impact of its loss will be reduced through the creation of new native hedgerows and treelines (900 No new native hedgerow whips and 500 native woodland trees).
- 8.9.39. The Applicant highlights that in the absence of any mitigation to protect existing trees during the construction phase, there is potential for retained scattered trees and treelines in the lands to be damaged by construction activity. It is stated that in a worst-case scenario, the damage inflicted on the scattered trees and treeline habitats would result in their degradation and removal from the lands, which would be permanent and could be significant at the local geographic scale.
- 8.9.40. In terms of the GCR, the Applicant states that there will be no instream works to facilitate the crossings and as such no direct impacts on watercourses and associated habitats are anticipated (including Annex I watercourses of plain to montane levels with *Ranunculus fluitans* and *Callitriche-Batrachion* vegetation (3260)). The temporary disturbance to improved agricultural grassland (GA1) and hedgerow (WL1) should directional drilling be required will have a neutral impact on semi-natural

habitats and flora at the site and wider locality once appropriate mitigation is employed through the reinstatement and replanting of any disturbed hedgerows.

8.9.41. No significant impacts are anticipated from the TDR works.

8.9.42. Construction works within the proposed works areas can potentially disturb stands of invasive plants and/or soils contaminated with invasive plant material and cause them to spread onsite. These works could result in the spread of invasive plant species both in-situ and ex-situ. Given the location of the site with hydrological connections to an EU designated site the potential impact from the spread of non-native invasive plant species could lead to a significant negative impact at the local to international level.

8.9.43. Aquatic

8.9.44. The Applicant states that the principle impacts from the proposed development on the aquatic environment are expected to occur during the construction phase of the wind farm, GCR and TDR works. The risks relate to water pollution and or contamination via siltation (suspended soils), hydrocarbons, concrete etc. A summary of sensitive aquatic ecological receptors and potential source-receptor pathways are shown in Table 6.30, while Table 6.31 provides a summary of potential construction phase impacts to aquatic ecological receptors (pre-mitigation).

8.9.45. The Applicant highlights that there is little direct connectivity between the development area and the receiving watercourses draining the site, so the risk of silt-laden surface water run-off to watercourses is greatly reduced. However, given the proximity and or up-gradient location of turbines T3, T6, and T7 are associated access tracks from receiving watercourses, potential impacts to aquatic ecology resulting from turbine, met mast and access track construction do exist and considered likely significant negative, short-term and in the local context in the absence of mitigation.

8.9.46. It is stated that at its shortest distance, the Lower River Suir SAC is located approx. 5.7km and 5.5km downstream of the wind farm site via the Ballyhomuck Stream and Priesttown Stream (see Figure 7.6). Potential impacts to local populations of qualifying interest Atlantic salmon, lamprey species, white-clawed crayfish, otter and Annex I habitat 'Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260] if the Lower River Suir SAC are considered likely significant negative, short-term and in context of the European site in the absence of mitigation.

8.9.47. In terms of dewatering, the Applicant argues that there is a likely moderate negative, short-term impact in the local context on (Ballyhomuck Stream, Priesttown Stream and streams that are crossed by the GCR) and a similar impact on a European context on the Lower River Suir SAC, in the absence of mitigation.

8.9.48. In terms of site drainage on the wind farm site and the TDR works, the Applicant anticipates a moderate negative, short-term impact, in the local context, but a likely significant negative, short-term, in a European context for the Lower River Suir SAC, in the absence of mitigation.

8.9.49. In terms of the GCR installation including HDD, the Applicant contends that there is a likely slight negative, short-term impact in a local context, and a similar impact in the context of a European Site for Lower River Suir SAC.

8.9.50. Mammals

8.9.51. No significant impacts are anticipated on mammals during the construction period. The loss of the badger outlier sett is considered to have a slight negative effect on local badger populations in the short term.

8.9.52. Bats

8.9.53. The Applicant considers that the potential impacts on bats during construction are slight negative with the application of recommended mitigation measures.

8.9.54. Other Taxa

8.9.55. The Applicant considers that the potential impacts on other taxa to be imperceptible neutral.

8.9.56. **Likely significant effects during operational phase**

8.9.57. The Applicant highlights that the potential operational phase impacts are largely related to the turbine activity and to a lesser extent to the maintenance of the site infrastructure.

8.9.58. Habitats and Flora

8.9.59. The Applicant argues that as there will be no additional removal of habitat during this phase, there is no potential for direct negative impacts on habitat and flora.

8.9.60. Aquatic

8.9.61. Potential operational phase impacts on aquatic ecology are considered likely slight negative, short term and in the local context in the absence of mitigation and likely significant negative, short-term and in the context of European site in terms of the Lower River Suir SAC.

8.9.62. Mammals

8.9.63. No significant impacts are predicted for mammals during this phase.

8.9.64. Bats

8.9.65. Table 6.33 provides an overall collision risk assessment of relevant (high-risk) species. The Applicant argues that the overall risk-assessment procedure indicates the proposed wind farm is of medium risk for all relevant bat species in all seasons.

8.9.66. Other Taxa

8.9.67. No significant impacts are predicted for during this phase.

8.9.68. **Likely significant effects during decommissioning phase**

8.9.69. The Applicant states that no other potential impacts other than those already identified for the construction and operational phases are likely to occur during decommissioning and that the environmental control measures applied during the construction phase will be applied as appropriate for the decommissioning of the wind farm.

8.9.70. **Mitigation**

8.9.71. Section 6.6 outlines the mitigation measures proposed for the construction, operation and decommissioning phases of the proposed development. Mitigation by design has been employed from the start of this project. An outlined Construction Method Statement (Appendix 3.1) and Environmental Management Plan (Appendix 3.5) have been prepared. The Applicant explains that the EMP is a precursor to the Construction and Environmental Management Plan which will be prepared and submitted to the Planning Authority prior to the commencement of construction. The EMP provides details of responsibilities and timeframes for the implementation of measures and management controls for each environmental discipline (where relevant) in the EIAR. Mitigation measures include *inter alia*:

- No works outside the development area/footprint.



- Installation of tree protection barriers.
- Implementation of the Biodiversity Management Plan which includes for the planting of 1,400 native hedgerow and tree species. (Annex D provides a copy of the Landowner Agreement Letter (Replanting Agreement).)
- Pre-construction survey by an ecologist to establish the full extent of invasive plant species. The Outline Invasive Species Management Plan (Appendix 6.5) will inform the contractors detailed Invasive Species Management Plan.
- Implementation of the CEMP measures.
- Installation of silt fences within drains or potential surface water pathways down-gradient of any construction area.
- Whilst a culvert upgrade may be required to facilitate the crossing of the single drainage channel within the site at T2 (seasonal channel (largely rainwater-fed) thus argued not to be subject to seasonal constraints) is not anticipated, should it be required the channel will be dewatered and electro-fishing will be undertaken to translocate any resident fish.
- Avoidance of working during heavy rainfall.
- Minimum setback/buffer zones of 50m.
- Interceptor drains.
- Siltbuster application.
- Implementation of mitigation measures as outlined in Section 7.8.1.7/8 of the EIAR.
- Drilling works to be completed during a dry period between July and September, if practicable
- Pre-construction otter survey in vicinity of drilling locations.
- If required, a derogation licence will be sought from NPWS for otter and bats.
- Excavated spoil emanating from the cut trenches will be used to back-fill trenches, where appropriate.

- Silt curtains and floating booms will be used if deemed necessary in consultation with IFI.
- Ecologist to monitor turbidity and observe riverbed during drilling.
- Pre-construction mammal survey by an ecologist prior to the commencement of vegetation clearance.
- Pre-demolition survey to ensure no roosting bats are present.
- Repeat inspections of buildings will be carried out and a minimum of two active surveys completed.
- Demolition of buildings to take place under the supervision of bat licensed ecologist.
- A 50m buffer from the blade tip to the nearest woodland will be implemented to avoid encouraging bat activity with the blade-swept area.
- Construction operation to take place during the hours of daylight in as far as possible.
- All lighting systems will be designed to minimise nuisance through light spillage.

8.9.72. No significant impacts are identified following the implementation of the mitigation measures at construction stage.

8.9.73. During the operational stage, the level of activity will be significantly reduced and there will be no particular risk of sediment runoff. The retention of the drainage system will ensure that run-off continues to be attenuated and dispersed across existing vegetation before reaching downstream watercourses. The BMP includes for monitoring by an ecologist during the first three years of development. In addition, an Operational Stage Environmental Management Plan will be prepared.

8.9.74. All decommissioning works will be governed by the same requirements to control run-off or potential pollution to watercourses as have been implemented during the construction phase.

8.9.75. **Cumulative Impacts**

8.9.76. Section 6.5.3 states that the ecological findings from other proposed and permitted developments in the wider area were considered as part of the Ecological Assessment

of the proposed wind farm development. The Applicant argues that as the proposed development is considered to have a neutral imperceptible impact on biodiversity and with reference to the nature, scale and location of other relevant existing developments and permitted and current planning applications from the wider area, there is no potential for significant and cumulative impacts arising from the proposed Knockroe wind farm.

**8.9.77. Residual Impacts**

8.9.78. With the implementation of the mitigation measures, it is considered that the residual impacts will be imperceptible to neutral.

**8.9.79. Assessment**

**8.9.80. Habitats**

8.9.81. As the habitats present on the site are of generally low ecological value, they are unable to support an abundance of terrestrial fauna, including birds. The Third-Party Appellant argues that the proposed development will result in a significant loss of hedgerows and trees, including those at the site entrance to the wind farm. I am satisfied that the implementation of the Biodiversity Management Plan, including the planting of 1,400 native hedgerow and tree species and the tree protection measures for trees to be retained on site as outlined in the EMP, will appropriately mitigate the loss (see Dwg. Nos. KCO 4.202 and KCO 4.203). As indicated on Dwg. No. KCO 4.202, the proposed development involves lowering and maintaining the majority of the hedgerow at the site entrance in comparison to the section proposed to be removed at this location. I recommend that should the Board be minded to grant permission for the proposed development, a condition be attached to the decision requiring that the final details of the replanting scheme be submitted and agreed in writing with the Local Authority prior to the commencement of the development. Furthermore, whilst the TDR works are not proposed as part of the application, I am satisfied that the Applicant has adequately addressed the potential impacts in the EIAR and accompanying planning application documentation. I note that the Local Authority's in its Response to the Third-Party Appeal reconfirmed its position that it considered that the hedgerow removal along the haul route and at the site entrance was fully considered in the EIAR.

8.9.82. As the proposed wind farm layout will be largely confined to the existing improved agricultural grassland and having regard to the various mitigation measures outlined in the EMP in terms of

protecting habitats both within the site and in the surrounding area particularly during the construction phase, I do not consider that the proposal will have a significant negative impact on local habitats. I am satisfied that having regard to the mitigation measures proposed in the EIAR and EMP, and the scale of works proposed along the GCR and TDR, that the proposed development will not adversely impact on the Lower Suir SAC qualifying interests, including the Annex I habitat 'Water courses of plain to montane levels with the *Ranunculus fluitans* and *Callitriche-Batrachion* vegetation [3260] and Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] identified in the surveys.

#### 8.9.83. Bats

8.9.84. In terms of bats, bat activity has been recorded on the site (medium-high activity) and species that fly at rotor swept height are at particular risk of collision. Whilst no roosting or maternity locations were identified on the wind farm site, the site is used for foraging. However, measures to mitigate impacts and protect bats are incorporated into the proposal including *inter alia* the demolition of two derelict buildings that could become roosting areas in the future, 50m setback distance from the turbines' blade tips to any forested area, feathering of idling blades, and post-construction monitoring. I note that the Applicant anticipates a 'slight' negative impact during the HDD works proposed at Bridge 6B and as such states that a derogation licence will be required to facilitate the works (Addendum 6.1). Having regard to the temporary nature of these works and the mitigation measures outlined in the EMP, I concur with the Applicant that they will not have a detrimental effect on the local bat population.

8.9.85. Overall, I am satisfied that, subject to the implementation of the proposed mitigation measures and the monitoring programme, the proposed development will not have a significant negative residual impact on bats. I note Condition No. 7 attached to the Local Authority's Notification of Decision to Grant Permission requires that monitoring of bats be undertaken by a suitably qualified bat specialist and that copies of the monitoring reports be submitted to the Planning Authority and NPWS. Should the Board grant permission for the proposed development, I recommend that a similar condition is attached to the decision.

#### 8.9.86. Aquatic Ecology

8.9.87. The Third-Party Appellant raise concern in relation silt spills and contamination of watercourses may directly impact the River Anner and River Suir SAC. The potential for significant impacts on aquatic ecology is primarily associated with the construction phase and relates to potential water pollution and contamination with siltation, hydrocarbons or concrete. However, as highlighted by the Applicant there is little direct connectivity between the proposed construction areas and the at-greater-risk watercourses draining the site (i.e. Ballyhomuck Stream and Prieststown Stream). I note that a culvert upgrade may be required to facilitate the crossing of the single drainage channel within the site at T2 (seasonal channel (largely rainwater-fed) however no other instream works are proposed. As outlined above, the EIAR notes that at its shortest distance, the Lower River Suir SAC is located approx. 5.7km and 5.5km downstream of the wind farm site via the Ballyhomuck Stream and Prieststown Stream. A variety of methods are proposed in relation to the seven bridge crossings, including HDD, along the GCR. Overall, I consider that the proposed mitigation and monitoring proposals for aquatic ecology as outlined in the Biodiversity and the Hydrology chapters of the EIAR are suitably detailed, comprehensive and are standard mitigation measures in the development of many wind farms. Subject to implementation of the identified measures, I am satisfied that the proposed development is not likely to result in significant residual adverse impacts on aquatic ecology.

#### 8.9.88. Invasive Species

8.9.89. The Third-party argues that there is a potential for mis-management of invasive species. Sycamore was the only invasive plant species recorded within the windfarm site, however a number of others were recorded along the GCR and TDR. The Outline Invasive Species Management Plan (Revised May 2022) which was submitted as part of the RFI Response highlights that as there are no invasive alien plant species within the footprint of proposed works, direct control, management, removal or eradication is not recommended. The OISMP and EMP sets out mitigation measures to ensure the species to do not spread as a result of the proposed development. This includes a pre-construction survey to ground-truth the extent of each species and to confirm that the recommended approaches in the OISMP are appropriate. The over-arching recommendation is Avoidance as the species are outside the development works

footprint and the nature of the grid connection works within the road footprint will be localised and temporary. I am satisfied that the measures outlined in the EIAR and OISMP are standard good practice measures.

#### 8.9.90. **Conclusion**

The development avoids the most ecologically sensitive sites in the wider area and subject to the mitigation measures proposed, which are primarily associated with the protection of water quality, I accept that ex-situ impacts on these sites can be avoided.

I consider that the information provided in the planning application documentation is sufficient to allow the impacts of the proposed development to be fully assessed. I have considered all the submissions made in relation to biodiversity and I am satisfied that they have been appropriately addressed in terms of the application and that no significant adverse effect is likely to arise. I consider that the impacts identified would be avoided, managed or mitigated by the measures proposed and through suitable conditions. I am, therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impact on biodiversity in the area.

#### 8.10. **Land, Soils, Hydrogeology Hydrology and Water Quality**

8.10.1. Land, Soils, Hydrogeology, Hydrology and Water Quality are addressed in Chapter 7 of the EIAR. The Chapter is accompanied by Appendices:

Appendix 7.1: Trial Pit Logs

Appendix 7.2: Flood Risk Assessment

Appendix 7.3: Water Quality Lab Reports

Appendix 7.4: Surface Water Management Plan

Appendix 7.5: Peat Landslide Assessment.

In addition, Addendum 7.1 was submitted at RFI stage. Appendix 7.5 (Peat Landslide Hazard Risk Assessment) was also revised at RFI stage.

8.10.2. Land and soil desk studies, field surveys and site investigations including water sampling and trial pits were undertaken as outlined in Section 7.4 of the Chapter. Table 7.1 provides details of the 'Sensitivity of Receptor' under the following headings:

- Not Sensitive

- Sensitive
- Very Sensitive.

### 8.10.3. **Receiving Environment**

- 8.10.4. The wind farm site comprises of agricultural land predominately used as pasture, while the GCR is contained in the carriageway of existing public roads. The Applicant states that the published soils map for the area shows that the wind farm site is mapped to be overlain predominantly by acid deep poorly draining mineral soils (AminPD) with pockets of acid deep well drained mineral soils (AminDW) and acid shallow well drained mineral soils (AminSW). Areas of mineral alluvium (AlluvMin) are also mapped along local watercourses in the west and southwest of the wind farm site. In terms of wind farm infrastructure, T1, T2, T4, T5 and T6 are mapped on AminPD while T3 and T7 are located on AminDW soils. Soils in the lands surrounding the site are mapped as AminPD with an increasing amount of AminDW. Subsoils typically consisted of firm SII T/CI AY of variable colour ranging from brownish grey to reddish brown.
- 8.10.5. Soils along the grid connection route are mapped largely as acid deep well drained mineral soils (AminDW) and acid deep poorly drained mineral soils (AminPD). Mineral alluvium is mapped along many of the watercourses along the grid route. Meanwhile soils in the southern section of the grid route are mapped as basic deep poorly drained mineral soils (BminPD) and basic deep well drained mineral soils (BminDW) in the vicinity of Doon substation.
- 8.10.6. According to the GSI bedrock mapping, the majority of the wind farm site is underlain by Namurian sandstones. The Bregaun Flagstone Formation underlies this part of the wind farm site and the GSI provide the following lithological description: "thick grey flaggy bedded sandstones and siltstones with subordinate amounts of silty, grey and often micaceous shales. Cross-bedding and rippled surfaces are common and sheet slumps and sand volcanoes are recorded". Meanwhile the north and northwest of the wind farm site and much of the surrounding lands are mapped to be underlain by Namurian shales of the Killeshin Siltstone Formation. The Killeshin Siltstone Formation comprises of "grey argillaceous siltstones or silty mudstones, with lesser amounts of sandstone and shale. The siltstones are poorly bedded with an irregular conchoidal fracture, while black shales can occur infrequently". T1 and T3 are underlain by the Killeshin Siltstone Formation with the remaining turbines and the substation all mapped to be underlain by the

Bregaun Flagstone Formation. Bedrock was encountered at all 8 no. trial pits undertaken at the wind farm site. Depth to bedrock ranged from 0.7m (turbine T7) to 1.7m (turbine T3). The Applicant advises that visually the bedrock appeared to be Mudstone/Siltstone (Figure 7.3). The GSI do not record the presence of any bedrock outcrops in the wind farm site or immediate area.

8.10.7. In the vicinity of the wind farm site, the grid connection route is mapped to be underlain by the Namurian Shales of the Killeshin Siltstone Formation. Further south, near the village of Cloneen, the route is mapped on Dinantian Pure Bedded Limestones of the Clongrenan Formation (cherty, muddy calcarenitic limestone), the Ballyadam Formation (crinoidal wackestone/packstone limestone) and the Kilsheelan Formation (cherty limestones). Further south, near Killusty the grid connection is mapped on Dinantian Dolomitised Limestones of the Waulsortian Limestone Formation. Continuing to the south the grid route is underlain by Dinantian Lower Impure Limestones of the Ballysteen Formation (dark muddy limestones and shales). Further south at Mullenaranky the route is underlain once more by the Waulsortian Limestones, while at Brackford and Ballyvaughan the grid route options are underlain by Dinantian Upper Impure Limestones of the Croan Formation comprising dark shaly cherty fine-grained limestone. The route terminates at Doon substation which is underlain by Dinantian Pure Unbedded Limestones of the Rathronan Formation consisting of pale-grey massive mud-grade limestone.

8.10.8. The GSI map several areas of bedrock outcrops along the grid connection route, located in the village of Cloneen and to the west of the road between Cloneen and Grangebeg. Further bedrock outcrops are mapped in the south at Milltown Britton.

8.10.9. There are several faults mapped along the grid connection route. There is a large east west trending fault at Cloneen which is displaced to the south by a series of north-south orientated faults. Two east west trending faults are also mapped further south at Milltown and Ballyvaughan, which are again displaced by a north south orientated fault. The Applicant states that these faults will have no effect on the proposed development.

8.10.10. No recorded GSI Geological Heritage Sites are intercepted or adjoined by the wind farm site or grid connection.



8.10.11. The proposed development is located in the River Suir Catchment with Hydrometric Area 16, while the wind farm site lies in the Anner sub-catchment and within three different river sub-basins:

- The northern section (including T1 and T2) of the wind farm is located in Anner\_010. Here drainage is towards the River Anner, located approx. 0.2km north of the wind farm site. A small unnamed stream is mapped to the northwest of the site (1km northwest of T1) referred to as the Drangan Stream in the EIAR, which confluences with the Anner approx. 0.4km northwest of Drangan.
- The eastern section (including T6 and T7) is located in Anner \_020. Here drainage is also towards the River Anner. Within this sub-basin, the Priesttown stream (EPA Code 16P07) flows southwards approx. 500m east of T4, before veering to the east along a line of forestry located to the north of T7. A smaller stream, the Ballyvarra (EPA Code 16B28) is mapped approx. 500m to the northeast of T7 and flows to the northeast before discharging into the Priesttown Stream. The Priesttown Stream then continues to flow to the east before discharging into the River Anner.
- The western section (including T3, T4 and T5, substation and construction compound and potentially future battery storage facility) is located in Anner\_040 and drainage is to the west via two small first order streams. The Ballyhomuck Stream (EPA Code: 16B40) flows west from the site, approx. 70m south of T3 and flows to the north of a small area of coniferous forest, before turning southwards at L2305 and flowing 1.2km to join Tulaigh Chasain Stream (EPA code 16T15).

8.10.12. With regard to the grid connection, the northern section of the route lies in the Anner sub-catchment (SC\_010), while the southern section is located in the Suir Sub-catchment (Suire\_SC\_150). All surface watercourses along the grid route flow towards Anner River which flows immediately to the east for much of the grid route.

8.10.13. The Applicant states that there are no recurring flood incidents within the wind farm site. The closest such incident was recorded 1.5km from the site. There are four mapped recurring flood events located along the GCR. Due to the elevated position of the site and small nature of the streams draining it, the Applicant anticipates no

significant fluvial flooding. Similarly due to the sloping nature of the site, no significant pluvial flooding/surface water ponding is expected.

- 8.10.14. While no Q-ratings are directly available for any of the streams draining the wind farm site, the EPA's data shows that the Q-rating for the Anner River in the vicinity of wind farm site ranges from Poor to Moderate (Table 7.7) and from Moderate to Good along the GCR (Table 7.10). Water sampling results are presented in Tables 7.8, 7.9, 7.11 and 7.12).
- 8.10.15. The Applicant highlights that the wind farm site is underlain by Namurian sandstones and shales which are classified by the GSI as a Poor Aquifer — bedrock which is generally unproductive except for local zones (PI). The wind farm site is located within the Killenaule Groundwater Body (GWB) which is described as having poorly productive bedrock (PP). This groundwater body occupies an area of slightly elevated topography with most areas over 100m OD, with elevations reducing to the west. The northern section of the grid connection route, in the vicinity of the wind farm site, is underlain by a Killenaule GWB as described above. The remainder of the route from Cloneen to Doon substation is underlain by a Regionally Important Aquifer — Karstified (diffuse) (Rkd) from Cloneen to Grangebeg. Further south the route is underlain by a Locally Important Aquifer — Bedrock which is Moderately Productive only in Local Zones (LI) and a Locally Important Aquifer — Bedrock which is Generally Moderately Productive (Lm). These aquifers form part of the Clonmel GWB (IE\_SE\_G\_040) which is classified as Karstic (KA).
- 8.10.16. Groundwater vulnerability across the wind farm site is mapped by the GSI as "Extreme — E" (thin subsoils) with localised areas of "Extreme — X" (bedrock outcrop or subcrop). Groundwater vulnerability along the grid connection route ranges from "Extreme — X" to areas of "Moderate" groundwater vulnerability.
- 8.10.17. The Applicant states that the Killenaule GWB has been assigned "Good" status in the latest WFD cycle (2013-2018), achieving good status for both quantitative and chemical aspects. The risk status of this GWB is currently "under review", while no significant pressure have been recognised to be impacting on this GWB. The WFD status and risk result of SWB immediately upstream and downstream of the wind farm site are shown in Table 7.13, while those in the surrounding area are shown in Table 7.14.

8.10.18. The Applicant highlights that the nearest designated site to the wind farm site is Lizzy Smyth's Bog pNHA (Site Code: 001980) which lies approximately 1.85km to the south of the wind farm site. There are no surface water drainage routes from the wind farm site to Lizzy Smyth's Bog. It is stated that due to the nature of short groundwater flowpaths in the area of the wind farm site (-300m), no groundwater connection is expected either.

8.10.19. However, the wind farm site drains to the Anner River which is designated as part of At its shortest distance, the Lower River Suir SAC is located approx. 5.7km and 5.5km downstream of the wind farm site via the Ballyhomuck Stream and Priesttown Stream the Lower River Suir SAC, respectively. The GCR (also not located within any designated conservation site) runs adjacent to the Lower River Suir SAC at Melbourne Bridge, Loughcapple townland, Loughcapple Bridge, Milltownbritton townland and Brackford Bridge. The route crosses the Lower River Suir SAC at Loughcapple Bridge.

8.10.20. There are no mapped Public Water Supply Schemes (PWS) or Group Water Schemes (GWS) Source Protection Area (SPAs) in the area of the wind farm site or grid connection route. Whilst no private wells were identified within 500m of the wind farm site using GSI data, a conservative approach was adopted by the Applicant assuming that all dwellings have wells.

#### 8.10.21. **Likely significant effects during construction**

8.10.22. The Applicant outlines the following significant impacts anticipated in the construction phase:

- Soil, Subsoil and Bedrock: the excavation of soil, subsoils and bedrock will be required for all groundworks and will therefore give rise to direct effects on these receptors. The potential impacts on these receptors would be negative, direct, moderate, likely, permanent effect on them. The Applicant argues that no mitigation is required as it an acceptable part of the development.
- Effects on Land and Landuse: The proposed development will result in the loss of 4.06ha of agricultural land. The Applicant considers this not to be significant as existing agricultural operations can readily co-exist.
- Earthworks giving rise to sediment release: Various forms of construction work at the wind farm site and works along the GCR could result in the release of

sediments from drainage and seepage water in excavation areas, from stockpiled materials and erosion of sediment from emplaced site drainage channels. The Applicant states that these activities, if unmitigated, will likely result in the release of suspended solids to surface water and could result in an increase in the suspended sediment load, resulting in increased turbidity which in turn could affect the water quality and fish stocks of downstream water bodies, including Ballyhomuck Stream, Priesttown Stream, Drangan Stream and the Anner River and River Suir. The Applicant advises that potential effects on all these watercourses downstream could be negative, significant, indirect, temporary, if suitable mitigation measures are not put in place.

- Impact on Groundwater Levels during Excavation Works: No borrow pits are proposed at the windfarm site and no dewatering works are proposed, some temporary dewatering may occur at some excavation sites such as turbine bases. The Applicant argues that temporary reductions in groundwater levels by short duration and transient dewatering works will be very localised and of small magnitude due to the nature and permeability of the local subsoil and bedrock geology. Any effects are expected to be negative, indirect, temporary, imperceptible effects on local groundwater and contained within the wind farm site. No such impacts are expected in relation to the works along the GCR and TDR.
- Excavation dewatering and potential impacts on Surface Water Quality: Some groundwater seepages are likely at turbine bases, substation, and compound excavations as well as along the grid connection route. The Applicant states that due to the elevated nature of the wind farm site and the shallow depths to rock, inflows are expected to be minimal. The main potential significant effects are as a result of turbidity and suspended solids on downstream surface water in the Ballyhomuck Stream, Priesttown Stream, Drangan Stream and the Anner River and River Suir. The potential impacts would be negative, significant, indirect, temporary and unlikely effects on surface water quality in these watercourses. Due to the shallow nature of the GCR works, no inflows of significance are anticipated.

- Potential Release of Hydrocarbons during Construction and Storage: Accidental release can cause a significant pollution risk to groundwater, surface water and associated ecosystems as well as to terrestrial ecology. Hydrocarbons are toxic to humans, flora and fauna including fish and remains persistent in the environment. As a nutrient supply for adapted micro-organism, there may be a rapid depletion of oxygen in waters which results in the death of aquatic organisms. No impacts are foreseen along the grid connection route as the works are transient and refuelling of vehicles will be done off-site. The potential impacts would be negative, indirect, significant, and short-term unlikely effect on surface water quality in the Ballyhomuck Stream, Priesttown Stream, Drangan Stream and the Anner River and River Suir.
- Groundwater and Surface Water Contamination from Wastewater Disposal: Release of effluent from on-site temporary wastewater treatment systems could potentially impact on groundwater and surface water quality if a suitable on-site percolation system cannot be put in place. The potential impacts would be negative, significant, indirect, temporary, unlikely effect on surface water quality in Ballyhomuck Stream, Priesttown Stream, Drangan Stream and the Anner River and River Suir. The potential impacts would be negative, slight, indirect, temporary, unlikely effect on local groundwater below the wind farm site.
- Release of Cement-Based Products: Concrete/ cement-based products are highly alkaline and corrosive and can have a significant negative impact on water quality. This in turn has a negative impact on aquatic species and habitats. The Applicant states that given the generally acidic nature of the bedrock at the wind farm site (non-calcareous) the local ecosystems are likely dependent on low pH hydrochemistry and may be extremely sensitive to introduction of high pH alkaline waters into the system. The potential impacts on surface water hydrochemistry would be negative, moderate, indirect, short-term, unlikely effect on surface water in Ballyhomuck Stream, Priesttown Stream, Drangan Stream and the Anner River and River Suir.
- Surface Water Quality Impacts during Excavations along Grid Connection: Due to the proximity of local streams and the Anner River to the construction work at the crossing locations, there is a potential for surface water quality impacts

during trench excavation work due to runoff from the road surface. The potential impacts on local watercourses and the downstream Anner River would be negative, moderate, indirect, temporary and likely effect on surface water quality.

- Surface Water Quality Impacts during Directional Drilling along the Grid Connection: Surface water quality impacts on local watercourses and the downstream Anner River during drilling and groundworks associated with potential directional drilling at the seven bridge crossing locations. It is proposed that directional drilling under the bridge will be undertaken to prevent direct impacts on the watercourse. However, the Applicant advises that there is a risk of indirect impacts from sediment laden runoff during the launch pit and reception pit excavation works. The potential impact on local watercourses and the downstream Anner River would be negative, moderate, indirect, temporary and likely effect on surface water quality.
- Potential Effects on Hydrologically Connected Designated Sites: The windfarm site is not within any designated conservation area, however, the grid connection route crosses the Lower River Suir SAC. The potential impacts would be negative, moderate, indirect, temporary, likely effect on designate sites.
- Potential Effects on Local Groundwater Well Supplies: There are no public or group scheme groundwater supplies down-gradient of the wind farm site that can be impacted by the proposed wind farm development. A number of private dwelling houses were identified along the unnamed roads surrounding Knockroe, although these are generally located at least 0.5km from the wind farm site. Some of these dwellings are located down-gradient (i.e., downslope) of the proposed wind farm infrastructure development (and in particular turbine locations). Due to the shallow nature of the grid cable works within the carriageway of public roads no effects on private groundwater well supplies will occur. Having regard to the assessment of carried out in Section 7.8.1.10 of the EIAR no significant impacts on any existing down-gradient groundwater wells/springs are anticipated.

- Potential effects from the use of Siltbuster on Downstream Surface Water Quality: Siltbusters are often used to remove suspended sediments on construction sites by the use of chemical dosing and sedimentation. Whilst the benefits of methods are widely known, the Applicant highlights that potential overdosing with chemical agents means there is a perceived risk of chemical carryover in post treatment water which could result in negative effects on downstream water quality. The potential impacts on down-gradient rivers would be negative, slight, indirect, temporary, likely effect on the Ballyhomuck Stream, Prieststown Stream, Drangan Stream, Anner River and River Suir.
- Potential effects on Surface Water and Groundwater WFD Status: The Applicant highlights that effects on surface water and groundwater quality as a result of the proposed development have the potential to negatively affect the WFD status. The potential impacts on down-gradient rivers would be Negative, Imperceptible, indirect, temporary, likely effect on the WFD status.

#### 8.10.23. **Likely significant effects during operational stage**

The Applicant outlines the following significant impacts anticipated in the operational phase:

- Progressive Replacement of Natural Surface with Lower Permeability Surfaces: Replacement of the vegetated surface with surfaces that are less permeable can increase the rate and velocity of surface water runoff, reaching the surface water drainage network. During storm rainfall events, additional runoff coupled with increased velocity of flow could increase hydraulic loading, resulting in erosion of watercourses and impact on aquatic ecosystems. The grid route and haul route works will not involve any alteration of near surface permeability as it is an excavated trench which will be infilled with extracted material, and the existing road surface will also be reinstated. The potential impact on surface waters flows and surface water quality in the Ballyhomuck Stream, Prieststown Stream, Drangan Stream, Anner River and River Suir would be negative, indirect, slight, permanent, likely effect on surface waters flows and surface water quality in these watercourses.
- Hydrocarbons/ Fuels/Chemical leaks and Spills: Minor volumes of oils and fuels will be required by the vehicles carrying out maintenance work. There will also

be lubricating/hydraulic oils etc. within the substation and wind turbine generators. In the unlikely event of fire at the substation/potential future battery storage facility, contaminated firewater is also a potential water quality hazard. The potential impact on surface waters flows and surface water quality in the Ballyhomuck Stream, Priesttown Stream, Drangan Stream, Anner River and River Suir would be negative, indirect, significant, long term, likely effect on surface waters flows and surface water quality in these watercourses.

**8.10.24. Likely significant effects during decommissioning stage**

8.10.25. The Applicant states that the potential impacts associated with decommissioning of the proposed development will be similar to those associated with construction but of a reduced magnitude, due to the reduced scale of the proposed decommissioning works in comparison to construction phase works. It is argued that during decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during construction by rehabilitating construction areas such as turbine bases, hard standing areas by covering with vegetation/straw or soil/subsoil to encourage vegetation growth and reduce run-off and sedimentation. Some elements may be retained in situ. It is proposed that the substation will be passed over and managed by ESB Networks. No significant effects on the hydrological and hydrogeological environment are envisaged during the decommissioning stage of the proposed development.

**8.10.26. Cumulative Impacts**

8.10.27. The Applicant states that a hydrological cumulative impact assessment was undertaken using other wind farm developments and other non-wind farm projects and plans located within the River Suir catchment within a 30km radius of the proposed development site. It is argued that in terms of the potential impacts of wind farm developments (Table 7.16) on downstream surface water bodies, the biggest risk is during the construction phase of the development as this is the phase when earthworks and excavations will be undertaken at the sites. The Applicant states that due to the fact that the majority of the wind turbines within 30km of the site, are already existing (17 of 30 possible turbines or 3 of 4 farms), no significant cumulative effects on water quality are anticipated. This is because all construction works are now complete and the potential for entrained sediments in runoff is much less. Furthermore, in terms of



the grid connection options no significant cumulative effects are anticipated as the route is largely along public roads with no requirements for in-streams works at the watercourse crossing locations.

8.10.28. No cumulative impacts on the land, soils, geology and hydrogeology environment were identified between the proposed development and other nearby developments.

8.10.29. **Mitigation**

8.10.30. Section 7.8 outlines the proposed mitigation and monitoring measures.

8.10.31. Section 7.8.1 of the EIAR outlines the various measures for the construction stage including *inter alia*:

- Mitigation by avoidance: This is incorporated into the proposed development design with suitable buffer zones to identified watercourses provided.
- Mitigation by Design: This section identifies a range of temporary and long-term drainage control measures and procedures that ensure that sediments and nutrient release to watercourses are adequately controlled and restricted.
- Interceptor drains, vee-drains, diversion drains.
- Small working areas, covering temporary stockpiles, weathering off of side-cast peat/spoil, cessation of works in certain areas or other similar/equivalent or appropriate measures.
- Temporary sumps/attenuation lagoons/ponds, sediment traps (silt fences/straw bales), pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems.
- Use of proprietary settlement systems such as "Siltbuster".
- No direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the proposed wind farm drainage into the existing wind farm site drainage network.
- Temporary silt traps will be placed in the existing drains downstream of construction works, and these will be diverted into proposed interceptor drains, or culverted under/across the works area.

- Velocity and silt control measures such as check dams, sandbags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works.
- Existing culverts will be lengthened where necessary to facilitate access road widening.
- Large excavations and movements of soil/subsoil will be suspended or scaled back if heavy rain is forecast. Construction of the site drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates.
- Regular inspections of all installed drainage systems will be undertaken.
- Field testing (visual, supplemented with pH, electrical conductivity, temperature, dissolved oxygen and turbidity monitoring), sampling and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for each primary watercourse at the wind farm site, and specifically following heavy rainfall events (i.e., weekly, monthly and event-based). Daily monitoring of excavations.
- If required, pumping of excavation inflows will prevent build-up of water in the excavation.
- All plant will be inspected and certified to ensure they are leak free and in good working order prior to use.
- On-site refuelling of machinery will be carried out using a mobile double skinned fuel bowser.
- Fuel storage will be minimised and bunded appropriately.
- An emergency plan for the construction phase to deal with accidental spillages will be contained within the CEMP. Spill kits will be available also.
- A self-contained port-a-loo with an integrated waste holding tank will be used at the wind farm compound and along the grid route.
- No water or wastewater will be sourced on the wind farm site nor discharged to the site.

- No batching or storage of wet-cement products will occur on site. Pre-cast elements for culverts and concrete works will be used.
- No washing of any plant used in concrete transport or operations will be allowed on site. Only chute cleaning using the smallest volume of water proposed in temporary lined wash-out pits.
- Drilling fluid/bentonite will be non-toxic and naturally biodegradable.

8.10.32. Section 7.8.1.10 address potential effects on local groundwater well supplies. The Applicant argues that the risk to any potential well source down-gradient of a turbine location from potential contaminant release (i.e., sediment, hydrocarbons, and cement-based compounds) within any excavation at this separation distance is negligible (i.e., >0.5k m). Due to the relatively shallow subsoils and the likelihood of groundwater flow through these subsoils discharging to nearby surface water courses, groundwater flow through the bedrock aquifer is taken to represent the most likely flowpath in terms of local groundwater well. It is argued that the relatively low hydraulic conductivity and the diffuse nature of groundwater flow in the bedrock aquifer would mean that a pollutant is unlikely to reach groundwater wells in the locality. As such, it is stated that the risk posed to potential well sources at this distance from potential spills and leaks from excavations at the wind farm site is negligible. Furthermore, due to the shallow nature of the grid cable works within the carriageway of public roads no effects on private groundwater well supplies will occur.

8.10.33. The Applicant outlines the following reasons why no significant impacts on any existing down-gradient groundwater wells/springs are anticipated:

- The large set back distances, and elevation differences between wind farm development site and downhill well locations;
- The proposed wind farm will involve relatively shallow excavations;
- The underlying bedrock is a low permeability poor/locally important aquifer (i.e. it is not regionally important, or karstified);
- Surface water features such as the Ballyhomuck Stream, Priesttown Stream, Drangan Stream will act as hydraulic boundaries to groundwater flow. All dwellings are located on the opposite side of these boundaries to the wind farm site;

- There is limited mapped faulting in the area;
- The temporary and transient nature of the grid connections works; and,
- The development is distributed across a wide area.

8.10.34. The Applicant states that the mitigation measures in relation to maintaining a high quality of surface water runoff from the development and groundwater protection will ensure that the status of both surface water and groundwater bodies in the vicinity of the site will be maintained.

8.10.35. Section 7.8.2 of the EIAR outlines the various measures for the operational stage including *inter alia*:

- Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff
- Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the site, likely to have entrained suspended sediment, and channel it to settlement ponds for sediment settling;
- Check dams will be used along sections of access road drains to intercept silts at source
- Settlement ponds, emplaced downstream of road swale sections and at turbine locations, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to watercourses.
- Adoption of an Operational Phase Emergency Response Plan to deal with any spillages/leaks that might occur as a result of an unlikely mechanical failure or fire.

8.10.36. In terms of decommissioning the Applicant states in Section 7.8.3 The potential impacts on the water environment during the decommissioning stage will be similar to those during the construction phase, and as such the proposed mitigation for the Decommissioning Phase are similar to those outlined in Section 7.8.1. Moreover, due to the relative long life of the wind farm infrastructure, it is likely that a revised/updated environmental assessment will be required at the time of decommissioning to account

for any changes in baseline conditions at the wind farm site, and potential changes is assessment guidelines and legislation.

#### 8.10.37. **Residual Effects**

8.10.38. With the implementation of the mitigation measures, it is considered that no significant impacts will arise.

#### 8.10.39. **EIAR Conclusion**

8.10.40. Key points to note from the conclusion:

- During each phase of the proposed development (construction and operation / maintenance) a number of activities will take place on the wind farm site, some of which will have the potential to significantly affect the hydrological regime or water quality at the wind farm site or its vicinity. These significant potential impacts generally arise from sediment input from runoff and other pollutants such as hydrocarbons and cement-based compounds, with the former having the most potential for impact.
- Surface water drainage measures, pollution control and other preventative measures have been incorporated into the project design to minimise significant adverse impacts on water quality and downstream designated sites.
- The wind farm site and grid connection drains to the River Suir SAC. Mitigation measures have been implemented into the surface water drainage design to maintain good quality within the water bodies. As such, there is no potential for significant impacts on the hydrology of the SAC as a result of the proposed wind farm development.
- The proposed wind farm site and grid route is not located in an area that is susceptible to flooding from rivers. Drainage attenuation will be applied across the wind farm site to ensure no impacts on downstream flooding will occur as a result of the proposed wind farm development.
- Overall, the proposed development (i.e., the wind farm, grid route and TDR) presents no significant impacts to land, soils, hydrology, hydrogeology and water quality provided the proposed mitigation measures are implemented.

- No significant cumulative impacts on any of the regional surface water catchment or groundwater bodies will occur from the proposed development (i.e., the wind farm, grid route and TDR).

8.10.41. **Assessment**

8.10.42. Water Quality Impacts

8.10.43. I consider that the greatest potential for significant impacts on the water environment arises from the potential for suspended solids, pollutants, oils, cement, chemicals etc. to be released into watercourses or groundwater during the construction phase. This issue has been raised by the Third-Party Appellant, with particular concern in relation to silt spills and contamination of watercourses which may directly impact the River Anner and River Suir SAC.

8.10.44. Hydro Environmental Services on behalf of the Applicant prepared a technical note in relation to these concerns (Appendix B attached to the First-Party Response to Third-Party Appeal). The Note states *inter alia* that the wind farm design team were at all times aware of the downstream receiving waters, particularly surface waters that are extremely sensitive due to the presence of designated sites (Lower River Suir SAC) and the requirement to maintain the WFD status of the Anner River and River Suir. (Addendum A7.3 provides a Water Framework Directive Assessment Report.) The Technical Note states that a key pollution prevention measure during the construction phase is the avoidance of ecologically sensitive natural water features such as the Ballyhomuck Stream and Priesttown Stream which drain to the Anner River and ultimately to the River Suir. Furthermore, HES reiterates that if discharge water from construction areas fails to be of a high quality (notwithstanding the results of the jar testing of soil samples) then a filtration treatment system (such as a Siltbuster or similar equivalent treatment drain) will be used to filter and treat all surface discharge water collected in the dirty water drainage system. In addition, daily inspections will be undertaken to assess the effectiveness of the systems.

8.10.45. The EIAR and associated EMP (Appendix 3.5) and SWMP (Appendix 7.4) set out a range of mitigation measures and pollution prevention measures. The measures include both mitigation by design and other mitigation including provision of interceptor drains, vee-drains, diversion drains, temporary sumps/attenuation lagoons/ponds, sediment traps (silt fences/straw bales), pumping systems, settlement ponds, use of

proprietary settlement systems such as a Siltbuster, 50m buffer zones from streams, water quality monitoring, erosion control measures, refuelling protocols, washing of concrete truck chutes, provision of spill kits and compliance with the CEMP. These proposed measures generally comprise good practice measures.

8.10.46. I note the Third-Party Appellant argues that the HDD works along the GCR have the potential to impact on the environment. Whilst the Applicant anticipates that HDD will be required for five of the bridge crossings, the potential impacts from such works have been assessed for all bridge crossings. No instream works are proposed. I am satisfied that the potential impacts from HDD have been adequately and robustly assessed in the EIAR and accompanying planning application documentation.

8.10.47. An emergency plan for the construction phase to deal with accidental spillages will be contained within the CEMP. Furthermore, an Operational Phase Emergency Response Plan to deal with any spillages/leaks that might occur as a result of an unlikely mechanical failure or fire will be prepared. I consider the Applicant's proposed approach of utilising good practice construction methods and specific mitigation measures, including mitigation by design (such as the proposed drainage system), to be a reasonable approach to addressing safeguarding water quality, for not only the Anner River and River Suir, but of all watercourses downstream of the proposed development. I concur with the Applicant's WFD assessment findings that the proposed development will not impact upon any surface water or groundwater body as it will not cause a deterioration of the status of the body and/or it will not jeopardize the attainment of good status having regard to the proposed mitigation measures.

8.10.48. In summary, I am satisfied that the Applicant has proposed an appropriately comprehensive range of mitigation measures and subject to the implementation of these measures and an appropriately robust monitoring regime, I am satisfied that the potential impacts of the proposed development on water quality can be adequately mitigated and that the proposed development will not have a significant residual impact on water quality.

8.10.49. Private Wells

8.10.50. The Third-party Appellant argues that the EIAR does not assess the potential impact on all private wells in the vicinity of the site. In particular, it is argued that Figure 7.10 only illustrates 44 No. dwellings, and that 48 No. dwellings have been omitted. Hydro

Environmental Services on behalf of the Applicant prepared a technical note in relation to these concerns (Appendix B attached to the First-Party Response to Third-Party Appeal). The Note includes an updated version of Figure 7.10 (Appendix I). HES outline that the original assessment in the EIAR assumed that a groundwater well existed at all local properties around the wind farm site to allow a conservative quantitative assessment on groundwater flow travel times and directions. The assessment concluded that due to the short groundwater flowpaths (30-300m) with the underlying bedrock aquifer (Poor), the potential to effect wells at setback distance exceeding 500m is negligible. HES state in the technical note that regardless of the 48 No. additional house from Figure 7.10, they are all located >500m from the turbine locations (i.e. the largest excavation locations). As such, HES argue that this does not alter the outcome of the water supply assessment in the original EIAR, which states that there will be no significant impact on any existing down-gradient groundwater wells/springs due to:

- The large set back distances, and elevation differences between wind farm development site and local well locations;
- The proposed wind farm will involve relatively shallow excavations (as bedrock is close to the ground surface)
- The underlying bedrock is a low permeability aquifer (i.e. it is not regionally important, or karstified);
- Surface water features such as the Ballyhomuck Stream, Priesttown Stream, Drangan Stream will act as hydraulic boundaries to groundwater flow. All dwellings are located on the opposite side of these boundaries to the wind farm site;
- There is limited mapped faulting in the area;
- The temporary and transient nature of the grid connections works; and,
- The development is distributed across a wide area.

In addition, there are proposed mitigation measures in the EIAR that will minimise and prevent potential general groundwater contamination from hydrocarbons and other chemicals.



- 8.10.51. Whilst 48 No. additional dwellings were not included in Figure 7.10, the Appellant has not provided any technical evidence to demonstrate that there would be a significant impact on these dwellings, or the original dwellings illustrated on Figure 7.10. I consider that the Applicant has provided a comprehensive and adequate response demonstrating that significant impacts on groundwater wells/springs are unlikely.
- 8.10.52. Separately, I note that a number of submissions lodged to the Local Authority made reference to potential impacts on the Fethard regional water supply, which abstracts water from the Anner River at Killusty Bridge. In response to these concerns the Applicant outlined that Turbines 1, 2, 5 and 7 are approx. 18km upstream of the abstraction point, while turbines 3 and 4 and the substation are approx. 10km upstream of the facility. Having regard to these distances and the suite of mitigation measures proposed in the EIAR to protect water quality as discussed above, I am satisfied that the proposed development does not represent a significant risk to the facility. Similarly, having regard to the nature of the GCR works and the proposed mitigation measures, I am satisfied that the proposed development does not represent a significant risk to the Brackford Bridge/Temletney PWS.
- 8.10.53. Flooding
- 8.10.54. In the Third-Party Appellant's Further Response (received by the Board on 3<sup>rd</sup> February 2023), the Appellant included a Hydrology Report prepared by Hydro S, Engineering Hydrology Consultant. In summary, the Hydrology Report argues that the proposed development represents a significant flood risk for Kilbury, located downstream of the wind farm site where numerous residential properties exist. This area is located within an existing fluvial flood zone. The Report argues that there is a high risk of silt spills and contamination and that the proposed mitigation measures will exacerbate the flood risk and as such, the proposed development is not compliant with The Planning System and Flood Risk Management – Guidelines, November 2009.
- 8.10.55. HES on behalf of the Applicant has prepared a rebuttal to the Hydrology Report and outlines a number of flaws with the assessment. In summary, it is argued that the Hydrology Report significantly overestimates the projected flow increases (10-20%) as a result of the proposed development and instead estimates flows could increase by an order of approx. 0.6%, which is not considered to be significant. HES prepared a hydraulic model of the channel for Stream C that demonstrates that even in a worst-

case scenario (i.e. with no wind farm drainage mitigation) the proposed development has no potential to cause or exasperate the existing flood risk at Kilbury.

8.10.56. HES reiterates the findings of the FRA (Appendix 7.2) that there is no requirement for a Justification Test and that the proposed development site is not a mapped fluvial flood zone. No recurring flood event was mapped at the subject site from the OPW past flood event mapping. The Applicant contends that the flood risk assessment was completed in accordance with the Flood Risk Guidelines.

8.10.57. I concur with the Applicant that the footprint of the proposed development and associated run-off is very small in comparison to the size of the catchment. The Appellant has not provided sufficient evidence to demonstrate that the proposed development and associated mitigation measures, which would be considered standard best practice techniques, would cause a standalone significant flood risk for lands surrounding the wind farm site or along the GDR. I am satisfied with the level of assessment provided in the EIAR and accompanying planning documentation that the proposed development, including the proposed mitigation measures, will not cause a significant flood risk downstream. Furthermore, I am satisfied that the proposed development is consistent with The Planning System and Flood Risk Management – Guidelines, November 2009.

8.10.58. Landslide

8.10.59. I note the Local Authority raised concerns in relation to the lack of discussion or assessment in the EIAR in relation to land slippage risks. As part of the RFI Response, a peat landslide hazard risk assessment screening report was prepared. The analysis shows that the wind farm site has a low susceptibility to landslides with the exception of turbine seven, where the contours are tighter. At this point, the susceptibility is indicated as a moderately low to moderately high. The Applicant states that according to the Quaternary map, these slopes are made of bedrock/subcrop and the adjacent trial pits indicate a very thin layer (30am) of Topsoil and Silt/Clay overlying 40cm weathered siltstone rock. As such, the Applicant argues that it is clear the landslide susceptibility classification is not related to peat landslide hazard. Furthermore, it is noted that landslides in areas of bedrock/subcrop generally consist of rockfalls or debris where loose boulders and weathered rock/gravel/colluvium are present at surface. The Applicant states that in reality turbine 7 is located on agricultural land with

topsoil and a thin silt/clay cover. There are no records of previous landslides occurring close to the wind farm site (the closest is 9.5km south of the site). The Applicant states that the risk can be avoided through further investigation of slope stability and a detailed geotechnical design of the windfarm infrastructure to a standard level of geotechnical investigation and design. It is argued that this is standard for wind farm development and so will be undertaken as best practice. Having reviewed the analysis and having regard to the proposed mitigation measures, I am satisfied that there is no significant risk of landslide as a result of the proposed development.

8.10.60. Excavation

8.10.61. The Third-Party Appellant argues that the proposed development will result in the displacement of large quantities of earth and rock and transportation of concrete, which will significantly disrupt local roads and habitats. Table 7.15 of the EIAR outlines the estimated soil/bedrock excavation volumes. In total, 40,081m<sup>3</sup> of material will be excavated. This includes 10,311 m<sup>3</sup> of concrete for the GCR. Sections 7.7.1.1 and 7.7.1.2 addresses the impacts on soil, subsoil and bedrock and, land and land use, respectively. As outlined above, the Applicant argues that this is an acceptable part of the development and as such no mitigation is proposed. Whilst the proposed development will require a substantial level of excavation, I note that the EIAR does not identify any significant negative residual impacts from same. The turbine bases are located in bedrock which is described as being generally unproductive. Limited/no groundwater dewatering is anticipated due to the shallow nature of the excavations and lack of observed groundwater inflows within the trial pits. The Applicant states that excess soil/subsoil will be used in landscaping around the turbine locations. I concur with the Applicant that such works are an implicit aspect of the proposed development. As stated above, the site does not lie within any designated site, with the exception of part of the GCR crossing the Lower River Suir SAC. I highlight that no borrow pits are proposed as part of the development. As outlined earlier, I am satisfied that the EIAR adequately addresses the potential impacts from the proposed development in terms of habitat loss. Furthermore, Section 8.15, below discusses the potential impact from the proposed development in terms of transportation.

8.10.62. As discussed above, Condition No. 19 attached to the Local Authority's Notification of Decision to Grant Permission requires that a geotechnical expert prepare a design brief for the construction of the wind farm addressing *inter alia* all soil, subsoil and rock

stripping or excavation and supervise all construction within the site of the development. As outlined above, I concur with the Applicant that it is unreasonable and impracticable for such an expert to oversee the entire construction period but rather *“to monitor the stability of all existing slopes adjacent to the works and all temporary slopes created by the works”*. Furthermore, in my opinion, the Applicant’s proposal to prepare a Geotechnical Audit and a Construction Spoil Management Plan for submission to the Local Authority will further mitigate potential negative geotechnical impacts.

8.10.63. In summary, having reviewed the planning application documentation, I am satisfied that the excavation of the material, will not have an adverse residual impact on the environment.

8.10.64. **Conclusion**

8.10.65. I accept that the potential impacts on land, soils, hydrology, hydrogeology and water quality can be effectively mitigated by the measures outlined in the EIAR and accompanying planning application documentation. This will largely be achieved by the design of the surface water system and the implementation of proven and effective best practice measures to cover all phases of the development. I accept that the proposed development is not likely to contribute to or increase the risk of flooding downstream of the site due to the measures proposed.

8.10.66. I have considered all the submissions made and I am satisfied that they have been appropriately addressed in terms of the application and that no significant adverse effect is likely to arise. I consider that the information provided in the planning application documentation is sufficient to allow the impacts of the proposed development to be fully assessed.

8.10.67. I am satisfied that the impacts identified would be avoided, managed or mitigated by these measures and through suitable conditions. I am, therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impact on surface or groundwater in the area.

## 8.11. **Material Assets – Aviation, Telecommunications and Electromagnetic Interference**

8.11.1. The Potential effects on ‘Aviation, Telecommunications and Electromagnetic Interference’ section of Chapter 8 of the EIAR has been prepared by Ai Bridges. The site of the wind turbines has been included in this assessment.

8.11.2. The methodology used to carry out the assessment is provided in Section 8.4 of the EIAR, and the Aviation and EMI study methodology included the following:

- Consultants with the relevant Aviation Authorities/ Telecom Operators
- Field Surveys of the Receiving Environment
- Desktop Survey Network Modelling and Analysis.

### 8.11.3. **Receiving Environment**

8.11.4. The nearest IAA Aviation Radar Surveillance Site is located at Woodcock Hill, Co. Clare (79km from the subject site) and the two nearest aerodromes to the proposed development (both 10km) are Fethard Airfield, Co. Tipperary and Lickfinn Airfield, Co. Tipperary.

8.11.5. Field surveys of two telecom mast sites in the vicinity of the wind farm site were carried out (Figure 8.3). Neither mast are aligned in the direction of the wind farm.

8.11.6. Table 8.2 of the EIAR provides a list of the Telecommunication and Aviation Operators that were consulted in the preparation of the EIAR. No issues were identified from the Operators who responded, except 2RN who stated that their transmission network will not be impacted. However, 2NR have recommended that a protocol be put in place to mitigate for possible impacts to TV service reception in the area.

### 8.11.7. **Likely Significant Impacts**

8.11.8. The Applicant states that having regard to the distance between the subject site and Woodcock Hill, it is highly unlikely that there will be any impact from the proposed development to the IAA Surveillance Network. Similarly, the Applicant anticipates no impacts on the Fethard and Lickfinn airstrips. In addition, no significant impacts are expected on telecommunications.

#### 8.11.9. **Mitigation**

8.11.10. The Applicant recommends that aviation lighting be fitted on the turbines in accordance with standard industry practice. In addition, 2RN have recommended that a standard protocol be put in place to mitigate for possible impacts to TV service reception in the area. The measures include (i) TV Antenna re-alignment and increase in height, (ii) Antenna re-tuning (iii) SaorSAT Satellite based TV service.

#### 8.11.11. **Cumulative Impacts**

8.11.12. The Applicant anticipates the cumulative impacts to be negligible.

#### 8.11.13. **Residual Impacts**

8.11.14. With the implementation of the mitigation measures, it is considered that the residual impacts will be negligible.

#### 8.11.15. **EIAR Conclusion**

8.11.16. Having regard to the distance of the windfarm from identified aviation facilities/ airstrips and from EMI facilities, it is considered that the impact of the development would be negligible on these identified locations. A standard protocol with 2RN will allow for mitigation of any television services issues.

#### 8.11.17. **Assessment**

#### 8.11.18. Broadband

8.11.19. The Third-Party Appellant raises concerns regarding the potential impact the proposed development could have on broadband connection. The Appellant states that they do not have the benefit of a fibre broadband connection. It is clear that the Applicant has attempted to engage in consultation with the various telecommunications service operators, and I note that no observations were received from any of these operators, except 2RN. Having regard to the location of the wind farm site in proximity to existing telecommunication services, I consider it unlikely that the proposed development would result in any significant electromagnetic or other interference with telecommunications infrastructure and services. Furthermore, there is no evidence on file, to suggest that the proposed development would interfere/prevent the provision of a fibre broadband connection to the Appellant's address. Potential impacts on the local road network's ability to accommodate the grid connection is discussed in Section 8.15.

#### 8.11.20. **Conclusion**

8.11.21. I have considered all of the written submissions made in relation to material assets and the relevant contents of the file including the EIAR. I am satisfied that the potential for impacts on material assets can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on material assets.

#### 8.12. **Landscape**

8.12.1. Chapter 9 of the EIAR provides an assessment of the landscape and visual effects of the proposed development and is supported by Volume 5 (LVIA Viewpoint Photomontages). In addition, Addendum 9.1 was submitted at RFI stage. The assessment is conducted in accordance with the methodology described in the Guidelines for Landscape and Visual Impact Assessment (3<sup>rd</sup> edition, 2013.) published by the UK Landscape Institute and the Institute for Environmental Impact Management and Assessment (GLVIA). The EIAR lists other guidance documents used in the assessment (Section 9.3).

8.12.2. The assessment included a desktop study and several site visits. The tools used to assist in the assessment of visual effects included ZTV maps and photomontages.

#### 8.12.3. **Receiving environment**

8.12.4. The proposed development site is located along a plateau of undulating low hills and ridges ranging between 160-190m AOD in the southern extents of the Slieveardagh range. A short distance to the east and south of the site, the terrain descends to the more typical low rolling plains found throughout the southeast midlands of Ireland, whilst further to the south again, Slievenamon rises up to a height of c. 721m AOD and is one of the most prominent landscape features within the study area and its wider surrounds. The rolling Slieveardagh Hills continue throughout much of the northern and western extents of the study area with some of its highest hills rising to c. 340m AOD (Knocknamuck Hill).

8.12.5. The principal land use pattern within the study area is that of agricultural farmland comprising of fields of various sizes. Blocks of conifer forest are also a notable

component of the landscape pattern throughout the study area. The elevated areas of Slievenamon are also cloaked in extensive areas of mountain moorland.

- 8.12.6. The wind farm site is located in an area designated as 'C-The Foothills', which are described as "complex landscapes containing mixtures of settlements, forestry and farming that also contain extensive areas of semi-natural upland vegetation in the (former) South Tipperary County Development Plan 2009-2015 (As Varied) Landscape Character Assessment. In terms of 'Landscape Character Types' and 'Landscape Character Areas' the 'Foothills' portion of the study area is further classified as the landscape character type 'C1 — Farmed' and 'C2 — Forested' in the (former) Development Plan.
- 8.12.7. The EIAR (Section 9.5.2.1) considers the Wind Energy Guidelines and the guidance provided on aesthetic considerations including siting and design. The site is considered to have qualities of Hilly and Flat Farmland.
- 8.12.8. The proposal site is located in an area designated as 'open for consideration' for wind farm development in the (former) Development Plan. The site is located in the landscape character area 14 – Slievedagh Hills Farmland Mosaic, which has a 'normal/transitional' sensitivity designation with the 'transitional' designation being the dominant one.
- 8.12.9. The proposed wind farm site is also situated just north of the landscape character area '4 - River Suir Central Plain' which is also known as 'The Golden Vale' and is the most "extensive landscape area in the county". This landscape character area is classed with a 'robust/normal' sensitivity designation with the 'normal' sensitivity designation being the dominant one. This LCA has a 'high' capacity and its objective and guideline is to 'Continue - Facilitate development that continues established patterns of use and settlement'. The majority of the proposed development site is situated within typical agricultural farmland, which is identified as having a class 4 compatibility rating with wind farms in which development is "likely to be compatible with reasonable care".
- 8.12.10. The Applicant notes that whilst the proposal site is wholly located within Co. Tipperary, the Kilkenny-Tipperary border occurs just over 8km east of the site and therefore is considered. Figure 8.3 of the Kilkenny County Development Plan 2014-2020 illustrates that several of the identified areas of greater sensitivity occur along the border with Tipperary and include altitude above 200m, principal ridgeline, and transitional



woodland scrub. The nearest landscape character areas in Kilkenny to the site include C-South Western Hills, C1-South Western Northern Transition and F2 – Kilkenny Western Basin, whilst the only areas identified as highly scenic/visually pleasing are located in the wider extents of the study area.

8.12.11. In order to assess the extent of visibility of the proposed windfarm, a Zone of Theoretical Visibility (ZTV) map was produced. The Tip Height ZTV indicates areas where any part of the turbine up to the tip of the blade is visible (a worst-case scenario).

8.12.12. The Zone of Theoretical Visibility, which extends to 20km from the turbines, indicate that the greatest visual effects will be experienced across the central and eastern half of the study area due to the flat to gently undulating terrain. South of Slievenamon visibility is entirely eliminated as the proposed turbines will be screened by elevated sections of Slievenamon and its surrounding hills. Similarly, visibility is almost entirely eliminated within the wider southeast quadrant of the study area due to the rolling hills and ridges. There will be no potential turbine visibility from Carrick-on-Suir or along large sections of the River Suir corridor. The central areas of Fethard and Clonmel will afford no site visibility, whilst their wider surrounds have the potential to afford low to comprehensive theoretical turbine visibility. The wider northern half of the study area is similarly sporadic in terms of ZTV pattern.

8.12.13. The potential visual receptors were identified from the ZTV's and site visits include key views (from features of national or international importance), designated scenic routes and views, local community views, centres of population, major routes, and amenity heritage features. The potential impacts from visual receptors are assessed in the photomontages submitted in respect of the application.

#### 8.12.14. **Likely Significant Effects**

8.12.15. The EIAR describes the potential likely significant effects of the construction and operational stages of the development on the landscape and visual amenities of the area.

8.12.16. The central study area is fairly typical and robust rolling landscape that is dominated by productive rural land uses such as agriculture and small blocks of forestry. The landscape sensitivity in the immediate environs is considered Medium-Low.

- 8.12.17. In terms of the wider study area (5-25km), there is a stronger diversity in the landform and land uses, however, the principal value of the landscape is very similar to that of the central study area, that is, a productive rural landscape of high integrity. Some of the more notable landscape features include Slievenamon, which rises in the southern half of the study area and is a visually prominent feature from within the surrounding landscape, whilst further afield to the south, the River Suir meanders along the southern periphery of the study area, beyond which the foothills of the Comeragh Mountains begin to ascend.
- 8.12.18. There is a heightened sense of scenic amenity in the southern half of the study area, which typically relates to Slievenamon and its surrounding rolling hills, the River Suir, and the Comeragh Mountains. Areas of high scenic amenity are often associated with recreation, and this is no different in the study area, where a large majority of the strong landscape values relating to recreation are associated with the elevated and scenic areas in the southern half of the study area. As is typical throughout the rural landscape, heritage features also cast an imprint on the landscape of the wider study area, the most notable of which include the summit Cairn at Slievenamon, the Famine War House, and Kilcolley Abbey. Overall, it is considered that an overriding 'medium-low' landscape sensitivity is appropriate for the wider study area, albeit there are some landscape features and landscape elements of much higher sensitivity such as Slievenamon, the River Suir, and Kilcooley Abbey as key examples.
- 8.12.19. The Applicant states that there will be some construction stage effects on landscape character generated by the intensity of construction activities (workers and heavy machinery) as well as areas of bare-ground and stockpiling of materials as identified in the Outline Construction Method Statement (OCMS). Such effects will be temporary/short term in duration and, therefore, not considered to be significant.
- 8.12.20. During the operational stage, the Applicant argues that wind turbines are a characteristic feature of the wider study area, most notably in the northern half of the study area where there is a strong prevalence of existing wind energy development. The effect, therefore, is one of intensification and extension of an established land use in this landscape and not the introduction of a new and unfamiliar feature. It is stated that in terms of scale and function, the proposed wind farm is well assimilated within the context of the central study area. This is due to the broad scale of the landform, landscape elements and land use patterns. The Applicant states that although the

proposed development represents a stronger human presence and level of built development than currently exists on the site, it will not detract significantly from its productive rural character. The Applicant states that the substation and potential future battery storage facility will be barely visible.

- 8.12.21. The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the site.
- 8.12.22. The Applicant states that there will be physical impacts on the land cover of the site as a result of the proposed development, but these will be relatively minor in the context of this productive rural landscape that comprises of existing wind energy developments and extensive areas of conifer forest. The scale of the proposed development will be assimilated within the surrounding landscape context without undue conflicts of scale with underlying land form and land use patterns. For these reasons the magnitude of the landscape impact is deemed to be Medium with the Central Study Area, whereas, beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to Low and Negligible at increasing distances as the wind farm becomes a proportionately smaller component of the overall landscape fabric.
- 8.12.23. The Applicant states that in the central study area the significance of impact is considered to be Moderate. For the wider study area (beyond 5km from the site), landscape impact significance is not considered to exceed Slight and will reduce to Slight and Imperceptible at increasing distances as the development becomes a progressively smaller component of the wider landscape fabric even in the context of higher sensitivity landscape units / features.
- 8.12.24. Appendix 9.1 Landscape and Visual Assessment of VRPs includes a full assessment of each VRP. The Applicant outlines that having regard to the varying hub height and blade lengths, the photomontages included within this assessment were based on a hub height of 83m and a blade length of 66.5m, and a max tip height of 150m. It is considered that any combination of the blade length or hub height within the parameters proposed (75-95m tower and 55-70m blades) will not result in any material changes to the visual impact magnitudes outlined in the assessment, as the proposed max tip height (150m) proposed has been assessed throughout assessment. Table 9.11 provides a summary of the visual impacts. The Applicant states that the sensitivity of each visual receptor varied widely from Very High to Low, which represented the

diverse but robust nature of the study area. Those locations with the highest sensitivity tend to relate to designated scenic views or areas of outdoor pursuits that afford a high degree of scenic amenity. Medium-low sensitivity receptors tend to relate to less remarkable and contained views from local and regional roads that are also influenced by a range of other anthropogenic land uses. It is argued that the majority of the sensitivity judgements (21 out of 29) have been categorised as 'medium-low' or less, which reflects the relatively typical and indistinct rural scenes on offer.

8.12.25. A viewpoint assessment summary is set out on the table below:

<b>Summary of Visual Impacts</b> (Extracted from Tables 9.8 and 9.11 of the EIAR).						
<b>VP No.</b>	<b>Description</b>	<b>Distances to nearest turbine</b>	<b>Direction of view</b>	<b>Visual Receptor Sensitivity</b>	<b>Magnitude of visual impact</b>	<b>Visual Impact Significance</b>
1	L1011 northeast of Kilmanagh	18.1km	SW	Medium	Low-negligible	Slight-imperceptible
2	R691 east of Ballingarry	9km	s	High-medium	Low	Slight
3	R691 south of Killenaule	8.4km	SE	Medium	Low	Slight
4	Local road at Moanvurrin	3.1km	S	Medium-low	Medium-low	Moderate-slight
5	N76 West of Callan	12.3km	SW	Low	Negligible	Imperceptible
6	Local Road at Ballyrichard	1.4km	S	Medium-low	Medium	Moderate
7	R689 south of Coolbaun crossroads	7.0km	SE	Medium-low	Low-negligible	Slight-imperceptible
8	Drangan	959m	S	Medium-low	High-medium	Moderate
9	R690 north of Mullinahone	4.3km	W	Medium-low	Low	Slight
10	R692 east of Mullinahone	4.8km	W	Medium-low	Low	Slight
11	Local road at Curraheen	1.6km	E	Medium	Medium	Moderate
12	L2305 at Tullamore	917m	E	Medium-low	High	Substantial-Moderate
13	Local Road at Knockroe	665m	W	Medium-low	High-medium	Moderate
14	Isertkeiran cemetery	2.4km	W	Medium	Medium-low	Moderate-Slight
15	R689 at Coolmare	7.1km	E	Medium-low	Low-negligible	Slight-imperceptible
16	Local road at Kilnagranagh	693m	N	Medium-low	Medium	Moderate-slight

17	R692 at Kilvemnon	3.8km	NW	Medium-low	Medium-low	Moderate-slight
18	L2305 north of Cloneed	2.0km	NE	Medium-low	Medium-low	Moderate-slight
19	R692 at Kilnagranagh	1.4km	N	Medium-low	High-medium	Moderate
20	L2305 at Cloneen	2.8km	NE	Medium-low	Medium-low	Moderate-Slight
21	R692 at Fethard	9.3km	NE	Medium-low	Negligible	Imperceptible
22	N76 at Killamery	8.0km	NW	High-medium	Low	Slight
23	Local road at Tober	4.2km	N	Medium-low	Low	Slight
24	R701 at Kilmoganny	16.7km	NW	Medium-low	Negligible	Imperceptible
25	R689 south of Fethard	10km	NE	Medium-low	Low	Slight
26	R688 at Clerihan	15.4km	NE	Medium-low	Low-negligible	Slight-imperceptible
27	Slievenamon	7.7km	N	Very High	Low-negligible	Slight
28	Local road at Birchwood	16.2km	NW	High-medium	Low-negligible	Slight-imperceptible
29	Residential Housing Estate North of Clonmel	16.5km	NE	Medium-low	Negligible	Imperceptible

8.12.26. Of the 29 views, 23 are deemed to have an impact significance in the lower order ranging from Moderate-slight to Imperceptible which principally reflects the landscape context of the study area. The Applicant states that the proposed development is typically seen in a clear and unambiguous manner and is visually offset from Slievenamon, which is one of the most sensitive landscape features within the study area.

8.12.27. The highest significance of impact typically relates to near distance views of the proposed turbines where they present in a visually dominant manner and will be defining features of the view. Whilst not the nearest viewpoint to the proposed development, VP12 has been categorised with a 'substantial-moderate' impact significance which is the result of a 'medium-low' sensitivity classification and a 'high' magnitude of visual impact. The Applicant explains that the visual presence of the turbines is somewhat heightened by the slightly uphill nature of the view, albeit the turbines present in a legible manner with few instances of turbine overlap.

8.12.28. Viewpoints VP8 and VP13 have been assigned a 'high-medium' visual impact magnitude and a subsequent 'moderate' impact significance due to the near distance of the proposed turbines. In similar circumstances to VP12, both VP8 and VP13 have a clear view of the turbines where they will present in a highly dominant manner. Nonetheless, although the turbines are viewed at a considerable scale at both viewpoints, the Applicant argues that they do not present in an overbearing manner nor do they appear out of context. Viewpoints VP6 and VP11 are similarly classified with a 'Moderate' impact significance, although they are located slightly further from the turbines than the 3 other viewpoints described above. The Applicant states that whilst the turbines present with some minor aesthetic issues at both viewpoints, they will neither obstruct nor intrude on views of Slievenamon which are afforded to the south. VP19 is also deemed to have a moderate impact significance, although only 3 of the turbines are prominently visible, whilst the blade tips of the remaining turbines are viewed rotating against the near ridge. The Applicant argues that the turbines may generate some sense of visual irritation and ambiguity here, however, the turbines are viewed in the opposite direction to Slievenamon, which is the most sensitive aspect of this view.

8.12.29. Overall, the Applicant considers that the proposed development is consistent with the design recommendations for the Wind Energy Development Guidelines (2006 / Revised Draft 2019) and will not appear incongruous in this robust rural context. Consequently, the Applicant states that the proposed wind farm development will not result in significant visual impacts. Instead, many of the visual receptors are considered to have impact judgements in the lower order of significance, albeit there will be some areas in the immediate surrounds of the site that will afford clear views of turbines.

#### 8.12.30. **Cumulative Impacts**

8.12.31. The cumulative ZTV map (Appendix 9.2) shows the potential for cumulative visibility between the proposed development and all other existing wind farm developments within the 20km study area. At present, there are 6 other operating wind farms within the study area in addition to 5 permitted wind farms. The ZTV map (based on a bare ground scenario), identifies that the proposed Knockroe Wind Farm has the potential to be viewed in isolation for only 3.5% of the study area whilst only 19.3% of the study will have no view of proposed, permitted, or existing turbines. Overall, the proposed

turbines will be distinctly separated from any other existing and permitted wind farms within the study area, and consequently, it is not considered that the proposed development will result in adverse cumulative impacts with other existing or permitted wind farms with the 20km study extents. The proposed Knockroe Wind Farm is considered to contribute to a Low magnitude of cumulative impact.

#### 8.12.32. **EIAR Conclusions**

8.12.33. It is not considered that the proposed wind farm development is at odds with landscape related policy within the study area. Furthermore, whilst the proposed turbines will be noticeable features from their near surrounds, they do not appear over-scale, nor will they present as incongruous features in this landscape setting. Based on the findings of the collective assessments it is not considered that the proposed development will give rise to any significant landscape and visual effects.

#### 8.12.34. **Assessment**

8.12.35. I inspected the site and its surroundings and have had regard to the relevant chapters of the EIAR and the supporting appendices. I have visited the viewpoint locations and examined the photomontages submitted, which I consider are sufficiently representative of views in the area and adequate for the purposes of the assessment. I also had regard to the concerns raised by the Third-Party Appellant. The main issues raised relate to the visual impact of the proposed development on the landscape and visual amenities of the area.

8.12.36. I note that the GCR and TDR works were not considered as part of the LVIA. However, having regard to the nature and duration of these works, I do not consider that they will have a significant visual or landscape impacts.

#### 8.12.37. Accuracy of Photomontages

8.12.38. The Appellant questions the location and accuracy of some photomontages to depict the full extent of the visual impact from the proposed development and argues that additional viewpoints should have been included.

8.12.39. In terms of the accuracy of the photomontages, whilst they may be accurate with regard to a camera view, they do not accurately reflect what would be seen by the naked eye at the respective locations, in that the infrastructure will appear closer than they do in the photomontages. Notwithstanding this, such photomontages are only a

tool, albeit a useful tool, in assisting and informing an assessment of the potential effects of the proposal.

8.12.40. As stated by the Applicant in the response to the Third-Party Appeal (Appendix C), it is not possible to include views from every receptor. In my opinion, the photomontages demonstrate the impact at all viewpoints namely close, mid and distant. Notwithstanding that the substation and potential future battery storage are not clearly visible from any of the viewpoints, I consider that the photomontages are comprehensive in their extent, are representative of the main views available towards the site. I consider the methodology to be consistent with the WEDGs. I note that the Local Authority requested the Applicant to provide photomontages based on a worst-case scenario whereby the development is shown in the context of a blue sky background on a clear day (see Addendum Appendix A9.1). Furthermore, both the Local Authority and the Third-Party Appellant raised concerns in relation to a number of the VPs being obscured. The Applicant's RFI Response stated that whilst intervening features may obscure visibility, moving the viewpoint to reveal certain turbines will inevitably obscure others. In my opinion, this is a reasonable justification. Furthermore, I highlight that the views along the roads will be transient and will vary as the natural environment changes throughout the year.

#### 8.12.41. Turbine Size

8.12.42. The Appellant argues that visual impacts cannot be assessed without properly defining the exact structure profiles of each turbine. As outlined above, the LVIA utilises a hub height of 83m and a blade length of 66.5m (max tip height of 150m), to capture the visual impacts from the proposed development due to the range of turbine sizes proposed in the application. The Applicant argues that any combination of the blade length or hub height within the parameters proposed (75-95m tower and 55-70m blades) with a max height of 150m will not result in any material changes to the findings of the LVIA. I consider this to be a reasonable approach and that the submitted photomontages provide a good representation of the proposed development for the purposes of assessing the visual and landscape impacts.

8.12.43. The Appellant contends that turbines of the size proposed are not common in Ireland and that they can only be described as enormous in the context of Slievenamon. It is clear that the height and scale of the proposed wind turbines is such that they



undoubtedly have the potential to impact on the visual amenities and character of the area. Furthermore, due to their scale, these impacts cannot be effectively mitigated (such as by screening vegetation). The careful locating, design and layout of the turbines is therefore the only effective means of reducing the impacts. I consider that the Applicant has given due regard to these factors in the preparation of the planning application. However, the Board will be aware of many other permitted wind farm developments whereby the turbine heights are equal to or greater than that proposed in this application (for example Reg. Refs. 308806, 306706, 311565).

#### 8.12.44. Visual and Landscape Impacts

8.12.45. In general, I concur with the findings of the LVIA. In my opinion, 22 No. of the 29 No. VPs demonstrate that the wind turbines will not be overly dominant or have a significant overbearing impact on the landscape either individually or cumulatively with existing/permitted wind farm developments (Nos. 1, 2, 3, 4, 5, 7, 9, 10, 14, 15, 17, 18, 20, 21, 22, 23, 24, 25, 26, 20, 21, and 27). This is largely due to the combination of the topography, the separation distance between the viewing points and the proposed turbines (the closest of these VPs is 2.5km (VP 14)), and the natural and manmade structures in the landscape. The proposed turbines will be visible to varying extents, however, in my opinion, the landscape has the capacity to absorb them. VP 27 is taken from Slievenamon and provides an expansive view of the wider landscape and its ability to encompass the proposed development. Furthermore, in my opinion, many of the other VPs (e.g. No. 1 and 29) with Slievenamon in the background clearly demonstrate that the proposal will not adversely impact the landscape character of the mountain. With the exception of VPs, 4, 14, 17, 18, and 20, which have a significance of visual effect been assessed as 'Moderate-slight' in the EIAR, the majority of these have a stated significance of visual effect varying from Imperceptible to Slight-imperceptible, which I consider is reasonable.

8.12.46. VPs 16 and 19 have a significance of visual effect of Moderate-slight and Moderate, respectively. This is largely due to the blades cutting against the skyline ridge and that the turbines will be viewed at a considerable scale which is accentuated by the uphill nature of the views. Notwithstanding this, I do not consider that the visual impact or landscape impact to be significant or unacceptable.

- 8.12.47. The viewing points for VPs 6, 8, 11, 12 and 13 are located between distances of 0.67km and 1.6km from the proposed wind turbines and illustrate the turbines as being more visible and dominant in comparison to the forementioned VPs. With the exception of VP 8, which is taken from Drangan village, the viewpoint locations are from along local roads where the wind turbines will be visible proximate to the site and there is limited screening. Notwithstanding this, I do not consider that the turbines will have an overbearing impact on these locations. Modern day wind turbines, by virtue of their large size, are difficult to completely screen from all views. I concur with the LVIA's findings that the visual significance of these VPs is Moderate and (6, 8, 11, 13) and Substantial Moderate (12) (i.e. not a significant impact in terms of EIA). Whilst a reduction in the size or number of turbines may reduce the overall visual impact, they would nonetheless have an impact on the landscape to varying degrees at any given location. The site is located in an area designated as being open for consideration to wind energy development. Whilst the landscape is rural in nature, it is not pristine and is constantly evolving in a similar manner to many other rural locations due to a number of influences including agricultural activities, forestry, extractive industries, one-off dwellings, other renewable projects, etc.
- 8.12.48. The Appellant argues that the Applicant's rationale for retaining Turbine 1 (having been requested by the Local Authority to consider omitting it) cannot be justified on the basis of a pre-application design proposal to develop an 11 No. turbine wind farm. Whilst I concur with the Appellant in this regard, in my view the Applicant has provided a sufficient justification for retaining Turbine 1 in terms of the separation distance between the subject turbine and Drangan village. With regard to visual impacts on residential dwellings in the area, I note that the minimum separation distance from any turbine is stated to be 600m (except landowners involved in the proposed development) which I consider to be adequate to protect residential amenity from any significant visual impact. The Applicant argues that the turbine will not have an overbearing impact and is consistent with the DWEDG for a turbine not to be located within 4 times the tip height. In summary, I consider that the landscape has the capacity to accommodate the proposed development and that it will not adversely impact visual or residential amenity of the area.

8.12.49. In terms of cumulative impacts, I concur with the Applicant that due to the topography of the area and the proximity of the proposed wind turbines to existing/permitted turbines (the nearest being 9km), no significant impacts are likely.

8.12.50. Scenic Views

8.12.51. The Third-Party Appellant argues that the Local Authority has a duty to protect scenic views in the Development Plans (Waterford, Tipperary, and Kilkenny). Section 9.5.5 of the EIAR states that all of the scenic routes and views that fall inside the ZTV pattern were investigated during fieldwork to determine whether actual views of the proposed wind farm might be afforded. Where visibility may occur, a viewpoint was selected. Tables 9.5, 9.6 and 9.7 outline the rationale for selection of scenic designations and the corresponding VP number.

South Tipperary County Development Plan: 2009

- V31 - VP2
- V32- VP2
- V34 – VP22

Kilkenny County Development Plan 2014

- V15 – VP22
- V16 – VP1
- V18 – VP28

Waterford County Development Plan 2011

- V8 – VP 29
- V12 – VP 29

8.12.52. As outlined above, I do not consider that these VPs demonstrate that the proposed turbines will have any significant visual or landscape impact and as such will not negatively impact the protected views listed by the Appellant. I note that each of the referenced Development Plans have been superseded by more recent versions. However, on review of these new Plans, I note that the same scenic views are listed and as such, I am satisfied that the proposed development will not contravene the new Plans in terms of landscape and visual impacts.

### 8.12.53. **Conclusion**

8.12.54. I consider that the Applicant has provided a comprehensive assessment of the landscape and visual impacts of the proposed development on the landscape and visual amenities of the area. Detailed assessments and photomontages from 29 No. separate vantage points within a 20 km radius of the subject site has been undertaken. Each of these locations have been assessed in terms of visual receptor sensitivity, visual impact magnitude and the significance of the visual impact. I consider that the information provided in the planning application documentation and EIAR is sufficient to allow the impacts of the proposed development to be fully assessed. I am satisfied that the proposed development on the whole would not give rise to any unacceptable additional adverse visual impacts on scenic views, scenic routes, settlements, recreational/tourist destinations or transport routes.

8.12.55. The site is not affected by any amenity designations and the proposed development will not impact significantly on any designated view or prospect either in Co Tipperary or in adjoining counties (including Kilkenny and Waterford).

8.12.56. The greatest potential for significant effects occurs closest to the site in a landscape of Low to Medium sensitivity and where wind turbines are a feature of the landscape.

8.12.57. Potential cumulative impacts have been considered and assessed in the EIAR and in the photomontages, wireframes and ZTV mapping.

8.12.58. I have considered the concerns raised by the Third-Party Appellant made in relation to landscape and visual effects and I consider that the information provided in the planning application documents is sufficient to allow the impacts of the proposed development to be fully assessed. I consider that the landscape has the capacity to absorb the development without resulting in significant adverse effects on the landscape character and visual amenities of the area.

### 8.13. **Noise and Vibration**

8.13.1. Chapter 11 of the EIAR assesses the potential noise and vibration impacts associated with the construction, operational and decommissioning phases of the proposed development. This chapter is supported by Appendix 11-1 to 11-5 contained in Volume 4. In addition, Addendum 11.1 was submitted at RFI stage.

8.13.2. The assessment methodology includes the establishment of baseline noise conditions at representative noise sensitive receptors. Noise limits were established based on the measured baseline noise levels in accordance with best practice. Computer software was used to predict the noise emissions from the wind farm at the nearest noise sensitive receptors which were then compared against noise limit criteria to assess the likelihood of significant effects.

8.13.3. A total of 4 no. noise monitoring locations (NML) (Fig 11-2) were selected to characterise the existing noise environment and to derive the noise limit criteria for potentially impacted locations (59 No. noise sensitive receptors identified (Appendix 11.4)). The nearest NSLs are landowner dwellings located just over 500m from the nearest proposed turbines (i.e. Locations B01, B13, and B14 from proposed turbines WTG5, WTG 3 and WTG1, respectively). The next nearest NSL is B04, which is located approx. 600m to the nearest proposed turbine (WTG2). The EIAR describes the survey methodology, which was conducted in accordance with the guidance set out in the Institute of Acoustic's *'Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'* (IoA GPG, 2013). For the purposes of the assessment, the turbine type assessed for the proposed development is the Nordex N133/4800 with serrated trailing edge turbine and an assumed hub height of 83m. Table 11.10 presents the various derived  $L_{A90, 10min}$  noise levels for each of the monitoring locations for daytime quiet periods and night-time periods. Table 11.11 presents the assigned NSLs relative to the representative background noise levels, while Figure 11.12 displays the assigned NSLs, each colour coded to indicate the background noise levels measurement representative of the NSL.

#### 8.13.4. **Likely significant effects during construction stage**

8.13.5. The main noise sources during construction include heavy machinery and support equipment used to construct the various elements of the wind farm and associated infrastructure.

8.13.6. The main noise sources during construction include heavy machinery and support equipment used to construct the various elements of the wind farm and associated infrastructure. Table 11.12 outlines the noise levels associated with typical construction noise sources from the turbine and hardstanding assessed in this instance along with typical sound pressure levels and spectra from BS 5228 — 1:

2009. Calculations have assumed an on-time of 66% for each item of plant i.e. 8-hours over a 12 hours assessment period. In summary:

- NML A daytime noise varies from 23L<sub>A90,10min</sub> at wind speeds of 3m/s to 43A<sub>90,10min</sub> at wind speeds of 10m/s
- NML A nighttime noise varies from 19.5L<sub>A90,10min</sub> at wind speeds of 3m/s to 44A<sub>90,10min</sub> at wind speeds of 10m/s
- NML B daytime noise varies from 25.8L<sub>A90,10min</sub> at wind speeds of 3m/s to 45A<sub>90,10min</sub> at wind speeds of 10m/s
- NML B nighttime noise varies from 23.1L<sub>A90,10min</sub> at wind speeds of 3m/s to 44.6A<sub>90,10min</sub> at wind speeds of 10m/s
- NML C daytime noise varies from 28.5L<sub>A90,10min</sub> at wind speeds of 3m/s to 44.8A<sub>90,10min</sub> at wind speeds of 10m/s
- NML C nighttime noise varies from 26.7L<sub>A90,10min</sub> at wind speeds of 3m/s to 45.1A<sub>90,10min</sub> at wind speeds of 10m/s
- NML D daytime noise varies from 24.9L<sub>A90,10min</sub> at wind speeds of 3m/s to 40.6A<sub>90,10min</sub> at wind speeds of 10m/s
- NML D nighttime noise varies from 21.2L<sub>A90,10min</sub> at wind speeds of 3m/s to 40.1A<sub>90,10min</sub> at wind speeds of 10m/s

8.13.7. At the nearest NSLs, the predicted noise levels from construction activities are in the range of 32 to 39 dB LAeq,T with a total worst-case construction levels are between 42 to 44 dB LAeqT. In all instances the predicted noise levels at the nearest NSLs are below 65 dB LAeqT during daytime periods (BS 5228-1). The Applicant states that this assessment is considered representative of worst-case and construction noise levels will be lower at properties located further than 500 m and 600 m from the works. As such, the Applicant states there are no significant noise impacts associated with the construction of the turbine hardstands and met mast therefore no specific mitigation measures are required.

8.13.8. Similarly, no significant impacts are expected from the other elements of the proposed development during the construction phase (construction of internal roads, substation, GCR, construction traffic. The conclusion reached in the EIAR is that as construction

activities are relatively minor, temporary and of short duration mitigation will not be required. Similarly, in terms of vibration impacts, the Applicant anticipates no significant impacts during the construction phase.

#### **Likely significant effects during operational stage**

- 8.13.9. Table 11.16 outlines the predicted turbine noise levels at various wind speeds for each of the NSLs. A worst-case assessment was completed assuming all noise locations are downwind of all turbines at the same time. The Applicant states that it is not considered that a significant effect is associated with the operation of this development, since the predicted noise levels associated with the proposed development will be within the relevant best practice noise criteria curves for wind farms. The Applicant argues that while noise levels at low wind speeds will increase due to the development, the predicted levels will remain low, albeit a new source of noise will be introduced into the soundscape.
- 8.13.10. In terms of the substation, the predicted level is expected to be in the order of 21-27 dB (A) at the nearest NSL (B01 – approx. 500m). At other locations the predicted level is 20 dB(A) or less. The Applicant highlights that the prediction levels are worst-case as they do not take account of screening associated with the local environment or from buildings associated with the substations and states noise from the operation of a substation will not have any significant cumulative impact on the overall noise levels associated with the operation of the proposed development at any NSL.
- 8.13.11. In terms of the potential future battery storage compound, the Applicant states the facility will be designed to ensure that it will not give rise to an increase in the total noise emissions for the proposed substation. As such the Applicant argues that the impact assessment presented for the operation of the substation is considered representative of the cumulative noise emissions of the substation and any future proposed battery storage compound at this location.
- 8.13.12. **Likely significant effects during decommissioning stage**
- 8.13.13. The Applicant states that in relation to the decommissioning phase, similar overall noise levels as those calculated for the construction phase would be expected, as similar tools and equipment will be used.

#### 8.13.14. **Cumulative Impacts**

8.13.15. The Applicant states that a cumulative wind turbine assessment has not been carried out for the Proposed Development as the contributions from the other wind farm turbines are more than 10 dB below the lowest noise limit.

#### 8.13.16. **Mitigation and Monitoring**

8.13.17. The contractor will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228-1:2009+A1. In addition, the following measures will be employed where necessary:

- No plant used on site will be permitted to cause an on-going public nuisance due to noise.
- Minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be maintained in good working order.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers.
- Machinery that is used intermittently will be shut down or throttled back.
- Any plant, such as generators or pumps, which is required to operate outside of general construction hours will be surrounded by an acoustic enclosure or portable screen.
- Supervision of the works will include ensuring compliance with the limits detailed in Table 11.1 of the EIAR.
- Hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs weekdays and between 7:00hrs and 14:00hrs on Saturdays.

8.13.18. The Applicant states that considering the large distances between locations where construction works may take place and the nearest NSLs, no significant impact will be experienced. In addition, there are no piling works proposed. Therefore, no mitigation measures are proposed for piling operations.



- 8.13.19. No mitigation measures are proposed at operational stage due to the findings of the noise assessment. One post commissioning noise monitoring survey is recommended to ensure compliance with any noise conditions applied to the development.
- 8.13.20. In relation to the decommissioning phase, similar overall noise levels as those calculated for the construction phase would be expected, as similar tools and equipment will be used.
- 8.13.21. The mitigation measures that will be considered in relation to any decommissioning of the site are the same as those proposed for the construction phase of the development.
- 8.13.22. **Residual Impacts**
- 8.13.23. No significant residual impacts are predicted for any phase of the development.
- 8.13.24. **EIAR Conclusion**
- 8.13.25. Prevailing noise levels are primarily due to local road traffic and other agricultural and anthropogenic sources in the area.
- 8.13.26. Subject to good working practice during the construction phase and not exceeding any limits proposed within the Noise and Vibration Chapter of the EIAR, it is anticipated that for most of the construction phase the associated noise and vibration will not cause any significant effects.
- 8.13.27. The predicted noise levels associated with the operation of the proposed development are within the relevant best practice guidance noise criteria curves.
- 8.13.28. No significant vibration effects are associated with the day-to-day operation of the site.
- 8.13.29. **Assessment**
- 8.13.30. Construction Noise and Vibration
- 8.13.31. The Applicant raises concerns regarding the potential noise impacts during the construction phase of the proposed development. I note the range of activities associated with the construction phase, including excavations, civil works, foundation construction etc. as well as the short-term nature of the construction period for the proposed development. While no national limits are set for construction noise, I consider that the nature and extent of the works, including the excavation for the turbine foundations, associated with the proposed development would not be untypical

of similar infrastructure projects and that the noise nuisance caused by construction activities would be short-term. The Applicant has set out appropriate site management measures and protocols in the EIAR and associated OCMS which generally comprise good practice construction methods. I am satisfied that the implementation of these measures would be sufficient to reduce noise nuisance and disturbance during the construction phase to an acceptable level, noting the separation distances to the nearest residential receptors. Having regard to the assessment, I accept the Applicant's position that noise contour maps for the construction phase would not add to the assessment of construction noise. Should the Board be minded to grant permission, I recommend that suitable conditions be attached regarding the CEMP and limits on the days and times when construction can be undertaken, thus reducing potential adverse impact to residents nearby. In conclusion, I do not consider that construction phase noise impacts would be significant.

8.13.32. The decommissioning phase works will be similar to the construction phase, but of less magnitude given that various elements will be left in situ. I therefore consider it reasonable to draw similar conclusions for the decommissioning phase as those drawn for the construction phase, i.e. that the impacts would be short-term and would not be significant.

8.13.33. Operational Phase Noise Impacts

8.13.34. Having reviewed the information submitted by the Applicant in the EIAR, associated appendices and the further information responses, I consider that a robust noise assessment, informed by adequate background noise monitoring, was undertaken. I note in this regard that the noise modelling utilised a number of conservative or worst-case assumptions. As a result, the EIAR contends that the actual noise levels from the proposed development will be less than those predicted, and the extent of required mitigation may also be reduced.

8.13.35. The assessment demonstrates that the proposed development, regardless of hub height within the specified range, complies with the daytime and night time noise limit criteria at noise sensitive receptors as per the WEDG 2006.

8.13.36. The EIAR assessment includes conservative assumptions, and depending on the final choice of turbine, the actual noise is likely to be less, resulting in less need for turbine curtailment. Ultimately, the derived noise limits set out in the EIAR will guide the turbine

specification and mode of operation. Should the Board be minded to grant permission, I recommend that a suitable condition be included to limit daytime and night-time noise at noise sensitive receptors in line with the WEDG 2006 and that the Applicant be required to submit and agree a noise compliance monitoring programme for the proposed development with the planning authority, to include the mitigation measures required to achieve compliance with the noise limits, such as the curtailing of particular turbines. The condition should also require that the results of the initial noise compliance monitoring be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm

8.13.37. Subject to compliance with the identified mitigation measures and noise limits and noting the separation distances between the proposed turbines and the nearest residential receptors (including the dwellings located in Drangan village (which are approx. of 1km from the nearest turbine)), I do not consider that the proposed development would be likely to have a significant impact on sensitive receptors by way of noise disturbance.

8.13.38. Particular Characteristics of Wind Turbine Noise

8.13.39. In relation to concerns raised regarding low frequency noise, I highlight that Section 11.4.2.2 of the EIAR addresses this issue with reference to numerous international studies. Similarly Section 11.4.2.3 relates to health effects. While the Draft WEDG 2019 have not been adopted, they do include a relatively up-to-date analysis of various environmental matters relating to wind farms. In relation to infrasound, they state that “there is no evidence that wind turbines generate perceptible infrasound”. This is stated to be due to developments in wind turbine design which has “effectively eliminated continuous infrasound elements from wind turbine noise”. Having regard to the information submitted by the Applicant, including international research, and noting the nature of the proposed development and the separation distances to the nearest residential receptors (in excess of 500m), there is no evidence before the Board to indicate that the proposed development would result in infrasound, low frequency noise or vibration of a type or magnitude that would impact on the environment or people in the vicinity. Section 11.5.1.1 of the EIAR states a that a warranty will be provided by the manufacturers of the selected turbine to ensure that the noise output will not require a tonal noise correction under ETSU-R-97 best practice guidance. I

consider that this to be a standard mitigation measure wind farm development and as such do not consider likely significant tonal impacts from the proposed development.

#### 8.13.40. Turbine Type and Noise

8.13.41. The Appellant argues that it is difficult to understand that the potential noise impacts from the proposed development as a range of hub height and blade length are proposed. As outlined above, the noise assessment is based on a hub height of 83m. The First-Party Response to Third-Party Appeal (Appendix 1) includes further analysis with a hub height of 95m. In summary, the analysis concludes that the predicted noise levels associated with a 95m hub height are consistent with the WEDG and as such the Applicant argues that no significant impacts are anticipated. In my opinion, what is relevant is that the noise limit that will be applied to the proposed wind turbines, and by which the Applicant would be constrained when specifying and choosing the final turbine type. Furthermore, as highlighted by the Applicant should the Board be minded to grant permission and attached a similar condition to No. 8 attached to the Local Authority's Notification of Decision to Grant, which I recommend, the developer would be required to submit and agree in writing with the Planning Authority, a noise compliance monitoring programme including mitigation measures. In summary, I am satisfied that the Applicant has adopted a conservative approach by assessing the impacts of the proposed development with a range of hub heights.

#### 8.13.42. **Conclusion**

8.13.43. I am satisfied that the noise assessment is robust and identifies all of the potential impacts associated with the construction and operational stages of the development and considers cumulative effects. I accept that noise associated with the development is not likely to result in significant effects on sensitive receptors and no significant vibration effects are predicted which would impact on nearby receptors.

8.13.44. I have considered the points raised by the Third-Party Appellant and all the submissions made in relation to noise and vibration and I consider that the information provided in the planning application documents is sufficient to allow the impacts of the proposed development to be fully assessed. I am satisfied that the impacts identified on noise and vibration would be avoided, managed or mitigated by the measures forming part of the proposed scheme and suitable conditions. I am, therefore, satisfied

that the proposed development would not have any direct, indirect or cumulative on these environmental factors.

#### **8.14. Cultural Heritage**

- 8.14.1. The potential for significant effects on cultural heritage is assessed in Chapter 12 of the EIAR. The methodology included a combination of desk top studies (using recognised data bases supported by mapping sources and aerial imagery) and site visits.
- 8.14.2. The assessment was based on GIS based mapping, ZTV and Viewshed analysis to assist with the assessment of impacts on setting followed by a desktop analysis of all baseline data and field inspections of the proposed infrastructure within the proposed development site boundary and along of proposed grid connection route.
- 8.14.3. There are no recorded archaeological monuments within the application site. There are three monuments subject to Preservation Orders within 10 km (Fig 12.1) and these are detailed in Table 12.2 of the EIAR. The nearest of these is situated c. 7.6km from the nearest proposed turbine WTG1. The historic town of Fethard is also located within 10km of the nearest turbine, WTG 5.
- 8.14.4. There are no recorded monuments within the application site. There are 173 No. recorded monuments within 5km of the nearest proposed turbine (Table 12.3 and Figure 12.7). Eight of these are within 1km of the proposed turbines.
- 8.14.5. There are 34 protected structures located within 5km of the nearest proposed turbine (Table 12.5 and Figure 12.8). The Applicant highlights that the RPS is largely based on the NIAH and therefore some repetition/overlap. The Applicant states that the majority of the structures are located within the village settings of Drangan and Mullinahone and therefore their visual settings do not extend beyond the limits of those settlements. The nearest structures are those within Drangan village to the north of proposed turbine WTG 1.
- 8.14.6. No structures listed in the NIAH are located within the EIAR site boundary surrounding the proposed wind farm. 32 No. structures listed in the NIAH and five historic gardens within 5km of the nearest turbine (Tables 12.6 and 12.7). As stated above, there is overlap between the RPS list and NIAH.

- 8.14.7. Section 12.6.1.2.5 states that while the two structures proposed for demolition would be regarded as of local cultural heritage representing 19<sup>th</sup> century architecture, they are not included in the RPS or NIAH and therefore are not subject to statutory protection. It is noted that they have been abandoned, in ruinous condition and are significantly overgrown.
- 8.14.8. In terms of the GCR, the Applicant highlights that there are no national monuments or those subject to a Preservation Order located along the route. Table 12.9 outlines the 12 No. recorded monuments that are located within 100m of the GCR. The Applicant states that it is possible that subsurface elements of three adjacent monuments enclosures may survive beneath the road. Nine protected structures are located within 100m of the proposed GCR, the two closest being within 6m (a letterbox and a road bridge) (Table 12.10). One of these Structures includes Loughcapple Bridge (S121), which the Applicant proposes to HDD under as part of the GCR works.
- 8.14.9. Seven structures listed in the NIAH are located within 100m of the proposed GCR. Some of these are included in the RPS (e.g. Loughcapple Bridge).
- 8.14.10. The Applicant states that there are no recorded monuments along the TDR, however some monuments are in relatively close proximity to same.
- 8.14.11. There are no protected structures located at or in the immediate vicinity of the POIs on the TDR.
- 8.14.12. Ballycullin Bridge a NIAH structure (Reg. 22206316) is located at a POI on Haul Route A, however no works are proposed.
- 8.14.13. **Likely Significant Effects**
- 8.14.14. Construction Phase
- 8.14.15. No National Monuments, Recorded Monuments, Protected Structures or NIAH structures are located within the footprint of or vicinity of the wind farm site, GCR or TDR and as such no direct impacts are anticipated on same.
- 8.14.16. The demolition of the buildings will have a direct significant impact on structures therefore mitigation measures to ameliorate the impacts are proposed.
- 8.14.17. There is potential for the construction stage to impact on unknown subsurface features that may have survived within the site and along the GCR.

8.14.18. Operational Phase

8.14.19. Whilst some of the turbines may be visible from a number of the National Monuments, Recorded Monuments, Protected Structures or NIAH structures, no significant impacts are anticipated.

8.14.20. Decommissioning Phase

8.14.21. Similarly, no significant impacts are anticipated during the decommissioning phase of the proposed development.

8.14.22. **Cumulative Impacts**

8.14.23. The Applicant states that when considered cumulatively with other wind farm projects (existing, permitted and proposed) within 20km of the subject site, impacts on national monuments may vary from Not Significant to Slight. Similarly, impacts on RPS and NIAH structures be Slight when considered cumulatively with other wind farm projects.

8.14.24. **Mitigation and Monitoring**

8.14.25. Licensed archaeological testing is proposed in advance of groundworks on the wind farm site.

8.14.26. A full drawn, photographic and descriptive record of the structures to be demolished should be carried out by a built heritage specialist in advance of the demolition. A report of the survey should be compiled on completion of the work and submitted to Tipperary County Council.

8.14.27. In terms of the GCR and TDR, archaeological monitoring of ground works where they extend through the Zone of Notification for recorded monuments, protected structures, and NIAH structures, and submission of a subsequent monitoring report to the National Monuments and Tipperary County Council.

8.14.28. No mitigation measures are proposed for either the operational or decommissioning phases.

8.14.29. **Residual Impacts**

Subject to the mitigation of the mitigation measures, the residual effects are predicted to be Not significant - Imperceptible for the construction phase and Not Significant - Slight for the operational for the operational phase.

8.14.30. **EIAR Conclusion**

8.14.31. No National Monuments, Recorded Monuments, Protected Structures or items listed in the NIAH are located within the footprint of the proposed wind farm infrastructure and therefore no direct impacts to this resource have been identified. Direct impacts to two ruinous stone buildings to the west of WTG 2 have been identified and appropriate mitigation measures recommended. Given the greenfield nature of the proposed wind farm site the potential exists for sub-surface features and deposits to exist therein. Mitigation in the form of pre-development Archaeological monitoring of particular areas along the proposed grid connection testing has been recommended in order to ameliorate any potential impacts to such features, if present. Archaeological monitoring of particular areas along the proposed grid connection route has also been recommended. No significant visual or cumulative impacts as a result of the proposed development have been identified.

8.14.32. **Assessment**

8.14.33. I highlight that the South Tipperary County Development Plan 2009 (As varied) has been replaced by the Tipperary County Development Plan 2022-2028. Volume Four (Build Heritage) in the current Plan lists the Protected Structures in the County.

8.14.34. I note that a number of observations to the Local Authority argue that the proposed development would have a negative impact on the area's cultural heritage, but do not elaborate to explain how. Given that there are no recorded cultural heritage features within the site and having regard to the number of recorded cultural heritage features within the immediate vicinity of the wind farm site, the separation distances, the intervening topography and hedgerow/treeline vegetation, I am satisfied that the proposed development will not have a significant direct or indirect impact on these architectural and cultural heritage features. The Applicant proposes standard best practice including pre-development archaeological testing and construction stage monitoring, which will ensure that potential impacts are effectively mitigated. Furthermore, I consider appropriate measures (surveying records) in relation to the two buildings to be demolished have been proposed.

8.14.35. **Conclusion**

8.14.36. I have considered all the submissions made in relation to cultural heritage I consider that the information provided in the planning application documents is sufficient to



allow the impacts of the proposed development to be fully assessed. I am satisfied that the impacts identified on Cultural Heritage would be avoided, managed or mitigated by the measures forming part of the proposed scheme and by suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on the archaeological, architectural or cultural heritage of the area.

## **8.15. Traffic and Transportation**

8.15.1. Traffic and Transportation are addressed in Chapter 13 of the EIAR. The Chapter is supported by Appendix 13.1 HDD Bridge Inspections Report. In addition, Addendum 13.1 was submitted at RFI stage. The EIAR assessment makes use of field surveys and traffic surveys and utilises guidance published by TII and data from RSA.

8.15.2. The original chapter explained that existing traffic conditions were based on traffic surveys carried out in April 2021 on the local and regional road network on the immediate approach to the wind farm and along the proposed grid connection, TII Traffic Count data and observations of the road layout and traffic conditions. Due to Covid-19, traffic surveys that were obtained on the local regional roads in the vicinity of the site were supplemented by traffic data obtained from the TII Traffic Count Data to quantify this and to factor pre- and post-Covid traffic conditions (Table 13.1). The Applicant argued that the data showed that there was a significant drop on traffic volume on both traffic counters on N76 (the closest TII counter location) of approx. 30% from the period 2019 to 2020/2021. In summary, the Applicant stated that the increase in traffic volumes from the proposed development would not be significant and would be below the threshold where a detailed analysis would be required (10%). However, the Local Authority disagreed with the approach of including the Covid growth factor in the original analysis, which triggered the requirement for a traffic impact assessment (TIA). As such, Addendum 13.1 was prepared as part of the RFI Response with a revised traffic and transport assessment. My assessment below is based on Addendum 13.1. In addition, an Outline Construction Traffic Management Plan was also prepared for the proposed wind farm and grid connection.

8.15.3. As stated above, existing traffic conditions are based on traffic surveys carried out on the local and regional road network on the immediate approach to the wind farm and

along the GCR, traffic data from TII Traffic Count Data and observations of the road layout and traffic conditions during site inspections. Dwg. KCO 4.202 'New Site Entrance on the L2305' illustrates the site entrance's compliance with the Development Plan's sight distance requirements.

8.15.4. A new site entrance (T junction with 32.5m radius curve to provide ease of access for HGVs into the site) along the L2305 is proposed to provide access to the wind farm site.

8.15.5. The 19km GCR will follow existing roads:

- Wind Farm substation to the L2305 (via the L2305-1)
- L2305 Cloneen to Drangan Road
- R692 Fethard/Cashel Road
- L2309 Milestown/Killusty Road
- R706 Fethard – Clonmel Road
- Local Road, Thorny Bridge to Ballyvaughan Road
- Local Road, Ballyvaughan to Doon Road.

8.15.6. The Applicant highlights that the GCR follows a number of local roads and regional roads and crosses through the N24 Waterford to Cahir Project Study Area (Plate 13.7). The Applicant argues that the provision of the GCR would not prejudice the delivery of the N24 Waterford to Cahir Project, regardless of the final form that the N24 upgrade takes.

8.15.7. The TDR will commence from Waterford Port via the National Routes, N29, N25, M9, N10 and N76 to the R690 Regional Road at Nilemilehouse. From here, there are two potential turbine delivery routes to the site:

- Route A continues along the R690 to Mullinoly and then joins the R692 and continues along the R692 to Cloneen. From here it turns north on the Local Road L2305 to the wind farm site.
- Route B continues along the R690 to Kilvemnon and then turns onto the Local Road for approx. 1.2km before joining the R692. The route then continues along the R692 to Cloneen and the L2305 the same as Route A (Plate 13.7).

8.15.8. Nine Points of Interest (POI) have been identified on the two routes, the most of which are located along the 10km of common route to the wind farm site:

Route A:

- 1A: R692/L2305 Local Road Junction at Cloneen adjacent St. Patrick's GAA Club
- 2A: R692 at Ballycullin Bridge in the vicinity of the townland Kilvemnon
- 3A: R692/R690 at Memorial Turn/Mullinoly
- 4A: R690 at Kilvemnon S-Bend
- 5A: R690/N76 at Nilemilehouse/Ballyvogue.

Route B:

- 1B: L2406 Local Road Junction adjacent the school at Kilvemnon
- 2B: L2406 S-Bend at Kivemnon
- 3B: L2406/R690 Junction
- 4B: R690 at Kilvemnon S-Bend.

8.15.9. The Applicant anticipates a 12 month construction period. Table 13.4 outlines the number of delivery loads/vehicles associated with the main construction elements. In summary, 2,541 No. delivery loads to the wind farm site and 2,491 delivery loads for grid connection, giving a total of 5,032 delivery loads, including 64 No. abnormal loads. The resulting two-way traffic volume is 10,064 vehicle movements during the full construction stage.

8.15.10. It is anticipated that a maximum of 15-20 construction workers will typically be on site at any one time, and that the peak construction activity is expected to take place over a 6-month period, assuming that the Stage 1 Civil Works and Stage 2 Electrical Works will take place simultaneously based on a 5.5 day working week. This equates to an average of 76 vehicle movements per day between the wind farm site and grid route. The Applicant states that this equates to an increase of approx. 12% along the L2406.

8.15.11. The Applicant highlights that the timetable for the delivery of abnormal loads will be developed following consultation and in conjunction with the Road Authority and require separate abnormal load movement permits that these activities can be

coordinated with any other roads works or activities that may be taking place along the delivery route. The construction works associated with the grid connection will require specific traffic management and will be subject to a Road Opening Licence that the developer or works contractor will obtain from the Local Authority before commencing the works.

8.15.12. The Applicant anticipates that the operation phase of the development will only involve very occasional inspection and maintenance vehicles that would have a negligible impact on traffic conditions along and in the vicinity of the site.

8.15.13. The impact of the decommissioning phase is considered to be similar in nature to but normally less than the construction phase of the wind farm and the delivery of the turbine components. It is proposed that in advance of the decommissioning phase a Traffic Management Plan would be prepared to ensure that traffic impacts are minimised during this phase.

8.15.14. In terms of the GCR, Table 13.5 outlines the number of daily vehicles associated with these works. It is anticipated that up to 20 HGV's and 8 passenger vehicles in each direction per day will be required for the construction works of the cable trench construction stage. The Applicant states that the primary traffic impact will occur along the proposed grid connection route, where mobile traffic management measures including the implementation of a one-way shuttle will be required. Mobile traffic management measures along each of the roads along the grid route connection, will be designed in accordance with the Department of Transport Traffic Signs Manual, and will be as follows:

- L23051: Local road connecting the proposed Wind Farm Substation to the L2305, extending approximately 700m.
- L2305: The route continues for 3.2km and with a reasonably consistent carriageway width, with a minimum width of 5m, this can be facilitated within the road and verge space.
- R690 through Cloneen Village for approximately 200m, with a carriageway width ranging from 68m wide, this can be facilitated with shorter lengths of one-way shuttle and maintain access to properties and the footpaths at all times.

- L2304, the route is 6.8km, and with a reasonably consistent carriageway width, with a minimum width of 5m, this can be facilitated within the road and verge space.
- R706: The route continues for 3.1km, with a carriageway of 6m wide, this can be facilitated within the road and verge space.
- Local Roads form the R706 to Ballyvaughan and Doon: The route continues along this section for 4.5km. The initial section existing approximately 3.2km to the carriageway is typically 6m wide, this can be facilitated within the road and verge space. The final 1.3km leading to the substation at Doon is along a narrower section of road that is typically 4m wide and with narrow or no verges, which may require a temporary road closure and diversion on other local roads.

8.15.15. The busiest section of the road along the GCR is the R706 at Milltown Britton which carried 130 vehicles per hour two-way on the busiest hour of the week. A LINSIG traffic model has been prepared to assess the traffic impact for the busiest hour of the day and the additional traffic associated with the proposed development construction activities (Appendix A13.2). The results of the model are presented in Table 13.6. In summary, the Applicant states that at the busiest hour of the day, the proposed traffic signal one-way shuttle will operate with a maximum Degree of Saturation of 15.2%, which is well below the desirable maximum Degree of Saturation of 90%, and with a maximum queue of 2 vehicle and an average maximum delay of 39 seconds. As such, the Applicant argues that the proposed one-way shuttle is shown to operate within capacity and the queues and delays are considered not significant.

#### 8.15.16. **Cumulative Impacts**

8.15.17. The Applicant states that the cumulative transport impact of the proposed development with other wind farms in the area can be mitigated through the adoption and implementation of a co-ordinated transport route and management plan.

#### 8.15.18. **Mitigation**

8.15.19. The principal mitigation measure proposed is compliance with a Construction Traffic Management Plan (CTMP). Visual inspections will also be undertaken and recorded and frequently throughout the construction phase. Evidence of any defects arising

during the construction phase will be recorded and any necessary remedial actions will be carried out.

8.15.20. In terms of the GCR, the Applicant states that the proposed traffic management plan will be designed in accordance with the Department of Transport, Traffic Signs Manual and will be the subject of a Road Opening Licence that the developer or works contractor will obtain from Tipperary County Council before commencing the works. No further mitigation is recommended.

8.15.21. **Residual Impacts**

8.15.22. The Applicant states that residual impacts will be primarily limited to the construction phase of the proposed development, generally comprising delays and increased frequency of vehicles. Subject to the implementation of the mitigation measures no significant impacts are anticipated.

8.15.23. Effects on the receiving environment associated with the operational phase of the development are considered to be neutral in terms of quality, long-term in duration and imperceptible. Similarly, no significant impacts are anticipated during the decommissioning phase.

8.15.24. **EIAR Conclusion**

- In order to deliver the turbines and for the ongoing operation and maintenance of the Wind Farm, a new site entrance in the form a T-junction will be constructed on the Local Road L2305, approximately 3km north of Cloneen.
- Nine possible Points of interest (P01)'s have been identified along the immediate approach roads, where some where some interventions are necessary for the transport of the turbine components. The delivery phase will be mitigated through the development of a delivery programme and traffic management plan that we will be developed in consultation with Tipperary County Council.
- The proposed underground cable will connect Knockroe Wind Farm to the national grid at the Doon 110kV ESB Station, County Tipperary. This grid connection involves the installation of a 38kv underground cable for circa 19km along local and regional roads. Outline traffic management measures have been identified to facilitate these works. Sufficient road width is available for the majority of the route and in accordance with the guidelines of the Department of

Transport, Traffic Signs Manual. The final approach on the local road to the ESB Station at Doon is quite narrow and may require the sections of the road to be closed during the construction works and with temporary diversions onto other local roads. The final traffic management measures will be developed in advance of the construction stage and in consultation with Tipperary County Council.

- The construction period for the wind farm and grid connection is estimated to be 12 months in total. To ensure this programme is maintained, and where possible, it is proposed that construction will take place on different sections concurrently.

#### 8.15.25. **Assessment**

#### 8.15.26. Construction Traffic

8.15.27. Having regard to the nature and scale of the proposed development, it is clear that the greatest potential for negative impacts on traffic and transportation arises during the construction phase, particularly the GCR works, since there will be minimal traffic generated during the operational phase. The Third-party Appellant has raised issues relating to traffic and transportation, including road safety and sightlines, capacity to accommodate HGV traffic, and impacts on other road users. As outlined above, the proposed development will equate to 76 vehicle movements a day or a 12% increase on baseline levels between the wind farm and Cloneen village. I do not consider this to be such a significant volume of additional traffic on the existing road network as to warrant a refusal of permission. There may be times, such as during the pouring of the turbine foundations, where HGV movements are concentrated, due to the need to complete sizable concrete pours in a timely manner. However, noting that only 7 No. turbines are proposed, such occurrences would be limited in number and duration and would be capable of being mitigated to an acceptable level by means of agreement and implementation of a CTMP. Furthermore, notwithstanding that a number of the local roads are narrow in places, I note from my site visit that they are generally in good condition.

8.15.28. Given the short term and temporary nature of the impacts, I consider that a robust Construction Traffic Management Plan, as suggested by the Applicant, could adequately address the concerns expressed by the Third-Party Appellant.

8.15.29. With regard to potential conflicts between wind farm construction traffic and local road users including school children, farmers, tourists etc. I note the c. 12 month

construction period, the sparsely populated rural nature of the site and the low level of traffic currently utilising the roads. This is fundamentally a construction management issue and while I accept that there are likely to be short-term temporary negative impacts on the receiving environment due to construction traffic, they are of a type that lend themselves to effective mitigation through a comprehensive CTMP and suitable planning conditions. Similarly, I am satisfied that subject to coordination of the CTMP with the N24 Waterford to Cahir Project Team, the proposed development will not adversely impact on upgrade works. At the time of writing this Report, the Phase 2 Options Selection was ongoing.

8.15.30. Should the Board be minded to grant permission, I recommend that conditions be included requiring that the Construction Traffic Management Plan be updated prior to the commencement of development and submitted for the agreement of the planning authority, to include:

- The Applicant shall liaise with the N24 Waterford to Cahir Project Team in the preparation of the CTMP.
- A pre-construction and post-construction survey of the local roads utilised during the construction phase shall be undertaken. The extent, specification and timing of the survey shall be agreed with the planning authority. Any damage to the road, drainage, boundaries or associated features of the public road shall be rectified at the developer's expense to the satisfaction of the planning authority.
- Communications and complaints protocols to ensure that local residents are aware of the construction programme, haul routes, traffic control measures and to provide contact details for complaints or queries.
- Appointment of a dedicated Traffic Management Co-ordinator whose role shall include implementation and monitoring of the TMP, acting as a point of contact for the planning authority, other relevant bodies and members of the public in relation to traffic and transportation matters.
- Provision of a wheelwash facility within the site and measures to prevent soiling of public roads, including the covering of loads and the use of road sweepers, as required.



- 8.15.31. I also recommend that a condition be included requiring the payment of a bond to ensure the satisfactory reinstatement of public roads following completion of the construction phase.
- 8.15.32. The Third-Party Appellant raises concern regarding the extent of works required along the TDR. Section 13.6.5 summarises the POIs along the TDR, while Figures 13.1-13.8 illustrate the potential works. In addition Annex C provides a Delivery Route Bridge Inspections Report in respect of the TDR. In my opinion, the works are all relatively minor (e.g. tree/hedge removal, tree trimming, provision of temporary surface materials, boundary treatment alterations, temporary road signage/crash barrier removal). I am satisfied that the suitably controlled delivery of turbine components can be achieved without impacting on public safety by reason of a traffic hazard or otherwise impacting on traffic and transportation. I note that a third-party observation submitted to the Local Authority raised specific concerns in relation to POIa1 located at St. Patrick's GAA Club. At this point, the works would involve the removal of a 90m wall and gates. I highlight that these are not Protected Structures nor located in the curtilage of any Protected Structure. Whilst I acknowledged the temporary disruption caused by such works, I do not consider that they would have a significant impact in terms of traffic safety or on local amenities. It is important to reiterate that these works do not form part of the proposed development. It would be a matter for the Applicant to obtain any separate necessary consents to implement the required accommodation works. Nonetheless, I consider that the EIAR has adequately assessed them insofar as is reasonably practical to do so.
- 8.15.33. Subject to the mitigation outlined in the EIAR and the abovementioned recommended conditions, I consider that there would be a negative impact on the locality due to the construction traffic, but that this can be mitigated such that the impacts would not be significant. I consider that the short-term negative impacts of construction traffic would be outweighed by the long-term positive impacts of a renewable energy project.

#### Operational Traffic

- 8.15.34. In the operational phase I concur with the Applicant's assessment that the impacts will not be significant, due to the nature of the proposed development and the minimal traffic it will generate. With regard to the decommissioning phase, the nature of works

will be similar to the construction phase, but the extent of works would be substantially less should to the foundations and other infrastructure being left in situ.

8.15.35. I am satisfied that, subject to compliance with a decommissioning plan to be agreed with the planning authority, the traffic impacts associated with the decommissioning phase would not be significant.

#### Sightlines

8.15.36. The Third-Party Appellant state that the proposed development is not consistent with the County Development Plan standards for sightlines, which requires 160m in each direction for rural roads with 80km/h design speed. The Appellant argues that the proposal represents a road safety issue. On the contrary, the Applicant argues that sightlines of 90m to the nearside road edge in both directions was requested by the Local Authority (see Dwg. No. KCO 4.202). I note that the Local Authority reconfirmed in its Response to the Board that it considers the sightlines to be acceptable. Having visited the area, and noted the generally good road conditions, volume of traffic in the area, and visibility at the proposed site entrance, and subject to a detailed construction traffic management plan being agreed with the Local Authority prior to the commencement of the development, I am satisfied that the proposed development would not represent a traffic hazard.

8.15.37. Grid Connection Route

8.15.38. The Third-party Appellant argues that the public road will become sterilised by the presence of electrical installation. In addition, I note from review of the file that Tipperary County Council's District Engineer raised significant concern in relation to the extent of the grid connection route on public roads.

8.15.39. As discussed above, four grid connection points were considered: Doon, Ballydine, Thurles and Kilkenny. As part of the RFI, the Local Authority requested the Applicant to explore an alternative route for grid connection that did not involve the use of the public road to lay underground cables. In short, the Applicant cited difficulties regarding obtaining legal agreement from a large number of land owners and ESB's policy with respect to underground cables on private property. I consider that the matter of examination of alternatives has been satisfactorily addressed.

8.15.40. The Appellant argues that there is a lack of drawings showing the detail of the GCR and its associated joint chambers. In response the Applicant highlights that the detailed design is considered at the Form 1 Design Stage with ESB Networks and as part of the Road Opening Licence process, and that these processes can only commence once planning permission has been granted. The Applicant states that the planning application red line boundary includes the full width of the public road carriageway to allow for flexibility and navigation of any sensitive features and existing services when siting the cabling infrastructure. The Applicant argues that Condition No. 15 attached to the Local Authority's Notification of Decision to Grant reflects the nature of this process. Furthermore, the Applicant contends that the baseline environmental assessment and mitigation measures contained within the EIAR along with an assessment of existing services and utilises serve to inform the detailed design of the grid connection infrastructure and are taken into consideration during the detailed design stages. I concur with the Applicant that the appropriate stage for the final construction design detail along the public roads is with the Local Authority during the Road Opening Licence process. I do not consider that such detail is required for the purposes of determining the planning application. Whilst I acknowledge the Engineer's concerns, particularly with regard to the future maintenance of the road, the Board will be aware of many renewable energy projects (e.g. Kill Hill Wind Farm as referenced by the Applicant) whereby the GCRs are located in the public road network (albeit that the GCR for the proposed development is particularly lengthy at 19km). There is no evidence on the file to suggest that the provision of the GCR works on the subject local roads would sterilise them with regard to potential future works. I note that the Applicant highlights in response to these concerns that there is nothing preventing the use of the opposite soft verge or the carriageway itself.

8.15.41. Having regard to the foregoing, I do not recommend that permission is refused on the basis of the GCR being located within the public roads network. I am satisfied that there is sufficient information on file to determine the case and that subject to the coordination of the CTMP and the Road Opening Licence process, there will be no long-term significant residual impacts.

8.15.42. **Conclusion**

8.15.43. I have considered all of the written submissions made in relation to traffic and transportation and the relevant contents of the file including the EIAR and supporting

planning application documentation. I am satisfied that the potential for significant adverse impacts on traffic and transportation can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on traffic and transportation.

#### **8.16. Population and Human Health**

- 8.16.1. Chapter 14 of the EIAR considers the potential effects of the development on population and human health in the context of population, employment, human health, tourism and amenity, and health and safety.
- 8.16.2. The 2016 Census survey records a population of 9,792 and a total of 3,461 No. households in the 'local study area' (EDs Drangan, Cloneen and Anner around the wind farm site and Kiltinan, Lisronagh, Kilsheelan, and Clonmel Rural). There are no residential dwellings located within 500m of the proposed turbines. The population of County Tipperary in 2016 was 159,553, making it the 12<sup>th</sup> most populous of the 31 Irish Local Authorities at the time. In addition, the CSO records that approx. 60% of residents living in Tipperary are of very good health (Tables 14.4-14.11).
- 8.16.3. Section 14.5.2 outlines the employment statistics for the area. The Applicant highlights that industries of commerce and trade, and professional services are consistently high across all EDs, however agriculture, forestry and fishing, and manufacturing industries also show a high percentage of employment. At a regional level, the Applicant notes that with Tipperary County being only one of three counties where the agricultural sector accounts for over 10% of those in work (at 10.6%), it is clear that agriculture and forestry are of importance to the local economy (Table 14.19).
- 8.16.4. The development site is located in a rural setting. The nearest settlements are the villages of Drangan (located c.1km north of the northernmost turbine boundary on the wind farm site), Mullinahone (located 4km east of the easternmost boundary of the wind farm), and Cloneen (located c.3km south west of the westernmost turbines). The local road network has a low density of properties.
- 8.16.5. The nearest residential properties to the wind farm site are landowner dwellings located just over 500m from the nearest proposed turbine location. The nearest non-

involved residential property is located approximately 600 m to the closest proposed turbine location at WTG2. The nearest property within the National Inventory of Architectural Heritage is Newtowndrangan (Registration Number: 22206306), is located west of the village of Drangan, approximately 1 km north from the nearest turbine (T1).

- 8.16.6. The Local Study Area is dominated primarily with residential properties and associated grazing land and some areas of forestry. Given the rural setting and natural landscape, the adjacent roads and local area may be used for informal recreational activities such as walking and cycling. The wind farm site exists within an area bounded by multiple unnamed public roads and some forestry plantation. There are no National Loop Walks, National Waymarked Ways or other designated routes cross the Development Site or the Local Study Area.
- 8.16.7. The Wind Farm Development Site is located in a relatively remote setting with limited tourism and recreational opportunity. Tourism and recreation within the Local Study Area is largely based around the natural environment with no widely promoted tourism assets within the immediate surroundings of the development boundary. Outside the immediate vicinity of the Wind Farm Development Site boundary, Slievenamon Hill is a notable tourism asset that lies in the South of the local Study Area. Slievenamon Hill is a prominent hill in the south of the Local Study Area which is noted for having several archaeological assets on it, including a cairn (TS078-001—) at its summit. In 2015, approximately 190,000 overseas visitors visited Tipperary County, contributing €64 million to the local economy. (In 2018, tourism expenditure in Ireland was estimated to be worth €9.4 billion.) The key attraction within the Regional Study Area is the Rock of Cashel.
- 8.16.8. Failte Ireland markets Tipperary County as part of both Ireland's Ancient East, and Ireland's Hidden Heartlands tourist destination bands. TCC has designated scenic views and prospects in the Development Plan. The closest trail in proximity to the site is the Windgap - Bearna Breac Loop, located approximately 7.9 km southeast of the Site.
- 8.16.9. Section 14.5.3.4 considers 'Public Attitudes towards Wind Farm Developments' – a 2007 survey of tourists (domestic and overseas) found that 50% had seen a windfarm and only 15% claimed that they had a negative impact on their experience. Wind farms should be avoided in National Parks and in areas of scenic beauty but may be acceptable in other locations.

8.16.10. Health and Safety issues may include traffic, during lifting of materials, working with electricity and general construction safety.

8.16.11. **Likely Significant Effects**

8.16.12. The EIAR considers the potential for likely significant effects in terms of population employment, human health, tourism and amenity, land use and settlement patterns, health and safety.

8.16.13. Population

8.16.14. The proposed development is unlikely to have a significant effect on population. There will be no loss of residential dwellings and therefore no displacement of the existing population. There will be no mass in-migration and the proposed development is not likely to result in depopulation of the local area. Overall, the proposed development is expected to have a neutral impact on population and settlement.

8.16.15. Employment

8.16.16. Additional employment (15-20 staff on-site per day) will be created during the construction phase, and it is anticipated that the majority of workers will be from the local region. The construction stage is anticipated to last for 12 months resulting in a temporary, positive, direct, and in-direct effect. There will also be knock-on secondary effects for local businesses, suppliers of materials, catering etc, which will have beneficial effects for the local economy. There may also be the opportunity for local people working on the Development to develop skills gained during construction which will be of benefit both individually and to the local economy in the longer term, such as project management and construction skills which would be transferrable to other construction roles.

8.16.17. On the basis that the Development has a worst-case capacity of up to 21 MW (based on 7 turbines with a capacity of 3-5 MW), a total CAPEX of the order of €31.5 million, would be expected. The effects will be of low magnitude at the regional level (medium sensitivity) and negligible at a national level (high sensitivity). Therefore, slight, positive effects are anticipated on a regional and national level in terms of the EIA Regulations.

8.16.18. The operation of the Development will bring long-term, positive, direct, indirect, and induced effects to the area through the increase in employment and business opportunities. This will not result in any fundamental or long-term change to local services or employment

of the community, but effects will be of low magnitude at the local level (of low sensitivity).

8.16.19. Human Health, Tourism, and Amenity

8.16.20. During the construction phase of the wind farm and the proposed cable route, the key effects on local amenity will be related to increases in construction traffic, noise levels, and visibility of the construction works. The Applicant highlights that no significant effects are anticipated as per Chapter 11 (noise), Chapter 13 (Transport, Traffic and Access), Chapter 7 (Land, Soils, and Hydrology) and Chapter 9 (LVIA) for each of these factors during the construction period.

8.16.21. In terms of the operational phase, the Applicant expects that the Development will have low impact on the behaviour of visitors/tourists that visit these assets within the Local Study Area, as the surveys of the public's attitudes to wind farms provide no clear evidence that the presence of wind farms in an area has an adverse impact on local tourism. The Applicant argues that even where potential visual effects are predicted, adverse effects of the operational phase of the Development on local heritage assets will be not significant.

8.16.22. In terms of shadow flicker, the Applicant states that given the embedded mitigation that will be followed through the design of the Development, there will not be any significant, negative effect on human health and amenity as a result of the Development during the operational phase.

8.16.23. Similar impacts during the decommissioning stage and no major impacts during the operational stage of the development.

8.16.24. Land Use and Settlement Patterns

8.16.25. No significant impacts are anticipated on land use and settlement patterns during the construction phase. The Applicant states that he/she will work with farmers in the area to ensure they are able, wherever possible, to continue to carry out agricultural activities safely during this period.

8.16.26. The proposed wind farm development will result in a loss of 8% of the total land in the wind farm site, which the Applicant considers to be a long-term, negligible effect during the operational phase.

8.16.27. No changes on settlement patterns are anticipated.

8.16.28. Disruption to land-use during decommissioning will be similar to that during construction, with a temporary cessation of agricultural activities in the vicinity of the Site while activities to remove the turbines are undertaken.

8.16.29. Health and Safety

8.16.30. Subject to the implement of best practice and adherence to the Construction Environmental Management Plan (CEMP), no significant impacts are foreseen at construction, operational and decommissioning stages of the proposed development.

8.16.31. The 'Do-Nothing' Alternative is considered. There would be no change for population and human health, however, the development is not likely to impact negatively on baseline data if it does go ahead as proposed in this application.

8.16.32. In terms of the potential Battery Storage area, the Applicant states that from a population and human health standpoint, the construction and operation of a battery storage area within the Site would have impacts less than or equal to those identified during the construction and operation of Knockroe Wind Farm and therefore there would be no significant effects in terms of EIA Regulations.

8.16.33. **Cumulative Impacts**

8.16.34. Section 14.7 of the EIAR considers cumulative impacts and a list of cumulative developments are provided, consisting of 12 windfarms varying from 9km to 23km from the subject site (Table 14.20). In terms of population, there would be an imperceptible effect in terms of the EIA Regulations. In terms of employment, there would be some additional jobs created at construction stage, but these would not be significant in terms of the EIA Regulations. No cumulative effects are expected at the operational stage and the impacts at decommissioning stage would be similar to those at construction stage. No significant effects are expected to human health, tourism and amenity at any of the three stages and the same is true for land use and settlement patterns and health and safety.

8.16.35. **Mitigation**

8.16.36. The potential for significant impacts on the human environment will principally arise during the construction stage from traffic, noise and dust and during the operational stage from noise, shadow flicker and visual impact. Mitigation is addressed in the



respective chapters of the EIAR and is discussed in more detail in the following sections of this report.

8.16.37. **Residual**

8.16.38. The Applicant does not anticipate any significant residual impacts.

8.16.39. **EIAR Conclusion**

8.16.40. In conclusion, the development will contribute positively to the provision of renewable energy and no significant effect in terms of the EIA Regulations are predicted on population and human health receptors during the different phases of the development.

8.16.41. **Assessment**

8.16.42. The main issues raised by the Third-Party Appellant and in the observations submitted to the Local Authority relating to impacts on population and human health are shadow flicker, noise, exposure to electromagnetic fields, devaluation of property and impacts on local amenities.

8.16.43. While there is no scientific evidence that the operation of a windfarm would result in negative health outcomes, it is recognised that there is potential for increased annoyance associated with shadow flicker and noise.

8.16.44. Shadow Flicker

8.16.45. The potential for shadow flicker is considered and assessed in Chapter 10 of the EIAR. In line with best practice the scope of the assessment extends to a distance of 10 times the maximum rotor diameter. Shadow flicker was calculated for the proposed turbines using WindPro software and for a worst-case scenario. For the purposes of the assessment an Enercon E-138 turbine model with a rotor diameter of 138m and a hub height of 81m was used. The Applicant states that this model has the largest rotor diameter and therefore provides the most conservative results in terms of shadow flicker. The original EIAR states that there are 70 No. properties within the 10-rotor diameter study area (Fig 10.1). The results of the modelling are shown in Table 10.4, and it identifies 44 No. properties that would be impacted in a worst-case scenario. This model makes various assumptions such as a bare earth scenario with no screening by vegetation, that the turbines will be rotating all the time, the sun will always be shining during daylight hours, with no cloud cover etc, which will not be the

case. When sunshine hours and wind conditions at the site are taken into account the shadow flicker, the Applicant states that the vast majority of residential properties are expected to fall below 30 hours per year, except one (B14). The Applicant has committed to a curtailment strategy for all turbines that cause exceedances in the shadow flicker thresholds at a distance of up to 10 rotor diameters from the proposed turbines. Following mitigation, no significant residual impacts and no cumulative effects with other wind farm developments are predicted.

8.16.46. Following a RFI in relation to the number of potential properties affected by shadow flicker, the Applicant repeated the analysis. In summary, the RFI Response (Addendum 10.1) stated that shadow flicker may be experienced at 52 No. residential properties in the surrounding area. The worst-case calculations suggest that an exceedance of 30 hours of shadow flicker per year could occur at 42 of the buildings. However, considering weather and wind conditions, only one dwelling (B14) is likely to exceed the threshold. The Applicant stated that subject to the operation of installed shadow flicker control measures, no impact from shadow flicker on residential buildings will occur.

8.16.47. The Third-Party Appellant argues that it is difficult to understand the impacts from shadow flicker due to the varying dimensions proposed for the hub height and blade length. In response to this point, the Applicant highlights that the blade length utilised in Addendum 10.1 is 69m, i.e. one metre shorter than the upper limit of the blade length range (i.e. 70m) that has been applied for. As such, the analysis was ran again based on a 70m blade length. This demonstrated that shadow flicker may be experienced at 52 No. residential properties in the surrounding area (i.e. an increase of 6 dwellings), and that an exceedance of 30 hours of shadow flicker per year could occur at 49 of the buildings. Similarly to the figures presented in Addendum 10.1, considering weather and wind conditions, only one dwelling (B14) is likely to exceed the threshold. The Applicant argues that the slight increase in blade length does not create a discernible impact in shadow flicker assessment terms.

8.16.48. I am satisfied that the potential impacts in terms of shadow flicker have been comprehensively assessed. The Applicant has committed to a curtailment strategy for all turbines that cause exceedances in the shadow flicker thresholds at a distance of up to 10 rotor diameters from the proposed turbines. These measures are standard best practice measures on wind farm sites and subject to appropriate implementation

and ongoing monitoring, I am satisfied that shadow flicker will not result in annoyance or unacceptable negative impacts on the properties likely to be affected.

#### 8.16.49. Noise

8.16.50. Noise is considered in more detail below under Section 8.13 of this report. It has been determined that the proposed windfarm would be capable of operating within the recommended noise limit criteria in the current Wind Energy Guidelines and residential properties will not be adversely affected.

#### 8.16.51. Electromagnetic Fields

8.16.52. Concerns have also been expressed about exposure to electromagnetic fields. Significant research has been carried out, and published opinion consistently finds, that exposure to EMF does not present a health risk if exposure remains below the recommended limits. The electricity cables and substation will be operated so that they comply with the international guidelines for Extremely Low Frequency (ELF) and Electromagnetic Field Radiation set by the International Commission on Non-Ionising Radiation Protection (ICNIRP) and will not pose a risk to human health.

#### 8.16.53. Property Devaluation

8.16.54. The issue of property devaluation is of concern of the Third-Party Appellant. Whilst details of research to support their position has not been provided, the Appellants state that they have driven in areas where houses are in close proximity to windfarms, and it would, deter them from residing in those areas. Property devaluation is a recurring issue in wind farm applications, and I note that there is research which supports both sides of the argument. I accept that the factors impacting on property value are many and varied and I am not persuaded that it can be conclusively determined that windfarms impact negatively on property values.

#### 8.16.55. Local Amenities

8.16.56. It is suggested in the submissions that local amenities will be impacted by the development. However, I highlight that there are no defined walking trails/ amenity routes within the development site. As discussed earlier in this Report, I do not consider that the proposed development would have a significant impact on Slievenamon in terms of LVIA, and similarly I do not consider that it will negatively impact on the amenity that the natural feature provides to local residents and tourists.

in terms of hill walking, etc. The Community Report (Appendix 2.3) states that the Applicant will commit to contribute €2/MWH to a Community benefit Fund for the first 15 years of the proposed development's operation which would be in the region of €160,000 per year. This fund would be set up and administered by an independent third party with significant input and representation from the local community. I consider this to be a long-term significant positive impact for the area.

#### **8.16.57. Conclusion**

8.16.58. I have considered all the submissions made in relation to population and human health and I am satisfied that they have been appropriately addressed in terms of the application. I consider that the information provided is sufficient to allow the impact of the proposed development to be fully assessed.

8.16.59. The proposed development will occupy a limited footprint on managed agricultural lands. I accept that the impacts that will arise during construction will be temporary and capable of effective mitigation. Following the completion of the development there will no significant adverse impacts on the amenities of the area and there will be no restrictions on access, including for those with turbary rights. I do not consider that there is compelling evidence that the development of the wind farm would result in depopulation of the area or impact on property values. Due to the separation distance to tourist attractions and amenities and scenic viewpoints no significant impacts are likely to arise.

8.16.60. I accept therefore that the proposed development will not result in significant adverse impacts on population and human health during the construction and operational phases of the proposed development. I am satisfied that the impacts identified would be avoided, managed or mitigated by the measures proposed and through suitable conditions.

8.16.61. I am, therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impact on population and human health. I accept that there will be visual impacts on a small number of properties close to the site however, I do not consider that these impacts are significant and as such would not adversely impact the area's residential amenity. This matter is considered in more detail in Section 8.12 of this report.

## 8.17. **Air and Climate**

8.17.1. Chapter 15 of the EIAR describes the likely significant impacts of the construction, operation and decommissioning stages of the proposed development on air quality and climate.

8.17.2. EPA ambient air quality data was used to characterise the existing air quality in the area. The site lies in a rural area and air quality is described as 'Good'. In terms of local climate, the nearest representative weather station collating detailed weather records is Oak Park Meteorological Station in Co. Carlow (55km north of the site). The average wind speeds over the period 2004-2020 was approx. 3.8m/s. Information collected from Casement Aerodrome Meteorological Station (in the absence of long-term data at Oak Park) identified typically 183 days per annum are 'wet'. The Applicant estimates that background NO<sub>2</sub> concentration in the region of the proposed development is 4ug/m<sup>3</sup> (Table 15.3), while PM<sup>10</sup> concentrations are 10ug/m<sup>3</sup> (Table 15.4).

### 8.17.3. **Likely significant effects during construction stage**

8.17.4. The Applicant states that the main emissions likely to be generated during the construction phase are dust emissions associated with the construction works. During construction, the primary source of dust emissions with potential to impact sensitive receptors will be movement of vehicles on and off site. Materials with the highest potential for dust emissions will be concrete and aggregates for the construction of the hardstanding areas and access tracks. However, only ready-mix concrete will be used on site and all concrete will be delivered in enclosed trucks which will reduce the potential for dust emissions.

8.17.5. The magnitude of the demolition work is considered small according to IAQM guidance (IAQM 2014). The Applicant states that the risk of significant nuisance dust impacts as a result of construction prior to mitigation is low with respect to nuisance dust. With respect to human health impacts the potential risk is considered to be negligible. There is no demolition required in proximity to the sensitive ecological receptors and therefore no risk to them with respect to demolition.

- 8.17.6. The risk of significant nuisance dust impacts as a result of earthworks prior to mitigation is high with respect to nuisance dust and ecology. With respect to human health impacts the potential risk is considered to be low.
- 8.17.7. The risk of significant nuisance dust impacts as a result of construction prior to mitigation is medium with respect to nuisance dust and ecology. With respect to human health impacts the potential risk is considered to be low.
- 8.17.8. To ensure any potential impacts are minimised, a Dust Management Plan will be formulated based on best practice measures associated with a medium risk of dust impacts. The Dust Management Plan will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.
- 8.17.9. Table 15.9 outlines the predicted construction stage GHG emissions. In summary, the total construction phase embodied emissions totals 3,971 tonnes CO<sub>2</sub>e, this is 0.007% of Ireland's national GHG emissions in 2019 or 0.012% of Ireland's 2030 GHG emission target. A site-specific assessment of the energy balance for the current project indicates a payback period of 2.9 months (based on export capacity of approximately 35 MW and a capacity factor of 34% the expected electricity production is approximately 104,244 MWh per annum, using Vestas Wind Systems NS).
- 8.17.10. **Likely significant effects during operational stage**
- 8.17.11. Due to the size, nature and remote location of the proposed development, increased road traffic emissions resulting from the proposed development are expected to have an imperceptible impact on air quality during the operational phase. The grid connection element of the proposed development will have a neutral impact on air quality during the operational phase as it will be buried underground and there will be no emissions associated with it.
- 8.17.12. The of supply renewable electricity to the national grid will lead to a net saving in terms of NO<sub>x</sub> emissions which may have been emitted from fossil fuels to produce electricity. The total NO<sub>x</sub> emissions savings over its 30 year life-span will amount to over 626 tonnes of NO<sub>x</sub> which is equivalent to 7.6% of the total NO<sub>x</sub> emissions from power generation in 2019 or 0.63% of the total Irish NO<sub>x</sub> emissions in 2019. This is considered a slight positive, long-term impact to air quality (Table 15.8).

8.17.13. During the operational phase there will be no GHG emissions from the operation of the wind turbines. There are no emissions associated with the proposed grid connection during operation. However, due to the displacement of 104 GWh of electricity per annum which otherwise would have been produced from fossil fuels, there will be a net benefit in terms of GHG emissions. The total annual GHG emission savings will amount to approximately 33,956 tonnes of CO<sub>2</sub>eq which is equivalent to 8.5% of the total predicted annual GHG emissions from the energy sector in 2020 (EPA, 2019). This is a slight, positive, long-term impact to climate as a result of the proposed development.

8.17.14. **Likely significant effects during decommissioning stage**

8.17.15. Due to the short-term nature of any associated works and low background pollutant concentrations in the vicinity of the site decommissioning is predicted to have an imperceptible, temporary, negative impact on local air quality. Emissions from vehicular traffic, are predicted to be imperceptible as a result of the decommissioning.

8.17.16. **Cumulative Impacts**

8.17.17. There will be no significant cumulative impacts from the temporary construction phase on either air or climate. The potential cumulative operational impact with other renewable energy projects will be long term significant positive effect on air and climate.

8.17.18. **Mitigation**

8.17.19. During construction standard mitigation measures will be employed to control dust and emissions. The Dust Management Plan (Appendix 15.2) will be incorporated into the CEMP. Some of the measures Hard surface roads will be swept and un-surfaced roads will be restricted to essential site traffic, any road that has the potential to give rise to fugitive dust must be regularly watered, use of a wheel wash facility, vehicles using site access tracks will have their speed restricted, Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary, material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind, water misting or sprays will be used as required, during movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times.

8.17.20. The construction phase of the proposed development as it is predicted to have an imperceptible impact on climate and therefore no mitigation measures are required. However, to ensure impacts are minimised as much as possible during the construction phase of the proposed development, all contractors will ensure that machinery used on site is properly maintained and is switched off when not in use to avoid unnecessary exhaust emissions from construction traffic. Similar measures will be implemented for the decommissioning phase of the proposed development.

8.17.21. No mitigation measures are required during the operational phase of the proposed development as it is predicted to have a slight positive and long-term impact on ambient air quality at a national level.

#### 8.17.22. **Residual Impacts**

8.17.23. With regard to residual impacts, no significant impacts on air/climate are predicted for the construction stage. The operational stage will have significant long term beneficial effects on air quality and climate.

#### 8.17.24. **EIAR Conclusion**

8.17.25. Once operational the proposed development will provide renewable electricity to the grid and thus reduce the reliance on fossil fuels as an energy source. It is predicted that the proposed development will provide up to approximately 104 GWh of renewable electricity once operational. This will be an overall slight, positive long-term impact on climate. In addition, the proposed development will contribute to Ireland meeting its 70% renewable electricity (RES-E) target as set out in the Climate Action Plan (Government of Ireland, 2019).

#### 8.17.26. **Assessment**

8.17.27. Air quality in the area is expected to be good and typical of a rural environment with a low level of pollutants. The main potential for significant effects will arise during the construction stage associated with the generation of dust and other fugitive emissions. The construction stage will also involve the operation of plant and machinery that will generate exhaust emissions. Subject to the mitigation measures proposed in the EIAR and the associated DMP, which generally comprise good practice methods and measures for medium to large construction projects, I am satisfied that no significant adverse effects on air quality and climate are likely to arise during the construction



phase. During the operational phase there will be a positive residual impact on air quality and climate due to the displacing of fossil fuel energy generation and the associated displacement of CO<sub>2</sub> and other greenhouse gas emissions. I do not consider that this positive impact will be significant.

8.17.28. I accept the conclusions reached in the EIAR that the impacts on air quality and climate associated with the proposed development on its own, or in combination with other existing, permitted or proposed developments are not likely to be significant and will be mitigated by the measures outlined in the EIAR.

8.17.29. **Conclusion**

8.17.30. I have considered all of the written submissions made in relation to air and climate and the relevant contents of the file including the EIAR. I am satisfied that the potential for significant adverse impacts on air and climate can be avoided, managed and/or mitigated by measures that form part of the proposed scheme, the proposed mitigation measures and through suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on air and climate.

8.18. **The Interaction between the Above Factors**

8.18.1. The interactions between the above factors is addressed in Chapter 16 of the EIAR. Generally, the interactions relate to construction phase effects, although some operational phase interactions are identified, including a number of positive effects, such as air quality & climate and population and human health. The interactions between the factors are graphically tabulated in Table 16-1. No significant residual impacts associated with the interactions of environmental factors are identified.

8.18.2. Having regard to the nature of the proposed development, the receiving environment and the foregoing chapters of the EIAR, I am satisfied that the summary of the potential for interactions between environmental factors is reasonable.

8.19. **Reasoned Conclusion**

8.19.1. Having regard to the examination of environmental information contained above, to the EIAR and supplementary information provided by the Applicant and the

submissions received, the contents of which I have noted, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows.

- **Population and Human Health:** Noise, vibration and shadow flicker during the construction and/or the operational phases would be avoided by the implementation of the measures set out in the Environmental Impact Assessment Report (EIAR), the Construction and Environment Management Plan (OCEMP) and Environmental Management Plan (EMP). There will be a positive impact on the socio-economic profile of the area due to community funding.
- **Biodiversity:** Habitat loss associated with construction will impact on habitats of generally low ecological value with no rare or protected species recorded. Potential impacts to habitats and faunal species, aquatic fauna and invertebrates, avian species and bats would be mitigated by the implementation of the measures during the construction and/or operational phases set out in the Environmental Impact Assessment Report.
- **Material Assets, Cultural Heritage and the Landscape:** Roads and traffic impacts will be mitigated during construction by the measures set out in the Environmental Impact Assessment Report and a Traffic Management Plan. The main impacts will occur during the construction stage which will be short-term and temporary. Impacts during the operational stage would be negligible. Potential impacts on unknown cultural heritage would be mitigated by archaeological monitoring with provision made for resolution of any archaeological features/deposits that may be identified. Localised visual impacts will occur primarily from in proximity to the site and from local properties. However, the impacts would be balanced to a degree by the nature and characteristics of the receiving environment and by the same number and layout of turbines being proposed.
- **Land, Soils, Water, Air and Climate:** Potential significant effects on hydrology, hydrogeology and soils would be mitigated by a series of best practice construction management and pollution prevention measures and other specific measures outlined in the EIAR, including the Outline Construction

Environmental Management Plan, the Environmental Management Plan, and Surface Water Management Plan. Positive air quality and climate impacts are identified for the operational phase due to the offsetting of fossil fuels by the generation of renewable energy. Construction noise will be mitigated by the measures outlined in the CEMP while operational noise will be mitigated by curtailment of turbine operation, if required.

- 8.19.2. The EIAR has considered that the main significant direct and indirect effects of the proposed development on the environment would be primarily mitigated by environmental management measures, as appropriate. Thus, having regard to the foregoing assessment, I am, therefore, satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment.

## 9.0 **Appropriate Assessment**

### 9.1. **Introduction**

- 9.1.1. The requirements of Article 6(3) as related to appropriate assessment of a project under part XAB, sections 177U and 177V of the Planning and Development Act 2000, as amended, are considered fully in this section. The areas addressed in this section are as follows:

- Compliance with Article 6(3) of the EU Habitats Directive
- Submissions Received
- The Natura Impact Statement
- Screening the need for Appropriate Assessment
- Appropriate Assessment
- Recommendation.

### 9.2. **Compliance with Article 6(3) of the EU Habitats Directive**

- 9.2.1. The Habitats Directive deals with the Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union. Article 6(3) of this Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in

combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European site before consent can be given.

- 9.2.2. The proposed development is not directly connected to or necessary to the management of any European site and therefore is subject to the provisions of Article 6(3).

### 9.3. **Submissions Received**

- 9.3.1. The Third-Party Appellant raises concerns regarding potential impacts on the Lower River Suir SAC, particularly in terms of water quality.
- 9.3.2. In addition, the Development Applications Unit provided general advice regarding the preparation of the EIAR and NIS at the scoping stage (Appendix 2.2).

### 9.4. **The Natura Impact Statement**

- 9.4.1. The application included an 'Appropriate Assessment Screening Report and Natura Impact Statement' (Ecology Ireland, September 2021). Sections 1 – 3 of the document comprise an introduction, description of the project, and a description of European sites considered. Section 4 comprises Screening for Appropriate Assessment and includes an analysis of potential in-combination effects with other plans and projects and Section 5 comprises 'Stage 2 – Natura Impact Statement'. In addition, a Natura Impact Statement – Addendum was submitted at RFI stage.
- 9.4.2. The Board should note that, like the EIAR, the AA Screening Report and NIS relate to the overall project, i.e. the proposed wind farm development and GCR works that is the subject of this appeal as well as the turbine delivery route works that do not form part of the development for which permission is being sought.
- 9.4.3. Section 4 of the report comprises an AA Screening Report, which concludes that significant adverse impacts to the Lower River Suir SAC (Site Code: 002137) cannot be ruled out and that it is necessary to proceed to a Stage 2 Appropriate Assessment. The substantive NIS, contained in Section 5 of the report, outlines the methodology used for assessing potential impacts on the habitats and species within the European

Sites that have the potential to be affected by the proposed development. It predicts the potential impacts for these sites and their conservation objectives, it suggests mitigation measures and, it identifies any residual effects on the European sites and their conservation objectives.

9.4.4. The NIS was informed by the guidelines and legal judgements as referenced in Section 1.3.1 and baseline ecological field studies of the site (Chapter 6 of the EIAR).

9.4.5. Having reviewed the NIS and the supporting documentation, I am satisfied that it provides adequate information in respect of the baseline conditions, clearly identifies the potential effects, and uses best scientific information and knowledge. Details of mitigation measures are provided and they are summarised in Section 5.3 of the NIS. I am satisfied that the information is sufficient to allow for appropriate assessment of the proposed development.

#### 9.5. **Screening the Need for Appropriate Assessment**

9.5.1. The proposed development is not directly connected to or necessary to the management of any European Site and therefore is subject to the provisions of Article 6(3).

9.5.2. The screening considers European Sites within 15km of the proposed development. The Applicant states that where it is evident that there is no connectivity between the proposed works and receptors (i.e. European Sites and/ or features for which the sites are designated), the receptors are excluded from the AA process. Similarly, where connectivity exists between the proposed work and receptors but is deemed not to result in likely significant effects to the receptor, the receptor can be screened out (i.e. likely significant effects to receptors excluded; receptor not considered further in AA process). Having regard to the nature of the proposed development, the nature of the receiving environment and the source-pathway-receptor model, I consider this to be a reasonable approach to identify the zone of influence. There are 5 No. European Sites within this radius that had the potential to be impacted by the wind farm and GCR and 9 no. sites to be potentially impacted by the TDR works.

Table 10.1: Table of European Sites Within a Possible Zone of Influence of the Proposed Development					
European Site (Code)	Minimum Distance (km)	Qualifying Interest(s)	Conservation Objectives	Connections (Source-Pathway-Receptor)	Considered further in screening
<b>Lower River Suir SAC (002137)</b>	<p>The Lower River Suir SAC is located approx. 5.7km and 5.5km downstream of the wind farm site via the Ballyhomuck Stream and Prieststown Stream, while the GCR intersects the SAC.</p> <p>The TDR spans this European Site at the R692 Ballycullin Bridge. In addition, the TDR is hydrologically connected to this European Site south and west of Mullinahone via the Anner_020, Anner_030 and Anner_040 watercourses.</p>	<p>1029 Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></p> <p>1092 White-clawed Crayfish <i>Austropotamobius pallipes</i></p> <p>1095 Sea Lamprey <i>Petromyzon marinus</i></p> <p>1096 Brook Lamprey <i>Lampetra planeri</i></p> <p>1099 River Lamprey <i>Lampetra fluviatilis</i></p> <p>1103 Twaité Shad <i>Alosa fallax</i></p> <p>1106 Salmon <i>Salmo salar</i></p> <p>1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)</p> <p>1355 Otter <i>Lutra lutra</i></p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p>	To restore/ maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SAC has been selected, as defined by a list of specific attributes and targets.	<p><u>Yes</u></p> <p>There is hydrological connectivity between the proposed windfarm site, grid connection route, TDR and the Lower River Suir SAC.</p>	<p><u>Yes</u></p> <p>Hydrological connection to SAC from the proposed windfarm site, grid connection route, TDR could give rise to water quality impacts during construction phase.</p> <p>Construction works could impact on qualifying habitats or species through sedimentation, contamination, disturbance or the spread of invasive species.</p>

		<p>3260 Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation</p> <p>6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</p> <p>91A0 Old sessile oak woods with <i>liex</i> and <i>Blechnum</i> in the British Isles</p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)</p> <p>91J0 <i>Taxus baccata</i> woods of the British Isles</p>			
<p><b>River Barrow and River Nore SAC (002162)</b></p>	<p>5.2km north-east of the proposed wind farm site as-the-crow-flies.</p> <p>The TDR spans the River Barrow and River Nore at two locations; where the M9 spans the Glebe_010 stream west of Knocktopher</p>	<p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>Reefs [1170]</p> <p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p>	<p>To restore / maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SAC has been selected, as defined by a list of specific attributes and targets.</p>	<p>This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route.</p> <p>However, potential hydrological connectivity where</p>	<p><u>No</u></p> <p>This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route. Therefore there is no potential for connectivity due to distance and absence of viable ecological vectors.</p>

	<p>and again where the M9 spans the King's (Kilkenny)_050 watercourse west of Stonyford.</p>	<p>Atlantic salt meadows (Glauco-Puccinellietalia maritima) [1330]</p> <p>Mediterranean salt meadows (Juncetalia maritimi) [1410]</p> <p>Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]</p> <p>European dry heaths [4030]</p> <p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</p> <p>Petrifying springs with tufa formation (Cratoneurion) [7220]</p> <p>Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]</p>		<p>the TDR spans the Glebe_010 stream west of Knocktopher and again where the TDR spans the King's (Kilkenny)_050 watercourse west of Stonyford. There is further indirect and remote hydrological connectivity where the TDR spans watercourses supporting connectivity to this European Site. These watercourses include Ennisnag Stream_010, Breagagh (Kilkenny)_030, King's (Kilkenny)_030, King's (Kilkenny)_040 (Owbeg River) and King's (Kilkenny)_050 watercourses.</p>	<p>Significant negative effects to this European Site from the TDR are not likely as all potential Points of Interest (areas requiring some enabling works and associated minor ground works) are located within the River Suir catchment and do not support connectivity with the River Barrow catchment. Therefore, the TDR operations will not result in likely significant effects to this European Site.</p>
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		<p>Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]</p> <p>Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]</p> <p>Austropotamobius pallipes (Whiteclawed Crayfish) [1092]</p> <p>Petromyzon marinus (Sea Lamprey) [1095]</p> <p>Lampetra planeri (Brook Lamprey) [1096]</p> <p>Lampetra fluviatilis (River Lamprey) [1099]</p> <p>Alosa fallax fallax (Twaite Shad) [1103]</p> <p>Salmo salar (Salmon) [1106]</p> <p>Lutra lutra (Otter) [1355]</p> <p>Trichomanes speciosum (Killarney Fern) [1421]</p> <p>Margaritifera durrovensis (Nore Pearl Mussel) [1990]</p>			
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<p><b>River Nore SPA (004233)</b></p>	<p>Over land 13.6km</p> <p>The TDR spans this European Site where the M9 spans the King's (Kilkenny) watercourse.</p>	<p>Kingfisher (<i>Alcedo atthis</i>) [A229]</p>	<p>To restore / maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SPA has been selected, as defined by a list of specific attributes and targets.</p>	<p>This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route.</p> <p>Potential hydrological connectivity where the TDR spans the Glebe_010 stream west of Knocktopher and again where the TDR spans the King's (Kilkenny)_050 watercourse west of Stonyford. There is further indirect and remote hydrological connectivity where the TDR spans watercourses supporting connectivity to this European Site. These watercourses include Ennisnag Stream_010, Breagagh (Kilkenny)_030, King's (Kilkenny)_030,</p>	<p><u>No</u></p> <p>This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route. Therefore there is no potential for connectivity due to distance and absence of viable ecological vectors.</p> <p>Significant negative effects to this European Site from the TDR are not likely as all potential Points of Interest (areas requiring some enabling works and associated minor ground works) are located within the River Suir catchment and do not support connectivity with the River Barrow catchment. Given the nature of the works of the proposed TDR at this location (haulage of Turbine materials on M9 motorway), there is no potential for significant negative. Therefore, the TDR operations will not result in likely significant effects to this European Site.</p>
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				King's (Kilkenny)_040 (Owbeg River) and King's (Kilkenny)_050 watercourses.	
<b>Comeragh Mountains SAC (001952)</b>	11.2km south	<p>3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)</p> <p>3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation</p> <p>4010 Northern Atlantic wet heaths with Erica tetralix</p> <p>4030 European dry heaths</p> <p>4060 Alpine and Boreal heaths</p> <p>6216 Slender Green Feather-moss Hamatocaulis vernicosus</p> <p>7130 Blanket bogs (* if active bog)</p> <p>8110 Siliceous scree of the montane to snow levels</p>	To restore / maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SAC has been selected, as defined by a list of specific attributes and targets.	This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route.	<u>No</u>  This European Site does not support hydrological connectivity to the proposed windfarm site and grid connection route. Therefore there is no potential for connectivity due to distance and absence of viable ecological vectors.

		(Androsacetalia alpinae and Galeopsietalia ladani)  8210 Calcareous rocky slopes with chasmophytic vegetation  8220 Siliceous rocky slopes with chasmophytic vegetation			
<b>Nier Valley Woodlands SAC (000668)</b>	10.5km south	91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles	To restore the favourable conservation condition of the Annex I habitat species for which the SAC has been selected, as defined by a list of specific attributes and targets.	This European Site is located within a separate surface water catchment to the proposed windfarm site and grid connection route.	<u>No</u>  This European Site does not support hydrological connectivity to the proposed windfarm site and grid connection route. Therefore there is no potential for connectivity due to distance and absence of viable ecological vectors.
<b>Hugginstown Fen SAC (000404)</b>	30m west at its closest point	7230 Alkaline fens	To maintain the favourable conservation condition of the Annex I habitats species for which the SAC has been selected, as defined by a list of specific attributes and targets.	Potential connectivity due to the proximity of the TDR to this European Site.	<u>No</u>  Given the nature of the proposed works and activities at this location (haulage of turbine materials on M9 motorway), there is no potential for likely significant effects.
<b>Thomastown Quarry SAC</b>	6.6km east/north-east	7220 Petrifying springs with tufa formation (Cratoneurion)	To maintain the favourable	No potential for connectivity due to	<u>No</u>

(002252)			conservation condition of the Annex I habitats species for which the SAC has been selected, as defined by a list of specific attributes and targets.	distance and lack of connectivity via ecological or environmental features.v Eastern Celtic Sea (HAs 13;17) (coastal waterbody IE_SE_050_0000).	
<b>Bannow Bay SAC (000697)</b>	13.4km south-east of TDR	<p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1210 Annual vegetation of drift lines</p> <p>1220 Perennial vegetation of stony banks</p> <p>1310 Salicornia and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (Glauco-Puccinellietalia maritima)</p> <p>1410 Mediterranean salt meadows (Juncetalia maritimi)</p> <p>1420 Mediterranean and thermo-Atlantic halophilous</p>	To restore/ maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SAC has been selected, as defined by a list of specific attributes and targets.	Potential for very remote hydrological connectivity via the Barrow Suir Nore Estuary (transitional waterbody IE_SE_100_0100), Waterford Harbour (coastal waterbody IE_SE_100_0000) and	<u>No</u>  Given the nature of the proposed works and the remote connectivity between the TDR and this European Site, it is considered that there will be no potential for likely significant effects to this European Site

		scrubs ( <i>Sarcocornetea fruticosi</i> )  2110 Embryonic shifting dunes  2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')  2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes')			
<b>Tramore Backstrand and Dune SAC (000671)</b>	10.5km south of TDR	1140 Mudflats and sandflats not covered by seawater at low tide  1210 Annual vegetation of drift lines  1220 Perennial vegetation of stony banks  1310 <i>Salicornia</i> and other annuals colonising mud and sand  1330 Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )  1410 Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	To restore/ maintain the favourable conservation condition of the Annex I habitats / Annex II species for which the SAC has been selected, as defined by a list of specific attributes and targets.	Potential for very remote hydrological connectivity via the Barrow Suir Nore Estuary (transitional waterbody IE_SE_100_0100), Waterford Harbour (coastal waterbody IE_SE_100_0000) and Eastern Celtic Sea (HAs 13;17) (coastal waterbody IE_SE_050_0000).	<u>No</u>  Given the nature of the proposed works and the remote connectivity between the TDR and this European Site, it is considered that there will be no potential for likely significant effects to this European Site.

		<p>2110 Embryonic shifting dunes</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)</p>			
<b>Bannow Bay SPA (004033)</b>	14.4km south-east of TDR	<p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> wintering</p> <p>A048 Shelduck <i>Tadorna tadorna</i> wintering</p> <p>A054 Pintail <i>Anas acuta</i> wintering A130 Oystercatcher <i>Haematopus ostralegus</i> wintering</p> <p>A140 Golden Plover <i>Pluvialis apricaria</i> wintering</p> <p>A141 Grey Plover <i>Pluvialis squatarola</i> wintering</p> <p>A142 Lapwing <i>Vanellus</i> wintering</p>	To maintain the favourable conservation condition of the species for which the SPA has been selected, as defined by a list of specific attributes and targets.	Potential for very remote hydrological connectivity via the Barrow Suir Nore Estuary (transitional waterbody IE_SE_100_0100), Waterford Harbour (coastal waterbody IE_SE_100_0000) and Eastern Celtic Sea (HAs 13;17) (coastal waterbody IE_SE_050_0000).	<u>No</u> Given the nature of the proposed works and the remote connectivity between the TDR and this European Site, it is considered that there will be no potential for likely significant effects to this European Site.

		<p>A143 Knot <i>Calidris canutus</i> wintering</p> <p>A149 Dunlin <i>Calidris alpina</i> wintering</p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i> wintering</p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i> wintering</p> <p>A160 Curlew <i>Numenius arquata</i> wintering</p> <p>A162 Redshank <i>Tringa totanus</i> wintering</p> <p>A999 Wetlands</p>			
<p><b>Tramore Back Strand SPA (004027)</b></p>	<p>10.5km south of TDR</p>	<p>A046 Brent Goose <i>Branta bernicla hrota</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A142 Lapwing <i>Vanellus vanellus</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p>	<p>To maintain the favourable conservation condition of the species for which the SPA has been selected, as defined by a list of specific attributes and targets.</p>	<p>Potential for very remote hydrological connectivity via the Barrow Suir Nore Estuary (transitional waterbody IE_SE_100_0100), Waterford Harbour (coastal waterbody IE_SE_100_0000) and Eastern Celtic Sea (HAs 13;17) (coastal waterbody IE_SE_050_0000).</p>	<p><u>No</u></p> <p>Given the nature of the proposed works and the remote connectivity between the TDR and this European Site, it is considered that there will be no potential for likely significant effects to this European Site.</p>



		A156 Black-tailed Godwit <i>Limosa limosa</i>			
		A157 Bar-tailed Godwit <i>Limosa lapponica</i>			
		A160 Curlew <i>Numenius</i> <i>arquata</i>			
		A999 Wetlands			

- 9.5.3. Based on my examination of the NIS and supporting information, the NPWS website, aerial and satellite imagery, the scale of the proposed development and likely effects, separation distance and functional relationship between the proposed works and the European Sites, their conservation objectives and taken in conjunction with my assessment of the subject site and the surrounding area, I conclude that a Stage 2 Appropriate Assessment is required for one European Site: Lower River Suir SAC (site code:002137).
- 9.5.4. The remaining sites (River Barrow and River Nore SAC, River Nore SPA, Comeragh Mountains SAC, Neir Valley Woodlands SAC, Hugginstown Fen SAC, Thomastown Quarry SAC, Bannow Bay SAC, Tramore Backstrand and Dune SAC, Bannow Bay SPA, and Tramore Back Strand SPA) can be screened out from further assessment because of the characteristics of the appeal site, the scale of the proposed development, the nature of the Conservation Objectives and Qualifying Interests, the separation distances, the results of baseline surveys and in particular the lack of a substantive linkage between the proposed development and the European sites.
- 9.5.5. **Screening Determination**
- 9.5.6. Following the screening process, it has been determined that Appropriate Assessment is required as it cannot be excluded on the basis of objective information that the proposed development individually or in-combination with other plans or projects will have a significant effect on the following European site (i.e. there is the possibility of significant effect): Lower River Suir SAC (site code:002137).
- 9.5.7. The possibility of significant effects on other European sites has been excluded on the basis of objective information. The following European sites have been screened out for the need for appropriate assessment:
- River Barrow and River Nore SAC (site code: 002162)
  - River Nore SPA (site code: 004233)
  - Comeragh Mountains SAC (site code:001952)
  - Neir Valley Woodlands SAC (site code: 000668)
  - Hugginstown Fen SAC (site code: 000404)
  - Thomastown Quarry SAC (site code: 002252)

- Bannow Bay SAC (site code: 000697)
- Tramore Backstrand and Dune SAC (site code: 000671)
- Bannow Bay SPA (site code: 004033)
- Tramore Back Strand SPA (site code: 004027).

9.5.8. Measures intended to reduce or avoid significant effects have not been considered in the screening process.

## 9.6. **Appropriate Assessment of Implications of the Proposed Development**

9.6.1. The following is a summary of the objective scientific assessment of the implications of the proposed development on the qualifying interest features of the Lower River Suir SAC (site code:002137) using the best scientific knowledge in the field. All aspects of the proposed development which could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are considered and assessed.

9.6.2. A description of the site, its Conservation Objectives and Qualifying Interests/Special Conservation Interests, including any relevant attributes and targets for the site, are set out in the NIS and summarised in Table 10.2 of this report as part of my assessment. I have also examined the Natura 2000 data forms as relevant and the Conservation Objectives supporting documents for the site available through the NPWS website ([www.npws.ie](http://www.npws.ie)).

### 9.6.3. Aspects of the Proposed Development

9.6.4. In my opinion, having reviewed the development proposal and the characteristics of the European Site, the main aspects of the proposed development that could adversely affect the conservation objectives of the abovementioned European Sites primarily arise during the construction phase and include:

- Impacts to water quality through construction related pollution events (e.g. chemicals, oil/fuel, cementitious materials etc.) or sediments/silt run-off.
- Disturbance and or displacement of species listed as qualifying interests due to potential water quality impacts during construction or disturbance of foraging/commuting routes or breeding habitats.

- Habitat loss, fragmentation or alteration.
- Introduction of invasive species or biosecurity issues during construction.

9.6.5. With regard to the operational phase, considering the nature of the proposed development, the qualifying interests and conservation objectives of the Lower River Suir SAC, and the separation distances, I consider that the proposed development – once operational – is not likely to adversely affect the integrity of the European Sites in light of their conservation objectives. There is, however, low potential for hydrocarbon, oil or other pollutant run-off to result in a deterioration in water quality in the abovementioned European Site.

9.6.6. Table 10.2 below summarises the Appropriate Assessment and site integrity test. The conservation objectives for the European Site have been examined and assessed with regard to the identified potential significant effects and all aspects of the project (alone and in combination with other plans and projects). Mitigation measures proposed to avoid and reduce impacts to a non-significant level have been assessed, and clear, precise and definitive conclusions reached in terms of adverse effects on the integrity of the European sites.

9.6.7. In-Combination Effects

9.6.8. As noted above, the NIS assesses the entire project, not just the proposed wind farm and GCR that forms the basis of this appeal. The NIS therefore assesses the potential in-combination effects of the associated grid connection works and turbine delivery works.

9.6.9. Table 4.2 and 4.3 of the screening report examines a range of projects and plans located in the wider area for potential in-combination effects.

9.6.10. Table 4.2 identified 15 renewable energy projects (11 No. wind farms and 4 No. solar farms) within a 23km radius of the site. Of the 11 No. wind farms identified 6 No. are operational and 5 No. are consented. All the identified solar farms are at consent stage. In terms of the operational projects, as construction is the most high-risk phase of the development compared to operational and decommissioning phases, in-combination effects on shared watercourses are not likely to occur. This is also the case for habitats, flora and less mobile species of fauna. With respect to the consented projects, noting a combination of their location in different catchments and sub

catchments and/or the distance between these developments and the proposed development (ranging from 14km to 23km) potential in-combination effects can be ruled out. The potential for significant in-combination effects is therefore excluded.

- 9.6.11. Table 4.3 of the screening report lists other projects and plans with capacity to contribute to in-combination effects associated with the proposed development. These include the former South Tipperary County Development Plan 2009-2015 (As Varied), Tipperary Wind Energy Strategy (2016), River Basin Management Plan for Ireland 2018-2021, Inland Fisheries Ireland Corporate Plan 2016-2020, and The Inland Fisheries Act 2010. Many of these plans have safeguards to protect the natural environment and European sites. I note a number of these plans have been superseded/updated since the subject planning application was lodged but contain the similar safeguards to protect the natural environment and European sites. I am satisfied that the potential in-combination effects can be ruled out.
- 9.6.12. In addition, the Applicant conducted a planning search to identify other projects and plans consented within the past five years that are proximal or within the proposed development area. The Applicant states that a small number of applications for dwellings, dwelling extensions, agricultural developments, demolition of existing and rebuild of new dwelling infrastructure were noted. I concur with the Applicant that due to the scale of these projects, they are not likely to cause effects to European sites when considered in combination with the current proposal, either during the construction or operational phase. There is therefore no potential for significant in-combination effects of these developments with the proposed development.
- 9.6.13. In terms of the N24 upgrade project, I highlight that this project is still at design stage, but nonetheless will be required to adhere to the relevant planning policy and the relevant EU Directives and environmental considerations. As such, there is no potential for adverse in-combination effects on European Sites.

**Table 10.2: Lower River Suir SAC (site code:002137)**

**Summary of Key issues that could give rise to adverse effects:**

- Impacts to water quality through construction related pollution events (e.g. chemicals, oil/fuel, cementitious materials etc.) or sediments/silt run-off.
- Disturbance and or displacement of species listed as qualifying interests due to potential water quality impacts during construction or disturbance of foraging/commuting routes or breeding habitats.
- Habitat loss, fragmentation or alteration.
- Introduction of invasive species or biosecurity issues during construction.

**Conservation Objectives:** [ConservationObjectives.rdl \(npws.ie\)](#)

**Summary of Appropriate Assessment**

Qualifying Interest feature	Conservation Objectives Targets and attributes	Potential adverse effects	In-combination effects	Mitigation measures	Can adverse effects on integrity be excluded?
1330 Atlantic salt meadows (Glaucopuccinellietalia maritimae)	<p>To <u>restore</u> the favourable conservation condition of Atlantic salt meadows (Glaucopuccinellietalia maritimae) in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes, including erosion and succession. For the sub-site (Little Island) and potential areas mapped: 33.43ha. See map 3</li> <li>- No decline or change in habitat distribution, subject to natural</li> </ul>	<p>No, coastal habitat.</p> <p>Habitat is not present in vicinity of proposed development. No potential for indirect effects due to nature of proposed development and potential effects arising.</p>	None	No mitigation required.	<p>Yes</p> <p>No potential for adverse direct or indirect effects.</p>

	<p>processes. See map 3 for known and potential distribution</p> <ul style="list-style-type: none"> <li>- Maintain natural circulation of sediments and organic matter, without any physical obstructions</li> <li>- Maintain creek and pan structure, subject to natural processes, including erosion and succession</li> <li>- Maintain natural tidal regime</li> <li>- Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession</li> <li>- Maintain structural variation within sward</li> <li>- Maintain more than 90% of the area outside of creeks vegetated</li> <li>- Maintain range of sub-communities with typical species listed in McCorry and Ryle (2009)</li> <li>- No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is known to occur.</li> </ul>				
1410 Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	To <u>restore</u> the favourable conservation condition of Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) in Lower River Suir	No, coastal habitat. Habitat is not present in vicinity of proposed	None	No mitigation required.	Yes

	<p>SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes, including erosion and succession.</li> <li>- No decline or change in habitat distribution, subject to natural processes.</li> <li>- Maintain natural circulation of sediments and organic matter, without any physical obstructions.</li> <li>- Maintain creek and pan structure, subject to natural processes, including erosion and succession.</li> <li>- Maintain natural tidal regime.</li> <li>- Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.</li> <li>- Maintain structural variation in the sward.</li> <li>- Maintain more than 90% of the area outside of creeks vegetated.</li> <li>- Maintain range of sub-communities with characteristic species listed in McCorry and Ryle (2009).</li> </ul>	<p>development. No potential for indirect effects due to nature of proposed development and potential effects arising.</p>			<p>No potential for adverse direct or indirect effects.</p>
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	<ul style="list-style-type: none"> <li>- No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1% where it is already known to occur</li> </ul>				
3260 Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation	<p>To <u>maintain</u> the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes</li> <li>- No decline, subject to natural processes</li> <li>- Maintain appropriate hydrological regimes</li> <li>- Maintain appropriate hydrological regime</li> <li>- Maintain natural tidal regime</li> <li>- Maintain appropriate substratum particle size range, quantity and quality, subject to natural processes</li> <li>- Maintain appropriate water quality to support the natural structure and functioning of the habitat</li> </ul>	<p>Yes.</p> <p>This QI was recorded along the GCR on the Clashawley River downstream of Loughcapple Bridge.</p> <p>Siltation/pollution could result in a reduction in distribution and area of this habitat, an increase in fine sediments and suspended solids, in alterations to mineral concentrations, and in an increase in nutrient concentration.</p> <p>Introduction of invasive species/biohazards could result in a potential reduction in distribution and area of this habitat and in a reduction of habitat sub-types.</p>	None.	<p>See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards.</p> <p>Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.</p>	<p>Yes</p> <p>No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.</p>

	<ul style="list-style-type: none"> <li>- Maintain typical species in good condition, including appropriate distribution and abundance</li> <li>- Maintain floodplain connectivity necessary to support the typical species and vegetation composition of the habitat</li> <li>- Maintain marginal fringing habitats that support the typical species and vegetation composition of the habitat</li> </ul>				
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	<p>To maintain the favourable conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes</li> <li>- No decline, subject to natural processes</li> <li>- Maintain appropriate hydrological regime</li> <li>- At least three positive indicator species present</li> <li>- Cover of positive indicator species at least 40%</li> </ul>	<p>Yes.</p> <p>This QI was recorded along the GCR on the Clashawley River downstream of Loughcapple Bridge.</p> <p>Siltation/pollution could result in a reduction in distribution and area of this habitat, an increase in fine sediments and suspended solids, in alterations to mineral concentrations, and in an increase in nutrient concentration.</p> <p>Introduction of invasive species/biohazards could result in a</p>	None	See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards. Ecological Clerk of Works to be appointed to monitor compliance with	<p>Yes</p> <p>No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.</p>

	<ul style="list-style-type: none"> <li>- Cover of non-native species not more than 1%</li> <li>- Cover of negative indicator species not more than 33%</li> <li>- Cover of scrub, bracken (<i>Pteridium aquilinum</i>) and heath not more than 5%</li> <li>- Herb height at least 50cm</li> <li>- Cover of bare soil not more than 10%</li> <li>- Area of the habitat showing signs of serious grazing or disturbance less than 20m<sup>2</sup></li> </ul>	potential reduction in distribution and area of this habitat and in a reduction of habitat sub-types.		mitigation measures and conditions.	
91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles	<p>To <u>restore</u> the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the British Isles in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes, at least 29.3ha for sites surveyed. See map 4</li> <li>- No decline. Surveyed locations shown on map 4</li> <li>- Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size</li> </ul>	<p>No</p> <p>Habitat is not present in vicinity of proposed development. No potential for indirect effects due to distance, nature of proposed development and terrestrial nature of habitat.</p>	None	No mitigation required.	<p>Yes</p> <p>No potential for adverse direct or indirect effects.</p>

	<ul style="list-style-type: none"> <li>- Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer</li> <li>- Maintain diversity and extent of community types</li> <li>- Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy</li> <li>- At least 30m<sup>3</sup>/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter</li> <li>- No decline in veteran trees</li> <li>- No decline in indicators of local distinctiveness</li> <li>- No decline. Native tree cover not less than 95%</li> <li>- A variety of typical native species present, depending on woodland type, including oak (<i>Quercus petraea</i>) and birch (<i>Betula pubescens</i>)</li> </ul>				
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	<ul style="list-style-type: none"> <li>- Negative indicator species, particularly non-native invasive species, absent or under control</li> </ul>				
91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)	<p>To <u>restore</u> the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes, at least 32.9ha for sites surveyed. See map 5</li> <li>- No decline. Surveyed locations shown on map 5</li> <li>- Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size</li> <li>- Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer</li> <li>- Maintain diversity and extent of community types</li> <li>- Seedlings, saplings and pole age-classes occur in adequate</li> </ul>	<p>No</p> <p>Habitat is not present in vicinity of proposed development. No potential for indirect effects due to distance, nature of proposed development and terrestrial nature of habitat.</p>	None	No mitigation required.	<p>Yes</p> <p>No potential for adverse direct or indirect effects.</p>

	<p>proportions to ensure survival of woodland canopy</p> <ul style="list-style-type: none"> <li>- Appropriate hydrological regime necessary for maintenance of alluvial vegetation</li> <li>- At least 30m<sup>3</sup>/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder (<i>Alnus glutinosa</i>))</li> <li>- No decline in veteran trees</li> <li>- No decline in indicators of local distinctiveness</li> <li>- No decline. Native tree cover not less than 95%</li> <li>- A variety of typical native species present, depending on woodland type, including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp.), oak (<i>Quercus</i> spp.), ash (<i>Fraxinus excelsior</i>) and birch (<i>Betula pubescens</i>)</li> <li>- Negative indicator species, particularly non-native invasive species, absent or under control</li> </ul>				
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<p>91J0 <i>Taxus baccata</i> woods of the British Isles</p>	<p>To <u>restore</u> the favourable conservation condition of <i>Taxus baccata</i> woods of the British Isles* in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Area stable or increasing, subject to natural processes</li> <li>- No decline in habitat distribution</li> <li>- Area stable or increasing</li> <li>- Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and herb and bryophyte layer</li> <li>- Maintain diversity and extent of community types</li> <li>- Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy</li> <li>- At least 30m<sup>3</sup>/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter</li> <li>- No decline in veteran trees</li> <li>- No decline in indicators of local distinctiveness</li> </ul>	<p>No</p> <p>Habitat is not present in vicinity of proposed development. No potential for indirect effects due to distance, nature of proposed development and terrestrial nature of habitat.</p>	<p>None</p>	<p>No mitigation required.</p>	<p>Yes</p> <p>No potential for adverse direct or indirect effects.</p>
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	<ul style="list-style-type: none"> <li>- No decline. Native tree cover not less than 95%</li> <li>- A variety of typical native species present, including yew (<i>Taxus baccata</i>) and ash (<i>Fraxinus excelsior</i>)</li> <li>- Negative indicator species, particularly non-native invasive species, absent or under control</li> </ul>				
1029 Freshwater Pearl Mussel <i>Margaritifera margaritifera</i>	<p>To <u>restore</u> the favourable conservation condition of Freshwater Pearl Mussel in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- Restore distribution to 10.4km. See map 6</li> <li>- Restore population to at least 10,000 adult mussels</li> <li>- Restore to at least 20% of each population no more than 65mm in length; and at least 5% of each population no more than 30mm in length</li> <li>- No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution</li> <li>- Restore suitable habitat in more than 8.8km in the Clodiagh system</li> </ul>	<p>No</p> <p>Aquatic ecology survey found no evidence of freshwater pearl mussel within the vicinity of the proposed development, undertaken on the Ballyhomuck Stream, unnamed stream near Drangan and Anner River. Within the Suir catchment, Freshwater Pearl Mussel is known only from Clodiagh River (Ross, 2006). The Clodiagh River is located within a separate surface water catchment to the proposed windfarm,</p>	None	No mitigation required.	<p>Yes</p> <p>No potential for adverse direct or indirect effects.</p>



	<p>and any additional stretches necessary for salmonid spawning</p> <ul style="list-style-type: none"> <li>- Restore condition of suitable habitat</li> <li>- Restore water quality - macroinvertebrates: EQR greater than 0.90 (Q4-5 or Q5); phytobenthos: EQR greater than 0.93</li> <li>- Restore substratum quality - filamentous algae: absent or trace (less than 5%); macrophytes: absent or trace (less than 5%)</li> <li>- Restore substratum quality - stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment</li> <li>- Restore to no more than 20% decline from water column to 5cm depth in substrate</li> <li>- Maintain appropriate hydrological regime</li> <li>- Maintain sufficient juvenile salmonids to host glochidial larvae</li> <li>- Restore the area and condition of fringing habitats necessary to support the population</li> </ul>	<p>grid connection and TDR.</p>			
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<p>1092 White-clawed Crayfish Austropotamobius pallipe</p>	<p>To <u>maintain</u> the favourable conservation condition of White-clawed Crayfish in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- No reduction from baseline. See map 7</li> <li>- Juveniles and/or females with eggs in all occupied tributaries</li> <li>- No alien crayfish species</li> <li>- No instances of disease</li> <li>- At least Q3-4 at all sites sampled by EPA.</li> <li>- No reduction in habitat heterogeneity or habitat quality</li> </ul>	<p>Yes</p> <p>Aquatic ecology survey found no evidence of freshwater pearl mussel within the vicinity of the proposed development, but NPWS hold historic records from the Clashawley River and Anner River (NPWS data). The nearest record to windfarm infrastructure is at Loughcapple Bridge on the Clashawley (proposed GCR crossing). On the Anner River, the nearest crayfish record to windfarm infrastructure (GCR crossing of Garrankyle River) is 0.6km (Melbourne Bridge). These records are &gt;8km downstream of the windfarm site.</p> <p>Siltation or pollution could result in a potential negative effect on population</p>	<p>No</p>	<p>See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards such as crayfish plague. Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.</p>	<p>Yes</p> <p>No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.</p>
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		density, juvenile density, on water quality and by contributing to siltation of river beds. Introduction of invasive species/biohazards such as crayfish plague could have a potential negative effect on population density, juvenile density, introduction of alien crayfish species outcompeting native species.			
1095 Sea Lamprey Petromyzon marinus	To <u>restore</u> the favourable conservation condition of Sea Lamprey in Lower River Suir SAC, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> <li>- Greater than 75% of main stem length of rivers accessible from estuary</li> <li>- At least three age/size groups present.</li> <li>- Juvenile density at least 1/m<sup>2</sup></li> <li>- No decline in extent and distribution of spawning beds</li> </ul>	Yes  A Sea Lamprey spawning site is known from the River Suir near Kilsheelan, approx. 10.9km downstream of nearest GCR crossing (Ballyclerihan Stream). Ballyclerihan Stream crossed by GCR (horizontal directional drilling) and shares downstream-connectivity to River Suir via Anner River	None	See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards. Ecological Clerk of Works to be	Yes  No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.

	<ul style="list-style-type: none"> <li>- More than 50% of sample sites positive</li> <li>- Access to all water courses down to first order streams</li> <li>- At least three age/size groups of brook/river lamprey present</li> <li>- Mean catchment juvenile density of brook/river lamprey at least 2/m<sup>2</sup></li> <li>- No decline in extent and distribution of spawning beds</li> <li>- More than 50% of sample sites positive</li> </ul>	<p>River Suir located downstream of windfarm site (i.e. hydrologically connected via Anner River, Priesttown Stream, unnamed stream near Drangan, Ballyhomuck Stream and Tulaigh Chasáin Stream).</p> <p>Siltation or pollution could result in a potential negative effect on population structure of juveniles, on spawning beds and on juvenile habitat. Introduction of invasive species/biohazards could have a potential negative effect on population structure of juveniles, on spawning beds and on juvenile habitat.</p>		appointed to monitor compliance with mitigation measures and conditions.	
1095 Sea Lamprey <i>Petromyzon marinus</i>	To <u>restore</u> the favourable conservation condition of Sea Lamprey in Lower River Suir SAC, which is defined by the following list of attributes and targets:	<p>Yes</p> <p>A Sea Lamprey spawning site is known from the River Suir near Kilsheelan, approx. 10.9km</p>	None	See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and	<p>Yes</p> <p>No doubt as to the effectiveness or implementation of mitigation measures proposed to</p>

	<ul style="list-style-type: none"> <li>- Greater than 75% of main stem length of rivers accessible from estuary</li> <li>- At least three age/size groups present.</li> <li>- Juvenile density at least 1/m<sup>2</sup></li> <li>- No decline in extent and distribution of spawning beds</li> <li>- More than 50% of sample sites positive</li> </ul>	<p>downstream of nearest GCR crossing (Ballyclerihan Stream). Ballyclerihan Stream crossed by GCR (horizontal directional drilling) and shares downstream-connectivity to River Suir via Anner River. River Suir located downstream of windfarm site (i.e. hydrologically connected via Anner River, Priesttown Stream, unnamed stream near Drangan, Ballyhomuck Stream and Tulaigh Chasáin Stream).</p> <p>Siltation or pollution could result in a potential negative effect on population structure of juveniles, on spawning beds and on juvenile habitat. Introduction of invasive species/biohazards could have a potential negative effect on population structure of</p>		<p>include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards. Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.</p>	<p>prevent direct or indirect effects on integrity.</p>
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		juveniles, on spawning beds and on juvenile habitat.			
1099 River Lamprey <i>Lampetra fluviatilis</i>	To <u>restore</u> the favourable conservation condition of River Lamprey in Lower River Suir SAC, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> <li>- Access to all water courses down to first order streams</li> <li>- At least three age/size groups of river/brook lamprey present</li> <li>- Mean catchment juvenile density of brook/river lamprey at least 2/m<sup>2</sup></li> <li>- No decline in extent and distribution of spawning beds</li> <li>- More than 50% of sample sites positive</li> </ul>	Yes  Lampetra sp. were recorded via electro-fishing surveys from Clashawley River, Moyle River & Ballyclerihan Stream, all of which will be spanned by the proposed grid connection route. Lampetra sp. are also known from Anner River.  Siltation or pollution could result in a potential negative effect on population structure of juveniles, on spawning beds and on juvenile habitat.  Introduction of invasive species/biohazards could have a potential negative effect on population structure of juveniles, on spawning	None	See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/biohazards. Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.	Yes  No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.

		beds and on juvenile habitat.			
1103 Twaite Shad Alosa fallax fallax	To restore the favourable conservation condition of Twaite Shad in Lower River Suir SAC, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> <li>- Greater than 75% of main stem length of rivers accessible from estuary</li> <li>- More than one age class present</li> <li>- No decline in extent and distribution of spawning habitats</li> <li>- Oxygen levels no lower than 5mg/l</li> <li>- Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth</li> </ul>	No  Spawning location for Twaite Shad is known on River Suir at Carrick-on-Suir (King & Roche, 2008), located >30km downstream of the nearest windfarm infrastructure.  As habitat is not present in vicinity of proposed development. No potential for indirect effects due to nature of proposed development and terrestrial nature of habitat.	None	No mitigation required.	Yes  No potential for adverse direct or indirect effects.
1106 Salmon Salmo salar	To <u>restore</u> the favourable conservation condition of Atlantic Salmon in Lower River Suir SAC, which is defined by the following list of attributes and targets: <ul style="list-style-type: none"> <li>- 100% of river channels down to second order accessible from estuary</li> </ul>	Yes  Recorded on stream and watercourses spanned by the grid connection route via electro-fishing from Garrankyle River, Clashawley River & Ballyclerihan Stream.	None	See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity	Yes  No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity

	<ul style="list-style-type: none"> <li>- Conservation limit (CL) for each system consistently exceeded.</li> <li>- Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling.</li> <li>- No significant decline</li> <li>- No decline in number and distribution of spawning redds due to anthropogenic causes</li> <li>- At least Q4 at all sites sampled by EPA.</li> </ul>	<p>Also known from Anner River.</p> <p>Siltation or pollution could result in a potential negative effect on spawning habitats, on salmon fry abundance, on smolt abundance, on the number and distribution of redds, on water quality resulting in reduced numbers of different age classes, reduced breeding success and fish kills.</p>		<p>measures are also set out in the NIS to prevent introduction of invasive species/ biohazards.</p> <p>Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.</p>	
1355 Otter <i>Lutra lutra</i>	<p>To maintain the favourable conservation condition of Otter in Lower River Suir SAC, which is defined by the following list of attributes and targets:</p> <ul style="list-style-type: none"> <li>- No significant decline</li> <li>- No significant decline. Area mapped and calculated as 116.17ha above high water mark (HWM) and 726.61ha along river banks.</li> <li>- No significant decline. Area mapped and calculated as 712.27ha</li> </ul>	<p>Yes</p> <p>Otter spraint recorded on Garrankyle River at GCR crossing but also known from Clashawley River, Anner River, Moyle River and River Suir (NPWS &amp; NBDC data). The Garrankyle River, Clashawley River and Moyle River are crossed by the grid connection route.</p>	None	<p>See Section 9.7 below. Best practice drainage and pollution prevention methods are set out in the NIS and include detailed measures to mitigate impacts to water quality. Biosecurity measures are also set out in the NIS to prevent introduction of invasive species/ biohazards.</p>	<p>Yes</p> <p>No doubt as to the effectiveness or implementation of mitigation measures proposed to prevent direct or indirect effects on integrity.</p>



	<ul style="list-style-type: none"> <li>- No significant decline. Length mapped and calculated as 382.31km</li> <li>- No significant decline in couching sites and holts</li> <li>- No significant decline fish biomass available</li> <li>- No significant increase in barriers to connectivity</li> </ul>	<p>Potential effects in the event of night time works resulting in potential disturbance. Siltation or pollution could result in deterioration of water quality, reducing fish biomass available.</p>		<p>Ecological Clerk of Works to be appointed to monitor compliance with mitigation measures and conditions.</p>	
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## 9.7. Mitigation Measures

9.7.1. The proposed mitigation measures are set out in Section 5.3 of the NIS and include the following:

- A minimum 50m buffer was applied from natural waterbodies (except at stream crossing points). While the grid connection does traverse the Lower River Suir SAC, instream works will be avoided at this crossing point within the EU designated SAC site. It is proposed to achieve the crossing via a bridge crossing through the installation of cable ducting in the roadside verge across the bridge (or within the road itself). If it is found that such works are not possible (i.e. where there is insufficient depth within the road-base or if the bridge is structurally unable to accommodate cable ducts) then an alternative method to cross the bridge may be required such as horizontal directional drilling or overhead line to avoid any instream works.
- Temporary facilities for the construction personnel, equipment and materials will be accommodated at the Site Compound.
- Implementation of all mitigation committed to as part of the EIAR.
- All the recommendations within the OCMS and EMP will be implemented fully. The EMP will be refined further at the post-planning and construction stages.
- Appointment of a Project Ecologist/Ecological Clerk of Works (ECoW).
- Water Quality: buffer zones (i.e., 50m to main watercourses except at stream crossing point), interceptor drains, vee-drains, diversion drains, temporary sumps/attenuation lagoons, sediment traps, pumping systems, settlement ponds, proprietary settlement systems such as "Siltbuster", and/or other similar/equivalent or appropriate systems, silt fences, silt bags,
- Integration and enhancement of existing field drains in the wind farm site including velocity and silt control measures such as check dams, sandbags, oyster bags, straw bales, flow limiters, weirs, baffles, and silt fences during the upgrade construction works.
- Pre-emptive Site Drainage Management: daily/weekly review of weather forecasts. Large excavations and movements of soil/subsoil will be suspended

or scaled back if heavy rain is forecast. Prior to earthworks being suspended the following control measures will be completed: (i) secure all open spoil excavations, (ii) provide temporary or emergency drainage to prevent back-up of surface runoff, and (ii) Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded. Construction of the site drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses. Construction of the drainage system during this period will also ensure that attenuation features associated with the drainage system will be in place and operational for all subsequent construction works.

- **Management of Runoff from Subsoil Storage Areas:** Excavated soil to be used for landscaping throughout the wind farm site. During the initial placement of subsoil, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the reinstatement areas. Drainage from subsoil reinstatement areas will ultimately be routed to an oversized swale and a number of stilling ponds and a 'Siltbuster' with appropriate storage and settlement designed for a 1 in 10 year return period before being discharged to the on-site drains. Soil/subsoil reinstatement areas will be sealed with a digger bucket and vegetated as soon possible.
- **Proposed Drainage and Water Quality Monitoring:** An inspection and maintenance plan for the on-site (wind farm site) drainage system will be prepared in advance of commencement of any works and will be included in the EMP. Regular inspections of all installed drainage systems will be undertaken, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water in parts of the systems where it is not intended. During the construction phase field testing (visual, supplemented with pH, electrical conductivity, temperature, dissolved oxygen and turbidity monitoring), sampling and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for each primary watercourse at the wind farm site, and specifically following heavy rainfall events (i.e., weekly, monthly and event-based).

- **Excavation Dewatering and Potential Effects on Surface Water Quality:** Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; if required, pumping of excavation inflows will prevent build up of water in the excavation; the interceptor drainage will be discharged to the wind farm site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters; the pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit; no direct discharge to surface watercourses; daily monitoring of excavations by a suitably qualified person; a mobile 'Siltbuster' or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur.
- **Potential Release of Hydrocarbons during Construction and Storage:** All plant will be inspected and certified to ensure they are leak free and in good working order prior to use on the wind farm site; on-site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser. The fuel bowser will be parked on a level area in the construction compound when not in use and only designated trained and competent operatives will be authorised to refuel plant. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations; Fuels stored on the wind farm site will be minimised. Any storage areas will be bunded appropriately for the fuel storage volume for the time period of the construction; the electrical control building will be bunded appropriately; plant used will be regularly inspected for leaks and fitness for purpose; An emergency plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan. Spill kits will be available to deal with accidental spillages.
- **Groundwater and Surface Water Contamination from Wastewater Disposal:** During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used at the wind farm site compound and along the grid maintained by the providing contractor, and removed from site on completion of the construction works; water supply for the wind farm site office

and other sanitation will be brought to the wind farm site and removed after use from the site to be discharged at a suitable off-site treatment location; no batching of wet-cement products will occur on the wind farm site; pre-cast elements for culverts and concrete works will be used; no washing out of any plant used in concrete transport or concreting operations will be allowed on-site; Where concrete is delivered on the wind farm site, only the chute will be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be isolated in temporary lined wash-out pits located near proposed wind farm site compound. These temporary lined wash-out pits will be removed from the wind farm site at the end of the construction phase; contractor will use weather forecasting to plan dry days for pouring concrete; contractor will ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall events.

- Excavations Along the Grid and TDR Works (haul route): silt fences will be placed down-gradient of the proposed cable route and TDR works during construction work. Double silt fences will be placed down-gradient of all construction areas inside the hydrological buffer zones (i.e., near stream crossings). Any road side drains will be temporarily blocked using sand bags in the area where trenching works are taking place. Excavated spoil emanating from the cut for the trenches, where appropriate (i.e. when trenching within private tracks or the public road verge) will be used to backfill the trenches. Any excess will be disposed at an appropriate licenced facility. All excavated material emanating from trenches within the public road will be disposed at an appropriate licenced facility. Excavation of cable trench will not be undertaken during periods of high rainfall.
- Directional Drilling Works Along the Grid: Although no in-stream works are proposed, the drilling works will only be done over a dry period between July and September (as required by IFI for in-stream works) to avoid the salmon spawning season and to have more favourable (drier) ground conditions; The crossing works area will be clearly marked out with fencing or flagging tape to avoid unnecessary disturbance; There will be no storage of material /

equipment or overnight parking of machinery inside the 15m buffer zone; Before any ground works are undertaken, double silt fencing will be placed upslope of the watercourse channel along the 15m buffer zone boundary; Additional silt fencing or straw bales (pinned down firmly with stakes) will be placed across any natural surface depressions / channels that slope towards the watercourse; Silt fencing will be embedded into the local soils to ensure all site water is captured and filtered; The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages; Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area; Spills of drilling fluid will be cleaned up immediately and stored in an adequately sized skip before been taken off-site; If rainfall events occur during the works, there will be a requirement to collect and treat small volumes of surface water from areas of disturbed ground (i.e. soil and subsoil exposures created during site preparation works); This will be completed using a shallow swale and sump down slope of the disturbed ground; and water will be pumped to a proposed percolation area at least 50m from the watercourse; The discharge of water onto vegetated ground at the percolation area will be via a silt bag which will filter any remaining sediment from the pumped water. The entire percolation area will be enclosed by a perimeter of double silt fencing; Any sediment laden water from the works area will not be discharged directly to a watercourse or drain; Works shall not take place during periods of heavy rainfall and will be scaled back or suspended if heavy rain is forecasted; Daily monitoring of the compound works area, the water treatment and pumping system and the percolation area will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter is discharged to the watercourse; If high levels of silt or other contamination is noted in the pumped water or the treatment systems, all construction works will be stopped. No works will recommence until the issue is resolved and the cause of the elevated source is remedied; On completion of the works, the ground surface disturbed during the site preparation works and at the entry and exit pits will be carefully reinstated and re-seeded at the

soonest opportunity to prevent soil erosion; The silt fencing upslope of the river will be left in place and maintained until the disturbed ground has re-vegetated; There will be no batching or storage of cement allowed at the watercourse crossing; There will be no refuelling allowed within 100m of the watercourse crossing; and, All plant will be checked for purpose of use prior to mobilisation at the watercourse crossing.

- Fracture Blow-out (Frac-out) Prevention and Contingency Plan: The drilling fluid/bentonite will be non-toxic and naturally biodegradable; The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage; One or more lines of silt fencing will be placed between the works area and the adjacent river; Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility; Adequately sized skips will be used where temporary storage of arisings are required; The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped; Any frac-out material will be contained and removed off-site; The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location.
- Mitigation measures for turbine base, met mast and access track construction: Detailed mitigation measures by both avoidance and design to protect water quality (which include but are not limited to sediment run-off control, management of concrete & aquatic buffer zones) in respect of on-site construction are outlined in detail in the EMP. Silt fences will be installed within drains or potential surface water pathways down-gradient of any construction area to prevent the escapement of sediment-laden run-off and nutrients to surface waters. Access track construction will require the crossing (culvert) of a single drainage channel within the site boundary, adjacent to turbine T2. This seasonal channel (largely rainwater-fed) does not support resident salmonids or other fish species and, thus, works are not subject to seasonal

constraints (i.e. avoidance of salmonid spawning season and sensitive life stage period, October to June). Nevertheless, should a culvert upgrade be required pre-works, the channel will be dewatered and electro-fishing will be undertaken to translocate any resident fish.

- Mitigation measures for on-site excavations: Proposed on-site excavations are localised and there is no requirement for borrow pits on site. All spoil generated from excavations during the construction phase will be used for landscaping and or reinstated along the access roads and at the turbine locations.
- Mitigation measures for site drainage: detailed temporary and long-term drainage control mitigation measures to protect water quality (which include but are not limited to sediment run-off control and management of concrete & aquatic buffer zones) as outlined above.
- Mitigation measures for GCR installation (HDD and excavations): No in-stream works are required at any of the proposed watercourse crossings. Mitigation measures relating to water quality preservation are outlined above. A pre-construction otter survey should be undertaken in the vicinity of the drilling locations to ensure that no breeding or resting areas are located within 150m of the drilling locations. Should an otter breeding (holt) or resting area (couch) be detected, a derogation licence would need to be obtained from the NPWS to facilitate drilling works. Excavated spoil emanating from the cut trenches, where appropriate (i.e. when trenching within private tracks or the public road verge) will be used to back-fill the trenches. Any excess will be disposed of off-site, at an appropriate licenced facility. All excavated material emanating from trenches within the public road network will be disposed at an appropriate licenced facility. Silt curtains and floating booms will also be used where deemed to be appropriate, in consultation with IFI. An Ecological Clerk of Works (ECoW) will monitor both turbidity and observe the riverbed during the drilling process to detect any leakage (frac-out) of drilling fluid. Should this leakage be observed, works will cease immediately. Given the presence of Japanese knotweed in the vicinity of Ballyvadlea Bridge on the Ballyhomuck



Stream (GCR crossing, HDD site, bridge no. 2), mitigation by avoidance measures will be required to prevent the spread to other areas.

- **Invasive Species:** The preliminary Invasive Species Management Plan will be finalised in consultation with and based on advice provided by the appointed specialist contractor, who will continue to review and, if necessary, update the Management Plan, in order to ensure that current relevant guidelines and regulations are followed at the time when the management of these species is implemented. Prior to arrival on site, the contractor's vehicles and equipment will be thoroughly cleaned and then dried using high-pressure steam cleaning, with water >65 °C, in addition to the removal of all vegetative material. Items difficult to soak/spray will be wiped down with a suitable disinfectant. Evidence that all machinery has been cleaned will be required to be on file for review by the statutory authorities. Visual inspections will be carried out on all machinery and equipment for evidence of attached plant or animal material, or adherent mud or debris. No removed material or run-off will be allowed to enter a water body of any sort; Following cleaning, all equipment and vehicles will be visually inspected to ensure that all adherent material and debris has been removed manually; Each field vehicle must carry a 'disinfection box'; Records of supplies and cleaning of delivery vehicles will be kept and regularly inspected by the ECoW; spot checks on the adequacy of cleaning will be carried out by the ECoW; It is recommended to apply disinfectant to the undercarriage and wheels of any vehicles used after cleaning if the vehicles have been used in streams or rivers. Prior to the development works and landscaping/reinstatement activity begins a survey by an appropriately experienced ecologist will be carried out to establish the full extents of the invasive plant species within the proposed development site boundary. The Contractor's will prepare an updated ISMP for the works. Any further invasive species identified during the preconstruction survey will also be managed in accordance with best practice. The following site hygiene measures shall be implemented onsite during the construction and/or for maintenance works during the operational stage where applicable to further spread of invasive species (i) Fence off the infested areas prior to and during construction works where possible in order to avoid spreading seeds or plant

fragments around or off the construction site. (ii) Clearly identify and mark out infested areas. Erect signs to inform Contractors of the risk. (iii) Avoid if possible using machinery with tracks in infested areas. (iv) Clearly identify and mark out areas where contaminated soil is to be stockpiled on site and cannot be within 50m of any watercourse or within a flood zone. (v) If soil is imported to the site for landscaping, infilling or embankments, the contractor shall gain documentation from suppliers stating that it is free from invasive species. (vi) Ensure all site users are aware of measures to be taken and alert them to the presence of the Invasive Species Management Plan. (vii) Erection of adequate site hygiene signage in relation to the management of non-native invasive material as appropriate.

- Groundwater and Surface Water Contamination from Wastewater Disposal: During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used at the wind farm site compound and along the grid maintained by the providing contractor, and removed from site on completion of the construction works. A self contained port-a-loo will also be used during the construction of the grid route and will be maintained by the providing contractor; Water supply for the wind farm site office and other sanitation will be brought to the wind farm site and removed after use from the site to be discharged at a suitable off-site treatment location; and, No water or wastewater will be sourced on the wind farm site, nor discharged to the wind farm site.

9.7.2. **Integrity Test**

9.7.3. Following the appropriate assessment and the consideration of mitigation measures, I am able to ascertain with confidence that the proposed development would not adversely affect the integrity of the Lower River Suir SAC (002137) in view of the Conservation Objectives for the site.

9.7.4. This conclusion has been based on a complete assessment of all implications of the project alone and in combination with plans and projects.

## 9.8. **Appropriate Assessment Conclusion**

- 9.8.1. The proposed development has been considered in light of the assessment requirements of Sections 177U and 177V of the Planning and Development Act 2000, as amended.
- 9.8.2. Having carried out screening for Appropriate Assessment of the project, it was concluded that it may have a significant effect on the Lower River Suir SAC (002137). Consequently, an Appropriate Assessment was required of the implications of the project on the qualifying features of this site in light of its conservation objectives.
- 9.8.3. Following an Appropriate Assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of European site No. 002137, or any other European site, in view of the sites' Conservation Objectives.
- 9.8.4. This conclusion is based on a full and detailed assessment of all aspects of the proposed development including proposed mitigation measures in relation to the Conservation Objectives of these European sites and an assessment of likely in combination effects with other plans and projects. No reasonable scientific doubt remains as to the absence of adverse effects on the integrity of these European Sites.

## 10.0 **Recommendation**

Having regard to the foregoing, I recommend that planning permission be granted for the proposed development for the reasons and considerations set out below, subject to compliance with the attached conditions and in accordance with the following Draft Order.

## 11.0 **Reasons and Considerations (Draft Order)**

In coming to its decision, the Board has regard to the following:

- (a) national policy including the Climate Action Plan 2023, with regard to the development of alternative and indigenous energy sources and the minimisation of emissions from greenhouse gases,
- (b) Regional Spatial and Economic Strategy for the Southern Region 2020,
- (c) 'Wind Energy Guidelines-Guidelines for Planning Authorities' issued by the Department of the Environment, Heritage and Local Government in June 2006,

and the Draft Wind Energy Guidelines published by the Department of Housing Local Government and Heritage in December 2019.

- (d) the relevant policies of the planning authority as set out in the Tipperary County Development Plan 2022-2028,
- (e) the character of the landscape in the area and the absence of any ecological designation on or in the immediate environs of the wind farm site,
- (f) the characteristics of the site and of the general vicinity,
- (g) the pattern of existing and permitted development in the area, including other wind farms,
- (h) the distance to dwellings or other sensitive receptors from the proposed development,
- (i) the environmental impact assessment report,
- (j) the Natura impact statement,
- (k) the submissions made in connection with the application and the responses to further information, and
- (l) the report of the Inspector.

### **Appropriate Assessment: Stage 1**

The Board noted that the proposed development is not directly connected with or necessary for the management of a European Site.

In completing the screening for Appropriate Assessment, the Board accepted and adopted the screening assessment and conclusion reached in the Inspector's report that the Lower River Suir Special Area of Conservation (Site Code 002137) is the only European site for which there is a possibility of significant effects and which, must therefore be subject to Appropriate Assessment.

### **Appropriate Assessment: Stage 2**

The Board considered the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment of the implications of the proposed development for the Lower River Suir Special Area of Conservation in view of the Site's Conservation Objectives. The Board concluded that the information before it

was adequate to allow for a complete assessment of all aspects of the proposed development and to allow them reach complete, precise and definitive conclusions for appropriate assessment.

In completing the Appropriate Assessment, the Board considered, in particular, the following:

- i. the likely direct and indirect impacts arising from the proposed development both individually or in combination with other plans or projects,
- ii. the mitigation measures which are included as part of the proposal,
- iii. the conservation objectives for the European Site and
- iv. the views contained in the submissions.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspectors report in respect of the potential effects of the proposed development on the integrity of the aforementioned European Site, having regard to the site's Conservation Objectives.

In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Site, in view of the site's Conservation Objectives and there is no reasonable doubt remaining as to the absence of such effects.

#### **Environmental Impact Assessment:**

The Board completed an environmental impact assessment of the proposed development taking account of:

- (a) the nature, scale, location and extent of the proposed development,
- (b) the Environmental Impact Assessment Report and associated documentation submitted in support of the planning application, including the further information submissions,
- (c) the submissions received during the course of the application, and
- (d) the Inspector's report.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the Applicant, adequately considers alternatives to

the proposed development and identifies and describes adequately the direct, indirect, secondary and cumulative effects of the proposed development on the environment. The Board agreed with the examination, set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the Applicant and submissions made in the course of the planning application.

### **Reasoned Conclusions on the Significant Effects**

The Board considered that the main significant direct and indirect effects of the proposed development on the environment are, and would be mitigated, as follows:

- **Population and Human Health:** Noise, vibration and shadow flicker during the construction and/or the operational phases would be avoided by the implementation of the measures set out in the Environmental Impact Assessment Report (EIAR), the Construction and Environment Management Plan (OCEMP) and Environmental Management Plan (EMP). There will be a positive impact on the socio-economic profile of the area due to community funding.
- **Biodiversity:** Habitat loss associated with construction will impact on habitats of generally low ecological value with no rare or protected species recorded. Potential impacts to habitats and faunal species, aquatic fauna and invertebrates, avian species and bats would be mitigated by the implementation of the measures during the construction and/or operational phases set out in the Environmental Impact Assessment Report.
- **Material Assets, Cultural Heritage and the Landscape:** Roads and traffic impacts will be mitigated during construction by the measures set out in the Environmental Impact Assessment Report and a Traffic Management Plan. The main impacts will occur during the construction stage which will be short-term and temporary. Impacts during the operational stage would be negligible. Potential impacts on unknown cultural heritage would be mitigated by archaeological monitoring with provision made for resolution of any archaeological features/deposits that may be identified. Localised visual impacts will occur primarily from in proximity to the site and from local properties. However, the impacts would be balanced to a degree by the nature

and characteristics of the receiving environment and by the same number and layout of turbines being proposed.

- **Land, Soils, Water, Air and Climate:** Potential significant effects on hydrology, hydrogeology and soils would be mitigated by a series of best practice construction management and pollution prevention measures and other specific measures outlined in the EIAR, including the Outline Construction Environmental Management Plan, the Environmental Management Plan, and Surface Water Management Plan. Positive air quality and climate impacts are identified for the operational phase due to the offsetting of fossil fuels by the generation of renewable energy. Construction noise will be mitigated by the measures outlined in the CEMP while operational noise will be mitigated by curtailment of turbine operation, if required.

The Board is satisfied that the reasoned conclusion is up to date at the time of making the decision.

The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures proposed as set out in the EIAR, and subject to compliance with the conditions set out below, the effects of the proposed development on the environment, by itself and in combination with other plans and projects in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions of the Inspector.

Having considered the totality of the Environmental Impact Assessment Report, associated documentation submitted with the application and the report of the Inspector, the Board concluded that any likely significant effects on the environment would be mitigated by the mitigation measures proposed by the Applicant.

**Proper planning and sustainable development:**

It is considered that subject to compliance with the conditions set out below the proposed development would accord with European, national, and regional planning and would be acceptable in terms of impact on the visual amenities and landscape character of the area, would not seriously injure the amenities of property in the vicinity, would not be prejudicial to public health, would not pose a risk to water quality and would be acceptable in terms of traffic safety and convenience. The proposed

development would, therefore, be in accordance with the proper planning and sustainable development of the area.

## 12.0 Conditions

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application, as amended by further information received on 22<sup>nd</sup> of October 2021, 2<sup>nd</sup> of June 2022 and 6<sup>th</sup> of September 2022, and the further plans and particulars received by the Board on the 23<sup>rd</sup> of November 2022, 22<sup>nd</sup> of December 2022, and the 28<sup>th</sup> of February 2023, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development and the proposed development shall be carried out and completed in accordance with agreed particulars.

**Reason:** In the interest of clarity.

2. The mitigation measures and monitoring commitments identified in the Environmental Impacts Assessment Report, including any revisions/ addendums to same, and other plans and particulars submitted with the application shall be implemented in full.

**Reason:** In the interests of clarity and the protection of the environment during the construction and operational phases of the proposed development.

- 4 The mitigation measures contained in the Natura Impact Statement, including any revisions/ addendums to same, submitted with the application shall be implemented in full.

**Reason:** In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of European sites.



- 5 The period during which the proposed development hereby permitted may be constructed shall be 10 years from the date of this Order.

**Reason:** In the interests of clarity.

- 6 This permission shall be for a period of 30 years from the date of the first commissioning of the wind farm.

**Reason:** To enable the planning authority to review the operation of the wind farm in the light of the circumstances then prevailing.

- 7 The following design requirements shall be complied with:

(a) The wind turbines will have a maximum tip height of 150 metres.

(b) Final details of the turbine design, hub height, tip height and blade length complying the maximum limit and within the range set out in the application documentation and the further information received by the Board, along with details of colouring, shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development.

(c) Cables within the site shall be laid underground.

(d) The wind turbines shall be geared to ensure that the blades rotate in the same direction.

(e) No advertising material shall be placed on or otherwise be affixed to any structure on the site without a prior grant of planning permission.

**Reason:** In the interest of visual amenity.

- 8 Prior to any development taking place on the site the developer shall submit for the written agreement of the planning authority:

- a) the final detail and specification of the proposed grid connection route, including details of the methodology to cross each of the bridges along the route.
- b) the locations of grid connection joint boxes /bays relative to the preferred solution for the N24 project shall be agreed with the N24 Waterford to Cahir Project Team.

**Reason:** In the interests of clarity and proper planning and development.

- 9 During construction stage, the developer shall employ a suitably qualified and experienced geotechnical engineer to monitor the stability of all existing slopes adjacent to the works and all temporary slopes created by the works. Should any land slippage occur during the course of the works the developer shall immediately inform the planning authority and provide details on how further slippage shall be prevented and necessary measures to remediate the site.

**Reason:** In the interest of environmental protection and orderly development.

- 10 Decommissioning and construction works shall be limited to between 0800 and 18.00 hours Monday to Saturday and shall not be permitted on Sundays or public holidays.

**Reason:** To protect the amenities of nearby residential properties

- 11 The operation of the proposed development, by itself or in combination with other permitted wind energy development, shall not result in noise levels when measured externally at nearby noise sensitive locations, which exceed:

(a) Between the hours of 0700 and 2300:

- i the greater of 5 dB(A)  $L_{90,10mins}$  above background noise levels, or 45 dB(A)  $L_{90,10mins}$ , at standardised 10-meter height above ground level wind speed of 6m/s or greater.

ii 40 dB(A)  $L_{90,10 \text{ mins}}$  at all other standardised 10-meter height above ground level wind speeds.

(b) 43 dB(A)  $L_{90,10 \text{ mins}}$ , at all other times.

Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, including any mitigation measures such as the de-rating of particular turbines. All noise measurements shall be carried out in accordance with ISO Recommendation R 1996 "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendation R 1996-1. The results of the initial noise compliance monitoring shall be submitted to and agreed in writing with the planning authority within six months of the commissioning of the wind farm.

**Reason:** In the interests of residential amenity.

12 The developer shall comply with the following shadow flicker requirements:

(a) Cumulative shadow flicker arising from the proposed development shall not exceed 30 minutes in any day or 30 hours in any year at any dwelling.

(b) The proposed turbines shall be fitted with appropriate equipment and software to control shadow flicker at dwellings.

(c) Prior to commencement of development, a wind farm shadow flicker monitoring programme shall be prepared by a consultant with experience of similar monitoring work, in accordance with details to be submitted to the planning authority for written agreement. Details of the monitoring programme shall include the proposed monitoring equipment methodology to be used, and the reporting schedule.

**Reason:** In the interests of residential amenity.

13 Details of the materials, colours and textures of all the external finishes of the proposed substation building and enclosing fence shall be submitted to and agreed in writing with the planning authority, prior to commencement of the development.

**Reason:** In the interests of the visual amenities of the area.

14 Details of a pre-construction and post construction monitoring and reporting programme for birds shall be submitted to and agreed in writing with the planning authority prior to commencement of development. The timing and extent of the bird surveys shall be agreed in advance with the National Parks and Wildlife Service (NPWS) and the surveys shall be undertaken by a suitably qualified and experienced bird specialist. The surveys shall be completed annually for a period of five years following commissioning of the wind farm and copies of the report submitted annually to the planning authority and to the NPWS.

The pre-construction mitigation measures outlined in the EIAR to protect birds shall also be implemented during the decommissioning phase of the project.

**Reason:** To ensure the appropriate monitoring of the impact of the proposed development on the avifauna in the area.

15 Prior to commencement of development, details of a post-construction monitoring and reporting programme for bats shall be submitted to and agreed in writing with the planning authority. Monitoring shall be undertaken by a suitably qualified and experienced bat specialist and identify any measures required to mitigate any identified effects. The surveys shall be completed annually for a period of three years following commissioning of the wind farm and copies of the report submitted to the planning authority and the NPWS.

**Reason:** To ensure the appropriate monitoring of the use of the site by bat species.

16 A bird and bat corpse survey, carried out by a competent ecological surveyor shall be conducted annually under the operational turbines. The survey shall be carried out in accordance with up-to-date best practice concerning timing and using trained search dogs. The result shall be forwarded annually to the planning authority and the NPWS.

**Reason:** In order to monitor bird and bat mortality associated with the operational wind farm.

17 Prior to the commencement of the development, the details of the proposed replanting scheme shall be submitted and agreed in writing with the Local Authority.

**Reason:** In the interests of protecting local biodiversity.

18 In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise interference with telecommunications signals in the area. Details of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing, with the planning authority prior to commissioning of the turbines and following consultation with the relevant authorities.

**Reason:** In the interests of the protection of telecommunications signals and of residential amenity.

19 Details of aeronautical requirements shall be submitted to, and agreed in writing with the planning authority prior to commencement of the development. Prior to the commissioning of the turbines, the developer shall inform the planning authority and the Irish Aviation Authority of the as-constructed tip heights and co-ordinates of the turbines and the wind monitoring masts.

**Reason:** In the interests of air traffic safety.

20 Prior to commencement of the development, a traffic management plan for the construction phase shall be submitted to, and agreed in writing with, the planning authority. The Applicant shall liaise with the N24 Waterford to Cahir Project Team in the preparation of the plan. A Traffic Management Co-ordinator shall be appointed to implement and monitor the plan and shall act as a point of contact for the planning authority, other relevant bodies and members of the public in relation to traffic and transportation matters.

The traffic plan shall incorporate the following:

- i. Details of the road network/haulage routes and the vehicle types to be used to transport materials to and from the site and a schedule of control measures for exceptionally wide and heavy delivery loads.
- ii. A condition survey of the roads and bridges along the haul routes shall be carried out at the developer's expense by a suitably qualified person both before and after the construction of the proposed development. This survey shall include a schedule of required works to enable the haul routes to cater for construction related traffic. The extent and scope of the survey and the schedule of works shall be agreed within the relevant planning authorities and Transport Infrastructure Ireland prior to commencement of development. Any damage to the road, drainage, boundaries or associated features of the public road shall be rectified at the developer's expense to the satisfaction of the planning authority.
- iii. Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the planning authority.
- iv. Detailed arrangements for the protection of bridges to be crossed.
- v. Detailed arrangements for temporary traffic arrangements/control on roads and protocols to keep residents informed of upcoming traffic related matters, temporary lane/road closures and delivery of turbines.

- vi. Details of the establishment of a communication and complaints protocol to ensure that local residents are aware of the construction programme, haul routes, traffic control measures and to provide contact details for complaints or queries.
  - vii. A phasing programme indicating the timescale within which it is intended to use each public route to facilitate construction of the proposed development. In the event that the proposed development is being developed concurrently with any other windfarm in the area or the N24 Cahir to Waterford project, the developer shall consult with and arrange suitable traffic phasing arrangements with the planning authority,
  - viii. Within three months of the cessation of the use of each public road and haul route to transport material to and from the site, a road survey and scheme of works detailing works to repair any damage to these routes shall be submitted to, and agreed in writing with the planning authority.
- (b) All works arising from the aforementioned arrangements shall be completed at the developer's expense within 12 months of the cessation of each road's use as a haul route for the proposed development.

**Reason:** To protect the public road network, the amenity of local residents and to clarify the extent of the permission in the interest of traffic safety and orderly development.

- 21 The developer shall comply with the requirements of Irish Water with regard to the protection of drinking water sources and infrastructure in proximity to the development, and in respect of any potential diversions and connections to the public network.

**Reason:** In the interests of public health.

22 The developer shall facilitate the preservation, recording and protection of archaeological materials and features that may exist on or within the site. In this regard, the developer shall:

(a) notify the planning authority in writing at least four weeks prior to the commencement of any site operations (including hydrological or geotechnical investigation) relating to the proposed development,

(b) employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works,

The assessment shall address the following issues:

- (i) the nature and location of archaeological material on the site, and
- (ii) the impact of the proposed development on such archaeological material.

A report, containing the results of the assessment, shall be submitted to the planning authority and, arising from this assessment, the developer shall agree in writing with the planning authority details regarding any future archaeological requirements (including, if necessary, archaeological excavation) prior to commencement of construction works.

In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála.

**Reason:** In order to conserve the archaeological heritage of the area and to secure the preservation (in-situ or by record) and protection of any archaeological remains that may exist on the site.

23 On full or partial decommissioning of the windfarm, or if the windfarm ceases operation for a period of more than one year, the turbines and all decommissioned structures shall be removed, and foundations covered with soil to facilitate re-vegetation. These reinstatement works shall be completed to the written satisfaction of the planning authority within three months of decommissioning or cessation of operation.



**Reason:** To ensure satisfactory reinstatement of the site upon cessation of the project.

24 Prior to the commencement of development, details of the proposed community benefit fund shall be submitted to, and agreed in writing with, the Planning Authority.

**Reason:** In the interest of the proper planning and sustainable development of the area.

25 Prior to commencement of the development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other such security as may be acceptable to the relevant planning authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the relevant planning authority to apply such security or part thereof to the satisfactory reinstatement of the public roads. The form and amount of the security shall be as agreed between the relevant planning authority and the developer or, in default of agreement shall be referred to An Bord Pleanála.

**Reason:** The ensure the satisfactory reinstatement of the delivery routes.

26 Prior to commencement of the development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other such security as may be acceptable to the planning authority, to secure the satisfactory reinstatement of the site upon cessation of the project, coupled with an agreement empowering the planning authority to apply such security or part thereof to such reinstatement of the site. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement shall be referred to An Bord Pleanála.

**Reason:** To ensure the satisfactory reinstatement of the site.

27 The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála to determine the proper application of the terms of the Scheme.

**Reason:** It is a requirement of the Planning and Development Act, 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under Section 48 of the Act be applied to the permission.

I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

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Susan Clarke  
Senior Planning Inspector

9<sup>th</sup> October 2023

### 13.0 **Appendix A: List of Observers**

- Dr Alan Moore
- Sarah MacDonald
- James Dorney
- Ruth MacDonald
- Declan and Carol McNamara
- Angus MacDonald
- Richard Walsh
- Mary Hayden
- Bryan Coffey
- Mary Hayden
- Suir Valley Environmental Group
- TJ Keane
- Aidan and Tanya O'Brien
- Aine Keane
- Jenny McGrath
- Alasdair MacDonald
- Slievenamon Action Group
- Ned O'Brien
- May O'Brien
- Kathleen O'Brien
- Ailish O'Brien
- Joe Maguire
- Anne Baily
- Fintan Morrissey
- Ann Burke
- Marie Barton
- Edward and Joan O'Brien
- Robert Barton
- Ronnie Basquill
- Helen and Richie Butler
- Mary and Niall Frawley
- Rhona and Malcom Daly
- Kevin Walsh
- Elaine Walsh
- Peter Sweetman on behalf of Wild Ireland Defence CLG
- Donal McNamara

### 14.0 **Appendix B: List of Observers Who Made Further Submissions Following Receipt of Further Information**

- Anne Bailey