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13.0 LANDSCAPE AND VISUAL IMPACT

13.1 INTRODUCTION

This chapter describes the landscape context of the proposed project and assesses the likely landscape and visual impacts on the receiving environment.

13.1.1 Statement of Authority

This Landscape and Visual Assessment (LVIA) was prepared by Cian Doughan, Macro Works Ltd. Cian holds a Bachelor of Science in Landscape Architecture and is a Corporate Member of the Irish Landscape Institute (MILI) with seven years experience as an LVIA consultant. The Assessment was reviewed by Richard Barker (Masters in Landscape Architecture and MILI) of Macro Works Ltd, who has 18 years of experience in the appraisal of landscape and visual effects from a variety of energy, infrastructure and commercial developments.

13.1.2 Description of the Proposed Project

A full description of the proposed project is provided in Chapter 2 of this EIAR.

13.1.3 Definition of the Study Area

Both the 2006 Wind Energy Development Guidelines and draft revised 2019 Wind Energy Development Guidelines published by the Department of the Environment, Heritage and Local Government specify radii for examining the zone of theoretical visibility of proposed wind farm projects (ZTV). The guidance in the 2006 and draft revised 2019 guidance is identical in relation to defining the radii for examining the zone of theoretical visibility of proposed wind farm projects. The extent of this search area is influenced by turbine height, as follows:

- 15 km radius for blade tips up to 100m;
- 20 km radius for blade tips greater than 100m and;
- 25 km radius where landscape features of national and international importance exist.

In the case of this project, the blade tips are up to and including a maximum 185m high and, thus, the minimum ZTV radius applied is 20 km from the outermost turbines of the scheme. There are no landscape features of national or international importance between 20 – 25km and thus, the radius of the study area will remain at 20km. Notwithstanding the full 20km extent of the LVIA study area, there will be a particular focus on receptors and effects within the central study where there is higher potential for significant effects to occur. When referenced within this assessment, the 'central study area' is the landscape within 5km of the site.

In relation to ancillary features of the proposed project, such as the proposed grid connection route (GCR) and proposed turbine delivery route (TDR), their study area relates to their immediate context and a 50m corridor either side of these linear features. This is principally due to the localised nature of potential effects.

Figure 13.1 Full 20km extend of the study area

13.2 ASSESSMENT METHODOLOGY

Although closely linked, landscape and visual effects are assessed separately.

Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the proposed project, which may alter its character, and how this is experienced. This requires a detailed analysis of the individual elements and characteristics of a landscape that go together to make up the overall landscape character of that area. By understanding the aspects that contribute to landscape character, it is possible to make judgements in relation to its quality (integrity) and to identify key sensitivities. This, in turn, provides a measure of the ability of the landscape in question to accommodate the type and scale of change associated with the proposed project without causing unacceptable adverse changes to its character.

Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views

as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from; Visual Obstruction (blocking of a view, be it full, partial or intermittent) or; Visual Intrusion (interruption of a view without blocking).

Cumulative landscape and visual impact assessment is concerned with additional changes to the landscape or visual amenity caused by the proposed project in conjunction with other developments (associated or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.

The LVIA adheres to methodology as prescribed in the following guidance documents:

- European Union (2017) Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU);
- Environmental Protection Agency (EPA) (2022) publication 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022)
- Landscape Institute and the Institute of Environmental Management and Assessment (IEMA) publication entitled Guidelines for Landscape and Visual Impact Assessment – Third Addition (2013).
- NatureScot (2021) Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments. [online]
- Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines (2006).
- Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines (2019 draft).[1]
- Scottish Natural Heritage Visual Representation of Wind Farms: Best Practice Guidelines (version 2.2 - 2017).

Use of the Term 'Effect' vs 'Impact' The GLVIA advises that the terms 'impact' and effect' should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed works, the impact would include the construction of the proposed project.

'Effect' is defined as the change or changes resulting from those actions, e.g. a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This report focusses on these effects.

Assessment of Both 'Landscape' and 'Visual' Effects

Another key distinction to make in a LVIA is between landscape effects and the visual effects of development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

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[1] It is important to note that all information and guidelines relating to landscape areas and types in the current wind energy development guidelines (2006) are duplicated in the draft revised wind energy development guidelines (2019). The only additional information relating to landscape and visual in the draft revised guidelines relates to the visual amenity setbacks. Thus, the current (2006) and draft revised (2019) guidelines have been referenced.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The GLVIA prescribes that effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

Production of this Landscape and Visual Impact Assessment involved baseline work in the form of desktop studies and fieldwork comprising professional evaluation by qualified and experienced Landscape Architects. This entailed the following:

13.2.1 Desktop Study

- Establishing an appropriate Study Area from which to study the landscape and visual impacts of the proposed wind farm;
- Review of a Zone of Theoretical Visibility (ZTV) map, which indicates areas from which the development is potentially visible in relation to terrain within the Study Area;
- Review of relevant County Development Plans, particularly with regard to sensitive landscape and scenic view/route designations and associated policies and objectives;
- Selection of potential Viewshed Reference Points (VRPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity;

13.2.2 Fieldwork

- Recording of a description of the landscape elements and characteristics within the Study Area.
- Selection of a refined set of VRP's for assessment. This includes the capture of reference images and grid reference coordinates for each VRP location for the visualisation specialist to prepare photomontages.

13.2.3 Appraisal

- Consideration of the receiving landscape with regard to overall landscape character as well as the salient features of the study area including landform, drainage, vegetation, land use and landscape designations.
- Consideration of the visual environment including receptor locations such as centres of population and houses; transport routes; public amenities and facilities and; designated and recognised views of scenic value.
- Consideration of design guidance and planning policies.
- Consideration of potentially significant effects and the mitigation measures that could be employed to reduce such effects.
- Estimation of the significance of residual landscape effects.
- Estimation of the significance of residual visual effects aided by photomontages prepared at all of the selected VRP locations.
- Estimation of cumulative landscape and visual effects in combination with other surrounding developments that are either existing, permitted or in the planning system and pending a decision from a planning authority. Projects that are at the pre-planning stage where information is available to the public are also be included in the cumulative impact assessment.

13.2.4 Assessment Criteria for Landscape Impact

The classification system used by Macro Works to determine the significance of landscape and visual impacts is based on the IEMA Guidelines for Landscape and Visual Impact Assessment (2013). When assessing the potential impacts on the landscape resulting from a wind farm development, the following criteria are considered:

- Landscape character, value and sensitivity
- Magnitude of likely effects; and
- Significance of landscape effects

The sensitivity of the landscape to change is the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Landscape Value and Sensitivity is classified using the following criteria outlined in **Table 13.1** below;

Table 13.1 Landscape Value and Sensitivity

Sensitivity	Description
Very High	Areas where the landscape character exhibits a very low capacity for change in the form of development. Examples of which are high value landscapes, protected at an international or national level (World Heritage Site/National Park), where the principal management objectives are likely to be protection of the existing character.
High	Areas where the landscape character exhibits a low capacity for change in the form of development. Examples of which are high value landscapes, protected at a national or regional level (Area of Outstanding Natural Beauty), where the principal management objectives are likely to be considered conservation of the existing character.
Medium	Areas where the landscape character exhibits some capacity and scope for development. Examples of which are landscapes, which have a designation of protection at a county level or at non-designated local level where there is evidence of local value and use.
Low	Areas where the landscape character exhibits a higher capacity for change from development. Typically, this would include lower value, non-designated landscapes that may also have some elements or features of recognisable quality, where landscape management objectives include, enhancement, repair and restoration.
Negligible	Areas of landscape character that include derelict, mining, industrial land or are part of the urban fringe where there would be a reasonable capacity to embrace change or the capacity to include the development proposals. Management objectives in such areas could be focused on change, creation of landscape improvements and/or restoration to realise a higher landscape value.

The magnitude of a predicted landscape effect is a product of the scale, extent or degree of change that is likely to be experienced as a result of the proposed project. The magnitude takes into account whether there is a direct physical impact resulting from the loss of landscape components and/or a change that extends beyond the proposal site boundary that may have an effect on the landscape character of the area. **Table 13.2** refers.

Table 13.2 Magnitude of Landscape Effects

Magnitude of Effect	Description
Very High	Change that would be large in extent and scale with the loss of critically important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an extensive change of the landscape in terms of character, value and quality.
High	Change that would be more limited in extent and scale with the loss of important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to a considerable change of the landscape in terms of character, value and quality.
Medium	Changes that are modest in extent and scale involving the loss of landscape characteristics or elements that may also involve the introduction of new uncharacteristic elements or features that would lead to noticeable changes in landscape character, and quality.
Low	Changes affecting small areas of landscape character and quality, together with the loss of some less characteristic landscape elements or the addition of new features or elements that would lead to discernible changes in landscape character, and quality.
Negligible	Changes affecting small or very restricted areas of landscape character. This may include the limited loss of some elements or the addition of some new features or elements that are characteristic of the existing landscape or are hardly perceivable leading to no material change to landscape character, and quality.

The significance of a landscape effect is based on a balance between the sensitivity of the landscape receptor and the magnitude of the effect. The significance of landscape effects is arrived at using the following matrix set out in **Table 13.3**.

Table 13.3 Effect Significance Matrix

	Sensitivity of Receptor				
Magnitude	*Very High*	*High*	*Medium*	*Low*	*Negligible*
Very High	Profound	Profound-substantial	Substantial	Moderate	Slight
High	Profound-substantial	Substantial	Substantial - moderate	Moderate-slight	Slight-imperceptible
Medium	Substantial	Substantial - moderate	Moderate	Slight	Imperceptible
Low	Moderate	Moderate-slight	Slight	Slight-imperceptible	Imperceptible
Negligible	Slight	Slight-imperceptible	Imperceptible	Imperceptible	Imperceptible

Note: Judgements deemed 'substantial (yellow colour)' and above are considered to be 'significant effects' in EIA terms.

13.2.5 Assessment Criteria for Visual Effects

As with the landscape effect, the visual effect of the proposed project will be assessed as a function of receptor sensitivity versus magnitude. In this instance, the sensitivity of visual receptors, weighed against the magnitude of visual effects.

13.2.5.1 Visual Sensitivity

Unlike landscape sensitivity, visual sensitivity has an anthropocentric basis. Visual sensitivity is a two-sided analysis of receptor susceptibility (people or groups of people) versus the value of the view on offer at a particular location.

To assess the susceptibility of viewers and the amenity value of views, the assessors use a range of criteria and provide a four-point weighting scale to indicate how strongly the viewer/view is associated with each of the criterion. Susceptibility criteria is extracted directly from the IEMA Guidelines for Landscape and Visual Assessment (2013), whilst the value criteria relate to various aspects of a view that might typically be related to high amenity including, but not limited to, scenic designations. These are set out below:

Susceptibility of receptor group to changes in view

This is one of the most important criteria to consider in determining overall visual sensitivity because it is the single category dealing with viewer susceptibility. In accordance with the 2013 IEMA Guidelines, visual receptors most susceptible to changes in views and visual amenity are;

- Residents at home;
- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focussed on the landscape and on particular views;
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience;
- Communities where views contribute to the landscape setting enjoyed by residents in the area; and
- Travellers on road rail or other transport routes where such travel involves recognised scenic routes and awareness of views is likely to be heightened.
- Visual receptors that are less susceptible to changes in views and visual amenity include;
    - People engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape; and
    - People at their place of work whose attention may be focussed on their work or activity, not their surroundings and where the setting is not important to the quality of working life.

Value Associated with the View

- **Recognised scenic value of the view** (County Development Plan designations, guidebooks, touring maps, postcards etc). These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, at least, a public consultation process is required.

- **Views from within highly sensitive landscape areas**. Again, highly sensitive landscape designations are usually part of a county's Landscape Character Assessment, which is then incorporated with the County Development Plan and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them;

- **Intensity of use, popularity**. Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale;

- **Connection with the landscape**. This considers whether or not receptors are likely to be highly attuned to views of the landscape i.e. commuters hurriedly driving on busy national route versus hill walkers directly engaged with the landscape enjoying changing sequential views over it;

- **Provision of elevated panoramic views**. This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.

- **Sense of remoteness and/or tranquillity**. Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example;

- **Degree of perceived naturalness**. Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by obvious human interventions;

- **Presence of striking or noteworthy features**. A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle;

- **Historical, cultural or spiritual value**. Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings;

- **Rarity or uniqueness of the view**. This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context;

- **Integrity of the landscape character in view**. This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components;

- **Sense of place**. This criterion considers whether there is special sense of wholeness and harmony at the viewing location; and

- **Sense of awe**. This criterion considers whether the view inspires an overwhelming sense of scale or the power of nature.

Those locations where highly susceptible receptors or receptor groups are present and which are deemed to satisfy many of the view value criteria above are likely to be judged to have a high visual sensitivity and vice versa.

13.2.5.2 Magnitude of Visual Effects

The magnitude of visual effects is determined on the basis of two factors; the visual presence of the proposed project and its effect on visual amenity.

Visual presence is a somewhat quantitative measure relating to how noticeable or visually dominant the proposal is within a particular view. This is based on a number of aspects beyond simply scale in relation to distance. Some of these include the extent of the view as well as its complexity and the degree of existing contextual movement experienced such as might occur where turbines are viewed as part of / beyond a busy street scene. The backdrop against which the project is presented and its relationship with other focal points or prominent features within the view is also considered. Visual presence is essentially a measure of the relative visual dominance of the proposal within the available vista and is expressed as such, i.e. minimal, sub-dominant, co-dominant, dominant, highly dominant.

For wind energy developments, a strong visual presence is not necessarily synonymous with adverse impact. Instead, the 2012 Fáilte Ireland survey entitled 'Visitor Attitudes On The Environment – Wind Farms' found that *"Compared with other types of development in the Irish landscape, wind farms elicited a positive response when compared to telecommunication masts and steel electricity pylons"*.... and that *"most* (tourists) *felt that their presence did not detract from the quality of their sightseeing, with the largest proportion (45%) saying that the presence of the wind farm had a positive impact on their enjoyment of sightseeing..."*. The purpose here is not to suggest that turbines are either inherently liked or disliked, but rather to highlight that the assessment of visual impact magnitude for wind turbines is more complex than just the degree to which turbines occupy a view. Furthermore, a clear and comprehensive view of a wind farm might be preferable in many instances to a partial, cluttered view of turbine components that are not so noticeable within a view. On the basis of these reasons, the visual amenity aspect of assessing impact magnitude is qualitative and considers such factors as the spatial arrangement of turbines both within the scheme and in relation to surrounding terrain and land cover. It also examines whether the project contributes positively to the existing qualities of the vista or results in distracting visual effects and disharmony.

It should be noted that as a result of this two-sided analysis, a high order visual presence can be moderated by a low level of effect on visual amenity and vice versa. Given that wind turbines do not represent significant bulk, visual impacts result almost entirely from visual 'intrusion' rather than visual 'obstruction' (the blocking of a view). The magnitude of visual effect is classified in in table 13.4 below.

Table 13.4 Magnitude of Visual Effect

Criteria	Description
Very High	The proposal obstructs or intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. An extensive degree of visual change will occur within the scene completely altering its character, composition and associated visual amenity
High	The proposal obstructs or intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity
Medium	The proposal represents a moderate intrusion into the available vista and is a readily noticeable element. A noticeable degree of visual change will occur within the scene perceptibly altering its character, composition and associated visual amenity

Low	The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene
Negligible	The proposal would be barely discernible within the available vista and/or it would not influence the visual amenity of the scene

13.2.5.3 Significance of Visual Effect

As stated above, the significance of visual effect is a function of visual receptor sensitivity and magnitude of visual effect This relationship is expressed in the same significance metric included for Landscape Effect Significance at Table 13.3.

13.2.5.4 Quality and Timescale in Effects

In addition to assessing the significance of landscape effects and visual effects, the 2022 EPA Guidance for EIARs requires that the quality of the effects is also determined. This could be negative/adverse, neutral, or positive/beneficial. In the case of new energy / infrastructure developments within rural and semi-rural settings, the landscape and visual change brought about by an increased scale and intensity of built form is seldom considered to be positive / beneficial.

Landscape and Visual effects are also categorised according to their duration:

- Temporary – Lasting for one year or less;
- Short Term – Lasting one to seven years;
- Medium Term – Lasting seven to fifteen years;
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years.

13.3 BASELINE ENVIRONMENT

13.3.1 Landscape Baseline

The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the proposal will be assessed. This also includes reference to any relevant landscape character appraisals and the current landscape policy context (both are generally contained within County Development Plans).

A description of the landscape context of the proposed wind farm site and wider study area is provided below under the headings of landform and drainage and vegetation and land use. Centres of population, transport routes and tourism, recreation and heritage features form part of the visual baseline and are dealt with in Section 13.3.3 below.

Figure 13.2 Aerial photograph showing the landscape context of the site and its immediate surrounds.

13.3.1.1 Landform and Drainage

The proposed project is located along a transitional rolling foothill east of the Knockmealdown Mountains' main ridgeline. The site terrain ranges in elevation from 160m AOD to c.486m AOD, with Knocknanask Hill (486m AOD) and Knocknasheega Hill (430m AOD) accounting for the two most elevated locations within the site. Aside from these two rolling hills, the southern extent of the site comprises an elongated crested ridge oriented in a north-south direction. The Glenshelane River briefly intersects the northern aspect of the site at the saddle that connects Knocknanask and Knocknasheega and flows in a southerly direction.

The immediate surrounds of the site and central study area are varied in terms of the landform but are heavily influenced by the surrounding Knockmealdown Mountains. The eastern, southern and northern extent of the central study area is characterised by low rolling hills and ridges that form part of the Knockmealdown Mountains transitional foothill setting, whilst the western extent of the central study area has stronger associations with the more elevated

upland parts of the Knockmealdown Mountains. Several broad valleys are located west of the site, the nearest of which contains the Glenshelane River corridor. West and southwest of Knocknanask Hill is the Glenafalla River, which flows in a southerly direction before it merges with the Glenshelane River in the southern half of the central study area. The Glenshelane River flows into the River Blackwater in the southern periphery of the central study area, which is one of the principal watercourses within the study area. Several other watercourses, including the River Finisk and numerous local streams, also flow through the outer periphery of the central study area.

The wider study area is distinctly diverse in terms of landform and comprises numerous landscape types and areas. The Knockmealdown Mountains, Comeragh Mountains and Monavullagh Mountains are the most notable upland parts of the wider study area, whilst the Blackwater River and its surrounding enclosed valley, located throughout the southwest quadrant of the study area, and the River Suir located in the northern extent of the study area are the principal watercourses within the study area. The River Blackwater is situated just under 5km southwest of the site at its nearest point, whilst the River Suir is situated just under 6km north of the site at its nearest point. The wider southeast quadrant of the study area also encompasses some distinctive coastal landforms, including sand spits, broad coastal peninsulas, rocky shorelines and small coastal sea cliffs.

13.3.1.2 Vegetation and Land Use

The land use of the eastern and southern half of the site that comprises Knocknasheega and the broad crested ridge is principally contained in an extensive area of commercial conifer forest, areas of which have been recently harvested. Small pastoral fields and some localised areas of moorland encircle the landscape immediately beyond these forested lands. Knocknanask Hill, in the north-western extent of the site, is cloaked in a broad area of moorland and is encircled by commercial conifer forest plantations and some small pastoral fields to its west.

Beyond the immediate site context, the land uses are typical of a transitional foothill setting comprising a mix of pastoral lands, commercial conifer forestry and areas of mountain moorland. The most notable areas of mountain moorland are typically located in the western half of the study area along more elevated lands, whilst the landscape within the eastern and southern half of the central study is heavily influenced by more traditional pastoral lands enclosed by mixed hedgerow vegetation. Some notable areas of riparian woodland are also noted throughout the central study area, especially along the Glenshelane and Glenafalla River corridors to the west and southwest of the site. Other notable single land uses within the central study area include the urban settlement of Cappoquin and the N72 national secondary route, both of which are situated in the southern periphery of the central study area.

The wider study area comprises a diverse mix of land uses, albeit the predominant land use throughout the entire study area is agricultural farmland bound by networks of mixed hedgerow vegetation. Nonetheless, the wider study area also encompasses some extensive areas of mountain moorland along the most elevated lands throughout the wider landscape, whilst the lower transitional lands encompass notable tracts of commercial conifer forest plantations. The settlements of Clonmel and Dungarvan account for the most notable areas of urban land use, whilst the national roads N24, N25 and N72 are prominent linear land uses within the study area. Other distinctive single land uses throughout the wider study area include existing quarries, historic demesne landscapes and existing wind farm developments.

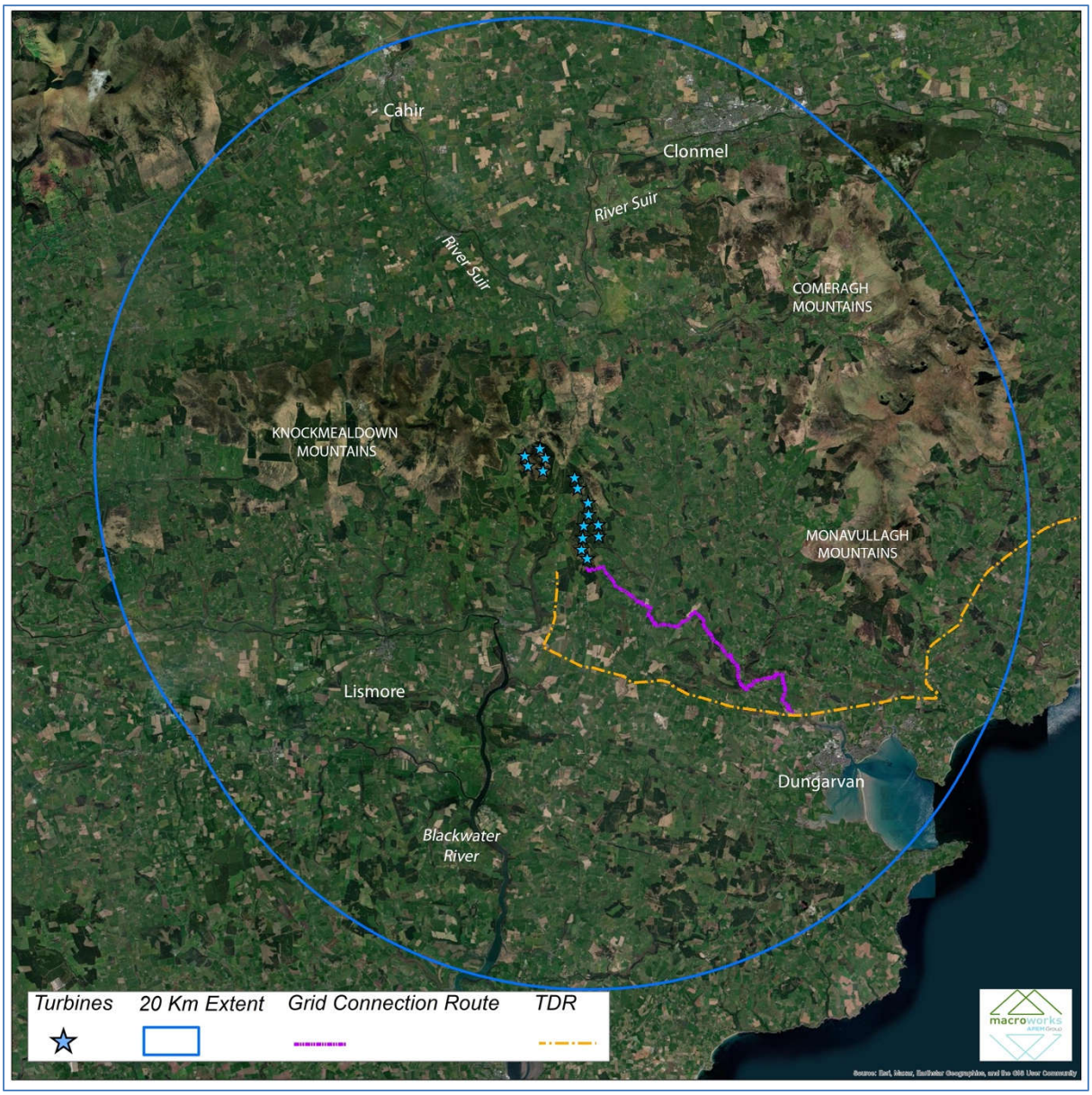

Figure 13.3 Aerial photograph showing the landscape context of the wider study area.

13.3.2 Landscape Policy Context and Designations

13.3.2.1 The Department of Environment, Heritage and Local Government Wind Energy Development Guidelines 2006 and draft revised 2019 Wind Energy Development Guidelines

The Wind Energy Development Guidelines (2006) provide guidance on wind farm siting and design criteria for a number of different landscape types. The site of the proposed project is located within a foothill landscape context east of the Knockmealdown Mountains. The setting of the proposed project is most consistent with the 'Transitional Marginal Landscape' type described in the 2006 Guidelines. However, the wider context does encompass characteristics from a mix of the landscape types including, 'Mountain Moorland' and 'Hilly and Flat Farmland'. Siting and design recommendations for the 'Transitional Marginal' landscape type is included below:

Transitional Marginal Landscapes:

Location – "*As wind energy developments, for reasons of commercial viability, will typically be located on ridges and peaks, a clear visual separation will be achieved from the complexity of lower ground."*

Spatial extent – "*Wind energy developments in these landscapes should be relatively small in terms of spatial extent. It is important that they do not dominate but achieve a balance with their surrounds, especially considering that small fields and houses are prevalent"*

Spacing - *"All options are possible, depending on the actual landscape characteristics. However, irregular spacing is likely to be most appropriate."*

Layout - *"The likely location of wind energy developments on ridges suggests a linear or staggered linear layout whereas on broader hilltops they could be linear or clustered"*

Height - *"…where the upper ground is relatively open and visually extensive, taller turbines may be more appropriate"*

Cumulative - "*This would have to be evaluated on a case-by-case basis, but great caution should be exercised. The spatial enclosure often found in transitional marginal landscapes is likely to preclude the possibility of seeing another wind energy development. However, should two or more wind energy developments be visible within a confined setting a critically adverse effect might result, depending on turbine height and wind energy development extent and proximity."*

It is considered that the proposed wind farm developments siting and design responds well and is generally consistent with the guidance note above for the 'Transitional Marginal Landscapes' landscape type. The design response of the proposed project is especially consistent with the 'location' and 'spacing' guidance. Early stage feasibility studies, which encompassed input from the project landscape and visual consultant identified that the linear ridge location of the proposal site should dictate the layout of the proposed turbine array. Furthermore, the broad nature of the surrounding landscape, which is heavily influenced by elevated uplands and backdrops much of the proposed project site, is more akin to the 'Mountain Moorland' landscape type. This lends the proposed project to a larger spatial extent than is otherwise outlined for the guidance associated with the 'Transitional Marginal Landscapes'.

Siting in Relation to Individual Properties ('Setback')

Section 6.18 of the Draft Revised Wind Energy Development Guidelines (December 2019) refers to appropriate setback distances for visual amenity purposes. The guidelines outline a mandatory minimum setback distance of *"500 meters"* or the distance of *"4 times the tip height"* of the proposed *turbines "between the nearest point of the curtilage of any residential property".* This is set out in Specific Planning Policy Requirements (SPPR) 2 of the draft guidelines which is included below:

> *SPPR 2: With the exception of applications where reduced setback requirements have been agreed with relevant owner(s) as outlined at 6.18.2 below, planning authorities and An Bord Pleanála (where relevant), shall, in undertaking their development planning and development management functions, ensure that a*

setback distance for visual amenity purposes of 4 times the tip height of the relevant wind turbine shall apply between each 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 from that residential property. Some discretion applies to planning authorities when agreeing separation distances for small scale wind energy developments generating energy primarily for onsite usage. The planning authority or An Bord Pleanála (where relevant), shall not apply a setback distance that exceeds these requirements for visual amenity purposes.

The nearest residential dwelling to any of the proposed turbines is >800 m which exceeds and fully complies with the setback distance outlined in both the current 2006 Guidelines (i.e. >500m) and the Draft Revised Guidelines (2019), which in this instance is 740m (4 x 185m tip height). It is worth noting that these Draft Revised Guidelines are not yet adopted, although new wind farm projects tend to apply their recommended setback from sensitive receptors.

It is important to note that the proposed project has been designed and sited to adhere to both the guidelines in the current (2006) and draft revised (2019) wind energy development guidelines.

13.3.2.2 Waterford City and County Development Plan 2022-2028

Waterford Landscape and Seascape Character Assessment 2020

A Landscape and Seascape Character Assessment was prepared for County Waterford in 2020 and forms part of the current Waterford City and County Development Plan 2022-2028. The Landscape and Seascape Character Assessment subdivides the counties landscape into seven (7) landscape types and a subsequent twenty-eight (28) landscape character units. The proposed project is primarily contained within the 'Upland' landscape type and the subsequent landscape character unit '6B-Knockmealdown Uplands' and straddles the border of the 'Foothills' landscape type and subsequent landscape character unit '5C – Tooaneena Foothills' (**Figure 13.4** below). The Landscape and Seascape Assessment also sets out the 'degrees of sensitivity' of Waterford's landscape and describes the landscape of Waterford as comprising *"a series of compartments each of which has a distinctive character."* Table A8.2 of the Landscape and Seascape Assessment assigns the Waterford's landscape four layers of sensitivity, each of which *"indicates the extent to which the landscape will be vulnerable to change in its character".* Guidelines in relation to each of these sensitivity classifications are outlined below;

- ***Most Sensitive*** *– Landscape Character Areas and features designated as Most Sensitive represent the principal features which create and sustain the character and distinctiveness of the surrounding landscape. To be considered for permission, development in or in the environs of these areas must be shown not to impinge in any significant way upon its character, integrity or uniformity when viewed from the surroundings. Particular attention should be given to the preservation of the character and distinctiveness of these areas as viewed from scenic routes and the environs of archaeological and historic sites.*

- ***High Sensitivity*** *– These areas have distinctive, homogenous character, dominated by natural processes. Development in these areas has the potential to create impacts on the appearance and character of an extensive part of the landscape. Applications for development in these areas must demonstrate an awareness of these inherent limitations by having a very high standard of site selection, site layout, selection of materials and finishes.*

- ***Low Sensitivity*** *– A large area of County Waterford is designated as a landscape of low sensitivity. These areas have potential to absorb a wide range of new developments subject to normal planning and development control procedures. In these areas the Planning Authority will have regard to general restrictions to development such as scenic routes, siting, road set backs, road widening plans, parking numbers, road and sewage disposal criteria.*

- ***Least Sensitive*** *– A small area of Waterford City and County is designated least sensitive to landscape change. These are areas of concentrated existing development and infrastructure. Appropriate new development in these areas can reinforce the existing desirable land use patterns. Regard shall be had to site development standards namely density, building lines, height of structures and design standards. The overall aim is to ensure that the inherent character of city/town environs and town and village centres is maintained.*

As per **Figure 13.5** below, the predominance of the proposed turbines are situated within the 'Most Sensitive' landscape sensitivity. Nonetheless, the southern extent of the site is situated across the 'Low Sensitivity' classification, whilst localised areas of 'High Sensitivity' are also situated in the surrounds of the central study area. As a result of the contrasting landscape sensitivity designations throughout the site and sensitivity, it is clear that this is a transitional landscape setting, which is strongly associated with foothill landscape types. In general, the 'Most Sensitive' sensitivity designations within the central and wider study area, typically relate to the more elevated lands, the coastline and major watercourse corridors. With regard to ancillary features of the proposed project such as the proposed GCR and proposed TDR, these are located through an array of contrasting landscape sensitivity classification. Nonetheless, large extents of these features pass through more typical rolling lowland landscapes which are classified as 'Low Sensitivity'.

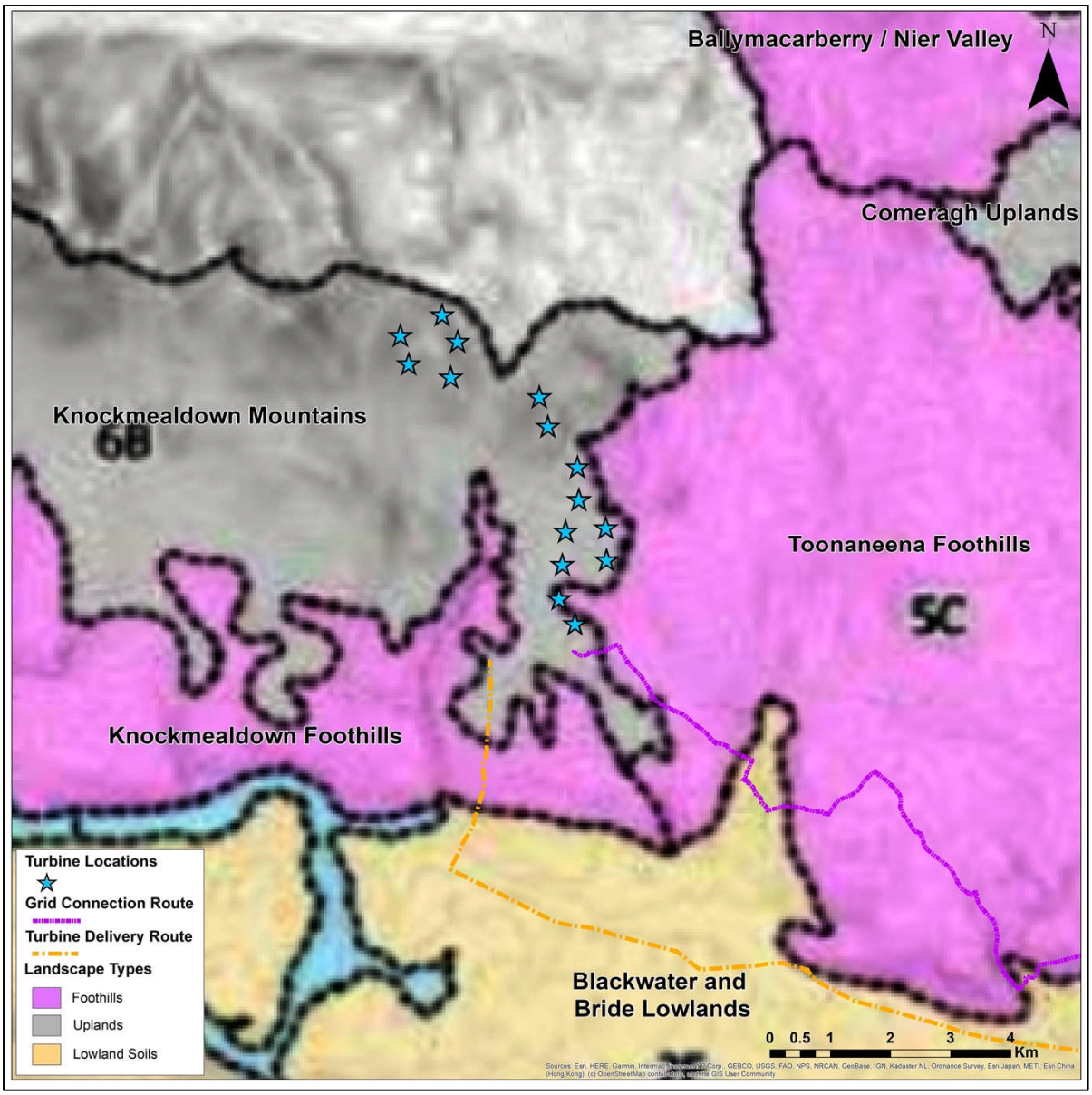

Figure 13.4 Excerpt from the Current Waterford City and County Development Plan 2022-2028 showing landscape character types in relation to the proposed project. (Note: This map covers the central study area where there is the most potential for significant effects to occur)

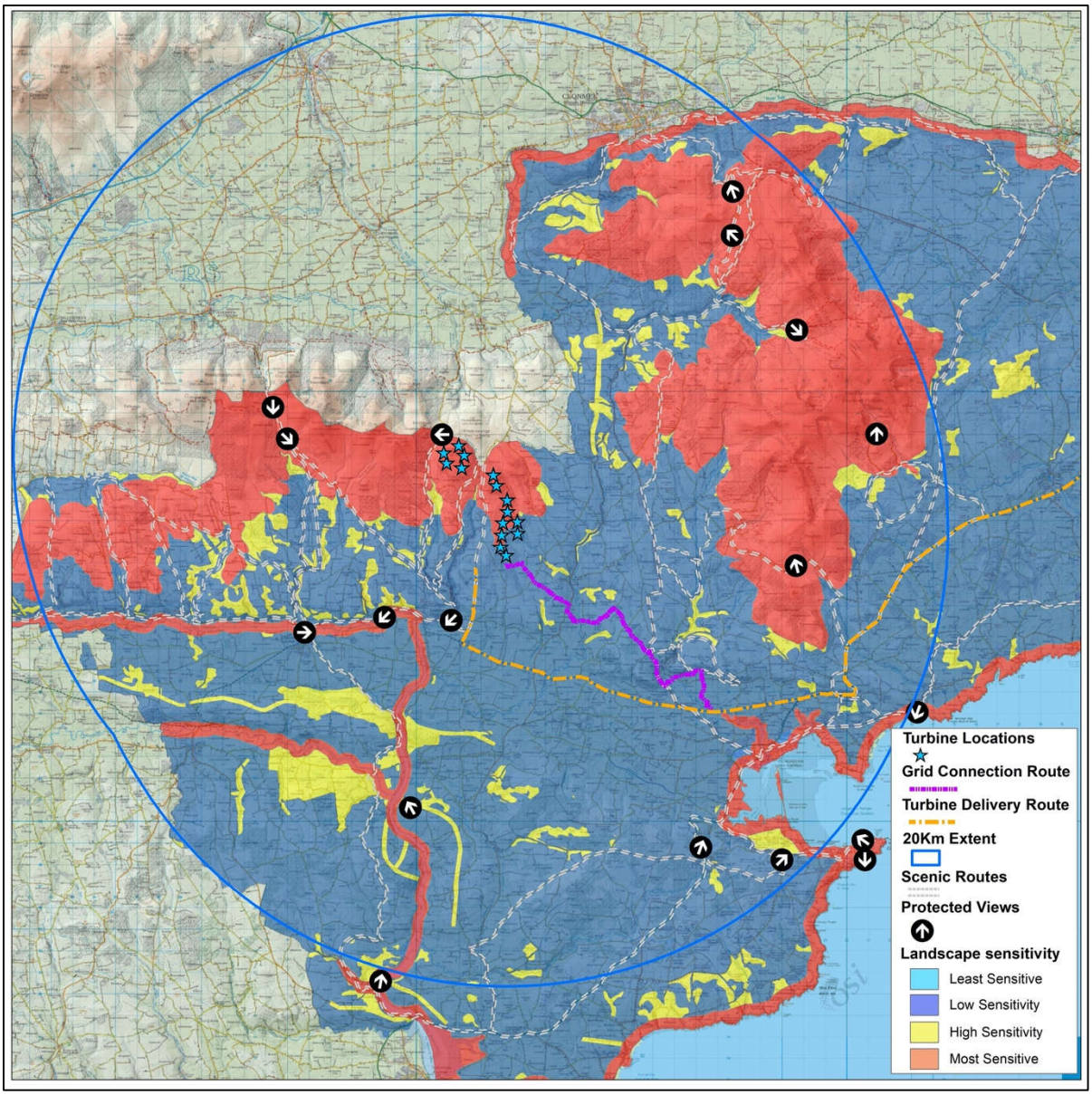

Figure 13.5 Excerpt from the Current Waterford City and County Development Plan 2022-2028 map viewer showing landscape sensitivity classifications in relation to the proposed project

Waterford Renewable Energy Strategy 2016-2030 (Appendix 7)

A renewable energy strategy for Waterford is included in Appendix 7 of the current County Development Plan. Appendix 2 of the renewable energy strategy relates to wind energy development and outlines the amended wind energy zonings into three classifications as follows and is identified on the revised wind energy designations map. These include; 'Preferred Areas', 'Areas Open to Consideration', and 'No-Go Areas' (see **Figure 13.6** below). The text of the County Development Plan refers to the 'No-Go Areas' while the mapping refers to 'Exclusion Areas', both of which have the same meaning and can be used interchangeably. The current renewable energy strategy states that wind energy classification areas have been "*identified by way of overlaying the following series of maps and data:*

- *The Landscape and Seascape Character Assessment (Appendix 8 of the Development Plan);*

- *Natura 2000 network;*
- *Urbanised areas;*
- *Waterford Regional Airport Masterplan (Appendix 12 of the Development Plan);*
- *Wind energy mapping of adjacent local authorities;*
- *Major road infrastructure; and,*
- *Transmission grid."*

As per Figure 13.6 below, the majority of the proposed turbines are located in an 'No-Go' area associated with the Knockmealdown Mountains and some surrounding foothills. Nonetheless, the southern-most two turbines and southern sections of the site are located within a 'Preferred' wind energy classification that extends across much of the landscape within the southern half of the study area. An area classified as 'Open to Consideration' also occurs throughout the western extent of the study area and is located south of the Knockmealdown Mountain uplands. Policy in relation to renewable energy is included in chapter 6 of the current Waterford City and County Development Plan. Policy ULT13 relates to Renewable energy. The most relevant part of this policy in relation to the proposed project is included in the point below;

- *"The Wind Energy Designation Map and the Landscape and Seascape Character Assessment Map identify different landscape character areas and associated landscape sensitivities. These designations encompass the concept of buffers between areas of sensitivity which vary across the different landscape character types and their different locations. These buffers allow for gradual change between contrasting landscape sensitivities and associated wind energy designations to be considered, as necessary, when determining any development proposal."*

Policy ULT13 is important in relation to the proposed project, as the proposed turbine array sits adjacent to the boundary between an 'No-Go' and 'Preferred' classification. As noted in policy ULT13, the current CDP '*says'* it accounts for the 'concept of buffers' between areas of sensitivity, which are some of the drivers of the current wind energy classification areas. It is also important to note however, that the proposed project is located in a transitional area between the lowlands and the more susceptible uplands. Nonetheless, this transitional zone, which would be less susceptible than the more sensitive uplands, is not reflected in the current classification system, and instead, both landscape and wind energy classifications swiftly change from the contrasting 'low' and 'most' landscape sensitivity and 'preferred' and 'exclusion' wind energy zones. As per ULT13, it would be reasonable to think that the area between the 'Preferred' and 'No-Go' wind energy zonings is a prime area that reflects 'the concept of buffers' and, thus, has more potential to accommodate a wind farm development. Indeed, it is the transitional farmed and forested landscapes throughout the country, such as those the proposed project is situated in, that have proved ideally suited to wind energy development because they have low population densities, good wind speeds and broad scale landforms and land use patterns that can readily accommodate wind turbines.

Note: Whilst the current renewable energy strategy for County Waterford identifies part of the proposed project within an 'no-go' area, this is in stark contrast with the previous version of the Waterford Renewable Energy Strategy (formed part of the previous Waterford County Development Plan 2011-2017 (as extended)), which designated the site and surrounding landscape as an area 'Open to Consideration' in relation to wind energy development (refer to

Figure 13.6 and Figure 13.7 below). It is also worth noting that this wind energy designation changed to a 'Preferred Area' to the northeast of the site. Whilst the current Renewable Energy Strategy identifies some rationale for the updated wind energy classifications throughout the county, it is still highly ambiguous how areas once classified as 'Open to Consideration' and 'Preferred' for wind energy development can now be classified as 'exclusion areas'. Whilst there is some consistencies with the updated 'most' sensitive landscape classification in the current CDP and the new 'No-go' area, there is no clear reason why the southern extent of the site, which is contained in a 'Low' landscape sensitivity classification is also located within a 'No-go' area.

Furthermore, ambiguity also exists in relation to the 'most' sensitive landscape classification, which appears to be one of the principal drivers in relation to the 'No-go' wind energy classification. The 'most' sensitive classification cloaks almost the entirety of the uplands and their surrounding foothills. It is considered that this classification is overly simplistic and inaccurate. Whilst there is no argument that some of the more elevated upland areas within County Waterford are highly sensitive and have a low potential to accommodate development, these broad areas have wide-ranging sensitivities and values. In contrast to this, the rolling foothills surrounding these mountains are considered much less susceptible as many of these areas are currently characterised by anthropogenic land uses such as extensive areas of commercial forestry, overhead cable infrastructure, and pastoral farmland. Thus, it is considered that the broad brushstroke approach of classifying the entire uplands and their surrounding foothills as 'Most Sensitive' (the highest sensitivity classification in County Waterford), which has a strong influence on the wind energy classifications, is inaccurate / inappropriate and largely eliminates the potential for wind energy development within County Waterford

Further clear contradictions in the updated wind energy classifications are also noted throughout the Comergah Mountains. The eastern flank of the Comeragh Mountains comprises some of the most visually susceptible rugged ridgelines, steep rocky escarpments and highly scenic upland lakes, such as the Coumshingaun Lough. The previous wind energy strategy included this entire part of the Comeragh Mountains as a 'No-go' (refer to Figure 13.7), which is clearly associated with its highly sensitive nature and limited capacity to accommodate development of any type. In contrast, much of the eastern flank of the Comeragh Mountains is now classified as 'Preferred', (refer to Figure 13.6) and no logical explanation is given regarding this new positive wind energy designation.

Overall, Waterford has considerable potential to accommodate wind farm development along less visually susceptible foothill landscapes located throughout both the Knockmealdown Mountains and Comeragh Mountains including the site of the proposed project. Instead, the current Wind Energy Strategy has done a direct U-turn by classifying the more robust transitional landscapes as 'No-go' and some of the most highly sensitive and visually susceptible landscape areas as 'Preferred' wind energy classifications, without any clear or logical explanation.

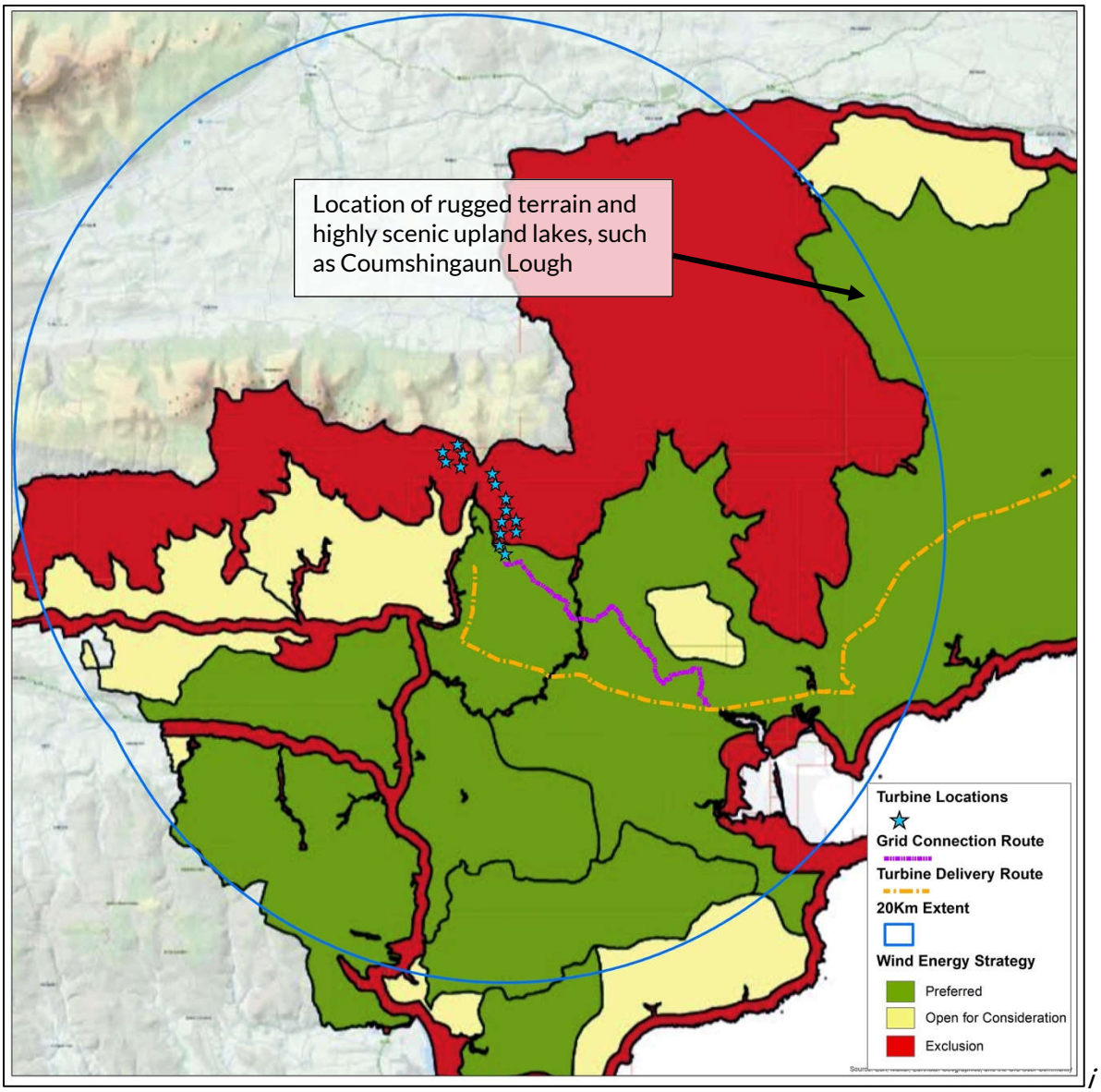

Figure 13.6 Excerpt from Appendix 2 of the current Renewable Energy Strategy showing updated wind energy classification areas in relation to the proposed project.

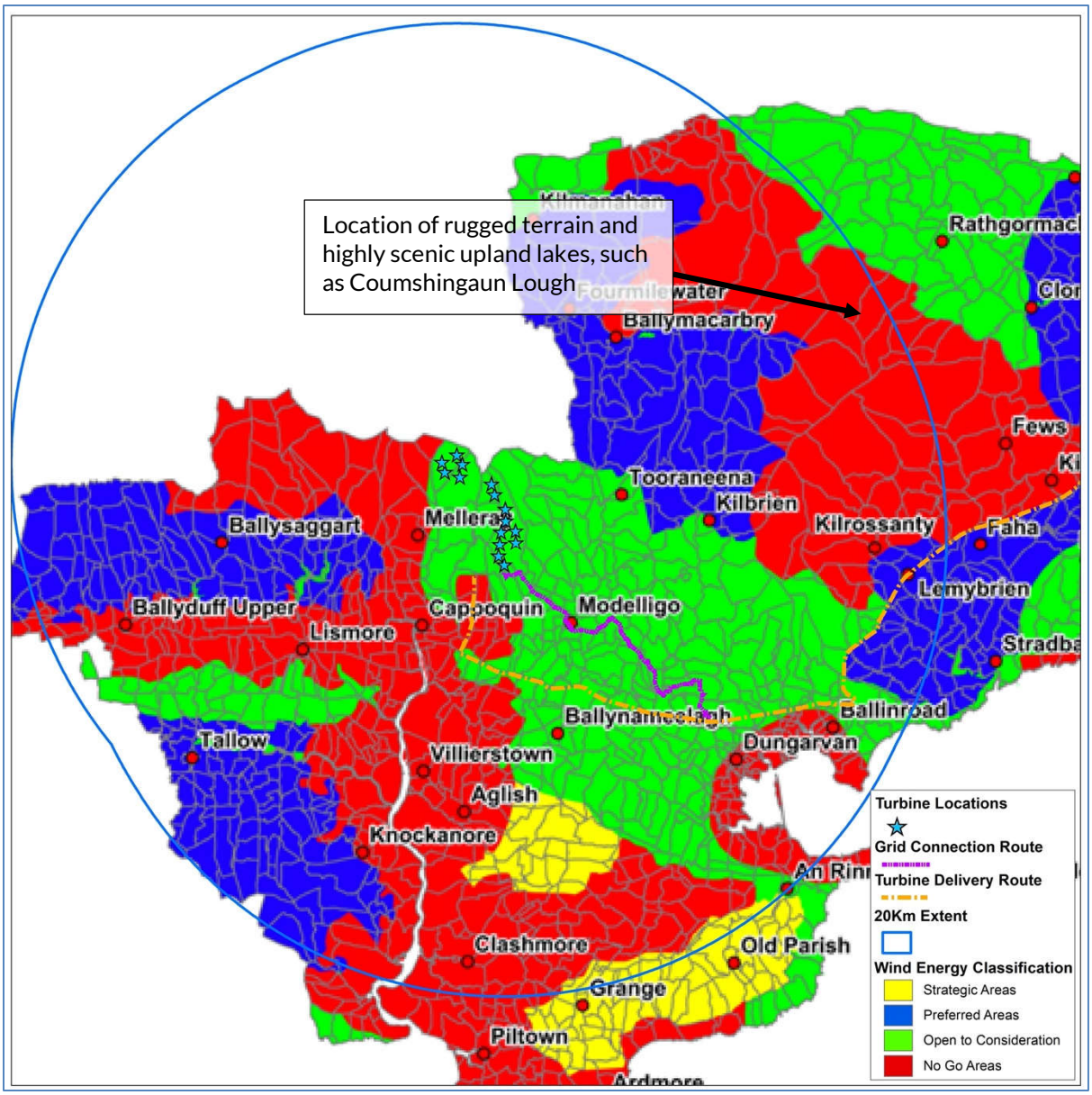

Figure 13.7 Waterford County Development Plan 2011-2017 – Wind Energy Strategy Map in relation to the proposed Project

13.3.2.3 Tipperary County Development Plan (TCDP) 2022-2028

TCDP – Volume 3: Tipperary Landscape Character Assessment

Although the proposed project is wholly contained within county Waterford, it sits immediately adjacent to the Tipperary border, and as a result it is important to include any neighbouring landscape designations within County Tipperary within the study area. Section 11.7 of the current CDP relates to landscape and 'Primary and Secondary Amenity Areas' which are *"particularly notable by virtue of their scenic and visual quality and offer significant opportunities for tourism development and rural recreational activities."* A 'Primary Amenity Area' and a 'Secondary Amenity Area' designation occurs along the Waterford – Tipperary boundary within the Study Area, as highlighted on **Figure 13-8** below.

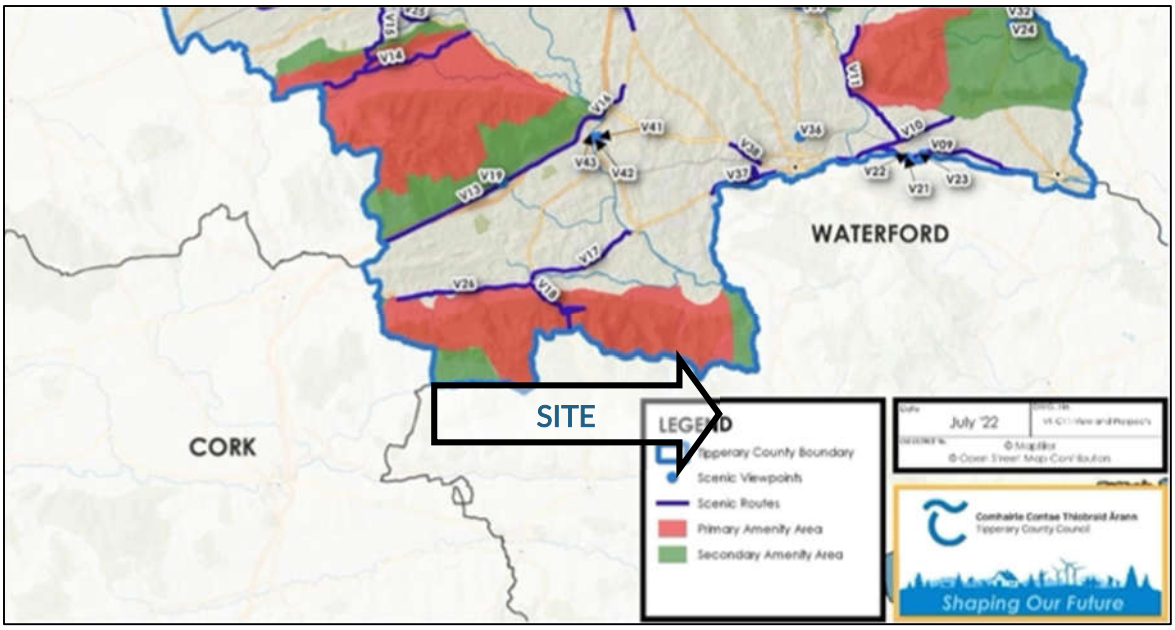

Figure 13.8 Excerpt from the current Tipperary County Development Plan 2022-2028 showing 'primary amenity areas' and 'secondary amenity areas' in relation to the proposed wind farm development.

The current Tipperary County Development Plan includes a landscape character assessment for the County in Volume 3 of the CDP. This provides a hierarchy of landscape units beginning with high level 'Landscape Architypes' then 'Landscape Character Types' and finally 23 geographically distinct 'Landscape Character Areas'.

The Landscape Character Assessment divides the county into four generic landscape archetypes; 'A – The Plains', 'B – The Lakelands', 'C – The Foothills' and 'D – The Uplands'. The proposed wind farm development sits adjacent to 'A – The Uplands', which are described as *"mountain landscapes with limited range of uses or types of vegetation. There are very low levels of settlement, services or roads. These landscapes are being increasingly used for amenities as well as energy and telecoms infrastructure."*

In terms of 'Landscape Character Types' and 'Landscape Character Areas' the 'Uplands' portion of the Study Area is further classified as the landscape character type 'D1 – Mountain & Upland'. This is then further broken down into 6 contrasting landscape character areas with the proposed wind farm sitting adjacent to the landscape character area '23 – Knockmealdown Mountain Mosaic'.

The landscape character type 'D1-Mountain & Upland' is described as *"areas of solitude, dominated by natural vegetation, and harsh climate overlook the busy, fertile pains and settlements of Tipperary. Though seldom visited these areas viewed across wide expanses of lowlands form the backdrop to almost all of the most scenic areas of the county. A number of them –such as Devilsbit, Slievenamon, and Galtymore have very distinctive profiles that contribute to a unique sense of place in their vicinity."*

The landscape character area '23-Knockmealdown Mountain Mosaic' is described as *"an upland zone of moorland, forestry and marginal pasture. This area includes a sub-area comprised of the Araglin River Valley, which straddles the County boundary with Waterford, south of and parallel to the mountain range. The lesser peaks to west and east of the range are also considered sub-areas of the LCA."*

Chapter 5 of the landscape character assessment relates to landscape sensitivity and designates the landscape character area '23-Knockmealdown Mountain Mosaic' as having a variety of sensitivities ranging from 'transitional sensitivity' to 'vulnerable'. The dominant sensitivity for this landscape character area is 'vulnerable' which has a 'very low' capacity and is described as "*areas to be avoided on account of a very significant potential for change of appearance or character due to the presence of development or use*". The guideline suggested for this sensitivity designation is to "***Control*** *unavoidable new developments or uses, or the intensification or expansion of established patterns of use and settlement – unless they can demonstrate capacity to sustain existing appearance and character."*

Table 6.2 in the Landscape Character Assessment is a matrix showing the compatibility of each LCA with of various development types. '*LCA 23 – Knockmealdown Mountain Mosaic'* is rated as having 'Least' Compatibility with wind farm development.

TCDP – Volume 3: Tipperary Renewable Energy Strategy 2016

Whilst the proposed turbines are entirely contained within County Waterford, they are located just over 1km south of the Waterford – Tipperary border, and therefore, consideration should be given to wind energy policy within Tipperary.

Tipperary County Council produced an updated renewable energy strategy in 2016 in which the Tipperary Wind Energy Strategy 2016 is included in Appendix 1. The wind energy strategy identifies two areas in relation to wind energy development which are outlined below:

Areas 'Open For Consideration' – "*wind energy development in these areas may or may not be appropriate, depending on the character of the landscape and the potential impact of the proposed development. Any impact on the environment must be low and subject to proper planning and sustainable development, and the guidelines set out in this policy document."*

Areas 'Unsuitable for Further Development' *– "new wind energy development in these areas is not permitted. These areas have a special or unique landscape character where the main objective is conservation. Where there are existing wind energy developments in these areas, their repowering may be considered appropriate. Any impact on the environment must be low and subject to proper planning and sustainable development, and the guidelines set out in this strategy."*

The nearest of these wind energy policy areas is an 'Area Unsuitable for Further Development' (see **Figure 13.9** below), which is contained across the southernmost parts of County Tipperary along the Knockmealdown Mountains and their surrounding foothills. Nonetheless, it is important to note that the southeast tip of County Tipperary, located to the north of the site, transitions from a 'Primary Amenity Area' to an adjoining 'Secondary Amenity Area' (to the east), which reflects the foothill context of the surrounding landscape. These foothill contexts provide a more robust setting for wind energy developments as they are typically influenced by working rural land uses such as forestry and pastoral farmland.

It is also worth noting that the 'Areas Unsuitable for Further Development' are described as having *"a special or unique landscape character where the main objective is conservation".* Overall, it is not considered that this description is appropriate for the landscape context to the north of the site in county Tipperary. Instead, this is a typical robust landscape context that comprises an array of traditional, transitional land uses such as pastoral farmland, blocks of commercial conifer forestry and areas of moorland, and is not considered highly unique. Whilst further to the west along the more elevated slopes in the Knockmealedown Mountains, it is accepted that there is a much clearer sense of uniqueness, the landscape to the north of the site

in County Tipperary has very similar robust landscape characteristics to the proposed wind farm site in County Waterford.

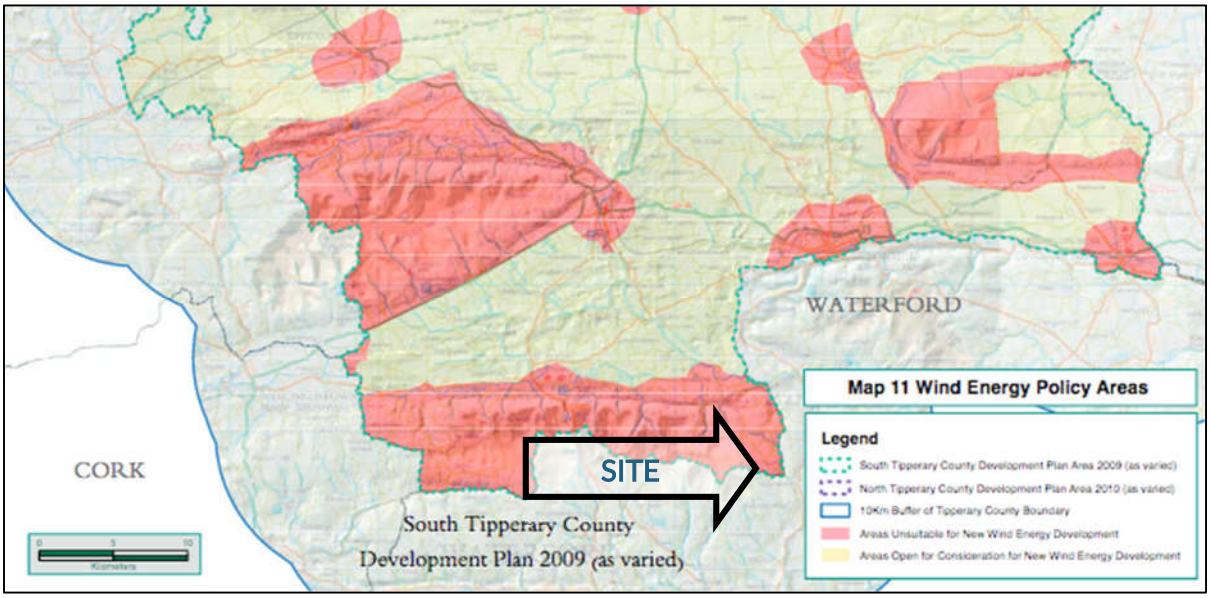

Figure 13.9 Excerpt from the Tipperary Renewable Energy Strategy showing the approximate location of the proposed project in relation to wind energy classifications.

13.3.2.4 Ecological Designations

Ecological designations such as Special Areas of Conservation (SAC's), Special Protection Areas (SPA's) and Natural Heritage Areas (NHA's) are relevant to the landscape and visual assessment as they can identify areas that are likely to exhibit naturalistic character and low levels of built development. They also highlight areas to which landscape conservation values are attached and they are often associated with outdoor amenity facilities where people go to enjoy the landscape setting.

In this instance the following ecological designations are located within the central study area, as below (Figure 13.10 refers):

- Blackwater River (SAC) – intersects the northern aspect of the site, along the Glenshelane River in the southwest quadrant of the central study area.
- Glenboy Wood (pNHA) – located just c. 1.5km north of Knocknanask.
- Blackwater River and Estuary (pNHA) – located in the southern periphery of the site where the Blackwater River penetrates the central study area.

For further discussions on designated ecological sites, please see Chapter 6 (Biodiversity) and the Natura Impact Statement (submitted as part of the planning applications).

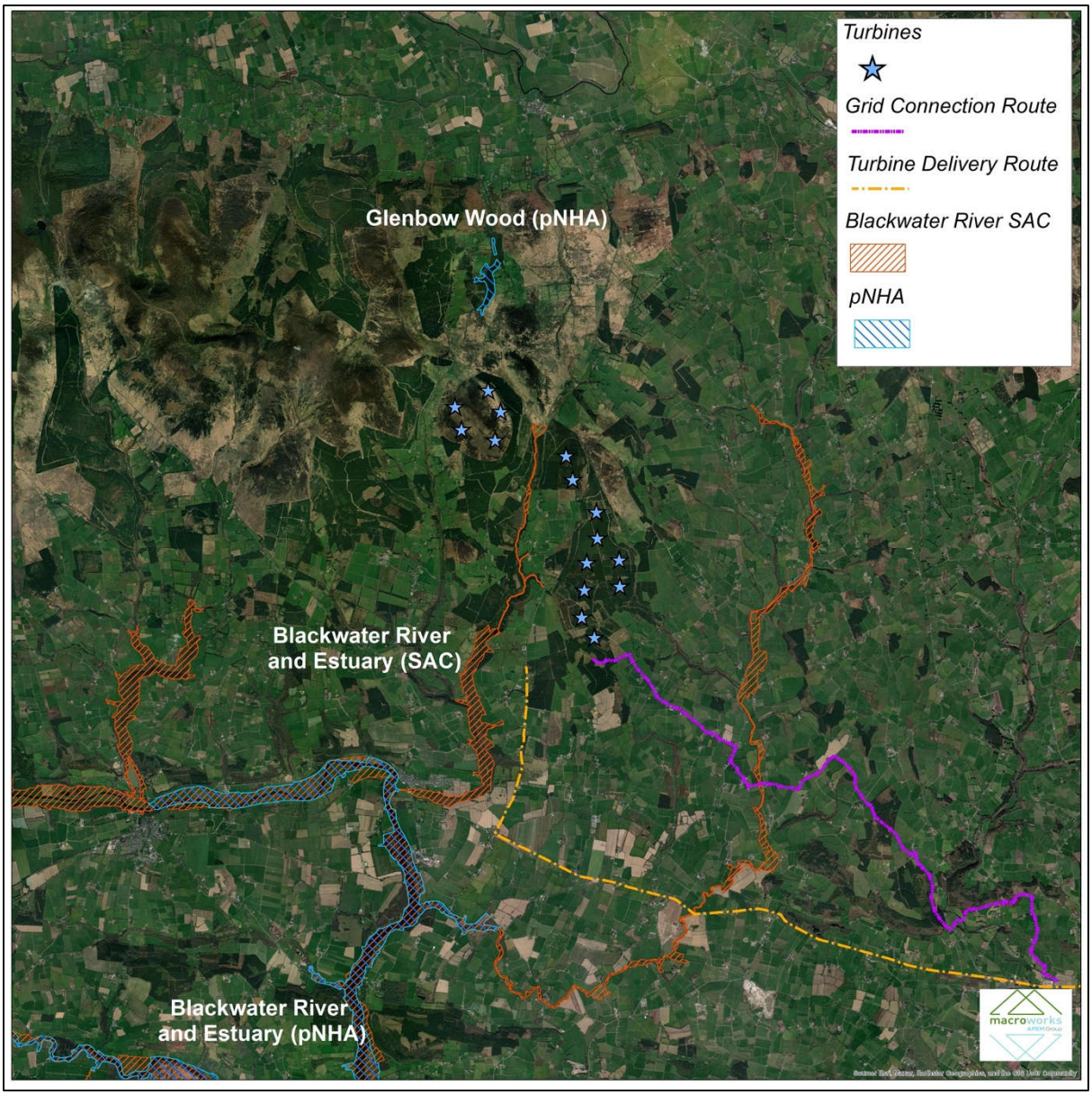

Figure 13.10 Ecological designations within the central study area

13.3.3 Visual Baseline

Only those parts of the study area that potentially afford views of the proposed project are of interest to this part of the assessment. Therefore, the first part of the visual baseline is establishing a 'Zone of Theoretical Visibility' (ZTV) and subsequently, identifying important visual receptors from which to base the visual impact assessment.

13.3.3.1 Zone of Theoretic Visibility

A computer-generated ZTV map has been prepared to illustrate from where the proposed project is potentially visible. The ZTV below is based on a tip height of 185m as a worst-case scenario for potential visibility within the study area (i.e. there will be no increase in areas of potential turbine visibility with regard to the range of potential turbine dimensions outlined in section 13.8 below, and therefore, the below visibility analysis represents an assessment of the full range of turbine dimensions proposed). A large scale map of a ZTV showing the potential visibility up to the highest possible hub height of the proposed turbines is also included in

Appendix 13.2. The ZTV map is based solely on terrain data (bare ground visibility), and ignores features such as trees, hedges or buildings, which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the proposed project will definitely not be visible, due to terrain screening within the 20km study area.

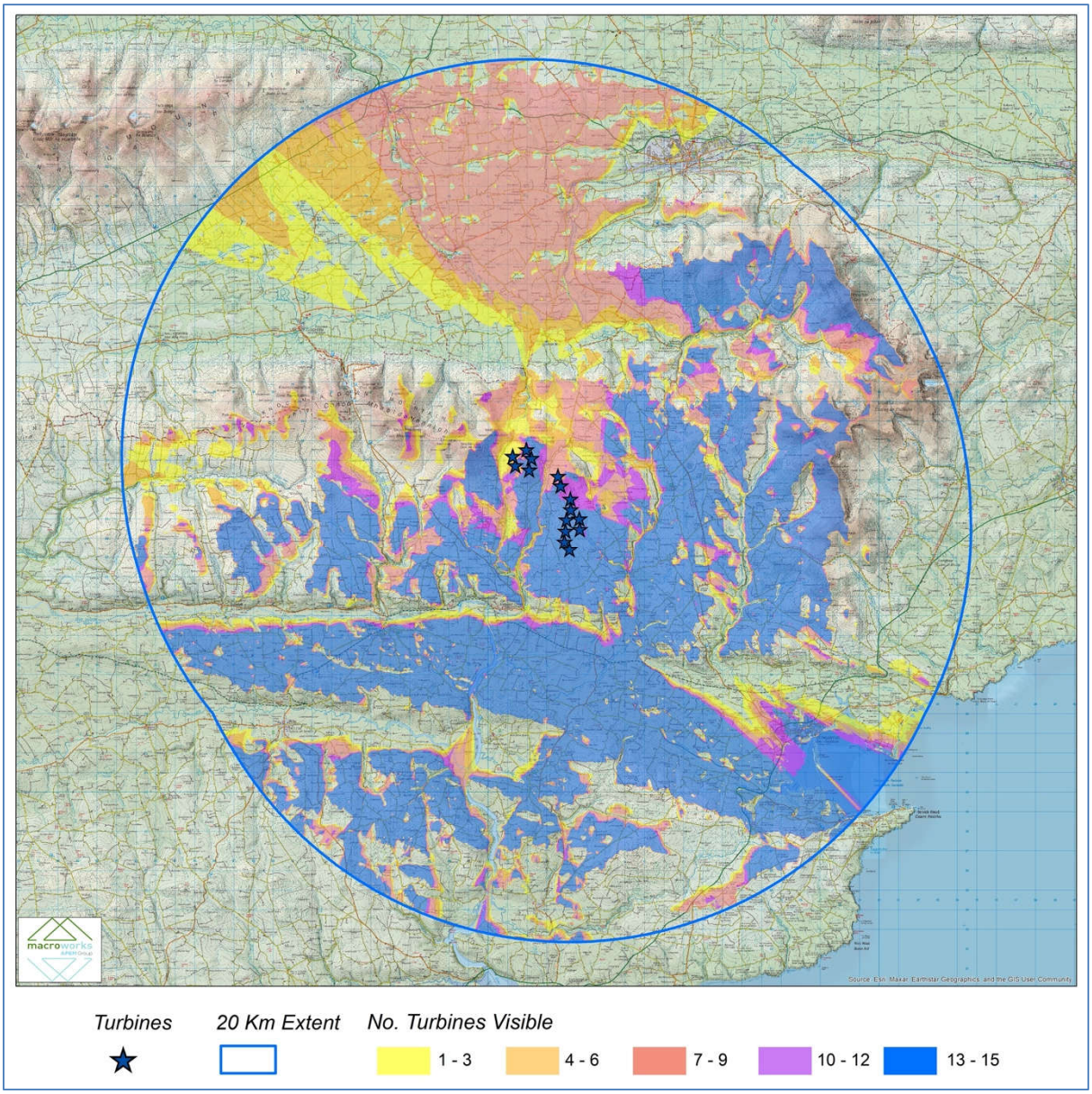

Figure 13.11 Bare-ground Zone of Theoretically Visibility (ZTV) Map based on a turbine tip height of 185m. (See Appendix 13.2 for larger scale map)

The following key points are illustrated by the 'bare-ground' ZTV map

- Due to the mountainous terrain within the study area, there is a varied degree of theoretic visibility within the central and wider study area.
- The immediate surrounds of the site and central study area have some notable potential to afford comprehensive theoretic visibility of the proposed project (blue colour pattern), especially along the transitional foothill landscapes east and south of the principal Knockmealdown Mountains ridgeline.

- The northern half of the central and wide study area has a much more limited potential to afford visibility of the proposed project, ranging from visibility of typically 1-9 of the turbines. Indeed, only the most elevated turbines located across Knocknanask and Knocknasheega will likely be afforded in the north and northwest quadrant of the study area, as these elevated lands will likely partially and fully screen the turbines in the southern extent of the site. It is important to note that a considerable section of the northwest quadrant of the study area in the surrounds of the Knockmealdown Mountains has no potential to afford visibility of the proposed turbines.

- Whilst to the immediate northeast of the site, the proposed project is afforded some screening in the form of Broemountain and Knocknasheega, beyond this, the potential for theoretical visibility of the turbines increases slightly as more broad and open views are afforded towards the Knockmealdown Mountain foothills and the proposed project. Whilst some distinct areas of no turbine visibility occur along the immediate Nire river corridor and its surrounding valley, comprehensive theoretic visibility of the proposed turbines has the potential to be afforded from the more elevated lands in the northern extents of the Comeragh Mountains. Nonetheless, beyond the Comeragh Mountains in the northeast quadrant of the wider study area, there will be limited potential to afford any clear visibility of the proposed project , especially at the settlement of Clonmel, where the turbines are almost entirely screened.

- To the immediate east of the site, some screening of the proposed turbines will be afforded by both Broemountain and Knocknasheega, in addition to the broad north-south ridgeline along which the site is contained. Further to the east of the site in the central study area, the low rolling foothills within the wider eastern extent of the Knockmealdown Mountain foothills have the potential to afford comprehensive visibility of the proposed turbines, albeit the landscape in the immediate context of the River Finisk will be entirely screened from the proposed project . Similarly, in the wider eastern half of the study area, comprehensive visibility of the proposed project has the potential to be afforded along much of the lands west of the Comeragh Mountains and along the elevated western extent of the Comeragh Mountains, with some area of no potential visibility located along the immediate corridor of the River Colligan. It is important to note that the proposed project will be entirely screened east of the principal ridgeline in the Comeragh Mountains. It is important to note that the settlement of Dungarvan in the southeast quadrant of the study area has the potential to afford comprehensive visibility of the proposed project.

- The most notable area of theoretic visibility occurs in the central and wider southern half of the study area as a result of the site's location along the south-eastern extent of the Knockmealdown Mountain foothills. South of the site, comprehensive ZTV pattern occurs along much of the landscape in the immediate surrounds of the site, aside from the lands along the immediate corridor of the Glenshelane and Glenafalla Rivers. A notable area of no theoretic visibility occurs along a broad section of the River Blackwater corridor oriented in an east-west direction. Beyond this, there is potential for comprehensive theoretic visibility along a broad plateau of elevated hills and ridges that occur within the wider southern half of the study area in an east-west direction. It is important to note that some distinct areas of no visibility also occur throughout the southern half of the study, most notably along the southern extents of the Knockmealdown Mountains and in the wider southern periphery of the study area.

13.3.3.2 Views of Recognised Scenic Value

Views of recognised scenic value are primarily indicated within Waterford and Tipperary County Development Plans in the context of scenic views/routes designations, and these same views might also be indicated on touring maps, guidebooks, road side rest stops or on post cards that represent the area.

All of the scenic routes and views in both Waterford and Tipperary that fall inside the ZTV pattern (see Table 13.5 below) were investigated during fieldwork to determine whether actual views of the proposed wind farm might be afforded. Where visibility may occur, a viewpoint has been selected for use in the visual impact appraisal later in this chapter. In some instances, a single viewpoint is selected to represent a stretch of designated scenic route or a cluster of designated scenic views, particularly distant ones.

Table 13.5 Rationale for selection of scenic designations within relevant County Development Plans

Scenic View ref:	Relevance to visual impact appraisal?	VP ref no. herein
Waterford City and County Development Plan 2022-2028 – Scenic Routes		
Scenic Route 1 (SR1)	**Not Relevant**-ZTV identifies no potential for visibility of the proposed turbines	-
Scenic Route 2 (SR2)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP11, VP13, VP14, VP18, VP23, VP24 & VP28
Scenic Route 3 (SR3)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP29
Scenic Route 4 (SR4)	**Yes Relevant**-Potential for visibility of the proposed turbines	Represented by VP30
Scenic Route 6 (SR6)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP37
Scenic Route 7 (SR7)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP37
Scenic Route 8 (SR8)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP20
Scenic Route 9 (SR9)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP4
Scenic Route 10 (SR10)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP26
Scenic Route 11 (SR11)	**Not Relevant**-Whilst the ZTV identifies the potential for theoretic visibility of the turbines, this road section is heavily enclosed for views in the direction of the site.	-
Scenic Route 12 (SR12)	**Not Relevant**-ZTV identifies no potential for visibility of the proposed turbines	-

Scenic View ref:	Relevance to visual impact appraisal?	VP ref no. herein
Scenic Route 13 (SR13)	**Not Relevant**-ZTV identifies no potential for visibility of the proposed turbines	-
Waterford City and County Development Plan 2022-2028 – Scenic Views		
Scenic View 1 (SV1)	**Not Relevant** – view located outside of ZTV	-
Scenic View 2 (SV2)	**Not Relevant** – view oriented in the opposite direction of the proposed project (note: a viewpoint has been included here to represent the scenic route designation.)	VP20
Scenic View 4 (SV4)	**Not Relevant** – view oriented in the opposite direction to the proposed project	-
Scenic View 5 (SV5)	**Not Relevant** – view located outside of ZTV	-
Scenic View 6 (SV6)	**Not Relevant** – view located outside of ZTV	-
Scenic View 7 (SV7)	**Yes Relevant**-Whilst the view is oriented in the opposite direction of the proposed project, there is potential for visibility of the proposed turbines from a near distance.	VP11
Scenic View 8 (SV8)	**Not Relevant** – view located outside of ZTV	-
Scenic View 11 (SV11)	**Not Relevant** – limited potential for theoretical visibility of the proposed turbines along this heavily contained view	-
Scenic View 12 (SV12)	**Not Relevant** – view located outside of ZTV	-
Scenic View 13 (SV13)	**Not Relevant** – view located outside of ZTV	-
Scenic View 16 (SV16)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP36
Scenic View 22 (SV22)	**Yes Relevant**-Potential for visibility of the proposed turbines	VP37
Scenic View 24 (SV24)	**Not Relevant** – View oriented in the opposite direction to the proposed project across the coastline	-
Tipperary County Development Plan 2022-2028 – Scenic Views		
2 - Views west and south from the R251 regional road northeast of Dunlewy Lough	**Not Relevant** – Views located outside of ZTV pattern	-

Policy relating to scenic designations in both the Waterford and Tipperary County Development Plans is included below;

Waterford CDP

Policy Objective L 04: "We will protect the scenic routes and specified protected views identified in our Landscape Character Assessment (Appendix 8), including views to and from the sea, rivers, landscape features, mountains, landmark structures and urban settlements from inappropriate development that by virtue of design, scale, character or cumulative impact would block or detract from such views."

Tipperary CDP

Planning Policy 11-17: "*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."*

13.3.3.3 Centres of Population

The most notable centre of population within the central study area is that of Cappoquin, which is situated east of the River Blackwater corridor and is some c. 4km southwest of the nearest turbines. The settlement of Cappoquin is located along sloping lands on the southernmost extent of the Knockmealdown Mountain foothills. In terms of the settlement pattern within the central study area, much of this is contained along the rolling foothill landscape in the southern, eastern and north-eastern aspects of the central study area. In contrast, the more elevated lands to the west have a limited rural population. Aside from the settlement of Cappoquin, population centres within the central study area principally comprise small linear clusters of residential dwellings and cross-road settlements. It is also important to note that the settlement of Tooraneena is located on the easternmost periphery of the central study area.

Some of the largest centres of population within the Study Area include the settlements of Dungarvan and Clonmel. Dungarvan is located at the mouth of the Colligan River and is some 13.8km southeast of the site at its nearest point. Located on the opposite side of the Study Area, the settlement of Clonmel is situated along the banks of the River Suir and is just over 17km northeast of the site. Lismore is another notable settlement in the wider southeast quadrant of the study area and is situated along the banks of the River Blackwater some c. 10km southwest of the site.

The small rural village of Ballymacarbry is located along the River Nire, some c.9km northeast of the site. Both settlements of Newcastle and Ardfinnian are situated along the River Suir and are located 5.8km north and 10km northwest of the site, respectively. Other settlements within the wider surrounds of the Study Area include Lemybrien, Clogheen, Tallow, Villierstown, Aglish, Ballyporeen, Cahir and Ballyduff.

13.3.3.4 Transport Routes

Whilst not the nearest, the most notable major transport route in relation to the proposed project is the N72 national secondary route, which passes west of the settlement of Cappoquin and throughout the southwest periphery of the central study area some c. 4.5km from the site at its nearest point. Other major transport routes within the central study area include the R669 regional road and the R671 regional road, which are situated just over 3.5km southwest of the site and 2.7km east of the site, respectively. Aside from the aforementioned major routes, the central study area principally comprises a network of interconnecting local roads that pass along

the surrounding valleys and rolling foothills of the Knockmealdown Mountains. The nearest local routes to the site include the several local roads oriented in a general north-south direction that passes along the Glenshelane River Valley corridor and Glenafalla River Valley to the west of the proposed project, in addition to a local road that is oriented in a north-south direction and is located to the east of the Broemountain.

Outside of the central Study Area, the most notable transport routes include the N25 and N24 national primary routes. The N25 national primary route traverses the south-eastern periphery of the study area and is located some c. 14km from the nearest proposed turbine at its nearest point. The N24 national primary route briefly enters the northern periphery of the Study Area north of Clonmel and is situated just over 16km north of the site at its nearest point. A brief section of the M8 motorway also passes through the north-western periphery of the study area and is some c. 18km from the site at its nearest point. Other notable major routes in the wider surrounds of the Study Area include the R627, R628, R634, R665, R670, R668 and R675.

13.3.3.5 Tourism, Recreational and Heritage Features

As a result of the two notable mountainous areas within the Study Area, in addition to the scenic and varied coastline, the Study Area comprises a variety of amenity features, most notably walking and cycling trails. Some of the most noteworthy walking trails include the East Munster Way, the Tipperary Heritage Way, the Blackwater Way (Avondhu Way), the Nire Valley Trails and the Knockmealdown Trails. The nearest of these is the East Munster Way, which traverses both the Comeragh and Knockmealdown Mountains and is located some 3km north of the site at its nearest point. A number of looped walking trails also occur along the northern extent of the Knockmealdown Mountains and include Knockmealdown Loop Trails and the Liam Lynch Loop Trail. The nearest section of these occurs some c. 3km northwest of the proposed wind farm site.

The Glenshelane Trails are the nearest local walking routes to the site and are principally contained within the Glenshelane River Valley, located just over c. 1km southwest of the proposed wind farm site at their nearest point. It is important to note that large sections of these walking routes are contained within dense woodland located along the Glenshelane River corridor.

The Sean Kelly Cycling trails are a collection of looped cycling trails that emanate from the centre of Dungarvan, some of which traverse the uplands and others traverse the coastal parts of the Study Area. The nearest of these routes is The Kelly Legacy loop, which follows a section of the N72 national secondary road is some c.4.8km east of the proposed wind farm site.

The Comeragh Mountains drive is a scenic driving route that loops from Waterford City and around upland sections of the Comeragh Mountains. The nearest section of this route passes along the R672 regional road in the wider eastern half of the study area and is some c. 6km from the proposed wind farm site at its nearest point.

A brief section of the popular Waterford Greenway is also located within the Study Area. The 46km route traverses low rolling lands north of Waterford's coastline, concluding at the settlement of Dungarvan and is located some c.15km southeast of the proposed wind farm site at its nearest point.

The central and wider Study Area also includes several notable heritage features, including castle remnants, stately houses and demesnes, holy wells and monasteries. The nearest of these to the site is that of Mount Melleray Abbey, which is located along the sloping foothills of the Knockmealdown Mountains and dates back to the early 1800s. The striking Abbey affords

broad panoramic views across the River Blackwater valley and beyond and is situated just under c.3km southwest and east of the site at its nearest point. Other notable heritage features within the wider Study Area include Lismore Castle, Dungarvan Castle, Tourin House, Dromana House and Gardens, Careys Castle and St. Patricks Well.

The wider eastern half of the Study Area along the eastern flank of the Comeragh Mountains also comprises a number of popular walking trails and striking landscape features such as Mahon Falls and Coumshingaun Lough.

13.3.4 Identification of Viewshed Reference Points as a Basis for Assessment

The results of the ZTV analysis provide a basis for the selection of Viewshed Reference Points (VRP's), which are the locations used to study the landscape and visual impact of the proposed wind farm in detail. It is not warranted to include each and every location that provides a view of this development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the project. Instead, a variety of receptor locations was selected that provide representative views of the proposed wind farm from different distances, different angles and different contexts.

All receptors identified during the scoping stage have been included and assessed using a representative viewpoint in the "Assessment of Visual Impacts at Viewshed Reference Points" section of the report. Due to the notable number of sensitive receptors within the study area, over 37 representative viewpoints were included for assessment. These viewpoints represent a wide range of viewing angles, distances, and receptor types within the study area.

The visual impact of a proposed project is assessed using up to 6 categories of receptor type as listed below:

- Key Views (from features of national or international importance);
- Designated Scenic Routes and Views;
- Local Community views;
- Centres of Population;
- Major Routes; and
- Amenity and heritage features;

Where a VRP might have been initially selected for more than one reason it will be assessed according to the primary criterion for which it was chosen. The characteristics of each receptor type vary as does the way in which the view is experienced. These are described below.

Key Views

These VRPs are at features or locations that are significant at the national or even international level, typically in terms of heritage, recreation or tourism. They are locations that attract a significant number of viewers who are likely to be in a reflective or recreational frame of mind, possibly increasing their appreciation of the landscape around them. The location of this receptor type is usually quite specific.

Designated Scenic Routes and Views

Due to their identification in the County Development Plan this type of VRP location represents a general policy consensus on locations of high scenic value within the Study Area. These are commonly elevated, long distance, panoramic views and may or may not be mapped from precise locations. They are more likely to be experienced by static viewers who seek out or stop to take in such vistas.

Local Community Views

This type of VRP represents those people who live and/or work in the locality of the proposed EIA Development, usually within a 5 km radius of the site. Although the VRPs are generally located on local level roads, they also represent similar views that may be available from adjacent houses. The precise location of this VRP type is not critical; however, clear elevated views are preferred, particularly when closely associated with a cluster of houses and representing their primary views. Coverage of a range of viewing angles using several VRPs is necessary in order to sample the spectrum of views that would be available from surrounding dwellings.

Centres of Population

VRPs are selected at centres of population primarily due to the number of viewers that are likely to experience that view. The relevance of the settlement is based on the significance of its size in terms of the Study Area or its proximity to the site. The VRP may be selected from any location within the public domain that provides a clear view either within the settlement or in close proximity to it.

Major Routes

These include national and regional level roads and are relevant VRP locations due to the number of viewers potentially impacted by the proposed d project. The precise location of this category of VRP is not critical and might be chosen anywhere along the route that provides clear views towards the proposal site, but with a preference towards close and/or elevated views. Major routes typically provide views experienced whilst in motion and these may be fleeting and intermittent depending on screening by intervening vegetation or buildings.

Tourism, Recreational and Heritage Features

These views are often one and the same given that heritage locations can be important tourist and visitor destinations and amenity areas or walking routes are commonly designed to incorporate heritage features. Such locations or routes tend to be sensitive to development within the landscape as viewers are likely to be in a receptive frame of mind with respect to the landscape around them. The sensitivity of this type of visual receptor is strongly related to the number of visitors they might attract and, in the case of heritage features, whether these are discerning experts or lay tourists. Sensitivity is also heavily influenced by the experience of the viewer at a heritage site as distinct from simply the view of it. This is a complex phenomenon that is likely to be different for every site. Experiential considerations might relate to the sequential approach to a castle from the car park or the view from a hilltop monument reached after a demanding climb. It might also relate to the influence of contemporary features within a key view and whether these detract from a sense of past times. It must also be noted that the sensitivity rating attributed to a heritage feature for the purposes of a landscape and visual assessment is not synonymous with its importance to the Archaeological or Architectural Heritage record.

The Viewshed Reference Points selected in this instance are set out in the **Table 13.6** and **Figure 13.12** below.

Table 13.6 Outline description of selected Viewshed Reference Points (VRPs)

VRP No.	Location	Distance to nearest turbine	Representative of	Direction of view
VP1	N24 at Kilmolash Lower	17.2km (T3)	Major Route Scenic Route	S
VP2	R639 Regional Road at Poulavala	19.8km (T2)	Scenic View Major Route	SE
VP3	Local road south of Ardfinnian at Gortnalower	10.4km (T3)	Centre of Population	SE
VP4	Viewing point at Glendalough	15.7km (T7)	Scenic Route Amenity Feature (Sean Kelly Cycle Route & Comeragh Mountain Drive	SW
VP5	Local road at Sillaheens	10.9km (T3)	Amenity Feature (East Munster Way)	S
VP6	Molough New Cemetery north of Newcastle	7.0km (T3)	Heritage Feature Centre of Population	S
VP7	Kilclooney Mountain (Fauscoum) west of Coumshingaun Lake	18.2km (T12)	Amenity Feature	W
VP8	R672 at Boolavonteen	6.1km (T7)	Scenic Route Major Route Amenity Feature	W
VP9	Local road at Boolahallagh	2.2km (T7)	Local community views	S/SW
VP10	Knockmealdown Summit	5.6km (T2)	Amenity Feature (Hiking Trail)	SE
VP11	Local road at Meol	0.9km (T3)	Scenic View/Scenic Route	SE
VP12	Local road at Doon	2.6km (T7)	Local Community Views	S
VP13	Local road at Middlequarter/Newcastle on the Waterford/Tipperary border	0.7km (T7)	Local Community Views Scenic Route	SE/W
VP14	Local road at Glennafallia west of the Glenafallia River	0.9km (T1)	Local Community Views Scenic Route	E/SE
VP15	Local road at Corradoon	3.0km (T9)	Local Community Views	W/SW
VP16	Local road at Tooraneena	5.1km (T12)	Centre of Population Local Community Views	W
VP17	Local road at Dyrick	1.1km (T9)	Local Community Views	W, SW
VP18	Local road at Coolagortboy	0.9km (T8)	Local Community Views Scenic Route	E/W
VP19	Local road at Ballynaguilke Upper	3.3km (T12)	Local Community Views	W
VP20	R672 Regional Road Coumaraglin north Bery's Cross Roads	6.2km (T12)	Major Route Scenic Route	W
VP21	Local road at Lyrattin	1.1km (T12)	Local Community Views	W
VP22	Mount Mellerary Monastery	3.2km (T1)	Heritage Feature	E/NE

VP23	Local road at Knocknafrehane	1.8km (T14)	Scenic Route Local Community Views	E/N
VP24	Local road at Coolnacreena	0.9km (T15)	Scenic Route Local Community Views	E/N/NW
VP25	Local road at Farnane Upper	1.7km (T13)	Local Community Views	NW
VP26	Local road at Coumaraglin	10.9km (T13)	Scenic Route Amenity Feature (Sean Kelly Cycle Route)	W
VP27	Local road at Newtown northwest of Redgate Cross Roads	1.0km (T16)	Local Community Views	NW
VP28	R669 at Boherboyrea	4.3km (T15)	Scenic Route Major Route Local community views	N/NE
VP29	Local road at Ballyin/Monatarriv West	10.0km (T1)	Scenic Route	NE
VP30	Local road at Ballyneilligan Glebe east of Lismore	9.6km (T15)	Centre of Population	NE
VP31	N72 at Ballyhane west of Boheravaghera Cross Roads	4.6km (T16)	Major Route Local community views	N
VP32	N72 at Kilcannon east of the River Finisk	6.2km (T16)	Major Route	NW
VP33	Local road northeast of Dromana House	8.3km (T16)	Amenity and Heritage Feature	N
VP34	Strandside South road at Dungarvan	15.4km (T16)	Centre of Population Heritage Feature (Dungarvan Castle)	NW
VP35	R634 south of Tallow	17.2km (T16)	Centre of Population Major Route	NE
VP36	Dromore Viewpoint east of the Blackwater River	12.5km (T16)	Scenic View	N
VP37	N72 at Barranalira (Viewing point)	16.2km (T16)	Scenic Route/Scenic View Major Route	NW

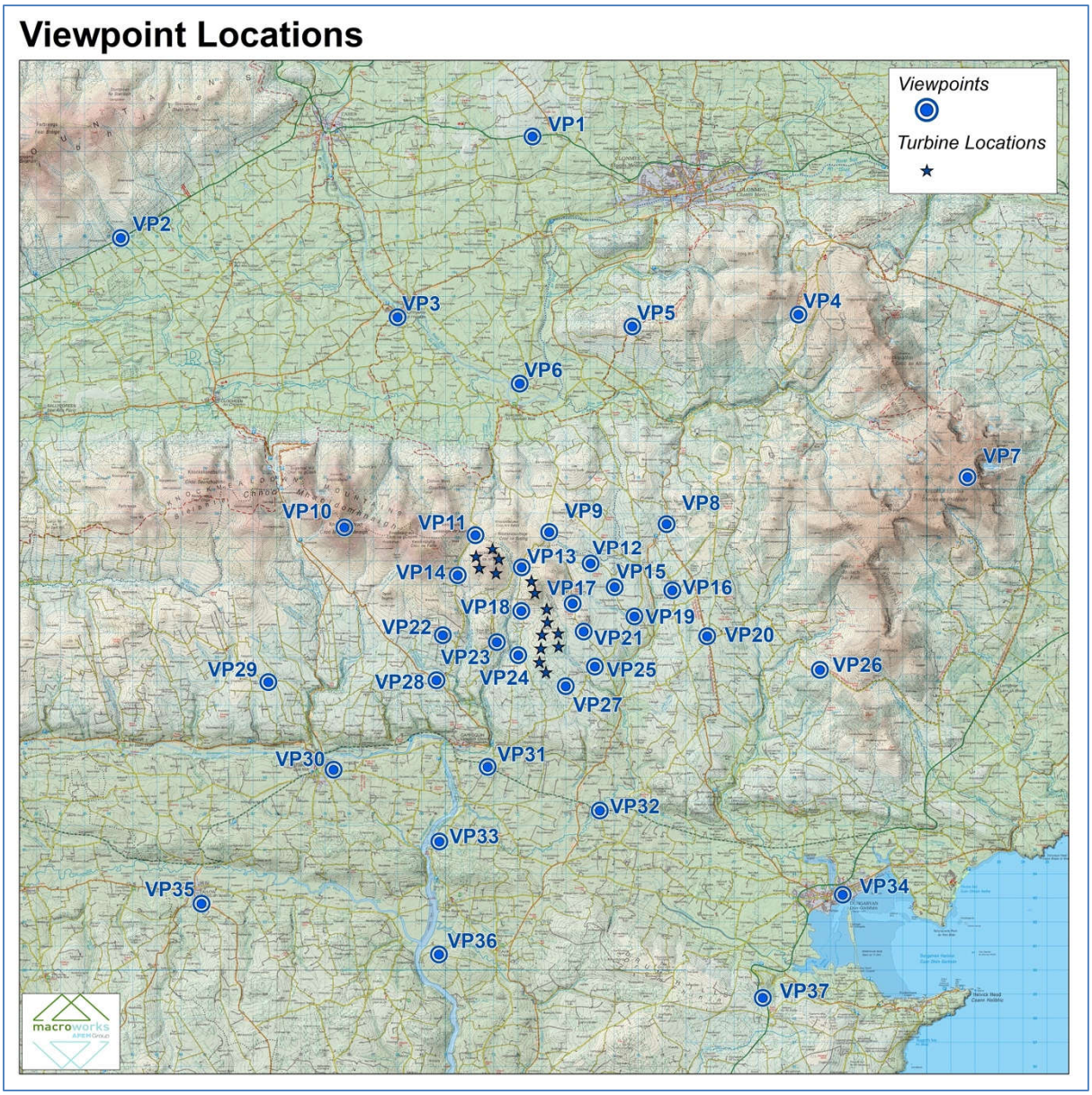

Figure 13.12 Map of Viewpoint Locations

13.4 POTENTIAL IMPACTS

Based on the assessment criteria employed herein, potential significant effects are considered most likely to occur in instances where highly sensitive landscape and visual receptors coincide with high order landscape and visual effects (see descriptions Table 13.1, Table 13.2 and Table 13.4). From previous extensive experience of this type of project in a rural / transitional foothill setting, it is considered that potentially significant landscape and visual effects have the potential to occur in the following ways:

Landscape Effects

a) Irreversible physical effects on sensitive landscape features

b) Disruption of sensitive land cover and/or land use patterns

c) Substantial and incongruous change to areas of sensitive landscape character

Visual Effects

a) A sense of spatial dominance as seen from highly sensitive receptor locations. This is most likely to occur within 3km of the proposed project.

b) Visual clutter and ambiguity as seen from highly sensitive receptor locations. This can occur at any distance but tends to occur beyond 2-3km as turbines become stacked in perspective and a more two-dimensional layout is perceived.

c) A combination of both of the above effects.

From baseline studies and early-stage assessments specific to the proposed project, some of the most susceptible landscape receptors are considered to be the most elevated rugged upland sections of the Knockmealdown Mountains in the western half of the study area, the contained corridor of the River Blackwater located throughout the central and wider southwest quadrant of the study area, and the elevated uplands and coastal areas throughout the eastern and south-eastern parts of the 20km study area.

In this instance, the most sensitive visual receptors are the local residential receptors located along the local road network within the immediate vicinity of the site, the scenic view and route designations situated in the immediate and central study area that afford views across broad valleys and the elevated uplands and amenity and heritage receptors within the central and wider study area, which include Waymarked Walking Trails, Mount Mellary Abbey and the numerous heritage and amenity features situated along the corridor of the River Blackwater.

13.5 MITIGATION MEASURES

Given the highly visible nature of commercial wind energy developments it is not generally feasible to screen them from view using on-site measures as would be the primary form of mitigation for many other types of development. Instead, landscape and visual mitigation for wind farms must be incorporated into the early-stage site selection and design phases.

In this instance, the two main forms of landscape and visual mitigation employed were:

- Mitigation by avoidance and design
- Buffering of Residential Receptors

13.5.1 Mitigation by Avoidance and Design

Macro Works has been involved with the proposed project since 2019 when early-stage constraints and feasibility studies took place to assess the potential impacts of the full scale and extent of the proposed wind farm development. Indeed, when the initial landscape and visual constraints were identified, the proposed wind farm was classified within an area 'open to consideration' in relation to wind energy development, which was described as "*proposals for wind farms will be assessed on their merits with responsibility on the developer to demonstrate suitability of the site*". This zoning implied that developments would be considered on their merits, but they must prove to have been designed sensitively in relation to their specific landscape context. Whilst it was noted that an area classified as 'No-go' in relation to wind energy development was located to the west of the site, it was also noted that a broad area classified as 'Preferred' extended to the northeast of the site as well as along similar transitional foothill landscapes to the west of the site within the wider Knockmealdown Mountain foothills. The initial part of the project constraints and feasibility study identified scope for a wind farm development to be accommodated within the site on the basis that it would be designed and sited so as not to impact significantly on surrounding sensitive landscape and visual receptors, such as scenic routes, the local community and amenity and heritage receptors.

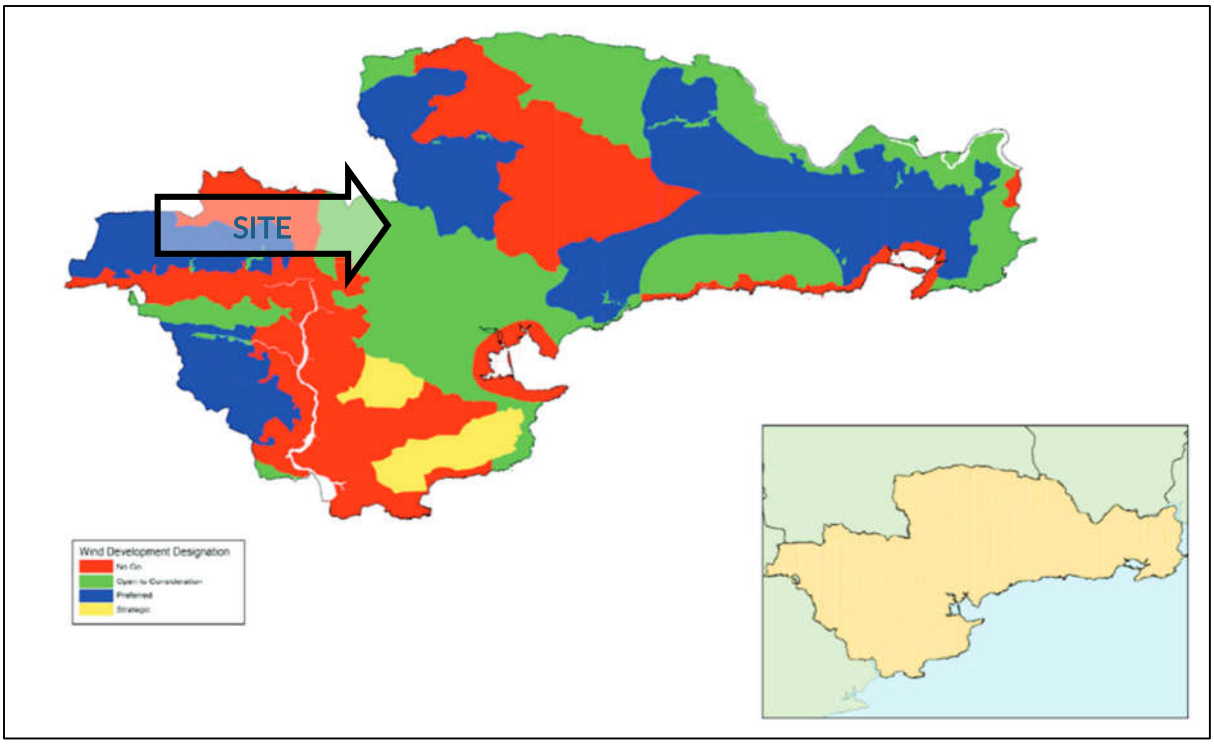

Figure 13.13 Location of the proposed project in relation to previous Wind Energy Classifications in the Waterford County Development Plan 2011-2017

The next stage of the constraints and feasibility study related to design considerations and analysis of potential turbine layouts. Up to 11 initial wireframe montages were generated to analyse early-stage layouts. The overriding outcome was that the proposed project should respond to the existing landscape context, which comprised a broad elongated ridgeline oriented in a north-south direction. In this regard, it was outlined that the design of the development should focus on a linear arrangement of the turbines located along the ridge and should be compliant in accordance with the draft Wind Energy Development Guidelines 2019 (identical to the current 2006 WEGS), which stated that wind farm developments within the Transitional Marginal Landscapes will be "*typically located along ridges and peaks*" and "*the likely location of wind energy developments on ridges suggests a linear or staggered linear layout*". Whilst it was identified that views of visually stacked turbines would be unavoidable, especially when viewed from the north or south, the development of a single linear array along the elongated ridge would limit the potential for any adverse negative aesthetic effects such as views of overlapping turbine blade sets and stacked views of wind turbines.

Following the early-stage constraints and feasibility assessments, Macro Works were presented with initial turbine layout options in early 2022. In similar circumstances to the project's initial feasibility and constraints stage, early-stage wireframes were generated from some of the most susceptible surrounding receptors, including local community receptors and surrounding scenic designations. All layouts comprised a linear/staggered linear layout across Knocknasheega Hill and the broad ridge that extends south, whilst Knocknanask Hill was crowned with a cluster of five proposed turbines. In this respect, the layouts responded well to their existing landscape context and utilised the layout guidance recommendations outlined for 'Transitional' landscape types in the current and draft WEDGs (2006/2019). Notwithstanding, there were still some parts of the study area where the proposed turbines had the potential to present with a highly dominant visual presence. Most notably along the local road traversing the saddle between Knocknanask Hill and Knocknasheega Hill, also classified as a designated scenic route in the current Waterford County Development Plan. In this instance, the perceived scale of one turbine was much greater than all other turbines in the array from this viewing context. Whilst

this turbine did not block or obstruct the main aspect of visual amenity along this section of the local road scenic route, it did have the potential to notably distract the viewer due to its considerable scale, further accentuated by its uphill nature from the local road. Thus, it was recommended that turbine T6, located along the slopes of Knocknasheega Hill, be removed, and subsequently, it was removed from the array. It was also recommended that the proposed turbines be limited to a maximum height of 185m to not generate any undue cumulative issues in terms of scale conflict with the neighbouring proposed Dyrick Hill Wind Farm.

Following the iterative design process and further localised design refinements, a final layout comprising 15 turbines at a max tip height of 185m was then generated.

13.5.2 Buffering of Residential Receptors

For the proposed project, the minimum distance of any turbine from the nearest residential receptor is >800 m, which is in excess of the draft revised Wind Energy Development Guidelines (2019) minimum set back of 500m and greater than the setback distance of 4 times the tip height of the proposed turbines. In this instance and based on the Draft revised WEGS 2019, the setback distance for visual amenity purposes is 740m from residential receptors on the basis of the 185m high turbines (this represents the greatest potential setback distance with regard to all potential turbines ranges).

Variation in residential buffer distances within the nearest kilometre has a much more noticeable effect on perceived turbine scale than when it occurs in the context of more distant views. This is due to the law of perspective – that doubling the distance to an object halves its perceived height. The reduction factor is even more pronounced when considered in the context of the 'swept area' of turbine blades and not just their tip height. This exponential 'scale in relation to distance scenario is illustrated in Figure 13.14 below.

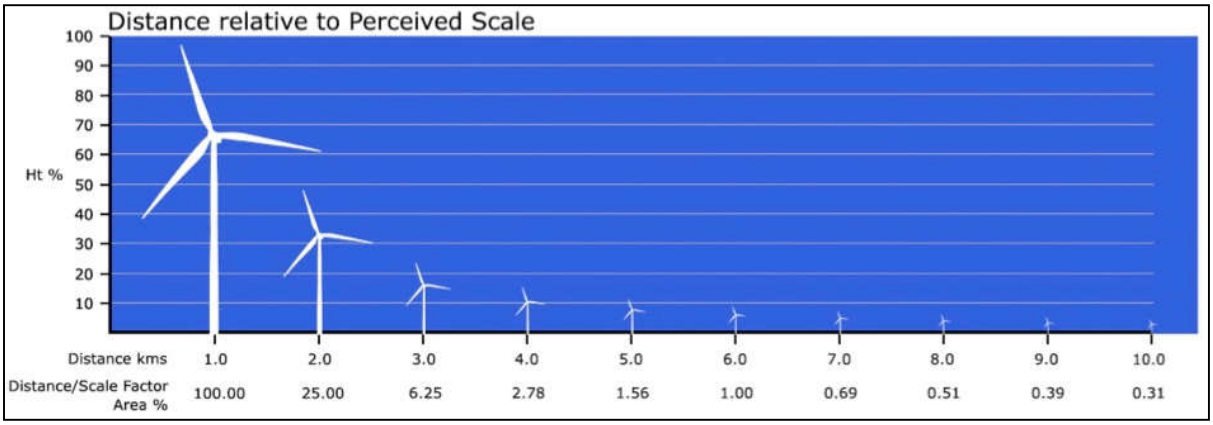

Figure 13.14 Turbine 'scale in relation to distance' relationship

13.6 LANDSCAPE EFFECTS

13.6.1 Landscape Character, Value and Sensitivity

Effects on landscape character will be considered at both the localised scale of the site and its immediately surrounding landscape as well as the broader scale of the Study Area.

Central Study Area (<c.5km from the nearest turbine)

Much of the central study area is heavily influenced by the foothill landscape in the surrounds of the Knockmealdown Mountains in County Waterford. The landscape of the central study

area principally comprises rolling hills and winding river valleys, many of which flow down from the more upland parts of the Knockmealdown Mountains. Whilst the predominant watercourse within the study is the River Blackwater, which only briefly enters the southwest quadrant of the study area, many of the other main watercourses in the central study area, such as the Glenshelane River and the Glenafalla River are tributaries of the River Blackwater. Whilst elements of a more upland landscape are also located within the central study area, these are principally contained in its westernmost periphery, where the main ridgeline associated with the Knockmealdown Mountains enters the central study area. The land use and land cover of the central study are also typical of a working foothill landscape and comprise working agricultural lands bound by networks of hedgerow vegetation and mature tree lines, in addition to extensive areas of commercial conifer forestry. Within the more elevated parts of the central study area, principally to the west, areas of moorland cloak the landscape, whilst the more lowland winding valleys are cloaked in linear swathes of riparian vegetation.

The settlement pattern is also typical of a foothill landscape comprising small linear clusters of dwellings and the occasional cross-road settlement. Indeed, the vast majority of residential dwellings within the study area are isolated rural dwellings or farmsteads. The settlement of Cappoquin is one of the only notable urban centres within the study area and is located in the southwest quadrant of the study area to the west of the River Blackwater. The rural village of Tooraneena is perched on locally elevated terrain east of the River Finisk on the eastern periphery of the study area. In general, the study area presents as a relatively typical foothill landscape, which is backdropped by the more rugged upland mountains associated with both the Knockmealdown Mountains and the more distant Comeragh Mountains. It has working characteristics that relate to the subsistence of the local rural population, albeit there is some sense of distinctiveness, which is typically more associated with the surrounding uplands.

In terms of scenic amenity value, several scenic routes and views are located within the central Study Area, the most notable agglomeration of which occurs in its western extents, where the terrain begins to transition towards the more elevated parts of the Knockmealdown Mountains. The nearest of these to the site are sections of Scenic Route 2, which traverses the local roads east and west of the Glenshelane River Valley. Whilst the Glenshelane River Valley presents a notable degree of scenic amenity at a local level, one of the most notable aspects of this route and other surrounding scenic routes is the Knockmealdown Mountains and its rugged upland ridgeline. Furthermore, clear views of the Comeragh and Monavullagh Mountains are also afforded in the distance from some sections of this broad network of scenic routes. A scenic view is also located within the central Study Area to the northwest of the site along the Waterford – Tipperary county bounds, however, this view is oriented to the west in the opposite direction to the proposed project.

The central study area also has some distinct landscape values relating to amenity and heritage strongly associated with the Knockmealdown Mountains. A collection of local looped trails and a section of the East Munster National Waymarked Trail are located in the northwest quadrant of the central study area along the north-facing slopes of the Knockmealdown Mountains, whilst a looped woodland walking trail is located along the Glenshelane River Valley in the southwest aspect of the central study area. In terms of heritage, the most prominent heritage receptor in the central study area relates to Mount Mellerary Abbey, which is a striking building that dates back to the early 1800s and is perched on elevated lands on the southern flank of the Knockmealdown Mountain foothills. Broad panoramic views are afforded across the southern extents of County Waterford from the front of the Abbey, whilst a section of St. Declans Way Pilgrim Path passes through Mount Mellary and across the Knockmealdown Mountains to the north.

With regard to landscape designations, much of the site and the western extent of the central study area is contained within the landscape type 'Uplands', whilst the remaining aspects of the central study area are contained within the 'Foothill' landscape type. The southern aspect of the central study area also includes brief sections of both landscape units, 'Farmed Lowlands' and 'Rivers'. In terms of landscape units, the proposed project is principally contained within the landscape unit '6B- Knockmealdown Uplands' and is bordered to the south, east and west by the landscape unit '5C-Tooaneena Foothills'. It is important to note that whilst the site is located within an 'upland' unit, it is not considered that the site and its immediate surrounding context are entirely consistent with an upland landscape. Indeed, the landscape features, land use, and settlement pattern are characteristic of a typical foothill setting. With regard to landscape sensitivity, the majority of the site is located in the 'Most sensitive' classification, whilst a brief section of the southern aspect of the site is situated in an area of landscape classified as 'Low sensitivity'. It is important to note that some small 'high sensitivity' landscape areas are also located just beyond the site context. While the Waterford Landscape Assessment accounts for foothill landscapes, its sensitivity assessment does not account for the varying landscape sensitivities across upland and transitional foothill landscapes. Indeed, the lack of acknowledgement for the more robust transitional lands is apparent as the landscape sensitivity assessment shows the 'Most sensitive' classification immediately adjacent to the 'Low sensitivity' classification. There is no transitional buffer in landscape sensitivity provided between these classifications in a setting where, in reality, there are only gradual changes in landscape character drawn out over kilometres. In contrast, the lands within the central study area in Tipperary are principally located in the landscape character area '23-Knockmealdown Mountain Mosaic'. Whilst the dominant sensitivity for this landscape character area is 'vulnerable' and has a 'very low' capacity, the landscape assessment notes that this landscape unit has varying sensitivities ranging from 'transitional sensitivity' to 'vulnerable'.

Whilst some parts of the central study area, principally the elevated hilltops and ridges on its western periphery, are more susceptible to change than the working transitional lands that cloak large parts of the central study area, it is not considered that it represents a 'highly sensitive' landscape setting. Instead, the central study area is heavily influenced by typical working land uses, even some of those more elevated lands in its western extent. This is a robust transitional landscape where typical productive rural landscape values outweigh scenic and naturalistic values that might be deemed more rare and vulnerable.

Overall, it is considered that the site and central study area are located in a transitional foothill landscape at the interface of the farmed lowlands and the more rugged and naturalistic uplands. The land use, landscape features and settlement pattern are all consistent with a more transitional foothill landscape, whilst evidence of more typical upland areas are noted in the more elevated western extents of the central study area. Whilst there are some localised areas that would be considered of 'high' sensitivity in the central study area, such as the more elevated uplands and enclosed river valleys, the majority of the central study area presents with robust working rural landscape values. On balance of the reasons outline above, the landscape sensitivity of the central study area is deemed to be **Medium**, with localised areas of higher sensitivity.

Wider Study Area (c.5-20km)

The wider study area comprises a much more varied mix of landscape types, features and areas. As a result of its diverse nature, it has an array of contrasting landscape sensitivities, qualities and associations.

The principal landscape features within the wider study area include the wider Knockmealdown Mountains, the Comeragh and Monavullagh Mountains, the River Blackwater and the River

Suir. Indeed, these mountainous regions have the most notable visual influence over the study area and often backdrop long distant open views across the wider landscape. These elevated lands also provide some of the most striking scenic views and vistas within the study area, which is reinforced by the number of designated scenic routes and views located in their immediate surrounds. The upland parts of the study area also present with distinct recreation and amenity values and encompass numerous walking trails, cycling routes and scenic drives. Both the River Suir and River Blackwater also encompass some notable scenic and recreational landscape values but at a more localised scale than the broad elevated uplands. A section of Waterford's coastline also punctuates the southeast quadrant of the study area and is similarly littered with scenic routes, scenic views and amenity and heritage features, one of the most notable of which is the popular Waterford Greenway.

In terms of heritage, the wider Study Area encompasses numerous stately houses, demesne landscapes, and castle remnants. The most notable cluster of these is situated along the corridor of the Blackwater River in the southwest quadrant of the Study Area and includes Lismore Castle and Gardens, Dromana House and Gardens and Tourin House. In similar circumstances to the Blackwater River, the River Suir in the northern half of the Study Area also encompasses numerous amenity and heritage features. Sections of both the Tipperary Heritage Way and the East Munster Way flank the River Suir corridor, whilst other notable heritage features, including Marfield House and Demesne and Swiss Cottage, are also situated in its immediate surrounds.

Whilst some highly distinctive landscape areas and features occur throughout the wider study area, it is important to note that the principal land use within the entire study area is working agricultural lands. Extensive areas of commercial conifer forestry also cloak the foothill landscapes, whilst the most notable urban areas of land use relate to the settlements of Clonmel and Dungarvan. Thus, despite the array of landscape features and sensitive visual receptors, for the most part, the landscape of the wider study has typical rural qualities that relate to the subsistence of the rural economy. The wider Study Area is heavily influenced by highly anthropogenic features such as major route corridors, large settlements, quarries and existing wind farm development. This is further represented in the current Waterford County Development Plan by the expansive areas of 'Low sensitivity' landscape that cloak much of the wider Study Area in Waterford. Furthermore, whilst the landscape in the surrounds of the Knockmealdown Mountains is classified as 'Primary' and 'Secondary Amenity Areas' in County Tipperary, the majority of the wider landscape in Tipperary is neither classified as 'Primary' or 'Secondary Amenity Areas', and instead represents a typical non-distinctive rural landscape context.

In summary, the wider study area is richly varied, comprising an array of susceptible landscape areas and features. Nonetheless, the predominance of the wider study area is that of a robust settled rural landscape that is cloaked in a 'low' landscape sensitivity classification. On balance of the reasons outlined above, it is considered that the study area has an overriding **Medium** landscape sensitivity, although areas of 'High' and even 'Very High' landscape sensitivity are also situated within the study area and relate to the most elevated uplands, the coastline and enclosed river valleys.

13.6.2 Magnitude of Landscape Effects

The physical landscape as well as the character of the proposed project and its central study area (<5km) is affected by the proposed wind turbines as well as ancillary development such as access and circulation roads, areas of hard standing for the turbines, proposed GCR, works along the proposed TDR and the substation compound. By contrast, for the wider landscape of the study area, landscape impacts relate exclusively to the influence of the proposed turbines only on landscape character. The aspects of the proposed project that are likely to have an impact on

the physical landscape and landscape character are described in Chapter 2 (Description of Proposed Project) with construction processes described in the Construction and Environmental Management Plan (CEMP) in Appendix 2-8.

13.6.2.1 Construction Stage Effects on the Physical Landscape

It is considered that the proposed project will have a modest physical impact on the landscape within the site as none of the proposed project features have a large 'footprint' and land disturbance/vegetation clearing will be relatively limited. The topography and land cover of the proposed project site will remain largely unaltered with construction being limited to tracks, areas of hard standing for the turbines, the on-site substation compound, temporary site construction compound, proposed met mast, proposed borrow pits, works along the proposed TDR and GCR. Excavations will tie into existing ground levels and will be the minimum required for efficient working. Any temporary excavations or stockpiles of material will be re-graded to marry into existing site levels and reseeded appropriately in conjunction with advice from the project ecologist.

The finalised internal road layout has been designed to avoid environmental constraints, and every effort has been made to minimise the length of necessary roadway by utilising and upgrading existing forestry tracks. Furthermore, the road layout has been designed to follow the natural contours of the land wherever possible reducing potential for areas of excessive 'cut and fill'. There will be an intensity of construction stage activity associated with the access tracks and turbine hardstands consisting of the movement of heavy machinery and materials, but this will be temporary/short term in duration and transient in location. There will also be construction stage landscape effects along the surrounding road networks, which relate to the temporary modifications to surrounding local and national roads and localised removal of roadside vegetation to facilitate turbine deliveries. The construction stage effects on landscape character from these familiar and dispersed surface activities will be minor.

There will be one 110kV on-site substation compound constructed to collect the generated power from the proposed project. The 110kV on-site substation will be located in an area of existing conifer woodland to minimise its visual impact on the surrounding landscape, which will be cleared to facilitate the full footprint of the proposed substation development. The dimensions of the proposed substation compound will be up to 145m in length by 85m in width and will comprise one control building with a pitched roof and will have a concrete render finish (25m x 18m and 7.5m in height) and electrical components necessary to export generated power from the wind to the transmission system. A second smaller switchgear building will also be constructed within the substation compound, whilst the compound of the proposed substation will be surrounded by steel palisade fencing which will be 2.6m in height. The most notable construction stage landscape impacts resulting from the proposed on-site substation relate to the construction of concrete foundations to facilitate that substation building. Overall, these construction stage effects are relatively minor and compare to the construction of an industrial farm shed.

All internal site cabling will be underground and will be run in cable ducts within the proposed internal roads and/or their verges. Indeed, the land cover of the site will only be interrupted as necessary to build the structures of the proposed wind farm and to provide access. Impacts from land disturbance and vegetation loss at the site are considered to be modest in the context of this broad landscape setting which is cloaked in extensive areas of conifer forest. As part of the proposed project, there will be a requirement to fell some of this forestry in the areas immediately around the footprint of the wind farm infrastructure. The total area of forestry to be felled is estimated to be between approximately 91.63 ha and 99.71 ha, of which 1.38ha will be replanted on site at the end of the construction phase (at the temporary construction

compounds). As a commercial crop, this forestry is scheduled to be felled and replanted in the future regardless of the proposed project being constructed or not. Whilst the removal of small areas of forestry will generate some landscape impacts, these are not considered to be significant. All forestry that is removed will be subject to forest replanting provisions.

One meteorological (Met) mast will be erected on site and will comprise of a 100m high lattice steel mast with a shallow concrete foundation. The proposed mast will be a slender, free-standing structure and will be constructed on a hardstanding area of 25m x 25m. The most notable construction stage effects here relate to the minor amount of ground excavation required to facilitate the shallow foundations for the steel mast structures. It will remain in place for the operational phase.

During the construction stage, there will also be some areas of land and vegetation disturbance along the proposed GCR and TDR. This will result in the loss of some localised areas of vegetation and localised areas of ground disturbance to facilitate the excavation works related to the laying of the proposed GCR cabling. It is important to note that both the proposed GCR and TDR will result in very minor and localised landscape effects. It is also important to note, with regard to both the proposed GCR and TDR, that any areas of disturbed ground or removed vegetation will be fully reinstated post-construction completion.

Site activity will be at its greatest during the construction phase due to the operation of machinery on site and movement of heavy vehicles to and from site. This phase will have a more significant impact on the character of the site than the operational phase, but it is a 'short-term' impact that will cease as soon as the proposed project is constructed and becomes operational (24 months from starting onsite to completion of commissioning of the turbines).

There will be some long term/permanent construction stage effects on the physical landscape in the form of turbine foundations and hardstands, access tracks and a substation, and the on-site substation and proposed GCR will remain in perpetuity as part of the national grid network. With the exception of some residually useful access tracks, it is proposed that all other development features will be removed from the project site, and it will be reinstated to upland heath and forestry use upon decommissioning. Thus, the construction stage landscape effects of the proposed project are largely reversible.

Overall, the magnitude of construction stage landscape effects within the site and its immediately surrounding context is deemed to be **High-medium** and of a **Negative** quality, but of a **Short-term** duration. Beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to **Low** and **Negligible** at increasing distances as the construction activities relating to the proposed project becomes a proportionately smaller component of the overall landscape fabric. It is important to note that this impact assessment applies across all turbine ranges highlighted in section 13.8 below.

13.6.2.2 Operational Stage Effects on Landscape Character

For most commercial wind energy developments, the greatest potential for landscape impacts to occur is as a result of the change in character of the immediate area due to the introduction of tall structures with moving components. Thus, wind turbines that may not have been a characteristic feature of the area become a new defining element of that landscape character. In this instance, wind turbines are a relatively unfamiliar feature within the central study area, albeit wind energy development is a characteristic feature of the wider study and the wider foothill context of the Knockmealdown Mountains. Thus, whilst the proposed wind farm represents a new form of development within the central study area, on a broader scale, it

represents the continuation of an established land use in County Waterford and the wider study area.

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. These attributes prevent the proposed turbine height and overall wind farm extent from causing the type of scale conflict that can occur in more intricate landscape areas. Whilst there is some localised sense of the naturalistic along the more remote elevated upland mountains in the wider western and eastern aspects of the study area and along enclosed localised sections of river and stream corridors within the study area, the site and central study area represent a working transitional landscape that is heavily influenced by typical farm practices and commercial scale forestry. Although the proposed project represents a stronger human presence and an increased level of built development than currently exists on the site, it will not detract significantly from the productive transitional foothill setting.

It is important to note that in terms of duration, this development proposal represents a long term, but not permanent impact on the landscape and is reversible. The lifespan of the project is 35 years, after which time it will be substantially dismantled and the landscape reinstated to prevailing conditions. Within 2-3 years of decommissioning there will be little evidence that a wind farm ever existed on the site, albeit the proposed on-site substation and underground GCR will remain in perpetuity as part of the national grid infrastructure, in addition to residually useful access tracks.

In summary, there will be physical impacts on the land cover of the site as a result of the proposed project during the operational phase, but these will be relatively minor in the context of this transitional working landscape that comprises extensive areas of commercial conifer forestry and existing productive agricultural lands. Whilst the proposed wind farm development will result in a distinct increase in the intensity of development in this landscape context, the scale of the proposed project will be well assimilated within its 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** within the Central Study Area. 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. It is important to note that this impact assessment applies across all turbine ranges highlighted in section 13.8 below.

13.6.2.3 Decommissioning and Restoration Stage Effects on Landscape Character

The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the site. There may be a minor loss of roadside and trackside vegetation that has grown during the operation phase of the project, but this can be reinstated upon completion of decommissioning.

Works in this phase will primarily involve disassembling the turbines and removing off-site. The proposed site roads, turbine foundations or the proposed GCR infrastructure will not be removed. The site roads will remain for forestry/agricultural access while the hardstand material and turbine foundations will be left to revegetate naturally. The substation and proposed GCR infrastructure will form part of the permanent national grid network. A decommissioning plan is contained within the CEMP (Appendix 2-8).

Overall, the magnitude of decommissioning stage landscape effects within the site and its immediately surrounding context is deemed to be **High-medium** and of a **Negative** quality, but of a **Short-term** duration. Beyond 5km from the site, the magnitude of landscape impact is

deemed to reduce to **Low** and **Negligible** at increasing distances as the decommissioning related activities become a proportionately smaller component of the overall landscape fabric. It is important to note that this impact assessment applies across all turbine ranges highlighted in section 13.8 below.

13.6.2.4 Significance of Potential Landscape Effects (Construction, Operation and Decommissioning Phases)

The significance of landscape effects is a function of landscape sensitivity weighed against the magnitude of landscape impact. This is derived from the significance matrix (**Table 13.3**) used in combination with professional judgement.

Based on a Medium sensitivity judgement and a High-medium magnitude of construction and decommissioning stage landscape impact, the significance of effect is considered to be **Substantial-moderate / Negative / Short-term** within and immediately around the site during construction and decommissioning, but reducing quickly with distance and broader context.

Based on a Medium sensitivity judgement and a Medium magnitude of operational stage landscape impact, the significance of effect is considered to be **Moderate / Negative / Long-term** within and immediately around the site. Thereafter, significance 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. It is important to note that the residual significance of visual effects apply across all turbine ranges highlighted in section 13.8 below.

13.7 VISUAL EFFECTS

13.7.1 Construction Stage Visual Effects

During construction, the main visual impacts will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the site and using the site entrance. There will be construction machinery on site, which may rise above intervening vegetation and buildings. Some of the most notable construction stage visual impacts will result from the erection of the proposed turbines using tower cranes. There will also be stockpiles of stripped topsoil as well as construction materials awaiting use. However, a large part of this short-term activity within the site will remain screened from view by the hedgerows and mature conifer plantations that surround the site and its immediate landscape context. Furthermore, construction-related activity is short-term in nature and will cease once the development becomes fully operational.

For these reasons, the magnitude of visual impact at the construction stage is deemed to be no greater than **High/High-medium** at the nearest surrounding receptors, however, this reduces swiftly at greater distances from the site, especially within the wider study area, where the magnitude of visual impact is considered to be no greater than Low/Low-negligible**.** Combined with a High-medium/Medium sensitivity for receptors within the immediate study area (<1-2km from the site), the significance of visual effect will be not greater than **Substantial-moderate/Moderate** and of a **Negative** quality. Thereafter, the significance of effect will reduce to Moderate/Moderate-Slight throughout the central study area and Slight and Imperceptible at increasing distances within the wider study area as the development becomes a progressively smaller component in the afforded view. Thus, it is not considered that the proposed project will generate significant visual effects at the construction stage.

13.7.2 Operational Stage Visual Effects

Table 13.7 below summarises the full textual assessment of visual effects for each Viewshed Reference Point (VRP) contained in Appendix 13.1 and Volume IV (Photomontage Booklet). Whilst the 'receptor sensitivity analysis table' and full textual assessment for each VRP is normally contained within the landscape and visual chapter, in this instance, given the considerable number of VRPs, it is considered more prudent to place this material in a separate appendix and focus herein on the significance of the findings. The left hand side of the table incorporates statistical data associated with the view of turbines, whilst the right hand side contains professional judgements in respect of the view. It is important to note that the professional judgements are based on the effects experienced in relation to the view and are not directly influenced by the statistical data (ie. the distance to the nearest turbine). These aspects are only combined within Table 13.7 in order to identify patterns of effect to better inform the conclusions of this assessment.

Table 13.7 Summary of Operational Stage Visual Effects at Viewshed Reference Points (VRP's)

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect
VP1	17.2km (T3)	Medium	Low-negligible	**Slight-imperceptible / Negative / Long Term**
VP2	19.8km (T2)	High-medium	Negligible	**Imperceptible / Neutral / Long Term**
VP3	10.4km (T3)	Medium	Low-negligible	**Slight-imperceptible / Negative / Long Term**
VP4	15.7km (T7)	High-medium	Low	**Slight / Negative / Long Term**
VP5	10.9km (T3)	High-medium	Low	**Slight / Negative / Long Term**
VP6	7.0km (T3)	Medium	Low	**Slight / Negative / Long Term**
VP7	18.2km (T12)	High	Low-negligible	**Slight-imperceptible / Negative / Long Term**
VP8	6.1km (T7)	Medium-low	Medium-low	**Moderate-slight / Negative / Long Term**
VP9	2.2km (T7)	Medium	Medium-low	**Slight / Negative / Long Term**
VP10	5.6km (T2)	High	Low	**Moderate-slight / Negative / Long Term**
VP11	0.9km (T3)	High-medium	High-medium	**Substantial-moderate / Negative / Long Term**
VP12	2.6km (T7)	Medium	Low	**Slight / Negative / Long Term**
VP13	0.7km (T7)	High-medium	High-medium	**Substantial-moderate / Negative / Long Term**
VP14	0.9km (T1)	High-medium	High-medium	**Substantial-moderate / Negative / Long Term**
VP15	3.0km (T9)	Medium-low	Medium	**Moderate-slight / Negative / Long Term**

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect
VP16	5.1km (T12)	Medium	Medium-low	**Moderate-slight / Negative / Long Term**
VP17	1.1km (T9)	Medium-low	Medium	**Moderate / Negative / Long Term**
VP18	0.9km (T8)	Medium	High	**Substantial-moderate / Negative / Long Term**
VP19	3.3km (T12)	Medium-low	Medium-low	**Moderate-slight / Negative / Long Term**
VP20	6.2km (T12)	Medium	Medium-low	**Moderate-slight / Negative / Long Term**
VP21	1.1km (T12)	Medium	High-medium	**Substantial-moderate / Negative / Long Term**
VP22	3.2km (T1)	Medium	Medium-low	**Moderate-slight / Negative / Long Term**
VP23	1.8km (T14)	High-medium	Medium	**Moderate / Negative / Long Term**
VP24	0.9km (T15)	Medium	High	**Substantial-moderate / Negative / Long Term**
VP25	1.7km (T13)	Medium	High-medium	**Moderate / Negative / Long Term**
VP26	10.9km (T13)	High	Low	**Moderate-slight / Negative / Long Term**
VP27	1.0km (T16)	Medium	High-medium	**Substantial-moderate / Negative / Long Term**
VP28	4.3km (T15)	High-medium	Medium-low	**Moderate-slight / Negative / Long Term**
VP29	10.0km (T1)	High-medium	Low	**Slight / Negative / Long Term**
VP30	9.6km (T15)	High-medium	Low	**Slight / Negative / Long Term**
VP31	4.6km (T16)	Medium-low	Low	**Slight / Negative / Long Term**
VP32	6.2km (T16)	Medium-low	Medium-low	**Slight / Negative / Long Term**
VP33	8.3km (T16)	High-medium	Medium-low	**Moderate-slight / Negative / Long Term**
VP34	15.4km (T16)	Medium	Low-negligible	**Slight-imperceptible / Negative / Long Term**
VP35	17.2km (T16)	Medium	Negligible	**Imperceptible / Negative / Long Term**

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 13.1)	Visual Impact Magnitude	Significance of Visual effect
VP36	12.5km (T16)	High	Low	**Slight / Negative / Long Term**
VP37	16.2km (T16)	High	Low-negligible	**Slight-imperceptible / Negative / Long Term**

Note: *It is important to note that the residual significance of visual effects apply across all turbine ranges highlighted in section 13.8 below.*

13.7.2.1 Impacts on Designated Views

Due to the diverse nature of the study area, which comprises two mountainous regions (the Knockmealdown Mountains and the Comeragh and Monavullagh Mountains), there is a notable degree of designated scenic amenity within the central and wider study area. As a result, 16 out of the 37 assessed viewshed reference points (VP1, VP2, VP4, VP8, VP11, VP13, VP14, VP18, VP20, VP23, VP24, VP26, VP28, VP29, VP36, VP37) were selected to represent scenic views and routes within the study area in both counties Waterford and Tipperary. It is important to note that many views have also been selected to represent an array of receptor types, including local community views, major routes and amenity features.

Central Study Area (<5km)

The nearest and most relevant scenic designation to the proposed project is scenic route S2, which extends north from Cappoquin along the R699 and is located along several local roads that traverse in a north-south direction either side of the Glenshelane and Glenafallia River Valleys. This extensive scenic route designation encompasses views of various landscape features and areas and encompasses a wide variety of landscape values and sensitivities. As a result, seven viewpoints (VP11, VP13, VP14, VP18, VP23, VP24 & VP28) have been included to represent sections of the S2 scenic route. Due to the near distance of this scenic route designation to the proposed wind farm development, clear views of the proposed turbines will be afforded, and thus, the residual visual impact ranged between 'Moderate-slight' to 'Substantial-moderate' at the aforementioned representative viewpoints.

Viewpoints VP13, VP18 and VP24 were all classified with a residual significance of visual impact of 'Substantial-moderate' and afford some of the nearest views of the proposed wind farm development from the local road immediately east of the Glenshelane River Valley. VP13 represent the northernmost point of this scenic route designation on this section of the local road and is situated along the Waterford–Tipperary border. The turbines along both Knocknanask Hill and Knocknasheega Hill will be distinctly visible in this view and frame the down-valley views to the south, one of the principal aspects of amenity along this section of the route. It is important to note that during the design process, a turbine was removed from the array to the southeast of this view as it presented in a highly prominent manner with a notable sense of overbearing. Indeed, in the depicted view, the proposed array presents in a legible manner and with little, if any, sense of overbearing due to the clear offset distances from the local road corridor. Both VP18 and VP24 further south along this route will afford broad views of the development in almost its entirety. Notwithstanding, the turbines present as well-spaced and are viewed in the opposite direction to the main aspect of amenity, which is to the west across the Glenshelane River Valley and towards the more rugged upland parts of the Knockmealdown Mountains.

Viewpoints VP11 and VP14 are located along a relatively remote local road section west of the Glenafallia River Valley and Knocknanask Hill. The proposed turbines along Knocknanask Hill will be prominently visible along these sections of the scenic route, albeit the proposed turbines further to the east will be either heavily screened or present as more modest scale background features. Indeed, the overall scale of the entire development is not fully apparent here due to the screening afforded by Knocknanask Hill and the surrounding intervening vegetation. Nevertheless, the Knocknanask turbines will become the principal built features in this remote transitional foothill context and have been classified with a residual 'Substantial-moderate' significance of visual impact. Viewpoint VP11 also represents Scenic View 7 in the current Waterford County Development. Nonetheless, the orientation of this scenic view is to the west and is described as 'View of Knockmealdowns from Lay-by along the L1025', which is in the opposite direction to the view of the proposed turbines.

Figure 13.15 Example of the screening afforded by Knocknanask Hill - Only the Knocknanask turbines prominently revealed, with glimpses of the more distant turbines afforded along the vegetated skyline ridge.

Viewpoint VP23 affords a cross-valley view of the proposed project from the local road scenic route located on the east-facing side of the Glenshelane River Valley. Whilst the Knocknanask turbines are heavily screened here, the full extent of the Knocknasheega array will be revealed along the broad ridge that extends south from Knocknasheega and Broemountain. Although the turbines will be noticeable built features from this section of the scenic route and present with a broad visual envelope, the layout of the proposed project directly responds to the 'layout' guidance for transitional landscape types in the draft WEDGs as it extends in a linear fashion across the broad underlying ridge. Indeed, this linear layout will result in a highly legible view of the turbines, diminishing the potential for adverse aesthetic effects. Overall, the residual significance of visual impact was deemed 'Moderate' at VP23.

Viewpoint VP28 is located along a section of the R669 regional road, some 4km southwest of the site. The turbines will be clearly visible along the transitional foothill landscape context from this section of the scenic route. Whilst the rotating turbine components have the potential to draw the eye, they are viewed offset from the main aspect of amenity along this route, which is to the north and northwest towards the rugged upland ridges in the Knockmealdown Mountains. Overall, the significance of visual impact was deemed 'Moderate-slight' along this section of the S2 scenic route.

Overall, due to the extensive nature of scenic route S2, it will afford clear visibility of the proposed turbines, especially from some of the nearest sections of the scenic route to the proposed wind farm development. Nonetheless, the turbines will never block or heavily obstruct the most scenic aspects of views along this route, and in many instances (refer to VP13, VP18, VP24 & VP28), the proposed wind farm development is viewed in the opposite direction, or is offset from the main aspect of visual amenity. Whilst the development will result in a

marked increase in the intensity of built development along this route, it will not significantly detract from the scenic amenity afforded from it.

Wider Study Area (>5km)

Nine other viewpoints (VP1, VP2, VP4, VP8, VP20, VP26, VP29, VP36 & VP37 were selected to represent scenic designations in the wider study area. These encompass scenic designations in both Waterford and Tipperary that afford views of landscape features in the wider study area, including both the Comeragh and Knockmealdown Mountains, in addition to distinctive landscape features such as the River Blackwater and the coastline. The residual significance of visual impact at these viewpoints ranged from 'Moderate-slight' to 'Imperceptible', with those of a lower impact significance situated a considerable distance from the site.

Viewpoints VP4 and VP20 were selected as representative views from scenic route S8 in County Waterford, a broad scenic route designation that occurs along the R671 and R672 and an array of third-class routes in the surrounds of the Comeragh Mountains. Open views of both the Comeragh Mountains and Knockmealdown Mountains are afforded from sections of this route. VP20 represents one of the clearest views of the proposed project afforded from this scenic route and is located along a section of the R672 regional road. The transitional foothill context of the proposed project is highly evident in this view, where the turbines cloak the rolling foothills east of the upland parts of the Knockmealdowns. The turbines will be a noticeable feature in this diverse locally elevated view, but are well assimilated in this setting, comprising broad landscape features and land uses. Overall, the residual significance of visual impact was deemed 'Moderate-slight' at VP20. Viewpoint VP4 represents a more distant view of the proposed project from an elevated local road in the Comeragh Mountains. Again, as with VP20, the foothill nature of the site is evident in this view, where the turbines present well offset from the more elevated and visually susceptible parts of the Knockmealdown Mountains. Although the rotating turbine components have the potential to be noticed here, they present as modest-scale background features in this view and will have a sub-dominant visual presence. Thus, the residual significance of visual impact is deemed 'Slight', which is heavily influenced by the sensitivity of this visual receptor.

Viewpoint VP26 is located along an elevated section of the S10 scenic route along elevated lands in the wider eastern extent of the study area. The linear turbine array is visible in the context of a diverse landscape backdropped by the Knockmealdown uplands. Whilst the turbines will generate a notable increase in the intensity of wind farm development within the view, they do not appear as an inappropriate addition to this robust foothill context. Thus, the residual significance of visual impact is classified as 'Moderate-slight'. VP36 affords a similarly distant view from an elevated context, albeit within the wider southern extents of the view. This viewpoint was selected to represent Scenic View SV16, described as 'Blackwater Valley from layby west of Aglish'. The view represents a highly picturesque scene heavily influenced by the Blackwater Valley and backdropped by the Knockmealdown Mountains. In contrast to the aforementioned VP26, only partial visibility of the proposed project is afforded here and principally relates to views of the more elevated turbines along Knocknanask and Knocknasheega Hills. Whilst they will be noticeable features, the turbines do not strongly detract from the scenic amenity afforded here, as they present as small-scale background features and are viewed with a low degree of contrast against the sky. Furthermore, the turbines are well offset from the more elevated uplands viewed in direct alignment with the River Blackwater. As a result, the significance of visual impact was deemed 'Slight'.

On balance of the reasons outlined above and contained within Appendix 13.1, the proposed project will generate some notable visual impacts at some of the nearest surrounding scenic route designations that have the potential to generate effects that are close to significant, but

are not considered significant in EIA terms. Notwithstanding, the turbines do not appear out of scale or incongruous and will often be viewed offset from or in the opposite direction from the main aspect of visual amenity from surrounding scenic designations.

13.7.2.2 Impacts on Local Community Views

Local Community views are considered to be those experienced by people who live, work and move around the area within approximately 5km of the site. These are generally the people that are most likely to have their visual amenity affected by a wind energy proposal due to proximity to the turbines, a greater potential to view turbines in various directions, or having turbines as a familiar feature of their daily views.

Over 17 viewpoints (VP9, VP11, P12, VP13, VP14, VP15, VP16, VP17, VP18, VP19, VP21, VP23, VP24, VP25, VP27, VP28 & VP31) were selected to represent local community receptors, some of which are representative of several receptor types. Most notably, viewpoints immediately west of the development were selected as representative views for the local community and scenic designations. The residual visual effects at these receptors have been summarised in the section above and include viewpoints VP11, VP13, VP14, VP18, VP23, VP24 and VP28. The receptor sensitivity of the 17 viewpoints selected to represent the local community ranges from 'Medium-low' to 'High-medium', further reflecting the study area's transitional nature that comprises more typical rural areas and more visually susceptible areas influenced by upland terrain. Furthermore, those views classified with a higher receptor sensitivity typically represent two or more receptor types and/or afford distant views across the landscape towards the surrounding upland areas and wider landscape. The residual significance of visual impact ranged between 'Substantial-moderate' to 'Slight'.

Seven of the aforementioned viewpoints representing the local community, including viewpoints VP11, VP13, VP14, VP18, VP21, VP24 and VP27, were classified with a residual visual impact significance of 'Substantial-moderate'. All seven of these viewpoints are located within 1.1km of the proposed turbine array and will afford clear views of the development, where the turbines will present with a prominent visual presence and will be one of the principal built features within the view. As noted above, viewpoints VP11, VP13, VP14, VP18 and VP23 also represent scenic designations located to the west of the proposed project and impacts at these representative viewpoints have been summarised in the section above. Viewpoints VP21 and VP27 are located to the east and south of the proposed project. Viewpoint VP21 is situated along locally elevated terrain and will afford a view of the proposed wind farm development from a distance of some c. 1.1km to the nearest turbine (turbine T12). Whilst the turbines are a prominent feature of this aspect of the view and will markedly increase the intensity of development in this transitional working landscape context, they present with good spacing characteristics, which diminishes the potential for any notable negative aesthetic effects to occur and allows for a degree of visual permeability through the proposed array. It is also worth noting that the main aspect of visual amenity along this section of the local road is in the opposite direction to the proposed project to the east and south across the broad rolling landscape backdropped by the Comeragh Mountains and the distant coastline. In contrast to VP21, viewpoint VP27 affords a more condensed and slightly cluttered view of the proposed turbine array from a local road south of the site. Despite their dominant visual presence in this local landscape context, the linear turbine array presents with a notable sense of depth due to the variation in the perceived scale of the turbines, from the nearest southernmost turbines in the array to the more distant turbines that crown Knocknanask Hill. This strong sense of perspective highlights the dispersion of the proposed turbines across the ridgetop plateau. Overall, the proposed turbines represent a clear increase in the intensity of built development in this local landscape context, albeit they will not appear incongruous or over-scaled in the

context of this working transitional setting that comprises broad scale landscape features and underlying land use patterns.

Some notable residual visual effects will also occur at other viewpoints representing the local community and include VP17, VP23, and VP25, all of which were classified with a 'Moderate' visual impact. Whilst clear views of the turbines will also be afforded from these representative viewpoints, the proposed turbines will typically be viewed from a slightly further distance (ranging from between c.1.1-1.8km), and thus, the visual presence of the proposed project will be marginally less than the visual receptors located within 1.1km of the proposed turbines. Viewpoint VP17 will only afford a partial view of up to three turbines. However, the partially visible blade set will present at a notable scale uphill from this local road and will generate some sense of ambiguity as to its actual location. In contrast, both viewpoints, VP23 and VP25, will afford clear visibility of the proposed turbine array. A broad view of the turbine array is afforded across the Glenshelane River Valley in VP23, where the turbines present in a highly legible manner across the broad underlying ridge. From VP25, the full extent of the development is visible from the southeast, where the turbines present trailing up and around the foothill context of the fore-to-middle ground, tracking a linked series of ridges and hillocks. In both instances, the turbines will considerably add to the scale, intensity and extent of built development within the afforded views. However, in all instances, the turbines appear well assimilated into the productive foothill landscape context.

All other local community receptors were classified with a residual visual impact significance of 'Moderate-slight' or 'Slight'. Whilst the full extent of the development will be visible from some of these surrounding receptors, the turbines present along the robust working foothills of the Knockmealdown Mountains and are well offset from the more visually susceptible rugged uplands. Indeed, whilst the rotating turbine components have the potential to draw the eye from local community receptors within the central study area, they do not appear as an inappropriate addition to this transitional foothill context currently influenced by extensive commercial conifer forest plantations and a patchwork of pastoral farmland.

In summary, the proposed project will present in a dominant manner from some of the nearest surrounding local community receptors and will generate some visual effects that are close to significant but are not considered significant in EIA terms. Whilst the turbines will not block or obstruct any highly sensitive viewing aspects, they will contribute considerably to an increased intensity of development in this transitional foothill landscape context. Nonetheless, it is not considered that significant visual effects will occur as the turbines are offset from the nearest residential receptors. It should be noted that the setbacks and are in line with the minimum 'setback' distance outlined in the draft WEDGs.

13.7.2.3 Impacts on Centres of Population

Six viewpoints (VP3, VP6, VP16, VP30, VP34 & VP35) were chosen to represent population centres within the study area. Centres of population are generally considered to be in the mid to low range of visual receptor sensitivity because they tend to be busy built environments where visual change is relatively commonplace. However, in this instance, some of the centres of population throughout the study area are located along enclosed river valleys such as the River Blackwater, or are situated along locally elevated terrain and are backdropped by the surrounding upland areas. Notwithstanding, it is important to note that Cappoquin is the only centre of population located within the central study area, whilst the quiet rural village of Tooraneena is situated on the periphery of the 5km central study area. As noted in the analysis of the ZTV (refer to section 13.3.3.1 above), the settlement of Cappoquin is situated on the southernmost aspect of the Knockmealdown Mountain foothills to the east of a bend in the Blackwater River and will be entirely screened from the proposed wind turbines by the steeply

sloping hills to the north of the settlement. As a result, the will be no visibility of the proposed turbines from one of the only centres of population within the central study area.

Viewpoint VP16 was included as a representative viewpoint from the settlement of Tooraneena. This is the nearest settlement of the proposed project that has the potential to afford visibility of the proposed turbines, as noted in the bare-ground ZTV (Figure 13-16 refers). Whilst the full lateral extent of the proposed project will be revealed at this locally elevated village settlement, the northernmost turbines in the array located along Knocknanask Hill and Knocknaheega Hill will be heavily screened by the nearer Broemountain. Overall, the proposed turbines are viewed in a highly legible manner with clear spacing characteristics, allowing for a strong sense of visual permeability through the proposed array. Furthermore, the turbines are viewed well offset from the principal upland ridge in the Knockmealdown Mountains, which is the principal aspect of scenic amenity in this locally elevated context. Thus, whilst the rotating turbine components will likely draw the eye from this locally elevated viewing context, visual impact significance was deemed 'Moderate-slight'.

All other viewpoints selected to represent centres of population are located within the wider study area. Viewpoints VP3 and VP6 are both located in the northern extent of the wider study area and will afford visibility of the turbines in the northernmost extent of the proposed turbine array. Whilst more than half of the turbines will be entirely screened in both representative views, the more elevated turbines along Knocknanask and Knocknasheega Hills will be visible along the rolling foothill landscape context. In both instances, the proposed turbines will increase the intensity of built development along the rolling distant ridge, albeit the turbines have a marginally greater visual presence in viewpoint VP6. Viewpoint VP3 was classified with a 'Slight-imperceptible' residual visual impact, whilst the proposed project is deemed to generate a residual visual impact of 'Slight' at viewpoint VP6. Viewpoint VP30 was selected to represent the heritage settlement of Lismore, situated along the River Blackwater some c. 10km southwest of the site. Whilst the proposed project will be almost entirely screened from the centre of the settlement, VP30 is located at the easternmost extent of the settlement. Although the turbines have the potential to be noticed from this aspect of the settlement, they will be viewed as distant, modest-scaled features and are heavily screened by the intervening terrain and vegetative screening. All other viewpoints representative centres of population within the wider study area were classified with a residual visual impact of 'Slight-imperceptible' or less, on the basis that they afford distant views of the turbines, which present with a minimal visual presence.

As a result of the reasons outlined above, it is not considered that the proposed wind farm will result in significant visual effects at centres of population within the study area.

13.7.2.4 Impacts on Major Routes

Nine viewpoints have been selected to represent major routes within the study area, including VP1, VP2, VP8, VP20, VP28, VP31, VP32, VP35 and VP37. It is important to note that many of these routes are also scenic designations, which was their primary reason for being selected as representative viewpoints. Whilst the R669 regional road is the nearest major route to the proposed project and also forms part of a scenic route designation represented by viewpoint VP28, the most notable major routes that have the potential to afford visibility of the proposed project include the N72, N24 and M8 motorway.

Viewpoints VP31 and VP32 were selected to represent the N72, which is the most notable major route that traverses the central study area. Both representative views were classified with a visual impact significance of 'Slight' as the proposed project is afforded a notable degree of screening in the form of rolling intervening terrain cloaked in layers of hedgerows, vegetation

and mature trees. Viewpoint VP32 affords the clearest visibility of the proposed project from these two representative views, and while the turbines will be viewed as relatively modest-scale distant features backed by the sky with a low degree of visual contrast, they present in a relatively condensed cluster and generate some sense of visual clutter.

The R671 and R672 regional roads are located east of the site, with the R671 traversing through the eastern extents of the central study area. Nonetheless, the section of this regional road that traverses the central study area takes a similar path to the River Finisk and is located in its relatively contained valley that will afford a very limited degree of turbine visibility. In contrast, the R672 regional road is located slightly further to the east and along locally elevated terrain that affords broad views of both the Comeragh Mountains and Knockmealdown Mountains. Viewpoints VP8 and VP20 were selected to represent this major route receptor. It is important to note that the southern extent of this route within the study area also forms part of a broad scenic route designation in County Waterford, which VP20 represents. Viewpoint VP8 is located along a section of the R672 regional road north of the settlement of Tooraneena and affords a similarly broad view of the proposed wind farm development in its entirety. The proposed turbines will present as modest-scale features in the distance from this locally elevated rolling landscape context and are viewed along the transitional foothill landscape context east of the principal ridgeline in the Knockmealdown Mountains. Although the turbines present with a broad lateral extent, they do not appear over-scaled or inappropriate in this transitional foothill landscape context. Thus, VP8 has been classified with a residual visual impact of 'Moderate-slight'.

Other viewpoints representing major routes in the wider study area include VP1, VP2 and VP37. All three of these have been classified with a residual visual impact significance of 'Slight-imperceptible' or less as a result of their considerable distance from the site and their limited visual presence.

Overall, it is not considered that any significant visual effects will occur in respect of major route receptors.

13.7.2.5 Impacts on Heritage and Amenity Features

Due to the diverse nature of the study area's landscape, comprising a mix of upland terrain, more typical rolling farmland, meandering river valleys and coastal areas, the surrounding landscape encompasses a wider variety of tourism amenity and heritage features. Ten views were selected to represent tourism, amenity and heritage features within the central and wider study area, including VP4, VP5, VP6, VP7, VP8, VP10, VP22, VP26, VP33, VP34. As many of these viewpoints represent susceptible visual receptors and remote upland areas, the sensitivity of visual receptors ranged between High and Medium. Those of the highest sensitivity are typically related to elevated upland mountaintop summits that present with a strong sense of remoteness. Those of a 'Medium' sensitivity typically relate to linear receptors such as waymarked walking trails, driving routes or cycling routes that encompass some sense of scenic amenity but are also influenced by more traditional rural land uses such as agriculture and forestry.

Viewpoints VP7 and V10 represent the most upland sections of the study area in the Comeragh and Knockmealdown Mountains, respectively. Both viewpoints afford sweeping elevated panoramic views of their surrounding remote upland context in addition to broad views across the surrounding lowland landscape and more distant elevated lands. The 360-degree views from both locations present with a high degree of scenic amenity and are considered highly susceptible to change. Nonetheless, both views are backdropped by more traditional rural land uses in the lowlands, of which distant wind farm developments are already a feature. VP7 is

situated along Kilclooney Mountain and affords a view of the proposed project from a considerable distance of over 18km. Thus, even though the rotating turbines have the potential to be viewed from here, they present as small-scale distant features along the foothill context of the Knockmealdown Mountains and only have a very brief visual envelope in this sweeping 360-degree panorama. As a result, the residual visual impact was deemed 'Slight-imperceptible'. In contrast, VP10 affords a view of the proposed wind farm development from a distance of just over 5km. Whilst the turbines will have a more notable visual presence in this view than in VP7, they do not appear over-scaled or out of context along the distant foothill landscape cloaked in extensive commercial conifer forest plantations and a patchwork of pastoral farmland. Indeed, whilst the turbines will likely draw the eye in this aspect of the view, they are viewed in the context of other existing but more distant turbines to the southeast. Overall, the residual significance of visual impact at VP10 was deemed 'Moderate-slight'.

One of the most notable heritage features in relation to the site is Mount Mellary Abbey, which is situated on the south-facing sloping foothills of the Knockmealdown Mountains in the western half of the central study area. Dating back to the 1800s, the Abbey affords broad views across the wider southern extent of County Waterford. Viewpoint VP22 was included as a representative view from this heritage feature, however, it is important to note that this view is located in the eastern extents of the lands hosting the Abbey, adjacent to several outbuilds located to the east of the main Abbey. Indeed, the wider surrounds of the Abbey are characterised by large industrial farm sheds and outbuildings. Whilst VP22 will afford visibility of the proposed project , the turbines present in a legible manner on the transitional foothill landscape further in the distance to the east of the Abbey. Furthermore, the main aspect of amenity from the Abbey is to the south across the wider southern aspect of the County Waterford, where the proposed turbines will be heavily screened by the built development and existing mature vegetation in the surroundings of the Abbey. Thus, the residual magnitude of visual impact was deemed Moderate-slight, representing the brief view afforded in the eastern extents of the Abbey lands.

A collection of waymarked walking trails, driving routes and on-road cycling routes are also located throughout the central and wider study area. The most visually susceptible parts of these routes relate to their most elevated sections that afford broad views across the surrounding landscape. Viewpoints VP4 and VP5 are located along elevated sections of the Comeragh Mountains and represent sections of the Sean Kelly Looped Cycle Route and the East Munster Way, respectively. Both viewpoints will afford distant views of the proposed project, with only partial visibility of the proposed turbine array afforded from VP5. Nevertheless, the turbines represent a notable increase in the quantum of built development along the distant foothill landscape, albeit they will have little notable effect on the visual amenity afforded from these views due to the viewing distances involved (10km+). Thus, in both instances, the residual significance of visual impact was deemed 'Slight'. Numerous other walking trails and cycling routes also traverse the study area, some of which will have no visibility of the proposed project as they are located in contained River Valleys or are located in densely wooded areas. Nonetheless, there is likely to be clear views of the proposed turbines from various distances along walking, hiking and cycling trails throughout the study area. Notwithstanding, wind farm developments often form part of the extensive linear waymarked walking trails and hiking routes. Whilst the proposed turbines have the potential to draw the eye in certain instances, they will not notably detract from the degree of scenic amenity afforded from such routes, especially with regard to the proposed project where the turbines will be notably offset from the nearest sections of walking trails and hiking routes. In respect of a planning application for a consented wind farm in the Boggeragh Mountains in County Cork, which is situated immediately adjacent to a national waymarked walking trail, the inspector noted (in relation to the Blackwater Way walking trail);

> *"The proposed development will involve the introduction of large structures into the landscape at a relatively near distance along part of the route. However, in the context of the assessment in relation to visual amenity and landscape above, I do not consider that the impact of the proposed development would significantly affect the recreational value of the walking route. I have no objection to the proposed development in this respect."*

It is important to note that the inspector acknowledged that the proposed wind farm would not "*significantly affect the recreation value of the walking route*" which passed less than c.500m south of the nearest turbines. Indeed, these consented turbines are situated considerably closer to their neighbouring walking trails than the turbines in the proposed Scart Mountain project.

Some distinct heritage features are also located along the River Blackwater in the wider landscape and include stately houses, demesne landscapes, and castle remnants. One of the most prominent of these is Lismore Castle, which is situated along the southern banks of the River Blackwater, some c. 10km southwest of the site in the historic settlement of Lismore. Indeed, the immediate surrounding context of the castle is that of a heavily contained River Valley cloaked in mature areas of broadleaf woodland. Whilst there will be some residual visibility of the turbines from the wider Lismore area (refer to VP30), the proposed project will be entirely screened from the existing castle grounds and river valley context immediately to the north.

In similar circumstances to Lismore Castle, several other stately houses and demesne landscapes are located along the immediate corridor of the River Blackwater. Dromana House and Demesne and Tourin House are both located along opposite sides of a section of the River Blackwater in the wider southern extent of the study area. Although the lands surrounding both dwellings are located in areas of ZTV that identify potential turbine visibility, both locations are heavily contained by surrounding mature vegetation. Although some brief intermittent visibility of the proposed turbines has the potential to be afforded from the landscape surrounding Tourin House, it is important to note that the turbines will be viewed through layers of dense vegetation in the distant background and will not be visible in the main viewing aspect from this stately home, which is oriented to the east/southeast towards the Blackwater River corridor. Dromana House and Gardens are located along sloping terrain on the east extent of the Blackwater River corridor and are heavily enclosed by mature vegetation. This stately home is also oriented to the south in the opposite direction to the proposed project and will afford no visibility of the proposed project from its immediate surrounding context. Notwithstanding, a section of the Sean Kelly Cycle Loop trails passes through the wider Dromana landscape, which is heavily influenced by areas of pastoral farmland. Viewpoint VP33 represents this section of the cycle route and the wider Dromana demesne and affords a view of the development in its entirety along the foothills of the Knockmealdown Mountains in the background. Whilst the rotating turbines will be clearly evident in the background of the view, they present at a modest scale, do not appear out of place in terms of their scale or function, and are clearly offset from the more upland parts of the Knockmealdown Mountains. Thus, the residual significance of visual effect was deemed 'Moderate-slight'.

On balance of the reasons outlined above, the proposed project will not generate significant visual effects at tourism, amenity and heritage features within the study area.

13.7.2.6 Summary of Operational Stage Visual Effects

Based on the visual impact assessments outlined in sections 13.7.2.1 to 13.7.2.5. the significance of visual effects for the 'Centre of Population', 'Major route' and 'Amenity and Heritage Feature' receptor categories are generally in the mid to low range. Only in respect of receptor types

representing 'Designated Views' and 'Local Community Views' are effects considered to be higher. Seven views representing both 'Local Community Views' and 'Designated Views' were classified as experiencing a residual significance of visual effect of 'Substantial-moderate'. Although these effects are close to significant, they are not considered to be significant in EIA terms.

The most notable residual effects will occur along the local roads and in the local landscape context immediately east, west and south of the site. However, with regard to local community receptors, it is important to note that the proposed turbine array is fully compliant with the draft WEDGs 'setback' distance, (which is widely accepted in the industry to represent an acceptable requirement) which limits the potential for the turbines to present in a highly dominant and overbearing manner at the nearest surrounding residential receptors. Notwithstanding, the turbines will present in a dominant manner at some of the nearest surrounding receptors, however, in the context of the surrounding broad landscape patterns and landscape features, they will not appear over-scaled or incongruous. In terms of the surrounding scenic designations, many of which overlap with the nearest surrounding local community receptors, these will also experience clear views of the proposed turbines that present with a prominent visual presence and a broad visual envelope. The turbines will marginally detract from the scenic amenity afforded in this transitional working landscape, however, they will not block or obstruct the principal viewing aspects from the surrounding network of scenic designations. Indeed, the proposed turbine array is most often viewed in the opposite direction of the main aspect of visual amenity along these scenic designations.

Another ameliorating factor is the proposed turbine layout, which has been designed with regard to the siting and design guidance outlined for 'Transitional' landscape types in the current WEDGs 2006. With regard to the layout guidance for such landscape types, the proposal is clearly in line with the guidance, which states wind farms "on ridges suggests a linear or staggered linear layout whereas on broader hilltops they could be linear or clustered". The proposal directly responds to this, with the proposed turbine array along the Knocknasheega aspect of the development designed to mimic the broad linear nature of the underlying ridge, whilst the array crowns Knocknanask Hill further to the west. This linear formation of the proposed project also aids in diminishing the potential for any strong negative aesthetic effects, especially from surrounding scenic designations where views are typically afforded from the eastern and western extent of the study area.

Overall, the proposed project represents a distinct increase in the scale and intensity of built development along the working transitional Knockmealdown Mountain foothills. Whilst the turbines will be a distinctive feature in this local landscape, they are not considered an inappropriate development type, reinforced by the existing Barranafaddock development located in a similar landscape context along the western Knockmealdown Mountain foothills. Overall, the proposed turbines most often present in a legible manner offset from the more visually susceptible upland parts of the Knockmealdown Mountains and do not appear incongruous in this foothill landscape context. Thus, it is considered that the site and its surrounds can accommodate a large-scale wind energy development without generating significant visual effects.

13.7.3 Decommissioning Stage Visual Effects

Visual impacts at the decommissioning stage will be very similar to the construction stage and will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the site and using the site entrance. As with the construction stage, there will be HGVs travelling to and from the site, removing built features that formed part of the proposed Project. Whilst the most notable visual impacts will still arise from the erection of large tower cranes to remove

the turbine structures, there will be a slightly less intensity in construction related activities as the substation will not be removed at the end of the useful life of the wind farm project as it will form part of the national electricity network. Therefore, the substation will be retained as a permanent structure and will not be decommissioned. There will also be no requirement for large excavation works as the turbine foundations and hardstands will be let revegetate naturally and site roads will remain for forestry/agricultural access.

For these reasons, the magnitude of visual impact at the decommissioning stage is deemed to be no greater than **High/High-medium** at the nearest surrounding receptors, however, this reduces swiftly at greater distances from the site, especially within the wider study area, where the magnitude of visual impact is considered to be no greater than Low/Low-negligible. Combined with a High-medium/Medium sensitivity for receptors within the immediate study area (<1-2km from the site), the significance of visual effect will be not greater than **Substantial-moderate/Moderate** and of a **Negative** quality. Thereafter, the significance of effect will reduce to Moderate/Moderate-Slight throughout the central study area and Slight and Imperceptible at increasing distances within the wider study area as the development becomes a progressively smaller component in the afforded view. Thus, it is not considered that the proposed project will generate significant visual effects at the decommissioning stage.

13.8 TURBINE RANGE ASSESSMENT

For the landscape and visual assessment, the pertinent aspect of the design range relates to the turbine dimensions used to prepare the photomontages, upon which, the visual impact assessment is based.

Macro Works has taken the approach of using the highest possible tip height and highest hub height combination. This is on the basis that a viewer who can see a hub rising above a skyline ridge is likely to feel they are seeing more of the turbine than when the hub is screened from view (i.e. in the case of a lower hub / longer blade combination). That premise is based on the hub being perceived as the key and central component of a turbine in a figurative sense. In this instance, the photomontages were prepared using a turbine envelope of 149m rotor diameter, 110.5m hub height and 185m tip height which represents the most potential for visibility of the hub and tip height combination.

An alternative range of turbine dimensions is also being proposed by the applicant. However, it is important to note that all the potential turbines will have a tip height of no more than 185m (i.e. between 179.5–185m). The only other variation in the turbines relates to their potential rotor diameter and hub Height The comparative scenarios and range of turbine types considered which covers the entire range are included below:

- Base-case Scenario – 110.5m Hub Height, 149m Rotor Diameter, 185m Tip Height (used and assessed in the LVIA)
- Alternative Scenario 1 – 103.5m Hub Height, 163m Rotor Diameter, 185m Tip Height
- Alternative Scenario 2 – 107.5m Hub Height, 155m Rotor Diameter, 185m Tip Height
- Alternative Scenario 3 – 105m Hub Height, 149m Rotor Diameter, 179.5m Tip Height

As can be seen from the comparative photomontages (included in Volume IV) there is a relatively subtle difference in the perceived scale of the proposed turbines in all four scenarios which will be difficult to discern from even the nearest visual receptors. Indeed, the visual presence of the turbines in all instances will be the same due to subtle variations in the turbine dimensions, and it is not considered that any of the turbine combinations proposed in the entire range will result in any contrasting landscape or visual effects than those already stated in the

assessment above. Furthermore, the subtle variations in the turbine dimensions will be indiscernible beyond c. 2-3km from the proposed wind farm site.

Regardless of whether the difference between the alternative turbine dimensions can be discerned or not, there will be no material difference in the level of visual impact between them, and certainly not a higher impact than the base-case outlined in the visual impact appraisal highlighted above. Furthermore, the alternative turbine dimensions will result in no material difference to the residual landscape effect outlined in section13.6.2 above. Thus, the submitted LVIA is deemed to comfortably cover the range of potential turbine dimension options proposed and it is not considered necessary to prepare separate photomontages / assessments at all viewpoints for all possible turbine dimensions highlighted above.

13.9 DO NOTHING SCENARIO

In a Do-Nothing scenario the existing conifer plantation at the site would continue to be managed through rotations of commercial conifer planting and harvesting, whilst the areas of moorland and heath would continue to naturally evolve. The intensification of wind farm development would also likely continue, with consented developments being constructed and other applications for wind farm developments arising throughout the study area.

13.10 CUMULATIVE EFFECTS

The NatureScot Guidance relating to 'Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments (2021)' identify that cumulative effects on visual amenity consist of combined visibility and sequential effects. The same categories have also been subsequently adopted in the Landscape Institute's 2013 revision of the Landscape and Visual Impact Assessment Guidelines. The principal focus of wind energy cumulative impact assessment guidance relates to other wind farms - as opposed to other forms of development. This will also be the main focus herein, albeit with a subsequent consideration of cumulative effects with other forms of notable development (existing, permitted or pending a decision from a planning authority), particularly within the Central Study Area.

'Combined visibility occurs where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms).

Sequential effects occur when the observer has to move to another viewpoint to see different developments. The occurrence of sequential effects may range from frequently sequential (the features appear regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints) to occasionally sequential (long time lapses between appearances, because the observer is moving very slowly and / or there are large distances between the viewpoints.)'

Cumulative effects of wind farms tend to be adverse as they relate to the addition of moving manmade structures into a landscape and viewing context that already contains such development, and thus, result in an intensification of development. Based on guidance contained within the NatureScot Guidelines relating to the Cumulative Effects of Wind Farms (2012) and the DoEHLG Wind Energy Guidelines (2006/2019 draft), cumulative effects can be experienced in a variety of ways. In terms of landscape character, additional wind energy developments might contribute to an increasing sense of proliferation. A new wind farm might also contribute to a sense of being surrounded by turbines with little relief from the view of them.

In terms of visual amenity, there is a range of ways in which an additional wind farm might generate visual conflict and disharmony in relation to other wind energy developments. Some of the most common include visual tension caused by disparate extent, scale or layout of neighbouring developments. A sense of visual ambivalence might also be caused by adjacent developments traversing different landscape types. Turbines from a proposed project that are seen stacked in perspective against the turbines of nearer or further developments tend to cause visual clutter and confusion. Such effects are exacerbated when, for example, the more distant turbines are larger than the nearer ones and the sense of distance is distorted.

Table 13.8 below provides Macro Works' criteria for assessing the magnitude of cumulative effects, which are based on the NatureScot Guidelines (2012).

Table 13.8 Magnitude of Cumulative Effect

Magnitude of Effect	Description
Very High	• The proposed wind farm will strongly contribute to wind energy development being the defining element of the surrounding landscape. • It will strongly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. • Strongly adverse visual effects will be generated by the proposed turbines in relation to other turbines.
High	• The proposed wind farm will contribute significantly to wind energy development being a defining element of the surrounding landscape. • It will significantly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. • Significant adverse visual effects will be generated by the proposed turbines in relation to other turbines.
Medium	• The proposed wind farm will contribute to wind energy development being a characteristic element of the surrounding landscape. • It will contribute to a sense of wind farm accumulation and dissemination within the surrounding landscape. • Adverse visual effects might be generated by the proposed turbines in relation to other turbines.
Low	• The proposed wind farm will be one of only a few wind farms in the surrounding area and will be viewed in isolation from most receptors. • It might contribute to wind farm development becoming a familiar feature within the surrounding landscape. • The design characteristics of the proposed wind farm accord with other schemes within the surrounding landscape and adverse visual effects are not likely to occur in relation to these.
Negligible	• The proposed wind farm will most often be viewed in isolation or occasionally in conjunction with other distant wind energy developments.

	• Wind energy development will remain an uncommon landscape feature in the surrounding landscape. • No adverse visual effects will be generated by the proposed turbines in relation to other turbines.

13.10.1 Cumulative Impact Assessment

There are 3 operational wind farms and 2 consented wind farms contained within the study area. There is also a proposed wind farm developments within the study area and one recently refused at the time of writing. These are set out below:

Table 13.9 Cumulative Wind Farms within the study area

Wind Farm Name	Number of turbines	Distance and Direction from proposed turbine to the nearest cumulative turbine	Status
Dyrick Hill Wind Farm (ABP Planning Ref – 317265)	13	Located immediately east of the site	Recently refused
Tierney Single Turbine (WCC Planning Ref - 12465	1	5.1km northeast of the site	Operational
Coumnagappul Wind Farm (ABP-318446-23)	10	10km northeast of the site	In-planning
Woodhouse Wind Farm (WCC Planning Ref - 10175	8	9.8km south of the site	Operational
Knocknamona Wind Farm (ABP Planning Ref - 309412)	8	10.9km south of the site	Consented
GSK Single Turbine (WCC Planning Ref – 13467)	1	14.4km southeast of the site	Consented
Barranafaddock Wind Farm (WCC Planning Ref – 19727)	12	17.3km west of the site	Operational

The proposed Dyrick Hill Wind Farm (ABP Ref. 317265), the site of which is located directly adjacent to the currently proposed Scart Mountain Wind Farm site, was recently (October 2024) refused planning permission by An Bord Pleanála. As there is still a potential for judicial review at the time of writing this EIAR chapter (November 2024), it has been decided to include the project in the cumulative impact assessments. In the event that the refusal of the Dyrick Hill Wind Farm application is confirmed prior to the determination of the current application, then any discussions around cumulative impacts for this project in this EIAR can be removed from consideration by An Bord Pleanála.

The appraisal of cumulative effects with other wind energy developments is based on the cumulative ZTV maps and wireframes provided in Appendix 13.2. A further discussion on potential cumulative effects is included in section 13.10.1.1 below.

13.10.1.1 Nature of Cumulative Visibility

The nature of cumulative visibility within the study area is analysed below using the cumulative wireframe views contained in the photomontage booklet (refer Volume IV) and the cumulative ZTVs (refer to Appendix 13.2)

Although the photomontages and Cumulative ZTV map in Appendix 13.2 relates principally to cumulative visual effects (i.e. utilising the selected VP set), it also informs the closely related assessment of cumulative landscape effects, particularly those relating to cumulative effects on the overall landscape character of the study area. The assessment below, therefore, relates to both cumulative visual effects and cumulative landscape effects.

In terms of cumulative construction and decommissioning stage effects, it is unlikely that the construction or decommissioning of two wind farm developments within the study area will occur in tandem. Should the construction or decommissioning of the proposed project and another consented development occur at the same time, there is the potential for an increase in the intensity of construction/decommissioning activity within the study area. This includes the movement of HGVs along the surrounding road networks, storage of working vehicles and machinery, and the erection of tower cranes to construct/remove the turbine components. However, as the majority of consented and existing developments are well offset from the proposed project, it is not considered that these will generate any notable cumulative effects. Nonetheless, one proposed wind farm development is located immediately east of the site. Whilst it is not expected that the construction stage works for both the proposed Dyrick Hill wind farm and the proposed Scart Mountain Wind Farm will be undertaken in tandem, the construction stage effects within the central study area have the potential to be extended beyond the 24-month construction period of the proposed project. Thus, whilst the duration of effects has the potential to increase, the duration of effects will still be considered 'Short-term' in EIA terms. Overall, it is not considered that the cumulative construction or decommissioning effects with other wind farm developments will generate significant cumulative effects.

In this instance, the study area comprises existing wind farms, consented wind farms, proposed (in planning) wind farms and wind farm developments at the pre-planning stage. As a result, the cumulative assessment of wind farm developments within the study area will be broken into two categories; the current cumulative scenario and the potential future cumulative scenario. The current cumulative scenario will assess the cumulative effect of the proposed Scart Mountain Wind Farm in respect of existing wind farm developments and consented wind farm developments. The potential future cumulative scenario will assess the proposed Scart Mountain Wind Farm in respect of existing wind farms, consented wind farms, proposed (in planning) wind farms and wind farm developments at the pre-planning stage (only where information is publicly accessible).

Current Cumulative Scenario

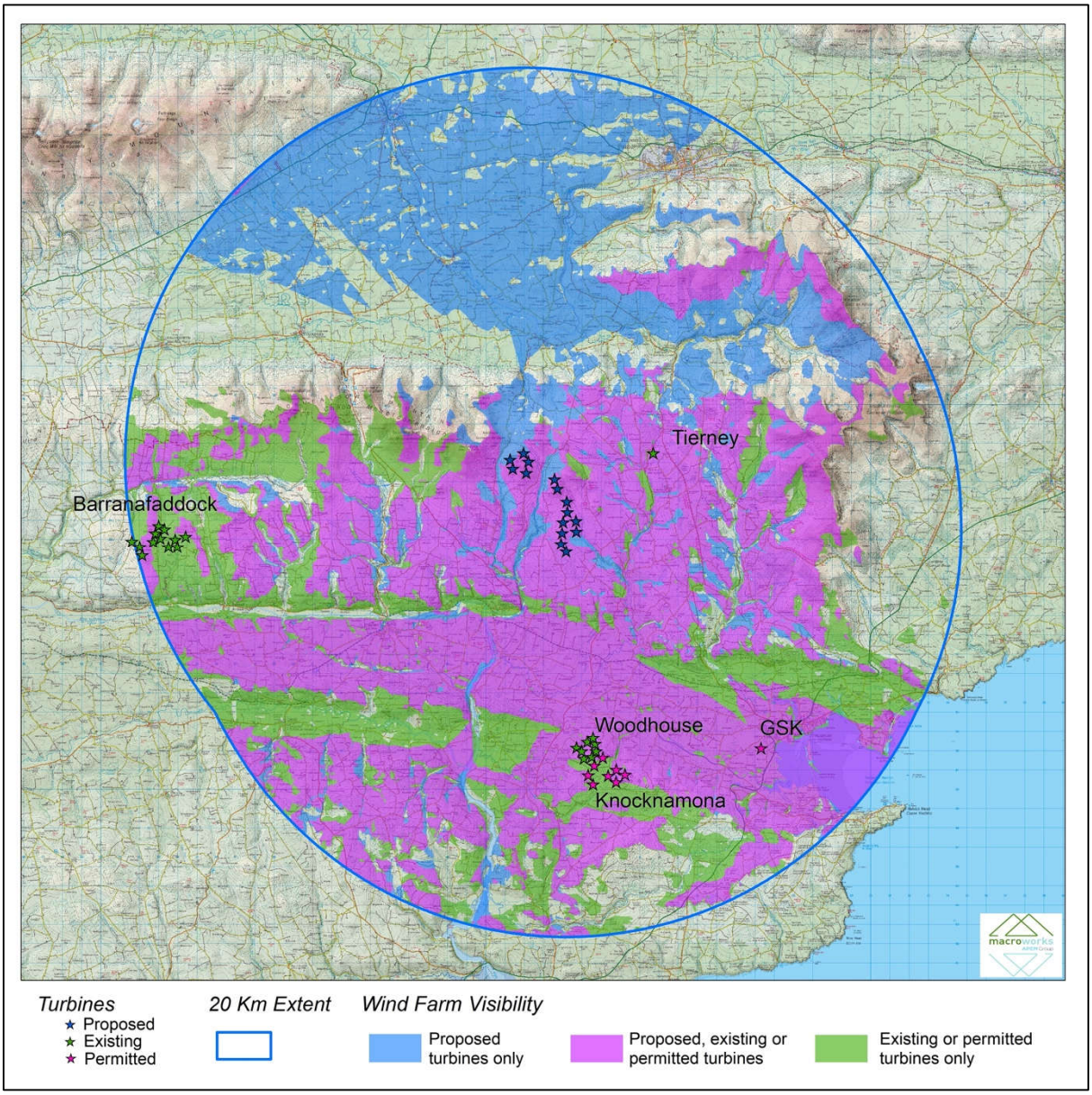

Figure 13.16 Cumulative ZTV Map (Tip Height (185m) – represents a worst case scenario in terms of potential turbine visibility with regard to the variation in turbine dimensions) for Scart Mountain Wind Farm identifying the potential intervisibility of the proposed Wind Farm and all other existing and consented wind farms within the study area (See Appendix 13.2 for larger version)

The cumulative ZTV map shows the potential for cumulative visibility between the proposed turbines and all other existing and consented wind farm developments within the 20km study area. At present, there are three operational wind farms and two consented wind farm developments within the 20km study area. It is important to note that the nearest existing turbine to the proposed project is a small single auto-producer turbine known as the Tierney turbine, and is situated some c. 5km east of the site. This is the only existing or consented turbine within the central study area. Aside from this, Woodhouse Wind Farm is located along rolling terrain some c.10km south of the site, whilst the Barranafaddock Wind Farm is situated in a similar landscape context of the site on rolling transitional foothills of the Knockmealdown Mountains some c. 17km west of the site. The cumulative ZTV map (based on a bare-ground

scenario – see Figure 13.16 above and Appendix 13.2) identifies that the proposed Scart Mountain Wind Farm will be visible in isolation for 20% of the study area. These areas are principally located in the northern half of the study area and along small sections of the winding river valley corridors throughout the southern western and eastern aspects of the study area. This is principally a consequence of the location of the existing turbines within the study area, which are typically located in the southern half of the study area, aside from the single Tierney auto-producer turbine. It also reflects the landscape context of the study area, where views afforded from much of the northern half of the study area are heavily screened by the Knockmealdown Mountains, which cut across the western and central parts of the study area in a general east-west orientation. It is also important to note that over 29% of the study area will have no visibility of the existing, operational or proposed Scart Mountain turbines, and furthermore, this is based on a bare earth scenario, which doesn't include for intervening screening in the form of existing vegetation and built development and will result in a much lesser degree of actual visibility.

Overall, 36.3% of the study area has the potential to afford visibility of the proposed project and all other existing and consented development, whilst another 14.7% of the study area will encompass views of only the consented and existing development within the study area. The most notable potential for cumulative visual impacts to occur is in the southern aspect of the study area, as the most notable clusters of existing and/or consented developments are located south of the Knockmealdown Mountains. It is also worth noting that the largest existing and consented developments are located over 10km from the site, limiting the potential for any notable cumulative effects, especially negative aesthetic effects such as visually stacked turbines. Whilst the turbines in the existing Barranfaddock array are located in a similar foothill landscape context to the proposed project , these are considerably offsets some c.17km from the site, and there will be limited potential for clear cumulative views of these developments other than from the most elevated locations within the surrounding study area.

In terms of sequential cumulative visual effects, the proposed, consented and operational developments have the potential to be viewed from numerous linear receptors within the study area including scenic routes, national waymarked walking trails throughout the central and wider study area and major routes within the wider study area. The most notable potential for sequential visual impacts to occur is along some of the more elevated waymarked walking trails that occur along the Knockmealedown Mountains and the Comeragh Mountains. Viewpoints VP7 and VP10 represent two of the most elevated locations within the study area that occur along notable hiking trails. Whilst the proposed Scart Mountain turbines will be visible in combination with other existing and consented developments in both views, the consented and existing developments are afforded a clear separation distance from the proposed project or are viewed at a considerably further distance. With regard to scenic route designations, there is some potential to afford sequential cumulative views of other existing and consented developments, however, this is much more limited than waymarked walking trails and routes, as many of the scenic route designations pass through contained valleys or are afforded a notable degree of screening by roadside vegetation.

On balance of the reasons above, it is considered that the proposed Scart Mountain Wind Farm development will contribute to a cumulative landscape and visual impact in the order of **Low** in respect of the current cumulative scenario, as the proposed Scart Mountain development is well offset from all other existing and consented wind farm developments, and will often be viewed in isolation, especially at the nearest receptors. Thus, is not considered that the proposed project will generate a significant cumulative effect in the existing baseline scenario.

In respect of cumulative effects with other forms of development, there are no other large scale developments within the vicinity of the site.

The only other notable land use in relation to the proposed wind farm is forestry, a key component of which is harvesting and replanting, which has the potential to result in localised clearer views of the proposed turbines and the surrounding site access tracks. Nonetheless, the underlying sloping lands are not expected to ever be harvested entirely. Instead, they will be harvested in sections, which will subsequently be replanted once harvesting activities have concluded. It is not considered that the more exposed views of turbines as a result of potential harvesting activities will result in significant cumulative landscape or visual effects.

Potential Future Cumulative Scenario

Whilst still currently in-planning, it is important to consider the potential cumulative effects of the proposed project in combination with the proposed Dyrick Hill Wind Farm, which is situated immediately east of the site and comprises 13 turbines, whilst the proposed Coumnagappul Wind Farm is situated in the wider eastern half of the study area some c. 10km from the proposed project . The most notable potential for cumulative impacts relates to the proposed Dyrik Hill Wind Farm due to its near distance to the proposed project . As a result of its neighbouring location, the turbines in both the proposed Scart Mountain development and the proposed Dyrick Hill development will typically be viewed in combination and will likely present as one large-scale wind farm development located along the transitional foothill landscape of the Knockmealedown Mountains. Due to the offset distance from the site to the proposed Coumnagappul Wind Farm, both developments have less potential to present with notable cumulative impacts. Notwithstanding, there will still be some clear intervisibility between the proposed turbines and the proposed Coumnagappul turbines. Overall, in the potential future baseline scenario, the proposed project will only be visible in isolation for 1.9% of the study area, which is considerably less than the existing baseline scenario and relates to the near distance of the proposed project to the proposed Dyrick Hill turbines. In the potential future baseline scenario, 54.5% of the study will have the potential to afford combined views of the proposed, In-planning, consented and operational turbines, again, a distinct increase in comparison to the existing baseline scenario. Nonetheless, over 22% of the study area will still afford no visibility of any turbines located within the study area, which is only a marginal reduction from the existing baseline scenario.

The cumulative visual effect in respect of existing, consented, proposed (in-planning) and pre-planning wind farm developments is highlighted in the cumulative montages provided in Volume IV. The principal cumulative visual impacts in this instance will occur in the immediate surrounds of the proposed project site, where both the proposed Scart Mountain and Dyrick Hill Wind Farms will be perceived as one large wind energy development. Indeed, the combined developments will see 28 wind turbines up to a height of 185m occupy this rolling foothill landscape. Thus, the wind energy development will become one of the principal land uses and landscape features in this local landscape context and has the potential to present in a highly prominent manner at some of the nearest surrounding receptors. When assessing the cumulative visual effect of the proposed project in combination with an adjacent development (in this instance, the proposed Dyrick Hill Wind Farm), the principal consideration is for those receptors who have been classified with the highest ranging impacts from the operational phase of the proposed project. In this instance, this relates to some of the nearest local community and scenic route receptors that were classified with a 'Substantial-moderate' significance of visual effect (VP11, VP13, VP14, VP18, VP21, VP24 and VP27). Whilst Viewpoints VP11, VP13, VP14 and VP18 are located within the immediate context of the proposed project and are situated to the west of the Knocknasheega array, they will have very limited potential to afford clear visibility of the proposed Dyrick Hill turbines. Indeed, in some of these views, Knocknasheega and Knocknanask Hills will almost entirely screen the proposed Dyrick Hill turbines, resulting in very limited cumulative visual impacts. In contrast to this, viewpoints VP21, VP24 and VP27 will all afford clear views of the proposed Scart Mountain and Dyrick Hill turbines in combination.

The combined developments will result in a considerable increase in the scale and intensity of development in this local landscape context and will result in wind farm development becoming one of the principal land uses in this foothill context. Furthermore, the combined array will generate a much more notable sense of visual clutter as the turbines in both developments are often viewed stacked with a large numbering of rotating blade sets overlapping. It is considered that the combined development will result in some localized significant visual effects in the local surrounds of these three representative viewpoints. To the east of both the proposed Scart Mountain and Dyrick Hill turbines, the combined developments will also generate some localized significant visual effects. However, the proposed Dyrick Hill turbines make a much stronger contribution to these visual effects than the proposed Scart Mountain turbines, as the proposed Scart Mountain turbines are afforded a more notable offset from these local receptors. It is also important to note that in terms of visual aesthetics, the proposed Scart Mountain turbines present as a linear array along a ridgetop and respond very well to their underlying terrain. Indeed, it is this linear layout that results in a very limited degree of visual stacking and visual clutter and allows a strong sense of visual permeability through the proposed project, especially when viewing it from receptors to the east and west.

It is also important to note that some notable cumulative visual effects will also be generated beyond the immediate context of the site. Viewpoint VP23 will afford a clear view of the combined developments where the combined developments will present with some notable negative aesthetic effects, which principally relate to stacked views of turbines generating a sense of visual clutter and confusion. Whist the combined developments will still not block the distance views of the Comeragh Uplands in the distance to the east, the will present a more notable obstruction. The intensity and scale of the combined developments is also clearly apparent throughout the wider study area, where both proposed wind farms will be perceived as one large wind farm development along the transitional foothill context east of the main ridge in the Knockmealedown Mountains. This is most evident when viewed from the eastern and southern half of the wider study area. Viewpoint VP20 affords a clear combined view of both proposed wind farms where they cloak much of the visible foothill context. Overall, it is considered that the proposed Scart Mountain Wind Farm and proposed Dyrick Hill Wind Farm will generate some localised significant visual effects at receptors in the immediate landscape context surrounding both projects. The combined developments will also contribute to a considerable increase in the intensity of wind farm development along this foothill context, which will be perceived throughout the central and wider study area.

With regard to Coumnagappul Wind Farm, which is currently at the pre-planning stage, this wind farm development has the potential to generate a further increase in the intensity of wind farm development within the study area. Notwithstanding, this wind farm development is well offset from the proposed Project, which limits its potential to contribute to any notable visual effects. Indeed, the main impact from this pre-planning development relates to the cumulative landscape impact and the perceived impact on the character of the study area. Coumnagappul Wind Farm will result in wind farm development becoming a well-established and characteristic feature of the foothill context of both the Comeragh and Knockmealedown Mountains.

A distinct cumulative sequential effect will also be noted throughout the study area along surrounding linear receptors as highlighted in viewpoints. As noted in the existing cumulative scenario, the most notable sequential cumulative effects are likely to occur along the most elevated linear receptors within the study area, as these routes have the potential to afford views of all existing, consented, proposed and pre-planning developments within the study area. Notwithstanding, many of these elevated routes are well offset from surrounding wind farm developments, which diminishes the potential for highly dominant views of turbines to be afforded. Indeed, when viewed from these elevated linear receptors, the existing, consented proposed and pre-planning turbines are often viewed in the context of the surrounding working

lowland and transitional foothill landscapes and are viewed back by urban areas such as Dungarvan. There will also be sequential visual impacts along scenic route receptors and scenic driving routes within the study area. Scenic Route S8, which occurs along sections of the R672 and R671 regional road to the east of the site and also forms part of the Comeragh Mountain scenic driving route, will afford clear views of the proposed Scart Mountain and Dyrick Hill turbines and Coumnagappul Wind Farm (pre-planning). Views of Scart Mountain and Dyrick Hill will be afforded to the west of this route on the Knockmealedown Mountains, whilst Coumnagappul Wind Farm is viewed to the east on the transitional foothills of the Comeragh Mountains. Despite their offset distance from this section of the scenic route, the combination of all three developments will result in wind farm development becoming a more established and characteristic feature of this part of the landscape.

As a result of the reasons outlined above, the magnitude of cumulative effect of the potential future baseline scenario in relation to existing, permitted, in-planning and proposed wind farms within the 20km Study Area is deemed **High**, which is heavily influenced by the cumulative effects generated the proposed Dyrick Hill development, which is the nearest proposed wind farm to the proposed project. The combined landscape and visual impact of both developments will significantly contribute to a sense of wind farm proliferation in the local foothill landscape context and will generate some notable adverse visual effects at surrounding local community receptors and scenic view designations. Overall, the combined developments will become one of the defining built features in this local landscape context.

13.11 CONCLUSION

A key consideration in this instance is the recent 'exclusion area' wind energy designation that contains the site, which was changed in the most recent county development plan from the previous 'Open to Consideration' designation. Notwithstanding this recent designation change, the landscape context has not changed, and it is considered that the site and its immediate surroundings represent a landscape area that should not be excluded from potential wind energy development based on landscape and visual constraints. Indeed, the intrinsic character of this landscape is that of a gradual transition from productive rolling foothills of forestry and low intensity agriculture into a more open and extensive mountain moorland setting. In the context of the Wind Energy Development Guidelines (2006/2019 revised draft) the subject landscape would fall principally into the category of the 'Transitional Marginal' Landscape Type, which is described as a "landscape type that bridges the organised and intensively managed farmland and the more naturalistic moorland". In this regard, it is no different to foothills landscapes throughout the country, which are the very landscapes that have become synonymous with wind energy development over the past three decades and for a number of pragmatic reasons. The inherent robustness for wind energy development in this type of foothills landscape relates to its intrinsic qualities as well as the favourable wind speeds afforded. This is clearly evident in the western foothills of the Knockmealdown Mountains, where the existing Barranafaddock Wind Farm development is located in an almost identical foothill context to the proposed wind farm. Landscape characteristics in foothill contexts include broad scale landform and land use patterns that can accommodate the height and extent of wind energy developments without a sense of them being over-scaled or overbearing. Foothills landscapes also tend to be valued more for rural productivity than pristine naturalness, such as the core mountain areas of the Knockmealdown range would be. It is factors of slope, elevation and a strong sense of remoteness and the naturalistic that distinguish mountain areas from their surrounding foothills. Furthermore, the population density of foothills landscapes tends to be considerably lower than within settled agricultural lowlands allowing for the requisite setback distances to turbines (4 X tip height under the draft revised WEDG 2019). In its 2018 publication entitled "Wind Energy Development in Ireland: Planning and

Environmental Considerations ”the Environmental Protection Agency (EPA), noted that wind farms are frequently located in more rural or elevated landscapes (including foothills) due to the wind conditions and less dense human settlements, making them a common feature of such environments. It should also be noted that landscape character does not transition as abruptly as lines on a map and in this instance occurs gradually over several kilometres. Thus, the fringe portions of a landscape character unit are likely to have attributes of the landscapes on both sides of the division, which also translates to landscape sensitivity. In this instance the transition occurs within the site itself between the 'Foothills' landscape type (generally 'Low' sensitivity) and the 'Uplands' landscape character type (generally 'Most' sensitive), bearing in mind that the 'Uplands' LCT also includes the core ridgeline of the Knockmealdown range further to the west as part of the same sensitivity classification.

In relation to landscape effects, the proposed project will result in considerable increase in the intensity of built development in the local landscape and will become one of the principal built features in the immediate surrounds of the site. The proposed project will also result in some physical landscape impacts, however these will be contained to localised areas within the site. Overall, the **significance of landscape effect** during the **operational phase** is considered to be **Moderate / Negative / Long-term** within and immediately around the site.

In terms of the residual **visual effect**, the **operational phase visual effects** generated by the proposed project will result in some localised close to significant visual effects, however, these are **not considered to reach the significant threshold**. Whilst the proposed project will present with a dominant visual presence from some of the nearest receptors, the design of the proposed array directly responds to the guidance for 'transitional marginal' landscape types in the current WEDGs (2006), which aids the development in assimilating into this transitional foothill landscape context.

Based on the assessment herein, it is considered that the proposed project is of a notable scale but appropriately sited in a broad-scale transitional foothill landscape context and will **not give rise to any significant residual landscape effects or visual effects.**

With regard to **cumulative landscape and visual effects**; in the existing cumulative scenario, the proposed project is **not considered to generate significant cumulative effects**. Notwithstanding, the proposed project will generate some localised significant cumulative landscape and visual effects in the potential future cumulative scenario should the proposed Dyrick Hill Wind Farm and this proposed project be realised.

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