

## 13.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

### 13.1 INTRODUCTION

This chapter describes the landscape context of the proposed Castlebanny Wind Farm project and assesses the likely landscape and visual effects of the scheme on the receiving environment. Although closely linked, landscape and visual effects are assessed separately.

**Landscape Impact Assessment (LIA)** relates to assessing effects on the landscape as a resource in its own right and is concerned with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive 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 effects 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 development in conjunction with other developments, or actions that occurred in the past, present or are likely to occur in the foreseeable future.

This landscape and visual impact assessment is based on:

- Landscape Institute and the Institute of Environmental Management and Assessment publication entitled Guidelines for Landscape and Visual Impact Assessment – Third Edition (2013).
- Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines (2006).
- Scottish Natural Heritage (SNH) Assessing the Cumulative Impact of Onshore Wind Energy Developments (2012).

Visualisations and mapping supporting the Landscape and Visual Impact Assessment are prepared in accordance with:

- Scottish Natural Heritage (SNH) Visual representation of wind farms: Best Practice Guidelines (2014).

#### *13.1.1 Statement of Authority*

This Landscape and Visual Impact Assessment report was prepared by Macro Works Ltd. LVIA Consultants. Relevant experience includes assessment of over 100 on-shore wind farm proposals throughout Ireland, including six Strategic Infrastructure Development (SID) projects. The co-authors of this LVIA, Richard Barker (BA Env. PGDip Forestry. MLA) and Jamie Ball (BA LA), are Senior Landscape Architects who share over 30 years professional experience between them, and are full members of the Irish Landscape Institute.



### *13.1.2 Description of the Proposed Development*

A full description of the proposed development is provided in Chapter 1 – *Introduction* and a detailed description of the project elements is provided in Chapter 2 – *Description of the Proposed Development*.

### *13.1.3 Definition of Study Area*

The Wind Energy Development Guidelines published by the Department of the Environment, Heritage and Local Government (2006) specify different radii for examining the Zone of Theoretical Visibility of proposed wind farm projects (“ZTV”). The extent of this study area is influenced by turbine height as follows:

- 15km radius for blade tips up to 100m;
- 20km radius for blade tips greater than 100m;
- 25km in order to incorporate features of national or international renown.

In the case of this project, the blade tips are up to 185m-tip height and, thus, the minimum ZTV radius required is 20km from the outermost turbines of the scheme. In this instance, the vast majority of the study area is within County Kilkenny, but the study area also incorporates sections of Counties Carlow, Wexford, Waterford and Tipperary. It should also be noted that the ‘central study area’ pertains to an area within approx. 5km of the site.

## **13.2 METHODOLOGY**

Production of this Landscape and Visual Impact Assessment involved desktop studies and fieldwork comprising professional evaluation by qualified and experienced Landscape Architects.

### *13.2.1 Desktop Study*

The desktop study comprised the following:

- Establishing an appropriate Study Area from which to study the landscape and visual effects 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;
- Selection of potential Viewshed Reference Points (VRPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity;
- Preparation of an initial VRP selection map for consultation purposes (Planning Authority).

### *13.2.2 Fieldwork*

Site visits were carried out at various times in 2019 & 2020 in order to:

- Select a refined set of VRP’s for assessment.
- Record a description of the landscape elements and characteristics within the Study Area generally and also within view from each VRP.



- Capture high quality base photography from which to prepare photomontages of the proposal.

### *13.2.3 Assessment*

The assessment of landscape and visual effects involves a description of the geographic location and landscape context of the proposed wind farm site as well as a general landscape description concerning essential landscape character and salient features of the wider Study Area. This is discussed with respect to: landform and drainage; vegetation and land use; centres of population and houses; transport routes and; public amenities and facilities. Consideration of design guidance, the planning policy context and relevant landscape designations are also considered.

Once the baseline environment was established, an assessment of the likely potential significant effects associated with the proposed development was carried out. This included the following:

- Appraisal of salient landscape character.
- Appraisal of predicted landscape effects.
- Appraisal of predicted visual effects using standard ZTV maps as well as photomontages prepared from selected VRP locations.
- Appraisal of predicted cumulative effects using cumulative ZTV maps and cumulative photomontages.
- Discussion of mitigation measures.
- Assessment of residual effects following mitigation.

### *13.2.4 Assessment Criteria for Landscape Effects*

When assessing the potential effects 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;



*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 development. The magnitude takes into account whether there is a direct physical effect 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: Magnitude of Landscape Effects*

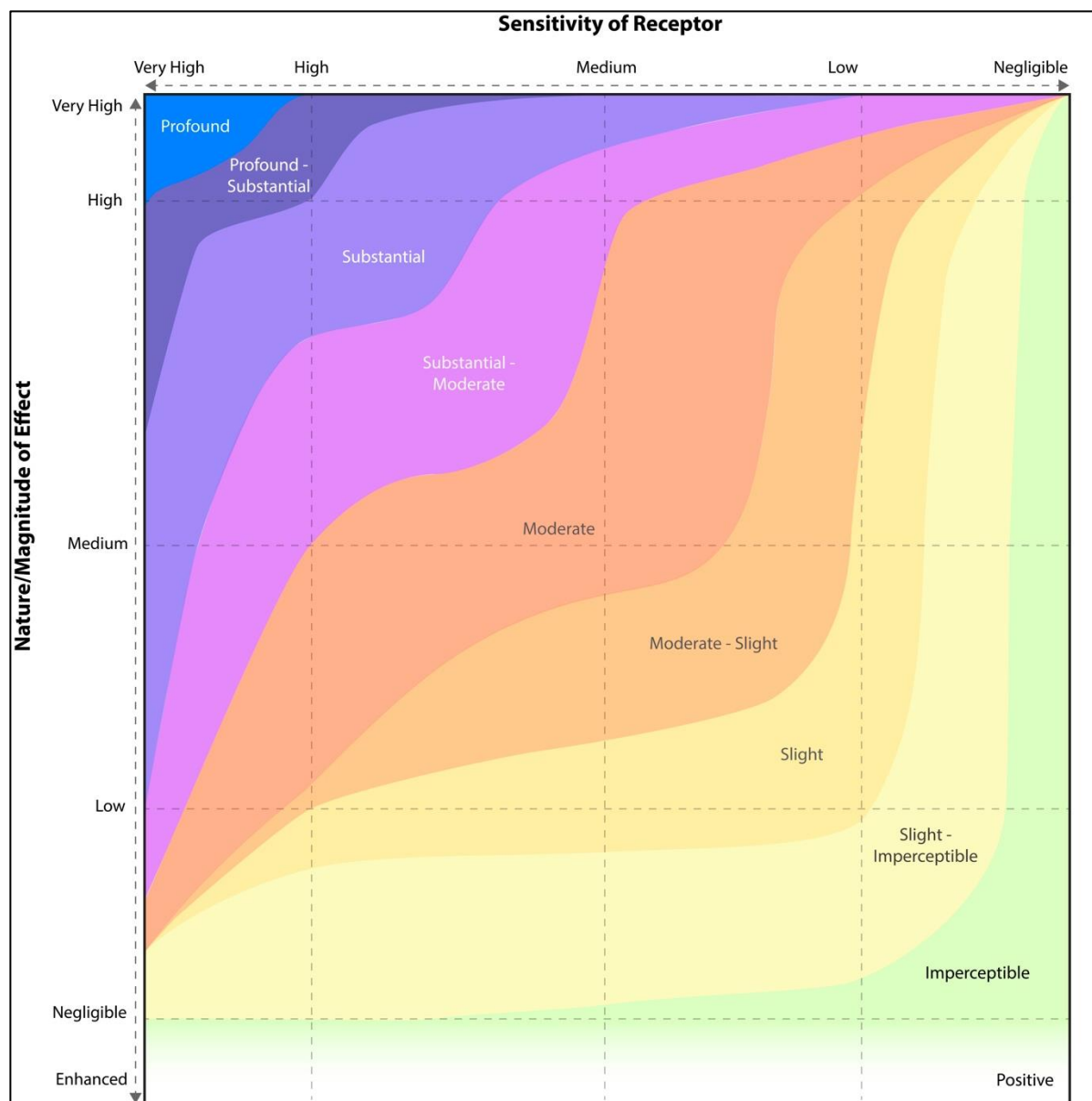
Magnitude of Effect	Description
Very High	Change that would be large in extent and scale with the loss of critically important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change of the landscape in 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 an overall 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 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.
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.

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 graph:

*Table 13-3: Landscape / Visual Effect Significance Graph*



*\*In accordance with Section 3.34 of the Guidelines for Landscape and Visual Impact Assessment<sup>1</sup>, effects of ‘Substantial’ and above are considered to equate with ‘significant’ effects in EIA terms.*

### **13.2.5 Assessment Criteria for Visual Effects**

As with the landscape effect, the visual effect of the proposed wind farm will be assessed as a function of receptor sensitivity versus magnitude of effect. 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 is population based. 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.

#### **13.2.5.2 Susceptibility of Receptors**

In accordance with the Guidelines for Landscape and Visual Impact Assessment (2013)<sup>2</sup>, 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.

#### **13.2.5.3 Value of Views**

To assess the amenity value of views, Macro Works use a range of criteria that might typically be related to high amenity value including, but not limited to, scenic designations. These are set out below:

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<sup>1</sup> Landscape Institute and Institute of Environmental Management & Assessment (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA). 3rd Edition. Routledge.

<sup>2</sup> Landscape Institute and Institute of Environmental Management & Assessment (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA). 3rd Edition. Routledge.



- **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;
- **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.





### 13.2.5.4 Visual Effect Magnitude

The magnitude of visual effects is determined on the basis of two factors: the visual presence of the proposal 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 be obtained where turbines are viewed as part of / beyond a busy street scene. The backdrop against which the development 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 often expressed as such i.e. minimal, sub-dominant, co-dominant, dominant and highly dominant.

For wind energy developments, a strong visual presence is not necessarily synonymous with adverse effect. 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...”*. Furthermore, a clear and comprehensive view of a wind farm might be preferable in many instances to a partial or cluttered view of turbine components that are not so prominent within a view. On the basis of these reasons, the visual amenity aspect of assessing effect 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 development 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 effects result almost entirely from visual ‘intrusion’ rather than visual ‘obstruction’ (the blocking of a view). The magnitude of visual effects is classified in Table 13-4, below:

Table 13-4: Magnitude of Visual Effect

Criteria	Description
Very High	The proposal intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. A high degree of visual disorder or disharmony is also generated, strongly reducing the visual amenity of the scene
High	The proposal 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 disorder or disharmony is also likely to be generated, appreciably reducing the visual amenity of the scene





Medium	The proposal represents a moderate intrusion into the available vista, is a readily noticeable element and/or it may generate a degree of visual disorder or disharmony, thereby reducing the visual amenity of the scene. Alternatively, it may represent a balance of higher and lower order estimates in relation to visual presence and 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 detract from, and may even enhance, the visual amenity of the scene

### 13.2.5.5 Visual Effect Significance

As stated above, the significance of visual effects is a function of visual receptor sensitivity and visual effect magnitude. This relationship is expressed in the same significance matrix as for Landscape Effects provided at Table 13-4 above.

### 13.2.6 Assessment Criteria for Cumulative Effects

The Scottish Natural Heritage (SNH) Guidelines ‘Assessing the Cumulative Impact of Onshore Wind Energy Developments’ (2012) identify that cumulative effects on visual amenity relate to ‘combined’ or ‘sequential’ visibility. The same categories have also been subsequently adopted in the Landscape Institute’s 2013 revision of the Landscape and Visual Impact Assessment Guidelines.

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 rather than positive as they relate to the addition of moving manmade structures into a landscape and viewing context that already contains such development. Based on guidance contained within the SNH Guidelines relating to the Cumulative Effects of Wind Farms (2012) and the DoEHLG Wind Energy Guidelines (2006), 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. The term ‘skylining’ is used in the SNH Guidelines to describe the effect *“where an existing windfarm is already prominent on a skyline the introduction of additional structures along the horizon may result in development that is proportionally dominant. The proportion of developed to non-developed skyline is therefore an important landscape consideration”*.



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 wind farm 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 13-5 below provides criteria for assessing the magnitude of cumulative effects.

*Table 13-5: Magnitude of Cumulative Effect Criteria*

Magnitude of Effect	Description
Very High	<ul style="list-style-type: none"> <li>The proposed wind farm will strongly contribute to wind energy development being the defining element of the surrounding landscape.</li> <li>It will strongly contribute to a sense of wind farm proliferation and being surrounded by wind energy development.</li> <li>Strongly adverse visual effects will be generated by the proposed turbines in relation to other turbines.</li> </ul>
High	<ul style="list-style-type: none"> <li>The proposed wind farm will contribute significantly to wind energy development being a defining element of the surrounding landscape.</li> <li>It will significantly contribute to a sense of wind farm proliferation and being surrounded by wind energy development.</li> <li>Significant adverse visual effects will be generated by the proposed turbines in relation to other turbines.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>The proposed wind farm will contribute to wind energy development being a characteristic element of the surrounding landscape.</li> <li>It will contribute to a sense of wind farm accumulation and dissemination within the surrounding landscape.</li> <li>Adverse visual effects might be generated by the proposed turbines in relation to other turbines.</li> </ul>
Low	<ul style="list-style-type: none"> <li>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 or perceived as an extension to another development.</li> <li>It might contribute to wind farm development becoming a familiar feature within the surrounding landscape.</li> <li>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.</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>The proposed wind farm will most often be viewed in isolation or occasionally in conjunction with other distant wind energy developments.</li> <li>Wind energy development will remain an uncommon landscape feature in the surrounding landscape.</li> <li>No adverse visual effects will be generated by the proposed turbines in relation to other turbines.</li> </ul>



## 13.3 EXISTING 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 general description of the landscape context of the proposed wind farm site and wider study area is provided below. Additional descriptions of the landscape as viewed from each of the selected viewpoints are provided within Appendix 13.1

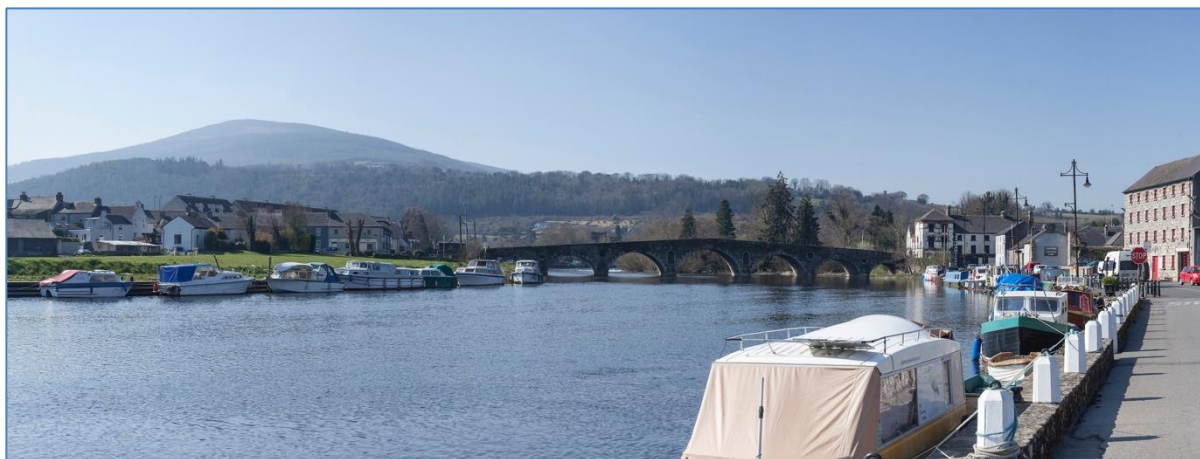
### 13.3.2 Landform and Drainage

In the broad context, landform is richly diverse across the study area, being neither extreme nor monotonous. Generally speaking, the study area comprises of undulating, lowland terrain with multiple hills and valleys that breach five different counties.

For the most part, higher topography within the study area is mostly found more than 10km from the site. Brandon Hill, at 515m AOD, is located in the northeast and is the highest landform in the study area. While the Blackstairs Mountains (735m AOD), dividing the counties of Wexford and Carlow, reach higher elevations than Brandon Hill, only the southwestern foothills of this hill range are within the study area. Further south, and still in Co. Wexford, Slieve Coiltia (at 270m AOD) offers very accessible, panoramic views of the surrounding terrain (i.e. car park on summit). In the southwest, in Co. Waterford, Donnell’s Hill (250m AOD) and Tower Hill (232m AOD) fringe the study area.



*Figure 13-1: Landform near The Rower, approx. 11km west of the site, looking towards Castlebanny ridgeline.*



*Figure 13-2:* The Barrow River, where it flows through Graiguenamanagh, more than 15km northeast of the site.

Within this wider study area (i.e. 10-20km from the site), some major, nationally renowned watercourses can be found. In terms of drainage, this landscape is largely defined by the wide river channels cast by the River Suir and River Barrow: the third and second longest rivers in Ireland, respectively. The longest river in Munster, the Suir separates counties Kilkenny and Waterford within the study area, and winds through Waterford City in the south of the study area. In the east of the study area, the longest river in Leinster, the Barrow, empties into the Suir, before it flows south into the Celtic Sea. There are numerous small rivers and streams that feed into these large watercourses, while there is an island called “Little Island” that is set within the Suir channel in the far south of the study area.

Within 10km of the site, much of the gently undulating land in the northwest and northeast tends to drop to below 100m AOD, making up some of the lowest terrain in the study area. In the southwest, Corbally Wood (285m AOD) and Monavinnaun (271m AOD) are prominent. The more conical, ‘stand-alone’ profile of Tory Hill (293m AOD) is visible in the south, while Mount Alto (278m AOD) is apparent less than 10km northeast of the site. Within 5-10km of the site, the most notable river is the Nore River; one of the well-known ‘Three Sister’ rivers of the southeast, along with the Suir and the Barrow. At 140km length, the Nore begins life in the Devil’s Bit in Tipperary and generally flows southeast before its confluence with the River Barrow at Ringwood, where Counties Kilkenny and Wexford meet.





Figure 13-3: The River Suir in the south of the study area, with ‘Little Island’ located within its broad channel.



Figure 13-4: The River Nore, as it passes through Inistioge, approx. 6km northeast of the site.

Within the central study area, the Castlebanny Hill range has a low, elongated, plateau-like profile that reaches 265m AOD at its’ peak. The hill range runs north-south over the course of 8-9km in length, and 2-3km in width, and divides the shallow Arrigle River Valley to the east from a less contained and defined, rolling landscape to the west. Landform north and west of this range is gentle and rolling, and gradually descends from the Castlebanny range to progressively lower terrain. East of the range, terrain is more abrupt and picturesque, sharply dropping down into the V-shaped Arrigle River Valley (i.e. below 90m AOD) before ascending again to over 200m AOD. The site is characterised by locally steep topography between 130m and 265m (AOD) and is bounded to the east by the Arrigle River, to the south-west by the Derrylackey River and the north-west by the Little Arrigle River.







*Figure 13-5: The low, elongated, plateau-like Castlebanny ridgeline, as seen from the west of the central study area.*



*Figure 13-6: Landform at the north-western end of the Castlebanny elongated hill.*

Within the central study area, watercourses more commonly take the form of streams or small rivers. With its source in the south-western foothills of the Castlebanny range, the Derrylackey River flows south to feed into the Black Water river, near the M9. In the northwest, the Little Arrigle River also begins on the lower western slopes of the Castlebanny range, before flowing north through Ballyhale. East of the range but within approx. 1-1.5km of the site, the Arrigle River flows south-north, parallel to the hill range, until eventually entering the River Nore. In summary, at least four separate streams are sourced within the hilltop site, before flowing west, north and east.

### ***13.3.3 Land Use and Land Cover***

Agriculture, followed by commercial conifer plantations, is the predominant land use across the study area. Pasture (i.e. dairy, sheep and beef farming) occupies the lion's share of the agricultural land, although there are notable stretches of tillage in the southeast and north of the study area. The field boundaries tend to be mature hedgerows, although such vegetation can

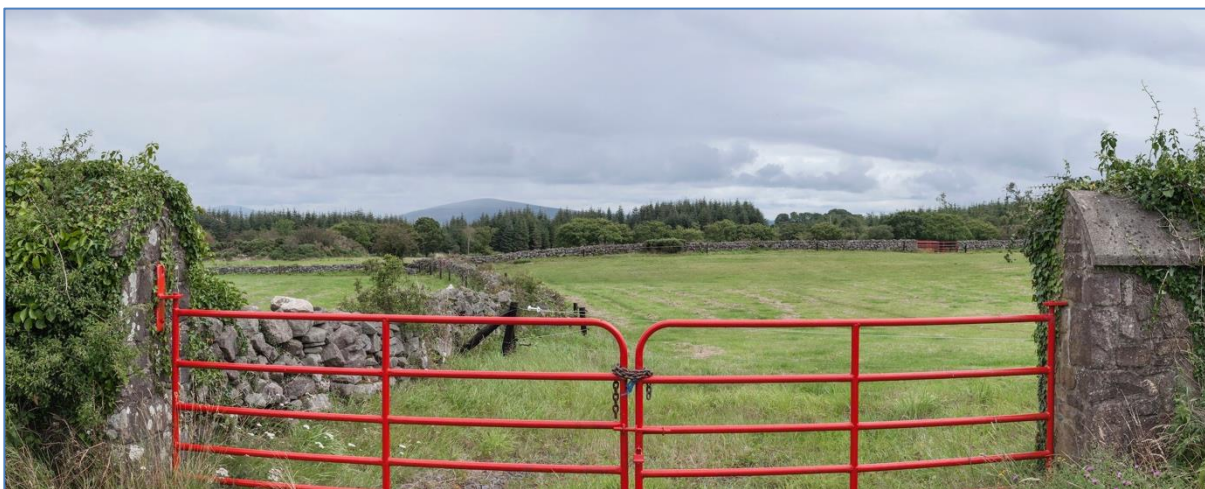




become more scant/less visible in some marginally higher elevations. Field sizes are variable, but tend to be primarily medium-large size. This pattern is broadly in keeping with the strong reputation, garnered over several centuries, of the ‘sunny southeast’ being home to some of the most productive and high-yielding farmland in the country.



*Figure 13-7: The southern aspect of the Castlebanny hill, as seen from Tory Hill, to the south.*



*Figure 13-8: Land use along northern end of Castlebanny range (i.e. north of the site).*

Less apparent land uses in the study area are golf courses (e.g. Mountain View, Mount Juliet, Faithlegg etc.), urban settlements (e.g. Waterford City, New Ross, Thomastown etc.), recreational woodlands (e.g. Woodstock, Castlemorris etc.) set in demesne estates, sizeable river channels (e.g. Suir, Barrow etc.) as well as major transport corridors (e.g. Dublin-Waterford rail line, the M9 and multiple National and Regional roads). In this regard, the central study area is representative of the wider study area, with pastoral agriculture and commercial forestry being prevalent, followed by small settlements, at least one golf course and a sprinkling of major transport routes. Within the site, however, this order is reversed, with large blocks of commercial conifers (and their attendant geometric array of forestry tracks) prevailing, followed by pastoral – and sometimes marginal – fields on the slightly lower elevations. There





are also a small number of existing wind farms in the study area with those closest to the site being the 7 turbine Ballymartin Wind Farm and the 5 turbine Rahora Wind Farm, which lie 3km to the south and 5km to the southeast of the Castlebanny site, respectively, within the same spine of high ground.

The proposed wind farm site (See Figure 1-2 of this EIAR) is approximately 7.3km long in the north/south direction and is approximately 2.7km wide in an east/west direction at the widest point. It measures c. 1,434 ha and is predominantly covered in active coniferous forestry plantation. Approx. 1200 ha are in Coillte’s ownership, whilst the remaining lands comprise third-party owned areas of agricultural grassland and commercial forest. There is an extensive network of existing access roads across the site to facilitate the on-going forestry operations, as well as local access to farmlands. The South Leinster Way walking/hiking trail, running from Kildavin in Co. Carlow to Carrick-on-Suir in Co. Tipperary, crosses the southern portion of the site.

### ***13.3.4 Landscape Policy Context and Designations***

The vast majority of the study area is within County Kilkenny, but the study area also incorporates sections of Counties Carlow, Wexford, Waterford and Tipperary, resulting in five counties between two provinces, in total. Therefore the relevant sections of the county development plans for all five counties will be addressed in this section.

#### ***13.3.4.1 Wind Energy Development Guidelines (2006) - Department of Environment Heritage and Local Government***

The Wind Energy Development Guidelines (2006) are the relevant guidance to consider in respect of the proposed development. However, in December 2019 the Department of Housing, Planning and Local Government issued the Draft Revised Wind Energy Development Guidelines. Following consultation and review, these draft revised guidelines intend to supersede the current 2006 Wind Energy Development Guidelines, once fully adopted. With regards to LVIA, the most notable difference between the Draft Revised Wind Energy Development Guidelines (2019) and the current 2006 Wind Energy Development Guidelines pertains to that of ‘setback,’ as the ‘setback’ established in the current 2006 Wind Energy Development Guidelines is 500m. In nearly all other respects the landscape and visual related sections of the draft revised guidelines remain unaltered from the current guidelines.

#### **‘Setback’**

Section 6.18 of the 2019 Draft Revised Guidelines refers to “siting in relation to individual properties,” which is colloquially known as “setback.” The only SPPR (Specific Planning Policy Requirement) that applies to “setback” in the revised Guidelines is:

*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 layout of the proposed development is in compliance with the setback requirements of the 2006 Guidelines and the 2019 Draft Revised Guidelines, as there are no known residential dwellings located within 500m or 4 x tip height (740 m) from the nearest point of the curtilage of any residential property in the vicinity to any of the proposed turbines.

The Wind Energy Development Guidelines (2006) provide guidance on wind farm siting and design criteria for a number of different landscapes types. These are currently replicated in the Draft Revised Guidelines 2019. The site of the proposed development is considered to be located within a landscape that is generally consistent with the ‘Hilly and Flat Farmland’ landscape type and the associated guidance is applicable. Such landscape types derive from a matrix of factors (e.g. landform/terrain) other than current land use alone, and even though the majority of the site of the proposed development is not under farmland, this landscape type shares the most landscape characteristics that are consistent within the immediate landscape.

In terms of the ‘Location’ guidance for this landscape type, the 2006 guidelines state:

*“Location on ridges and plateaux is preferred, not only to maximise exposure, but also to ensure a reasonable distance from dwellings. Sufficient distance should be maintained from farmsteads, houses and centres of population in order to ensure that wind energy developments do not visually dominate them. Elevated locations are also more likely to achieve optimum aesthetic effect. Turbines perceived as being in close proximity to, or overlapping other landscape elements, such as buildings, roads and power or telegraph poles and lines may result in visual clutter and confusion. While in practice this can be tolerated, in highly sensitive landscapes every attempt should be made to avoid it.”*

In terms of ‘Spatial Extent,’ the 2006 Guidelines state:

*“This can be expected to be quite limited in response to the scale of fields and such topographic features as hills and knolls. Sufficient distance from buildings, most likely to be critical at lower elevations, must be established in order to avoid dominance by the wind energy development.”*

In terms of ‘Spacing,’ the 2006 Guidelines state:

*“The optimum spacing pattern is likely to be regular, responding to the underlying field pattern. The fields comprising the site might provide the structure for spacing of turbines. However, this may not always be the case and a balance will have to be struck between adequate spacing to achieve operability and a correspondence to field pattern.”*

In terms of ‘layout,’ the 2006 Guidelines state:

*“The optimum layout is linear, and staggered linear on ridges (which are elongated) and hilltops (which are peaked), but a clustered layout would also be appropriate on a hilltop...”*



Whilst the guidance in respect of ‘height’ of turbines is quite conservative for this landscape type, it is important to recognise that exceptions are made for ridge top developments. In this regard, the Guidelines state:

*“Turbines should relate in terms of scale to landscape elements and will therefore tend not to be tall. However, an exception to this would be where they are on a high ridge or hilltop of relatively large scale. The more undulating the topography the greater the acceptability of an uneven profile, provided it does not result in significant visual confusion and conflict.”*

Lastly, for ‘Cumulative effect’ for this landscape type, the Guidelines state:

*“It is important that wind energy development is never perceived to visually dominate. However, given that these landscapes comprise hedgerows and often hills, and that views across the landscape will likely be intermittent and partially obscured, visibility of two or more wind energy developments is usually acceptable.”*

It is considered that the proposed development design is in general accordance with the guidance for the relevant landscape type and does not conflict with it.

#### **13.3.4.2 Kilkenny County Development Plan (CDP) 2014-2020**

A Landscape Character Assessment was prepared for Kilkenny County in 2003, which still informs and provides a framework for landscape-related policy in the current CDP. The Landscape Character Assessment identifies four landscape character types, which are subdivided into 14 landscape character areas, with some areas identified as being of special landscape character value, or possessing features and areas of high landscape sensitivity. Chapter 8 of the CDP pertains to Heritage, with Section 8.2.10 relating to Landscape. Objective 8G of the CDP relate to landscape character.

#### **Objective 8G:**

*“To protect and sustainably manage the landscape character of County Kilkenny, having regard to the findings of the landscape character assessment and the development management standards as set out in this chapter for the sustainable development of the county and appropriate conservation of its landscape character.”*

The Landscape Character Assessment divides the county into four landscape character types (LCTs). These are: Upland Areas; Lowland Areas; River Valleys, and Transitional Areas. The site is located within the ‘Upland’ LCT, with the nearest ‘transition zone’ (between the upland and lowland zone) being more than 3km to the northwest, while the nearest ‘river valley’ LCT is located more than 4.5km northeast of the site (see Figure 13-9, below).

Similarly, the site is not contained within an area that is designated as ‘Highly scenic / Visually pleasing’ while the nearest such area to the site is located more than 4.5km northeast of the site (see Figure 13-9 below), along the River Nore valley. The nearest designated ‘protected view’ to the site is located more than 4km east/northeast of the site (Please note: scenic/protected views will be addressed in more detail later within this Section).



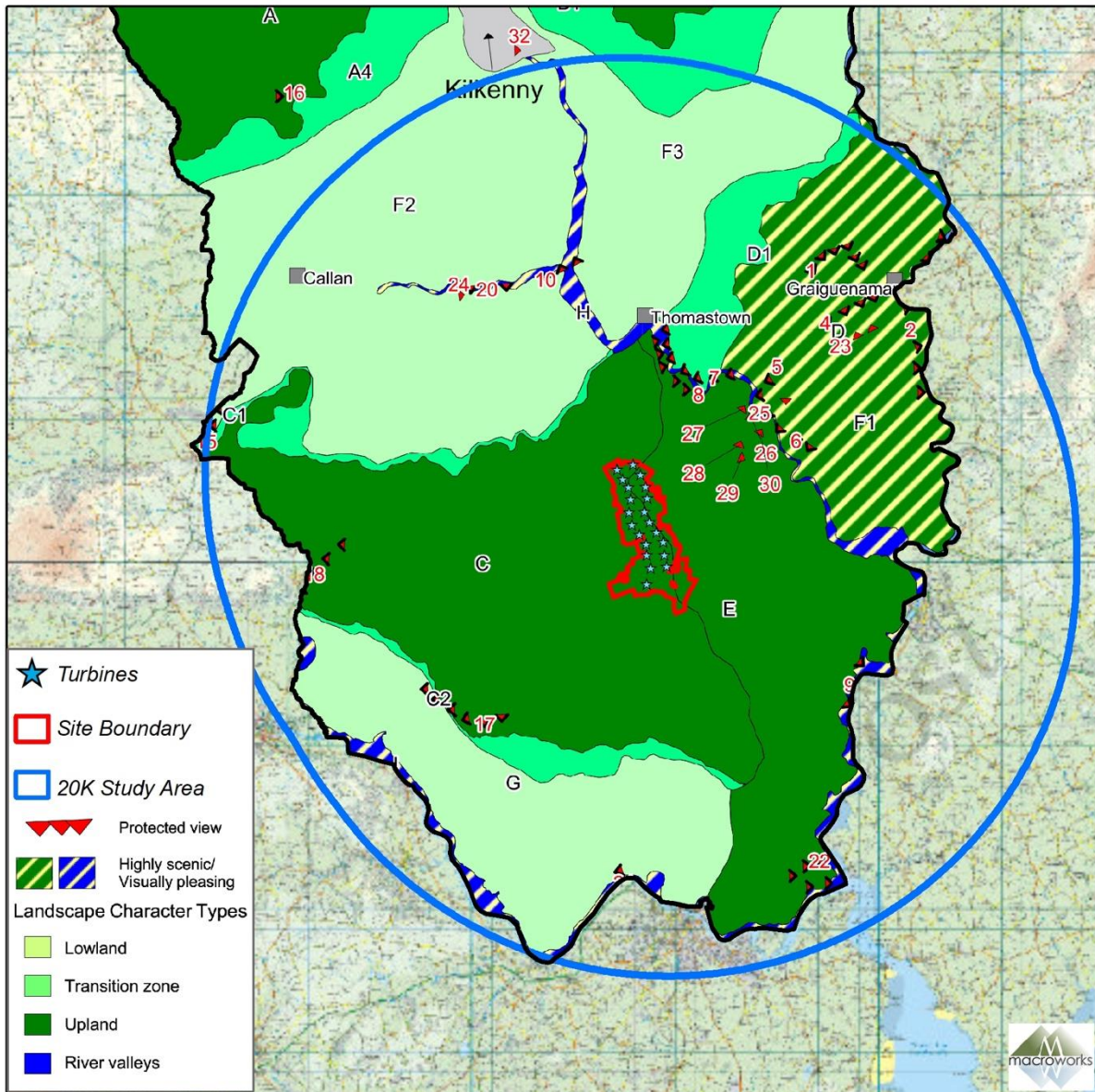


Figure 13-9: Extract of 'Map 8.2 - Landscape Character Assessment' of the Kilkenny CDP.

The Landscape Character Assessment has identified fourteen Landscape Character Areas (LCAs) within County Kilkenny, three of which are within the study area. The Castlebanny ridge divides 'Upland Area C South-Western Hills,' from 'Upland Area E - South Eastern Hills' (see Figure 13-10, below). As these two areas are present in both the site and the central study area, they will be examined in further detail.





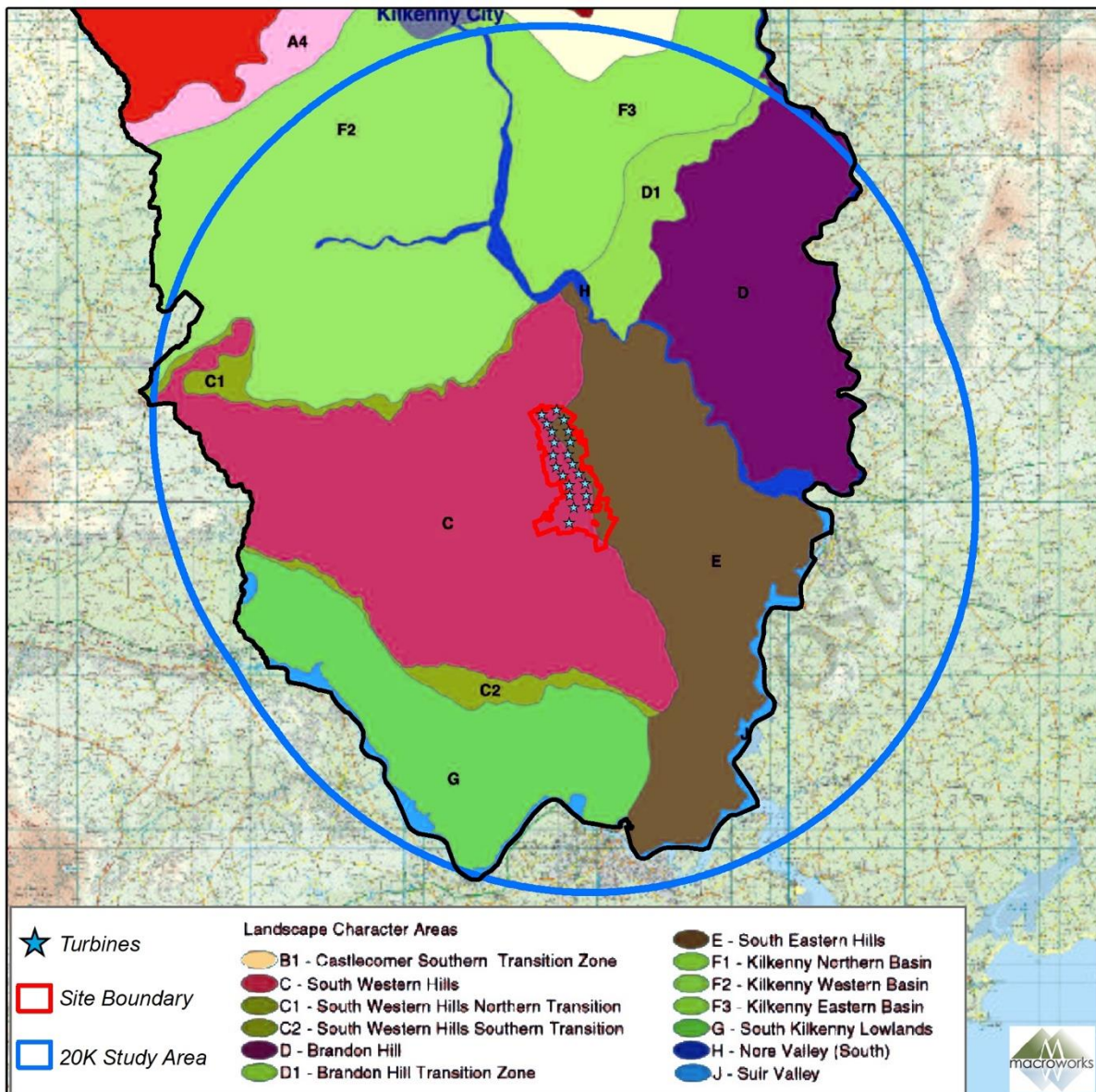


Figure 13-10: Extract of 'Map 13 – Landscape Character Areas' of the 2003 County Kilkenny Landscape Character Assessment

### Upland Area C South-Western Hills

Most of the site and most of the proposed turbines are located within the 'Upland Area C South-Western Hills.' It is worth noting that this area is often referred to within the Landscape Character Assessment as being the 'South Western Uplands.' According to the Landscape Character Assessment, this landscape character area entails:

*"The south-western Kilkenny hills, which comprise the Kilmacoliver and Carricktriss Hills, form a low-lying upland area (i.e. upland area with lower elevation to that of Brandon or Slieveardagh Hills). The terrain dramatically rises, steeply sloping from the Kilkenny basin [...] and the south Kilkenny lowlands [...]. The area encompasses an undulating landscape of several hills, with primary and secondary ridgelines at an average elevation of approximately 300m above sea level. The elevated nature of this*



*physical unit provides a defined skyline and significant and scenic views over the surrounding areas of Kilmacow, Mooncoin and Mullinavat. The area is perceived as having certain landscape value, in particular the western hills of the unit...*

In terms of land uses, it states that:

*“Large plantation forest estates are visually dominant on the slopes of these hills, the most notable being the Corbally Woods to the southeast of Carricktriss Hill, with forestry on the summit at 285m above sea level. The field sizes are regular in pattern and have low hedgerows. Transitional woodland-scrub areas are also common.”*

The “Critical Landscape Factors” of this Landscape Character Area entail:

**Elevated Vistas:**

*“Long distance views of the River Suir and River Nore valleys are available from the local roads of this upland character area [...]”*

**Step Slopes:**

*“Steeply sloping land provides an area with its character and a potentially increased elevation intensifying its visual prominence over greater distances. Slope also provides an increased opportunity for development to penetrate primary and secondary ridgelines when viewed from lower areas of the public realm such as the roads and population centres in this area. The steep slopes at the boundaries of this unit provide landscape character to it.”*

**Prominent Ridge Lines:**

*“These occur as either primary ridgelines (visible only against the sky from any prospect) or secondary ridgelines (visible at least from some prospects below a distant primary ridge line). Ridge lines perform the important roles of providing an area with its identity, acting as dominant landscape focal points, and defining the extent of visual catchments. Therefore, the main concern for the natural linear features formed by the ridgelines of the South Western Uplands is to avoid penetration by development that will interrupt and reduce the integrity of such elements.”*

**Undulating topography:**

*“Gently undulating topography is presented within the upland area of this character unit. The physical shielding of a built form within the lee of hill where it does not break the skyline renders it visually unobtrusive and reflective of landscape scale. Furthermore, the dynamic and complex nature of undulating land encloses vistas and helps to provide a realistic scale and visual containment not available in open lands.”*

**Shelter Vegetation:**

*“Shelter vegetation, generally represented at certain areas in this unit by coniferous plantations and some deciduous woodland on slopes and hilltops, provides visual screening enclosing vistas and helping to supply a visual containment not available in open, low-vegetated lands. It adds to the complexity of a vista, breaking it up to provide scale and containment for built forms.”*



**Low Vegetation:**

*“Low vegetation, represented in this unit by grassland and generally low hedgerows, fails to break up vistas, allowing long distance visibility, and therefore, providing an inability to absorb development.”*

**‘Upland Area E – South Eastern Hills’**

According to the Landscape Character Assessment, this landscape character area entails:

*“[...] The main land use in this lowland area is pastureland, with some tillage and agricultural crops as well as both deciduous and coniferous forestry plantations. Many of the field boundaries consist of low, well-maintained hedgerows, intertwined with of Birch and Alder trees. These, combined with copies of the gently undulating landform, partially screen low-lying areas. Settlement patterns outside the defined towns and villages is of a low density, consisting of dispersed rural housing and farm buildings.*

The “Critical Landscape Factors” of this Landscape Character Area entail:

**Elevated Vistas:**

*“Local roads cross the lower slopes of this upland area, from where extensive lowland vistas and afforested upland views are available. Long distance views of the valleys of the Rivers Nore and Barrow can also be obtained from this upland character area.”*

**Slopes:**

*“Sloping land provides a potentially increased elevation, intensifying visual prominence over greater distances. Slope also provides an increased opportunity for development to penetrate primary and secondary ridgelines when viewed from lower areas of the public realm such as the roads and population centres in this area. Slope often provides an area with its character, as in this case therefore renders this upland area sensitive to development that might impact on that character.”*

**Undulating topography:**

*“Gently undulating topography is presented within the upland area of this character unit. The dynamic and complex nature of undulating land encloses vistas and helps to provide a realistic scale and visual containment not available in open lands.”*

**Shelter Vegetation:**

*“Shelter vegetation, is represented in some areas of this unit by the presence of trees at certain sections of field hedgerows as well as by some large coniferous and deciduous tree plantations. In a similar manner to undulating topography, shelter vegetation has a shielding and absorbing quality in landscape terms. It can provide a natural visual barrier and also adds to the complexity of a vista, breaking it up to provide scale and containment for built forms.”*





### Low Vegetation:

*“Low vegetation largely represented in this unit by grassland and generally low hedgerows is generally uniform in appearance. Consequently, it fails to break up vistas and allows long distance visibility, therefore providing an inability to absorb development. However, existing hedgerows partially screen lowest land parcels.”*

### Localised River Views:

*“Both the River Nore and the River Suir delimit this character unit. Due to the low-lying but undulating nature of this area, views of the river valleys are available from the high points at some of the local roads. Visual intrusion, which will interrupt and reduce the integrity of the river valley should be avoided along this natural linear feature.”*

### Landscape Character Sensitivities

According to Section 8.2.10.5 of the CDP:

*“The sensitivity of the Landscape Character Areas is defined as its overall resilience to sustain its character in the face of change and its ability to recover from loss or damage to its components.”*

In relation to ‘Areas of Greater Sensitivity,’ Section 8.2.10.5 states:

*“The Landscape Character Assessment identified areas throughout the county that are highly sensitive to development and have a low capacity for change. These areas are identified on Figure 8-3. These areas take account of areas of higher altitude in the county and of land cover. In general areas of elevated topography, with low growing or sparse vegetation and little existing development are landscapes of high sensitivity and have a low potential to absorb new development.*

*“Sensitive land use categories include areas which are open and exposed with sparse or low growing vegetation cover which is insufficient to provide screening. Even if planting is introduced, the exposed nature of these areas will not support any significant tall vegetation. Due to this, any development would be visible over a wide area. The exceptions to this are broadleaved, mixed forest and transitional woodland scrub areas, which do support tall vegetation with potential to screen development. However these categories area [sic] sensitive due to their natural character and their longevity in the landscape; any loss to their structure (for example, through felling) would have a visual impact over a wide area.”*



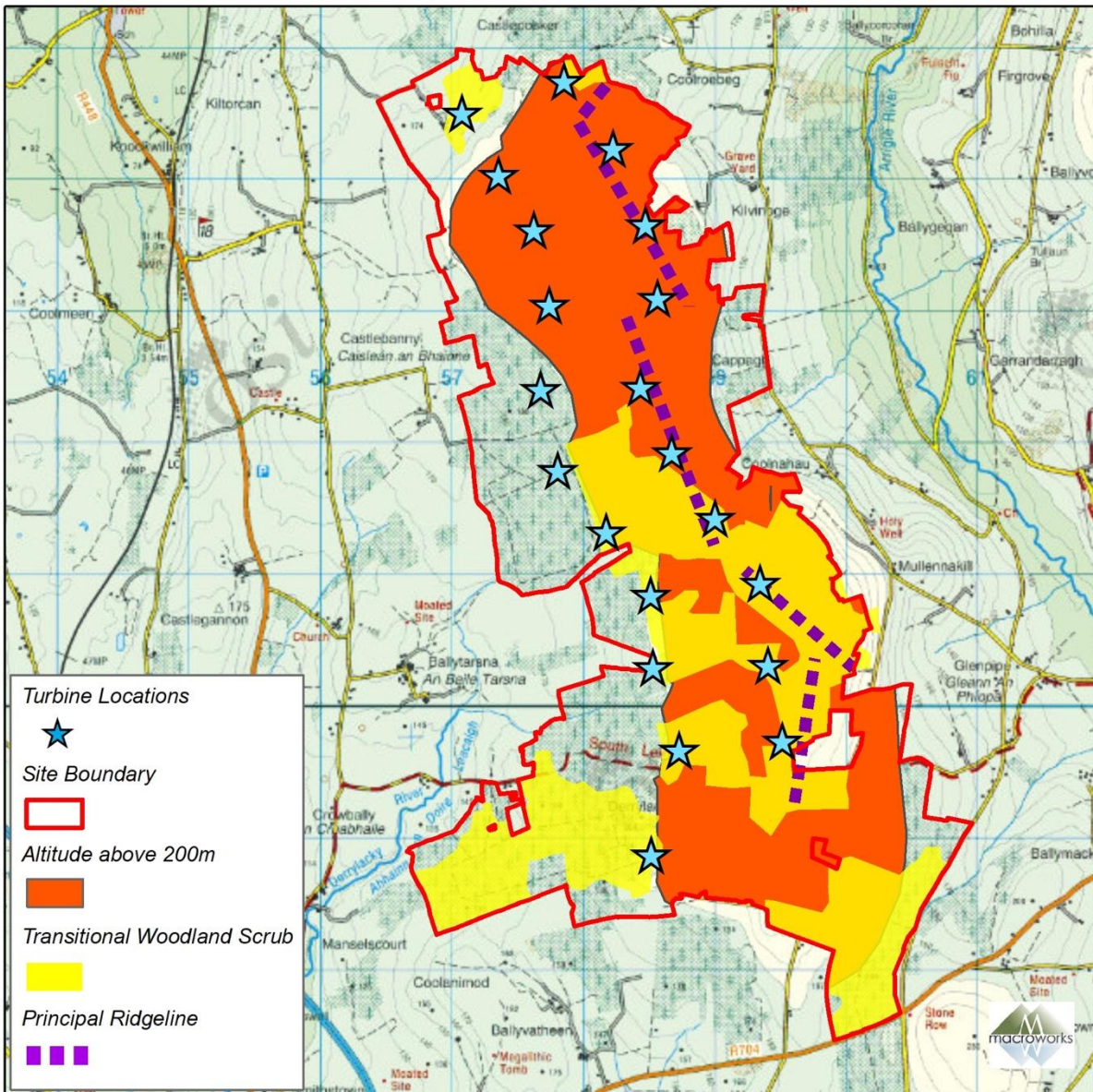


Figure 13-11: Extract of 'Figure 8.3 Landscape Sensitivities' of the Kilkenny CDP (Note: for the sake of clarity, the site boundary and proposed turbine locations have been added to this figure extract by Macro Works)

In Figure 8-3 of the CDP (see Figure 13-11, above), there are three such sensitive elements within the site: 'Altitude above 200m', 'Principle Ridgeline' and 'Transitional woodland scrub.' However, it is worth noting that these individual elements are considered as component parts of the overall landscape character of an area, as none are indisputably sensitive in isolation or in any particular context. In addition, mature forestry (i.e. conifer plantations) is the predominant land use across the ridgeline site.

#### Protected Views

According to Section 8.2.10.6 of the CDP:

*"There is a need to protect and conserve views and prospects adjoining public roads and river valleys throughout the county where these views are of high amenity value. In*



*conserving views, it is not proposed that this should give rise to the prohibition of development along these routes but development, where permitted, should not seriously hinder or obstruct these views and should be designed and located to minimise their impact [...] The Planning Authority will be cognisant of the impact of developments within the county on views from neighbouring counties.”*

**Objective 8H:**

*“To preserve and improve places or areas from which views or prospects of special amenity value exist, as identified in Appendix H and on Figure 8-2.”*

The protected views of the county are illustrated in Figure 13-9, above. Of the 32 designated protected views listed in Appendix H of the CDP, only three are of potential relevance to the proposed development i.e. a view that is within the study area, with the indicated direction of that view being in the broader general direction of the site of the proposed development. In this instance, all three protected views are located more than 7km from the nearest proposed turbine, and these are:

- **V5:** *View to the southwest over Inistioge and the Nore Valley on the Inistioge/Graigenamanagh Road (LP4210) overlooking the LS8237 (between its junctions with road numbers LS8238 and the R700). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP28.*
- **V6:** *View southwest over the Nore Valley on the Thomastown/Inistioge Road, R700 between Inistioge and the junction at Coolnamuck (LS8289). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP26.*
- **V20:** *Views south over King’s river valley on Road no. LS5067 between Kells and the R713 (Waterford Road). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP3.*

Within the Landscape section of the Kilkenny CDP (i.e. Page 110), the “Development Management Standards,” which are relevant to the site and/or proposed development, entail:

- *“To protect the landscape character, quality and local distinctiveness of County Kilkenny, and have regard to the guidance set out in the Landscape Character Assessment.*
- *Where necessary, to require that applications are accompanied by a visual impact assessment, particularly in upland areas, river valleys and areas of greater sensitivity.*
- *To facilitate appropriate development that reflects the scale, character and sensitivities of the local landscape throughout the county and require that developments minimise the loss of natural features such as trees, hedgerows and stonewalls.*
- *To facilitate, where appropriate, developments that have a functional and locational natural resource requirement to be situated on steep or elevated sites (e.g. reservoir, telecommunications or wind energy structures) with reference to the appropriate County strategies currently in place, and to ensure that any residual adverse visual impacts are minimised or mitigated.*
- *To ensure that development in upland areas or on steep slopes will not have a disproportionate or dominating visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere or detract from scenic upland vistas, or when viewed from public areas, scenic routes, viewpoints or settlements.*
- *To have particular regard to the potential impacts of new development on sensitive upland areas, and to materially consider the difficulty of establishing and maintaining screening vegetation when assessing development proposals in these areas.*



- *To maintain the visual integrity of areas of greater sensitivity in the county and ensure that any development in these areas is appropriately sited and designed. Applicants shall demonstrate that the proposed development can be assimilated into the landscape and will not have a disproportionate visual impact on the landscape.”*

### Wind Energy

According to Section 10.5.2 of the Kilkenny CDP:

*“A Wind Energy Study was first carried out by CAAS (Environmental Services) Ltd for Kilkenny County Council in 2003. This Study was reviewed and updated as a Wind Energy Development Strategy for the 2008 Development Plan. As part of this Plan, the strategy has been revised; see Appendix J for the full Strategy.”*

The “Evaluation of landscape” in Appendix J (i.e. the full Kilkenny County Wind Energy Strategy) is an evaluation of the landscape of these areas and its sensitivity to wind energy developments, and is evaluated against a range of six factors, five of which are of relevance to the site.

1. *“Categorisation in LCA – was the landscape unit categorised as a Special or Sensitive area or suitable for development in the 2003 LCA? If designated as special or sensitive, a wind farm development may have a significant impact. Conversely, if designated as suitable for development, a wind farm would have no likely significant impact.*
2. *Prominent Ridge Lines/Peaks – does the area form a prominent ridgeline or peak in the surrounding landscape? If it forms a prominent ridgeline, a wind farm may have a significant impact.*
3. *Settings/backdrops/horizons to centres of population - does the area contain features that form a setting, backdrop, main outlook or horizon when viewed from areas of extensive population? If the area forms a backdrop or horizon for a large population centre, a wind farm development may have a significant visual impact.*
4. *Tourism/heritage – is the area rich in tourism and heritage features, does it contain any protected views/waymarked trails/tourism sites/heritage sites? If the area is rich in tourism and heritage features a wind farm development may have a significant impact.*
5. *Existing wind farms – Are there any existing wind farms built or permitted in the area? In an area where wind farms are already permitted or built, there may be merit in clustering another wind farm in the same area. Potential impacts may only be incrementally increased with the addition of another wind farm...”*

Following the identification of 22 areas within the county that were deemed to have sufficient wind speed and viability, an analysis of the matrix of factors that determine a landscape’s sensitivity to wind energy developments ensued for the production of the strategy. One such area is ‘Area 18 - Castlebanny’ (i.e. The site of the proposed development – see Figure 13-12, below). This area is adjudged to be neither “preferred” nor “unsuitable” for wind energy developments, but is, instead, “Open to Consideration” (i.e. the median of three categories). Within the CDP, a matrix under section 10.5.4 – ‘Wind Energy Policy Areas’ indicates that only ‘small scale wind farms’ (5 turbines or less and output less than 5MW), ‘Auto producer’ or ‘Individual turbines’ will be acceptable in ‘Open to Consideration’ areas.





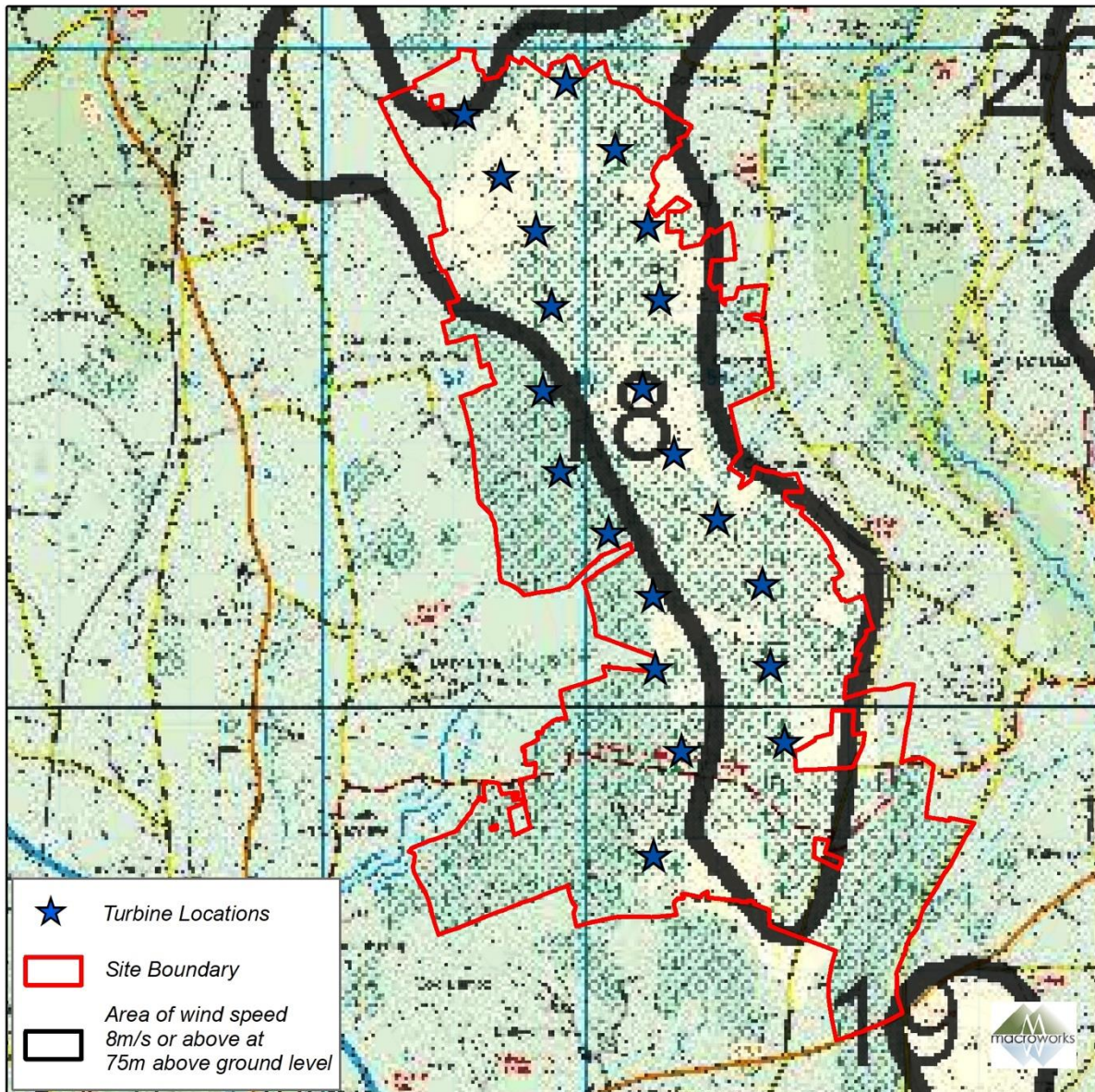


Figure 13-12: Extract of 'Figure J1 Areas with wind speeds of 8 m/s or above' from Appendix J of the Kilkenny CDP. (Note: for the sake of clarity, the site boundary and the proposed turbine locations have been added to this figure extract by Macro Works)

However, the reasons why 'Area 18 – Castlebanny' are, overall, considered to be "Open to consideration" rather than "Preferred," for wind energy developments is open to question. Firstly, the aforementioned Wind Energy Study carried out for Kilkenny County Council was last reviewed and updated in 2008. In addition, the matrix that is intended to summarise the aforementioned range of six factors is also open to question, for the following reasons.

Evaluated against a range of six factors, one factor "Adjoining county" (i.e. "where the area adjoins another county boundary") was accurately deemed to be not applicable. However, in relation to 'Tourism/heritage,' 'Area 18 - Castlebanny' was deemed to be "unsuitable" (for wind energy developments) on account of the "South Leinster Way" and "Jerpont Abbey." Jerpont Abbey, lies approx. 5k north of 'Area 18 - Castlebanny.' More immediate low hills to the southwest, south and southeast of Jerpont Abbey largely screen views in the direction of the

more distant 'Area 18 – Castlebanny.' It should also be noted that the South Leinster Way already passes within the vicinity of multiple existing wind farms (e.g. within 200m of existing turbines, in some instances). Wind energy developments have been frequently proposed and granted within close proximity to long distance way-marked walking routes since the aforementioned 2008 Wind Energy Study was undertaken in County Kilkenny, and it is reasonable to consider that long distance way-marked walking routes are not as sensitive to wind energy development as they might once have been perceived to be.

With regards to “Prominent Ridge Lines/Peaks” (*i.e. “does the area form a prominent ridgeline or peak in the surrounding landscape?”*), as referenced in Section 13.3.2 of this chapter, the Castlebanny Hill range has a low, elongated, plateau-like profile that reaches 265m AOD at its peak, considerably lower than several hills/mountains within the area. Nonetheless, 'Area 18 – Castlebanny' was deemed to be “open to consideration,” in relation to such ridgelines/peaks, rather than “preferred.”

With regards to “Settings/backdrops,” the Wind Energy Study cautions against “*areas of extensive population*” and/or “*a backdrop or horizon for a large population centre.*” For 'Area 18 – Castlebanny' it lists the examples of these being “Inistioge 6km” (*i.e. a village of 260 residents, set within the floor of the steeply-sided Nore valley, from which views out of the valley are challenging to attain*), “Ballyhale 4.1km” (*i.e. a village of approx. 174 residents, from which there is limited inherent visibility in the direction of the site*) and the “M9 6km”; none of which can be considered “areas of extensive population” nor “large population centres.” Nonetheless, 'Area 18 – Castlebanny' was deemed to be “open to consideration,” rather than “preferred.”

With regards to “Existing wind farms” (*i.e. “In an area where wind farms are already permitted or built, there may be merit in clustering another wind farm in the same area,”*), 'Area 18 – Castlebanny' was deemed to have “no” such existing wind farms. However, there is now an existing 7-turbine wind farm (Ballymartin) within 2.5km and an existing 5-turbine wind farm (Rahora) within 5km of 'Area 18 – Castlebanny.' Lastly, with regards to “LCA categorisation” 'Area 18 – Castlebanny' is accurately deemed to be “preferred” (for Wind Energy Development), as there are no sensitivities associated with this area.

The concluding comment for Area 18 is that “*This area has some heritage considerations but due to its location at a remove from centres of large populations, windfarm development may be acceptable*”. Yet the only “heritage concern” listed is that of Jerpoint Abbey, approx. 5km from this area and from which no distant views in the direction of the site are likely, owing to intervening landform and vegetation (See VP5). While the distance of 'Area 18 – Castlebanny' from centres of large population was acknowledged in the above concluding comment, it does not explain why this category (*i.e. Setting/backdrops*) was not, therefore, deemed to be “preferred.”

Based on the analysis provided above it is considered that Area 18 should be considered as an area where wind energy development is Acceptable in Principle and therefore not preclude larger scale developments. This is also clearly the current opinion of Kilkenny County Council as well, because their very recently published Draft Wind Energy Development Strategy does place the site area within an area deemed Acceptable in Principle for wind energy development. Acceptable in Principle areas are described as “preferred areas for wind energy development, characterised by high wind speeds, and no significant conflict with environmental designations or sensitivities”.



### *13.3.4.3 Waterford County Development Plan (CDP) 2011-2017*

Although Waterford County is within the study area, it is located more than 13km from the site. Consequently, only the scenic designations of its county development plan are of relevance to the proposed development.

The Waterford County Development Plan 2011–2017, has had *“its lifetime extended and will remain in effect until the new Regional Spatial & Economic Strategy is made by the Southern Regional Assembly, thereafter a new City and County Development Plan will be prepared.”* While a Landscape Character Assessment has not yet been prepared for County Waterford, a Scenic Landscape Evaluation has been included in the Waterford County Development Plan. As the site of the proposed development is not within Waterford County, the main element within the Evaluation that are of relevance to the proposed development is that of Scenic Routes. According to ‘6.6(b) Policy with Regard to Scenic Routes’ of Waterford County Scenic Landscape Evaluation:

*“Scenic routes indicate public roads from which views and prospects of areas of natural beauty and interest can be enjoyed. Sightseeing visitors are more likely to be concentrated along these routes. The onus should be on the applicant for permission to develop in the environs of a scenic route, to demonstrate that there will be no obstruction or degradation of the views towards visually vulnerable features nor significant alterations to the appearance or character of sensitive areas.”*



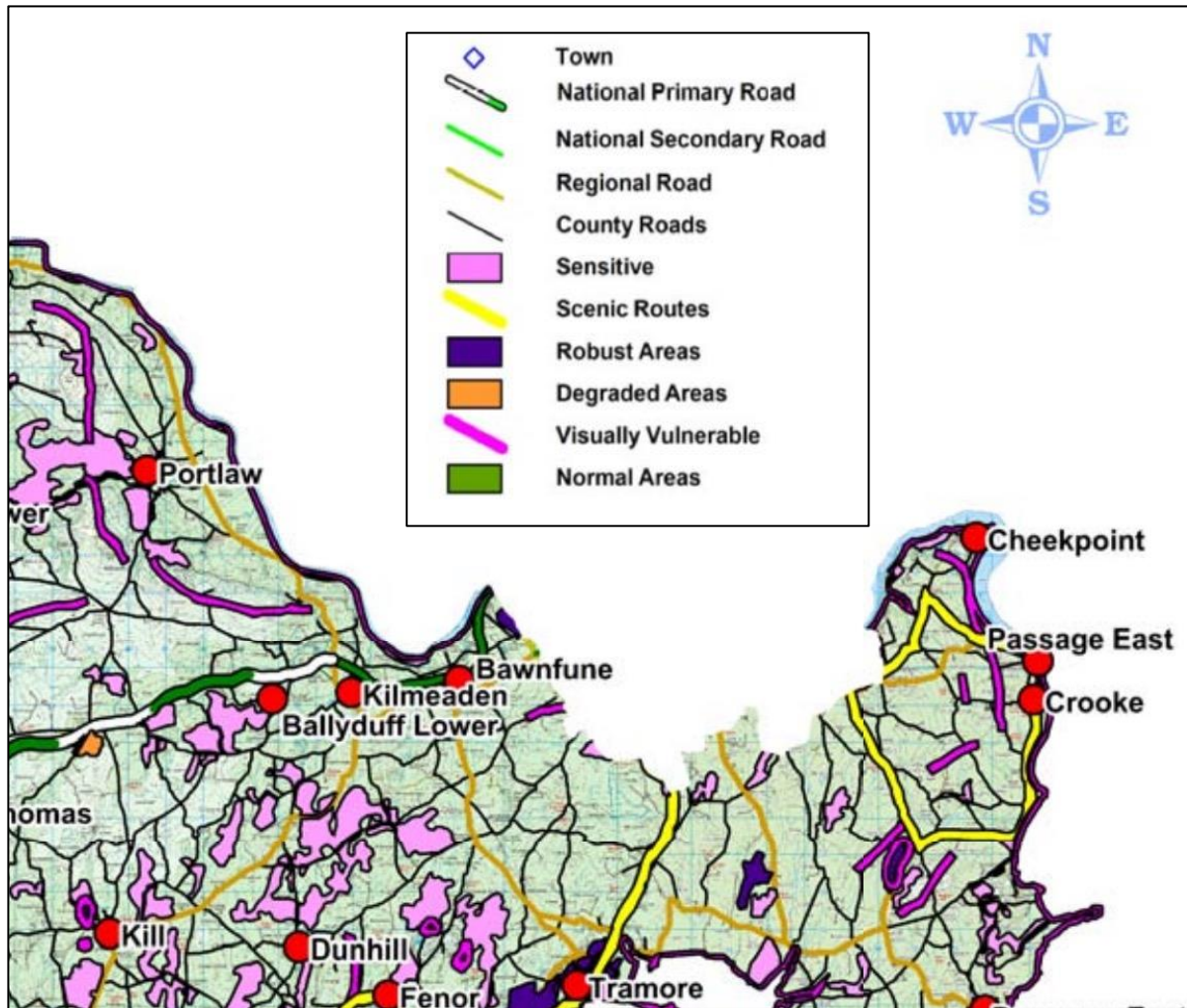


Figure 13-13: Extract from Scenic Landscape Evaluation, Appendix A9 from the Waterford Development Plan.

The only scenic route that is within the study area is Scenic Route 15, which entails:

*“South-east from Waterford City on the R683 to Mount Druid. South along the R684 to Belle Lake and east on third class road via Woodstown to Waterford Harbour. North to Passage East along the Harbour, continuing north towards Cheekpoint. South at junction to R683 and west to Waterford City.”*

In the subsequent Visual Impact Assessment of this LVIA, this scenic route is represented by VP21.

#### 13.3.4.4 Wexford County Development Plan (CDP) 2013-2019 (extended)

The eastern and south-eastern periphery of the study area enters County Wexford, so that county’s CDP will be assessed in this section. A Landscape Character Assessment has been prepared for County Wexford and this is incorporated into the current Wexford County Development Plan 2013-2019. Within the current Development Plan the council notes that it is *“prudent to await the publication of the National Landscape Strategy before embarking on a comprehensive review of the LCA prepared for the Wexford County Development Plan 2007-*



2013. In the interim, the LCA has been redefined, principally to improve its legibility and practical application.”

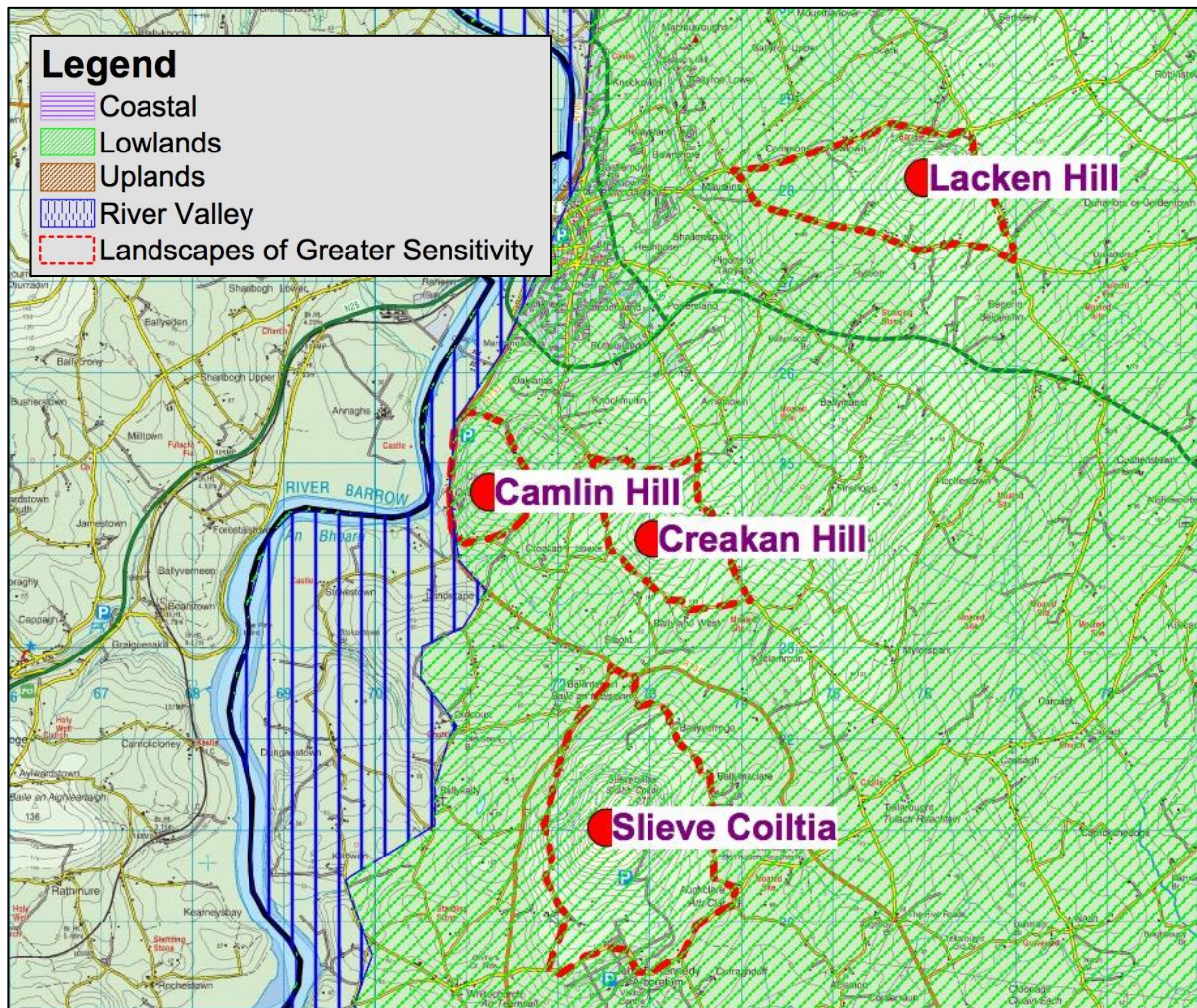


Figure 13-14: Extract of Wexford CDP Landscape Character Assessment Map No. 13.

Views of recognised scenic value are typically indicated within County Development Plans, but neither the previous *Wexford County Development Plan (2007-2013)* nor the present/extended *Wexford County Development Plan (2013-2019)* includes a list of designated scenic routes or views, although it should be noted that hills and ridges designated as ‘landscapes of greater sensitivity’ are noted for their “*views across the surrounding landscape.*” However, there are no scenic routes or views/prospects listed within the study area, but there are four designated “Landscapes of Greater Sensitivity.” As evidenced in Figure 13-14 above, these are Lacken Hill (193m AOD), Camlin Hill (98m AOD), Creakan Hill (191m AOD) and Slieve Coiltia (270m AOD).

These four designated “Landscapes of Greater Sensitivity,” are relatively close to one another, and are, therefore, all in the same direction in relation to the site (i.e. southeast of the site). Therefore, the most likely ‘worst case scenario’ has been selected as a representational receptor, in the context of Wexford’s “Landscapes of Greater Sensitivity” that are within the study area. Owing to its superior height and ease/encouragement of public accessibility, Slieve



Coiltia has been selected for this purpose. In the subsequent Visual Impact Assessment of this LVIA, its panoramic summit view is represented by VP23.

#### *13.3.4.5 Carlow County Development Plan (CDP) 2015-2021*

The north-eastern periphery of the study area enters County Carlow. A Landscape Character Assessment has been prepared for County Carlow and this is incorporated into the current Carlow CDP. Carlow has an adopted schedule of Views, Prospects and Scenic Routes, as part of the existing Carlow County Development Plan, and those views, prospects and/or scenic routes that are within the study area are set out below in Figure 13-15



*Figure 13-15: Extract of 'Carlow Landscape Characterisation' Map, as contained on Page 41 of Carlow's Landscape Character Assessment.*

However, when cross-referenced to the schedule of viewpoints and prospects that is listed in the Landscape Character Assessment, none of the above designated County Carlow views or prospects have the capacity for views of the proposed development. Therefore, there is no rationale or necessity for such County Carlow views or prospects to be represented by the subsequent Visual Impact Assessment of this LVIA.

#### *13.3.4.6 South Tipperary County Development Plan (CDP) 2009 (as varied)*

The western periphery of the study area enters County Tipperary, and Appendix 4 of the CDP pertains to Listed Views. Within the CDP, relevant policy relating to scenic views in Chapter 7: Landscape, Water Quality & Heritage entails:

Policy LH3: Protection of Views of Scenic Value:



*“It is the policy of the Council to protect and enhance views identified in Appendix 4: Listed Views in Tipperary, and views to and from Lakeland’s and waterways. The Council will not permit development which would obstruct or have significant adverse impact on these views.”*

However, while there are 92 such listed views within the county, none are within the study area. Similarly, all designated scenic routes within the county are also outside the study area. Therefore, there is no rationale or necessity for such County Tipperary views or scenic routes to be represented by the subsequent Visual Impact Assessment of this LVIA.

#### **13.3.4.7 National Parks & Wildlife Service (NPWS)**

Ecological designations such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) 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 commonly associated with outdoor amenity facilities where people go to enjoy the landscape setting.

As would be expected, there are multiple NPWS designations listed within the vast study area. However, within the central study area, there are only three such designations, with the prevalent designation (in size and proximity) being the River Barrow and River Nore SAC (Site code 002162). This is located the closest to the site of the proposed development, yet it remains more than 1.5km east - at its closest point - from the nearest proposed turbine location. More than 3km west of the nearest proposed turbine, the Kilkeasy Bog (Site code 000839) proposed Natural Heritage Area (pNHA) is located. The River Nore SPA (Site code 004233) fringes the northeast of the central study area (i.e. approx. 5km from the nearest proposed turbine).

## **13.4 VISUAL BASELINE**

The visual baseline for this wind farm proposal establishes both the nature of visibility within the study area and the important receptor locations from which the development might be viewed.

### **13.4.1 Zone of Theoretical Visibility (ZTV)**

Only those parts of the study area that potentially afford views of the proposed wind farm 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). A ‘Zone of Theoretical Visibility’ ZTV map is a computer-generated resource used to identify the ‘theoretical’ extent and degree of visibility of turbines. This is a theoretical exercise because it is based on topography alone and does not allow for intermittent screening provided by, for example, hedgerows, forests or buildings. Thus, the ZTV map represents a ‘worst-case-scenario’ with respect to visual exposure. For the purposes of this project, a radius of 20km (i.e. the study area) was used for the ZTV.





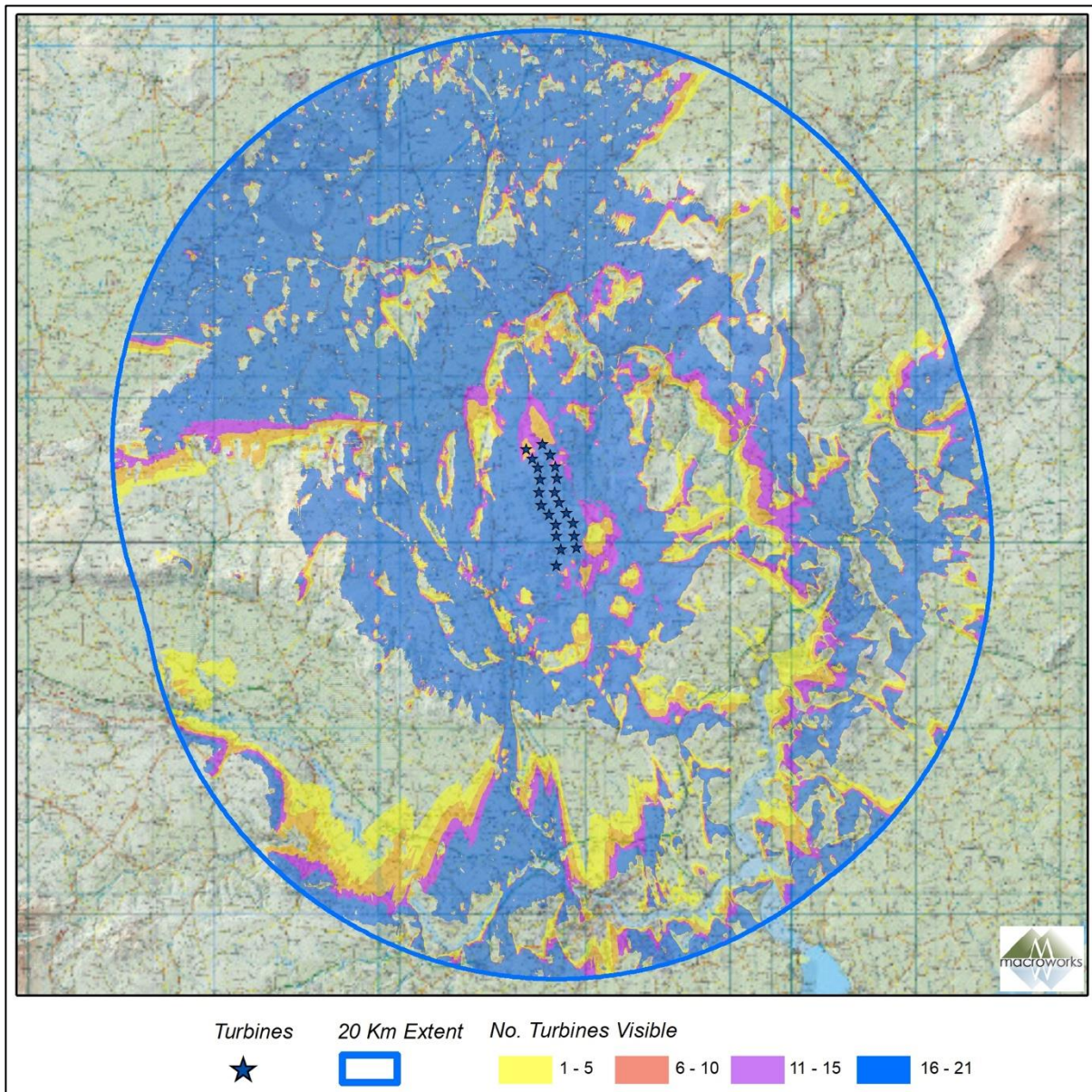


Figure 13-16: Extract ZTV map for Castlebanny Wind Farm (See Appendix 13.2 for full scale annotated ZTV maps generated from hub height and blade tip)

The following key points should be noted from the ZTV map:

- There is relatively consistent ZTV coverage within 5km of the site, in that most of the area experiences theoretical visibility of all of the proposed turbines.
- ZTV coverage becomes more sporadic beyond 10km of the site, and in most directions. This is particularly the case to the northeast and southwest, owing to intervening hills within approx. 10km of the site. This relates to the relative height of the proposed turbines at increasing distances within the undulating landscape of the wider study area. This intermittent ZTV pattern at 10-20km from the site indicates that turbine visibility is not afforded from all low-lying ground, and even from some higher ground, and is likely to be restricted to blades sets on the horizon, where intervening vegetation permits.
- Where ZTV coverage exists within the study area, the overwhelming majority of locations experience theoretical visibility of all of the proposed turbines. Only a small proportion of

the ZTV pattern shows partial visibility of the development, which reflects the consolidated cluster of turbines.

- Within the central study area, the small towns of Ballyhale and Mullinavat experience partial theoretical visibility, while the M9, R448, R704, R699 and the Dublin to Waterford InterCity railway line experience full theoretical visibility.
- Outside the central study area, the towns of Bennetsbridge, Thomastown, Carrick-on-Suir, Callan and New Ross, as well as Waterford City, experience partial theoretical visibility of all of the proposed turbines. However, some scenic and highly visited settlements, such as Inistioge, Graiguenamanagh and St. Mullins, for example, as well as most of Barrow and Nore river valleys (including the Barrow Way trail), do not experience any theoretical visibility.
- Outside the central study area, substantial sections of the M9, N76, N10 and the Dublin to Cork InterCity railway line, as well as numerous regional roads, experience theoretical visibility. However, more contained, smaller sections of the N9, N24, N25, N29 and N30 experience partial theoretical visibility.
- In terms of historical/heritage amenities, Jerpoint Abbey and Knocktopher Abbey, both of which are in the central study area, experience varying degrees of theoretical visibility.
- In terms of recreational amenities, it should be noted that Mount Juliet Estate and Mountain View golf courses (both in the central study area) experience theoretical visibility, while Faithlegg golf course and Waterford Castle Hotel & Golf Resort (both in the outer study) experience partial theoretical visibility.
- The most important point when considering the ZTV map in an undulating area such as this is that it is not a true representation of visibility, as it takes no account of the screening provided by vegetation, buildings, walls, embankments etc, including mature trees within and aligning the site boundary, as well as mature vegetation within roadside embankments/ditches. These factors are typically considerable in most Irish landscape contexts, and have the capacity to limit views of even tall turbines within relatively short distances. The main benefit of the ZTV map in this instance is to indicate where views of the turbines are definitely *not* available.

### ***13.4.2 Route Screening Analysis***

In a landscape, such as that of the central study area, which incorporates a network of tree-lined hedgerows and forest plantations, a standard ZTV map is of limited value in understanding actual likely visibility of the proposed development. That is, it grossly overestimates visibility compared to an open peatland or mountain moorland landscape, for example. Route Screening Analysis, as its name suggests, considers actual visibility of the proposed wind farm from surrounding roads and bridges the gap for the assessor between the computer generated, theoretical visibility modelling (e.g. ZTV maps) and the actual nature of visibility in a given area. In order to get a clearer understanding of visibility within the central study area, Route Screening Analysis (RSA) was undertaken for every road within a 5km radius of the proposed turbines, as well as the South Leinster Way, using a Digital Surface Model (DSM) and sample points every 25m along each section. Please refer to Appendix 13.3 for larger, more detailed RSA maps than Figure 13-17 & Figure 13-19, below.





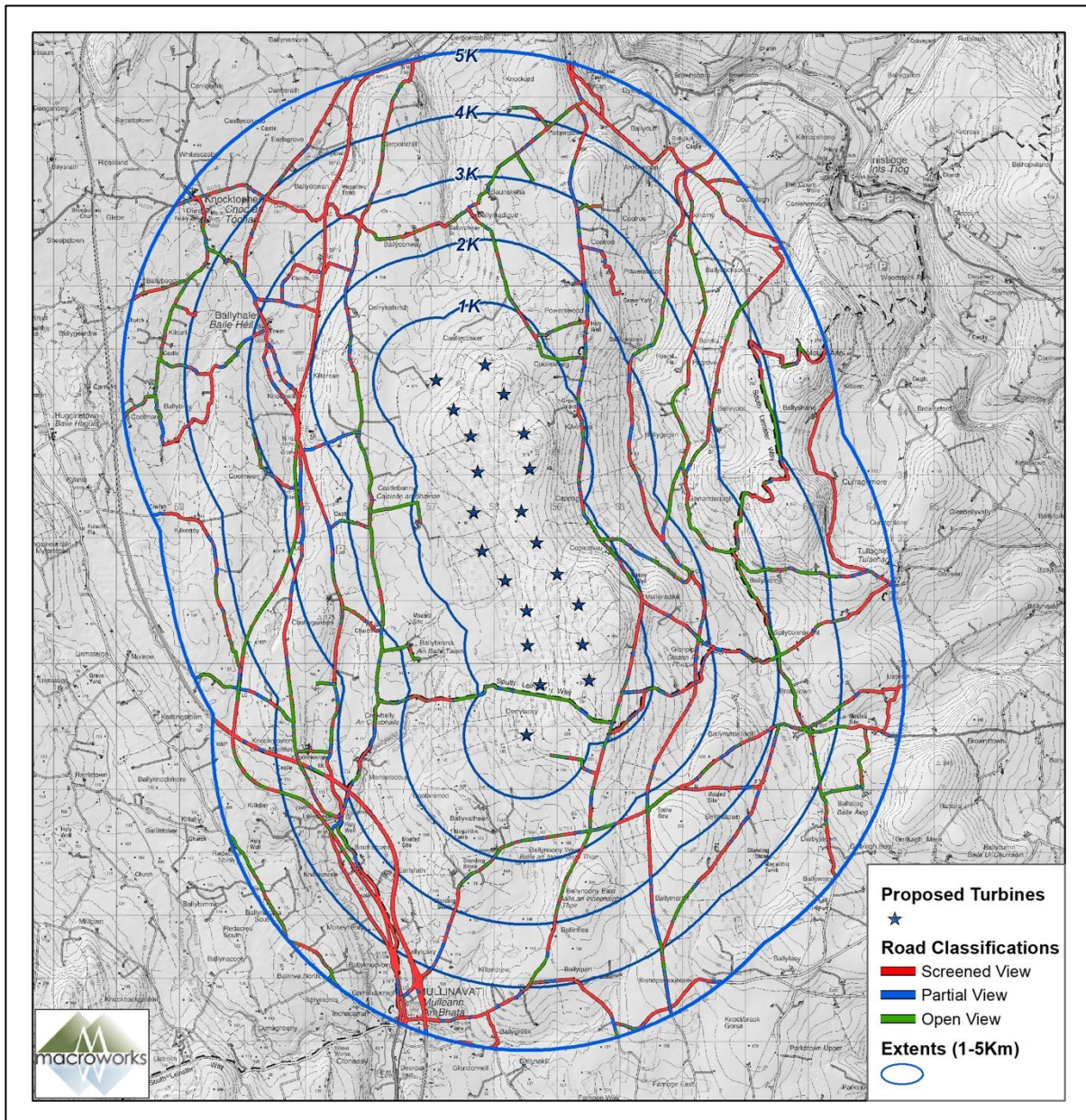


Figure 13-17: Route Screening Analysis (RSA) Map

The RSA consists of three visibility scenarios: open visibility; partial visibility; and fully screened (see Figure 13-17, above). In this instance, ‘open visibility’ is conservatively judged to occur if the view of a full blade rotation of a single turbine is afforded. ‘Partial visibility’ occurs when there is a view of less than a full blade rotation of any particular turbine/s..





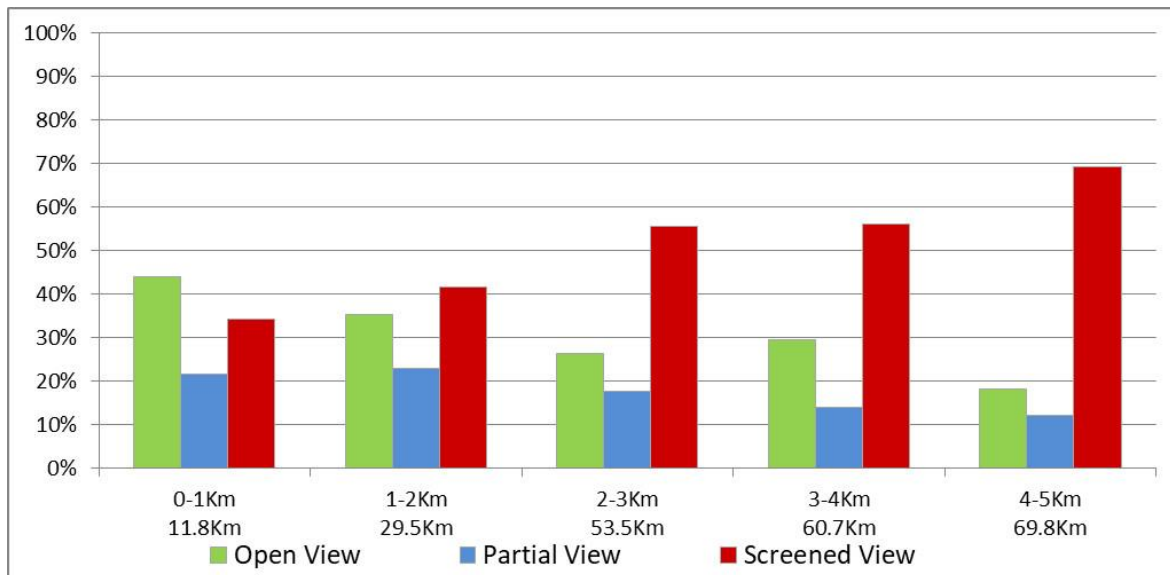


Figure 13-18: Graph illustrating results of Route Screening Analysis

The RSA map (Figure 13-17) and associated graph (Figure 13-18) illustrate a moderate to strong degree of wind farm screening from the road network within 5km of the proposed development. ‘Screened Views’ dominate from the 1-5km bands in an inverse relationship to both ‘Partial Views,’ and ‘Open views.’ This indicates that beyond 1km, intervening vegetation (predominantly hedgerows and treelines) serve to restrict views to an extent that it is more common that the turbines will be fully screened than there will be either ‘Open Views’ or ‘Partial Views’ of them. Indeed, from 2km outwards, ‘Screened Views’ consist of more than 50% of all views (i.e. that of ‘open views’ and ‘partial views’ combined). It is worth noting that within 1km, ‘partial views’ and ‘screened views’ account for over 50% of all views.

**Screened Views:** In terms of screened views, these fluctuate from 34% to 68% across the different bands, with a consistent increase from 1km to 5km band. Screened views are most prevalent in the mid to outer reaches of the 5km radius RSA study area, as would be expected. Notably, all settlements in the central study area (i.e. Mullinavat, Ballyhale & Knocktopher) are primarily constituted by ‘screened views.’ A section of the M9 Motorway also occurs in the central study area and shows equally limited turbine visibility (i.e. overwhelmingly made up of ‘screened views’) in this area. Similarly, there is very little visibility indicated from the R448 and R699, west/southwest/northwest of the site.

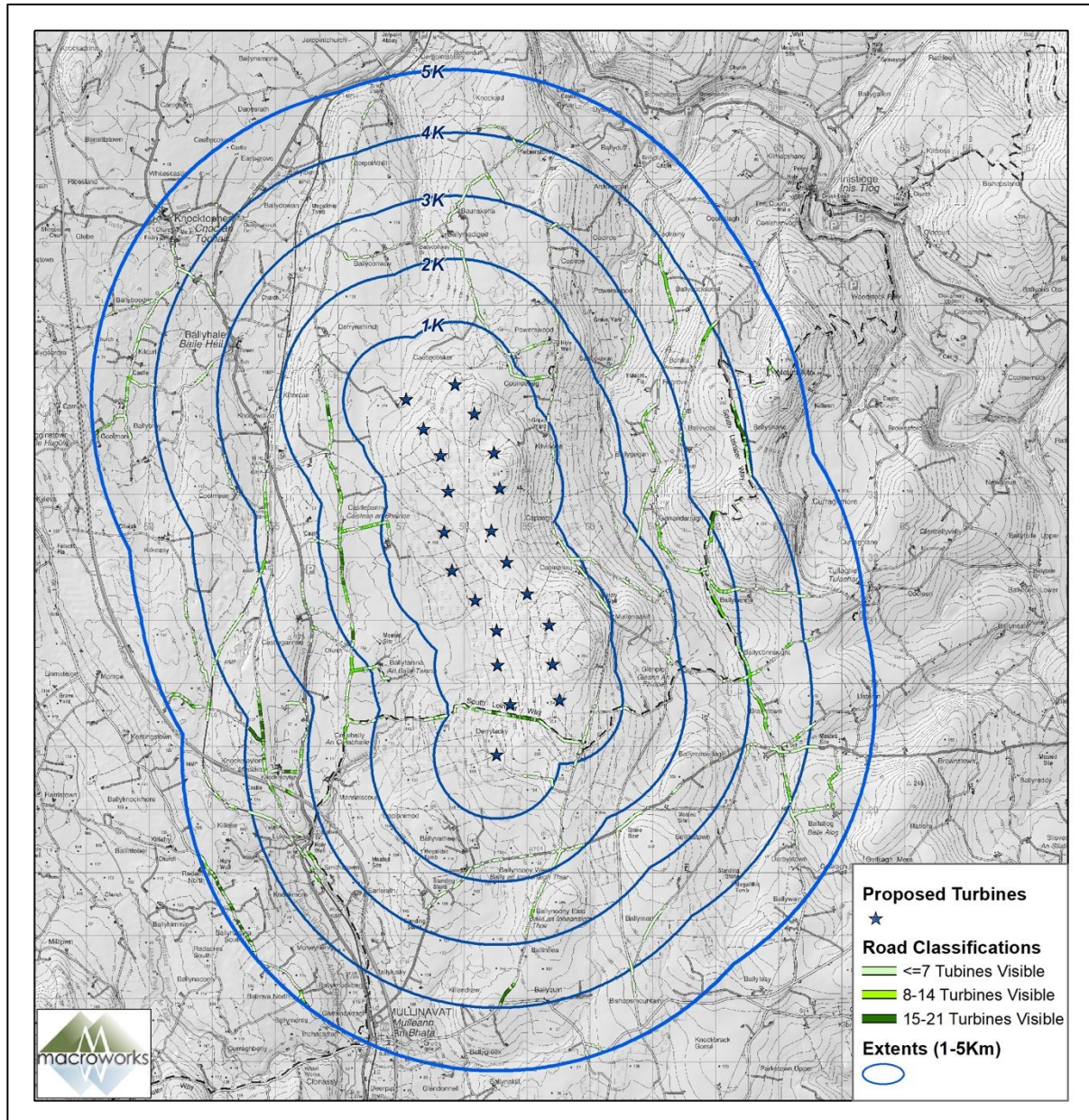
**Partial Views:** Overall, partial views range from 24% to 12%, with the nearest two distance bands out to 2km registering similar figures of 22-24%. Thereafter, partial visibility gradually but consistently drops to 12%. This tends to indicate that there is less ambiguity in the visibility beyond 2km, with ‘screened views’ being by far the most predominant scenario, but clearly some slightly elevated or ‘open views’ still afforded.

**Open Views:** As stated above, ‘open views’ have an inverse relationship to screened views. This ranges from 44% of road viewing scenarios within 1km, to 36% within the 1-2km band, to 24-28% from 2-4km distance, to 18% from 4km to 5km; marking a steady decrease in between. Beyond 1km-distance, ‘screened views’ are dominant over ‘open views.’ However, in all five bands (i.e. from 0-5km) ‘open views’ are more prevalent than ‘partial views.’ Both the R704, within 1.7km south of the nearest turbine (T1), as well as along the South Leinster Way, which dissects the site between T1 and T3, experiences large segments of ‘open views,’ as does local



road L8270 running 1-2km west of the proposed turbine locations. It is also important to consider this result in the context of the bare-ground ZTV pattern (*Figure 13-16*), which more or less indicates full turbines visibility within the 5km radius RSA study area.

As the methodology used for the RSA requires only a view of the full blade set of one turbine to record an ‘open view’ of the development, it is useful to analyse the ‘open view’ set in more detail to establish how many turbines are actually visible in each instance (see *Figure 13-19* and accompanying graph at *Figure 13-20*).



*Figure 13-19: Map of Route Screening Analysis for ‘Open Views’*



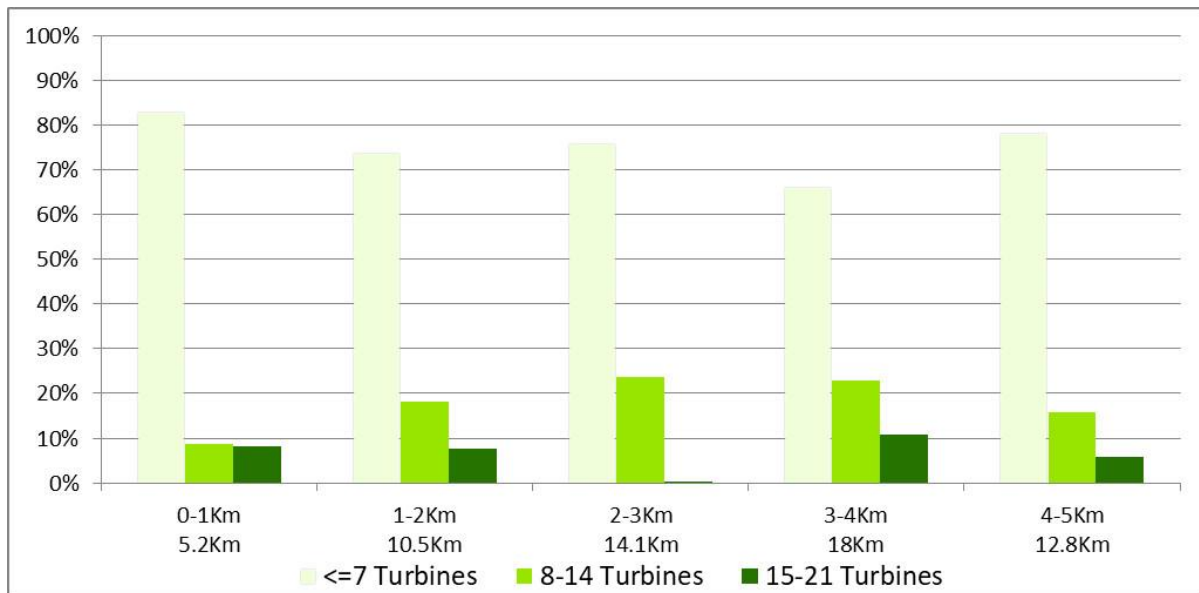


Figure 13-20: Graph illustrating RSA results for ‘Open Views’

The results shown in Figure 13-19 and Figure 13-20 indicate that the most common scenario when an ‘open view’ of the development is afforded, pertains to the blade sets of 1-7 turbines. Indeed, this is the case between 66% and 82% of the time, with the view of 8-14 turbines occurring between 8% and 24% of the time. ‘Open views’ of 15-21 turbines only occurs between 1% and 12% of the time. As an example, ‘Open views’ of 15-21 turbines occur in small segments along the local road L8270 (running 1-2km west of the proposed turbine locations) as well as the South Leinster Way. While in most bands, such ‘Open views’ of 15-21 turbines occur in no more than 8% of instances, the highest incidence experienced in the central study is 12%, which is found in segments along routes located 3-4km from the proposed turbines. However, it is important to reiterate that ‘open visibility’ is the minority category (of the three visibility scenarios) for all routes within 5km of the proposed development.

### 13.4.3 Visual Receptors

#### Centres of Population and Houses

Although the study area is strongly rural in character, there is nonetheless several villages and towns spread throughout. The density of housing and quantity of settlements within the study area are also mildly influenced by its proximity to Kilkenny City – just north of the study area – and Waterford City, which aligns the southern extents of the study area. As an overview, however, urban settlement in the study area is characterised by small towns and/or villages. Being a relatively lowland and accessible rural domain, and one with a rich legacy of agricultural production and settlement within the study area, there is a relatively consistent network of local roads, which crisscross the farmed landscape, that are populated with rural residential dwellings.

Within the central study area, the most sizeable settlement is the town of Mullinavat, which is located approx. 4.8km southwest of the nearest proposed turbine (i.e. T1), and has a population of approx.1600 residents. The village of Ballyhale (approx. 174 residents) is the closest settlement to the site, at approx. 2.7km northwest of the nearest proposed turbine (i.e. T21). The village of Knocktopher (approx. 440 residents), along the R713, is located approx. 4.7km



northwest of the nearest proposed turbine (i.e. T21). Otherwise, there are a number of rural clusters of housing sprinkled about the central study area, most notably in its eastern section.

Between 5-10km from the site, the most notable settlements are the picturesque and highly visited village of Inistioge (approx. 260 residents), approx. 6.4km northeast of the nearest proposed turbine (i.e. T18), and Thomastown, a small town on the Nore River, with a population of approx. 2,500, located approx. 7.3km north of the nearest proposed turbine (i.e. T20). Most settlements in the study area are located more than 10km from the proposed windfarm, and these include the towns of Bennetsbridge, New Ross, Callan, Graiguenamanagh, Carrick-on-Suir, Portlaw and Gowran.

In terms of scale, Waterford City is the largest settlement in the study area, and the fifth most populous city in the country. Founded in 853 AD by the Vikings, from whom it's Old Norse name derives, according to the 2016 Census, 53,504 people live in the city, with a wider metropolitan population of 82,963. The city suburbs extend from approx. 16km-20km south of the nearest proposed turbine (i.e. T1). However, in relation to cities, it should be noted that approx. 7km north of the study area is Kilkenny city centre; a city of approx. 26,000 residents.

However, as raised above in Section 13.2.1, there is no possibility of views of the proposed development at the scenic and highly-visited Inistioge, Graiguenamanagh and St. Mullins, for example, while there is only the potential for partial *theoretical*/visibility from settlements such as Bennetsbridge, Thomastown, Callan, New Ross and Waterford City. For settlements located more than 10km from the site of the proposed windfarm, a combination of considerable viewing distances, the very restricted nature of visibility (if it occurs at all) and the sensitivity of these receptors will preclude significant visual impacts from occurring at all of these settlements, and thus it is not deemed necessary to consider them further within this appraisal.

### Transport Routes

The major transport route in the area is the M9 Dublin-Waterford motorway, which traverses the study area in a northeast-southwest fashion. Entering the central study area for approx. 7km, this busy, major motorway comes within approx. 2.7km southwest of the nearest proposed turbine (i.e. T1). The Dublin-Waterford InterCity rail line follows a broadly similar trajectory as the M9, and it, too, enters the central study area for approx. 17km, while coming within approx. 2km (near the village of Ballyhale) of the nearest proposed turbine (i.e. T21). However, primarily owing to the generally low visual sensitivity of motorways, and the degree of mature treelines along the rail line, in tandem with the receptor sensitivity of inter-city rail travellers, there is little potential for significant visual impacts to occur from these two transport routes.

There are numerous National roads in the study area, including the N9, N10, N24, N25, N29, N30 and N76. However, as all are more than 9km from the nearest proposed turbines (and most are more than 15km), and experience a very restricted nature of visibility (if it occurs at all), combined with the typically low sensitivity of these receptors, it will preclude significant visual impacts from occurring at all of these national roads.

Where significant visual impacts have the most potential to occur along transport routes is within the central study. It contains the following three regional roads: R448, R699 and the R704, all of which experience full theoretical visibility (see Section 13.2.1, above). The R448 comes within approx. 2.3km, the R699 comes within 3.9km and the R704 comes within approx. 1.6km of the nearest proposed turbine location (i.e. T11, T21 and T1, respectively).



Aside from motorways, National roads and regional roads, there is a relatively regular network of third class roads in the study area. Within the central study area, one such road dissects the site, but all proposed turbines remain to the one side of it (i.e. the west side of this local road). Overall, there are approx. 6 local roads that come within 2km of the nearest proposed turbine. Thus, it is such local and regional roads within the central study – particularly those within 2-2.5km of the nearest proposed turbine – that present the most likely potential locations where significant visual impact could arise.

### Amenity and Heritage Locations

There is a diverse array of amenity and heritage locations within the central study area and the wider study area.

#### Central Study Area

The most immediate and apparent public amenity to the proposed development is one that dissects the site itself: the South Leinster Way. This national waymarked trail traverses the wider study area in a general northeast-southwest trail. It traverses the southern segment of the site in an east-west direction, and runs between the proposed location of T3 (approx. 152m to the trail's north) and T1 (approx. 650m to the trail's south).

Whilst open views of the proposed development from the South Leinster Way are highly likely to occur, where the waymarked trail passes through the site it is largely enclosed by mature or semi-mature conifer forestry. In line with the amenity plans associated with the proposed development, along this section of the plan, it is proposed to create the 5km-long “Derrylackey Loop” walk; one of three walks proposed for the site, which will total 13km in walks (for more information, please refer to the Recreation Development Plan in Appendix 2-6). Outside the site, but within the central study area, the trail is more likely to generate open views of the entire proposed development. It is also worth noting that Ireland’s long distance way-marked walking route network passes through a host of both naturalistic and strongly anthropogenic landscapes. These routes tend to follow a combination of local roads, forest tracks and walking trails, providing the user with an insight into the nature of settlement patterns, ever-changing land use activities and other cultural and heritage features in the regional context. Unlike mountain walks or loop walks through wilderness areas, waymarked walking routes, such as the South Leinster Way, are not as susceptible to the nature of landscape and visual change represented by wind energy development. This is on the basis that such development is briefly experienced by passers-by and can add to the interest and richness of the route, whilst displaying the progressive land uses of a particular region. There are also numerous other examples of wind energy developments being closely and openly visible from waymarked walking routes throughout the country. Indeed, outside the study area (i.e. in Co. Wexford), the South Leinster Way passes less than 200m from existing large wind turbines.

Mountain View Golf Course is located within 1.3km west of T21, on the western slopes of the Castlebanny hill range. GAA clubs and grounds are prominent within the settlements of Ballyhale and Mullinavat; both more than 2.5km from the nearest proposed turbines.

Knocktopher Abbey is located approx. 4.5km northwest of the nearest proposed turbine (i.e. T21). Established in the 13th century, the Abbey was home to the first Carmelite order in Ireland, and remained so until the 17th Century. Adjacent to the public, roadside graveyard is a private, walled property located on 17 acres of mature gardens, offer self-catering suites (within the Knocktopher House) and cottages.



## 5-10km from Proposed Development

Mount Juliet Estate, which comprises of a 5-star hotel and internationally renowned golf course set within demesne-like grounds on the banks of the River Nore, is located within 7km north of the nearest proposed turbine (i.e. T20). A Cistercian abbey founded in the 12th century, and accompanied by car park and visitor centre, Jerpoint Abbey is located 5.5km north of the nearest proposed turbine (i.e. T20). It is a widely visited and esteemed ruined abbey of national renown. However, for the vast majority of this heritage site, including the abbey itself, there is no potential for views of the proposed development, owing to intervening landform.

The Nore River valley is a highly picturesque, partly wooded, partly pastoral valley running 5-10km north and east of the site. It includes the scenic and highly visited settlements of Inistioge and Thomastown. However, for much of the lower elevations of this valley (i.e. along or near its river banks), there is no potential for views of the proposed development, owing to intervening landform. (see *Figure 13-16*, above).

Approx. 6.5 km south of the nearest proposed turbine (i.e. T1), Tory Hill /Sliabh Greine loop (National Loop Walk) is located. This is a stand-alone, conical-type hill under commercial conifer plantations. However, as much of the forestry has been recently felled, it allows for extensive, elevated views in the direction of the site. Castlemorris Holly Loop/Pheasant Loop (National Loop Walk) is set within mature woodland approx. 7.5km west of the T21 (i.e. the nearest proposed turbine). However, owing to the visually enclosed nature of these trails, combined with intervening landform, there is little potential for views in the direction of the site.

## Wider Study Area

The Barrow River valley, including the Barrow Way (National Waymarked Trail) and the highly scenic and well-visited settlements of Graiguenamanagh and St. Mullins, is located more than 14km northeast of the site. However, owing to intervening topography, there is very little potential for views of the proposed development from these renowned locales.

In the far southeast of the study area, in Co. Wexford, is Sliabh Coiltia, a low conical-type hill with public car park, trails and lookout points at its summit. In the far south and southwest of the study area is the Suir River valley, which includes the most eastern segment of the Waterford Greenway, Waterford City (i.e. near the river, such as its marina and quays, including Reginald's Tower), Waterford Castle Hotel and Golf Course (on 'The Island' within the Suir) and Faithlegg House Hotel and Golf Course. However, with a distance of over 15km from the site, combined with no potential for views of the proposed development over much of this river course, significant visual impacts are very unlikely to occur from within this valley. Lastly, in the far west of the study area, near the village of Windgap, is the Bearna Breac Loop walk, which is located almost 16km from the nearest proposed turbine.

## Views of Recognised Scenic Value

Views of recognised scenic value are primarily indicated within County Development Plans in the context of scenic views/routes designations, but they might also be indicated on touring maps, websites, guidebooks, and roadside rest stops, or on post cards that represent the area. In this instance there are not considered to be any iconic views that are not otherwise included as the aforementioned designated scenic views and/or routes in the three aforementioned relevant county development plans. Those designated scenic views and/or routes will be condensed and summarised as follows:





*Kilkenny County Development Plan (CDP) 2014-2020*

As previously set out in Section 13.3.4.2, of the 32 designated protected views listed in Appendix H of the Kilkenny CDP, only three are of potential relevance to the proposed development i.e. a view that is within the study area, with the indicated direction of that view being in the broader general direction of the site of the proposed development. In this instance, all three protected views are located more than 7km from the nearest proposed turbine, and these are:

- **V5:** View to the southwest over Inistioge and the Nore Valley on the Inistioge/Graigenamanagh Road (LP4210) overlooking the LS8237 (between its junctions with road numbers LS8238 and the R700). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP28.
- **V6:** View southwest over the Nore Valley on the Thomastown/Inistioge Road, R700 between Inistioge and the junction at Coolnamuck (LS8289). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP26.
- **V20:** Views south over King's river valley on Road no. LS5067 between Kells and the R713 (Waterford Road). In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP3.

*Waterford County Development Plan (CDP) 2011-2017*

As previously set out in Section 13.3.4.3, the only Co. Waterford scenic route that is within the study area is Scenic Route 15. In the subsequent Visual Impact Assessment of this LVIA, this protected view is represented by VP21.

*Wexford County Development Plan (CDP) 2013-2019 (extended)*

As previously set out in Section 13.3.4.4, for Co. Wexford, there are no scenic routes or views/prospects listed within the study area, but there are four designated "Landscapes of Greater Sensitivity." As these are relatively close to one another, and are, therefore, all in the same direction in relation to the site (i.e. southeast of the site), the most likely 'worst case scenario' has been selected as a representational receptor. Owing to its superior height and ease/encouragement of public accessibility, Slieve Coiltia (270m AOD) has been selected for this purpose. In the subsequent Visual Impact Assessment of this LVIA, its panoramic summit view is represented by VP23

*Carlow County Development Plan (CDP) 2015-2021*

As previously set out in Section 13.3.4.5, none of the designated County Carlow views or prospects has the capacity for views of the proposed development. Therefore, there is no rationale or necessity for such County Carlow views or prospects to be represented by the subsequent Visual Impact Assessment of this LVIA.

*South Tipperary County Development Plan (CDP) 2009 (as varied)*

As previously set out in Section 13.3.4.6, while there are 92 County Tipperary listed views, none are within the study area. Similarly, all designated scenic routes within the county are also outside the study area. Therefore, there is no rationale or necessity for such County Tipperary views or scenic routes to be represented by the subsequent Visual Impact Assessment of this LVIA.



### *13.2.4 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 were selected that are likely to provide views of the proposed wind farm from different distances, different angles and different contexts. The visual impact of a proposed development 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;
- 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 VRP's 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 that live and/or work in the locality of the wind farm, usually within a 5km radius of the site. Although the VRP's are generally located on local roads, they also represent similar views that may be available from adjacent houses. The precise location of this VRP type is not as critical. However, clear 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 VRP's, is necessary in order to sample the spectrum of views that would be available from within the local landscape. It should be reiterated that in this instance the open views represented in the local community category are not necessarily typical views from the central study area and have been selected as worst-case scenario views, in terms of visual exposure.

#### *Centres of Population*



VRP's 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 motorways, national and regional level roads, as well as rail lines and even ferry routes. They are relevant VRP locations due to the number of viewers potentially impacted by the proposed development. 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 site of the proposed development, but with a preference towards close and/or elevated views. Major routes typically provide views experienced whilst in motion, which may be fleeting and intermittent depending on screening by intervening vegetation or buildings.

### *Amenity and Heritage Features*

These views are often one and the same, given that heritage locations can be important tourist and visitor destinations, while 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 people and/or 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 even 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” associated with the heritage feature being visited. 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.

Please note, there are 38 selected receptors within the study area, covering a total of 45 viewpoints/VRPs (i.e. for some receptors, there are two or more viewpoints recorded). This is in order to best relate the varying and nuanced degree of likely visibility of the proposed development from within that single receptor (i.e. Mount Juliet, Jerpoint Abbey, Thomastown, Mountain View Golf Course), all of which are within approx. 8km of the nearest proposed turbine.

*Table 13-6: Selected Viewshed Reference Points (VRP's)*

VRP No.	Location	Direction of View
VP1	N10 National Route	SE
VP2	Bennettsbridge	S
VP3	Kilkenny County protected view (V20)	SE
VP4	Mount Juliet (x 3)	SE





VRP No.	Location	Direction of View
VP5	Jerpoint Abbey (x 3)	S
VP6	Thomastown (x 3)	S
VP7	Callan	SE
VP8	Knocktopher Abbey	SE
VP9	Ballyhale	SE
VP10	Residences at Ballytarsna townland	NE/E/SE
VP11	Mountain View Golf Course (x 2)	E/SE
VP12	M9 overpass west of site	NE/E/SE
VP13	Bearna Breac Loop	E
VP14	Knockmoylan townland	NE
VP15	Redacres townland	NE
VP16	R704 south of site	N
VP17	Mullinavat	NE
VP18	M9 overpass south of site	NE
VP19	Tory Hill	N
VP20	Waterford City	N
VP21	Faithlegg townland - Waterford designated scenic route	NW
VP22	N25	NW
VP23	Slieve Coiltia – Wexford Landscape of Greater Sensitivity	NW
VP24	New Ross/N30	NW
VP25	South Leinster Way – Southeast of site	NW
VP26	Kilkenny County protected view (V6)	SW
VP27	South Leinster Way – Northeast of site	SW
VP28	Kilkenny County protected view (V5)	SW
VP29	Inistioge	SW
VP30	Local road near Bawnskeha townland	S
VP31	Graiguenamanagh	SW
VP32	The Rower	W
VP33	St. Mullins	SW
VP34	Foothills of Blackstairs Mountains	SW
VP35	South Leinster Way on Brandon Hill	SW



VRP No.	Location	Direction of View
VP36	Arrigle Valley at Ballyvool townland	W/SW
VP37	Arrigle Valley at Garrandarragh townland	NW/W/SW
VP38	Arrigle Valley at Colnahau townland	NW/W/SW

### 13.5 POTENTIAL IMPACTS

Based on the assessment criteria employed herein, potential significant impacts (i.e. those impacts of significance which may arise prior to consideration of mitigation measures and which, therefore, can be distinguished from residual impacts), 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 in Table 13-1, Table 13-2 and Table 13-4). From previous experience for this type of project in rural settings it is considered that potentially significant landscape and visual impacts have the potential to occur in the following ways.

#### Landscape Impacts:

- Irreversible physical effects on sensitive landscape features.
- Disruption of existing land use patterns and/or ecological networks.
- Incongruous change to areas of sensitive landscape character.

#### Visual Impacts:

- A combination of visual and spatial dominance, as seen from sensitive receptor locations. This is most likely to occur within 2-3km of the proposed wind farm.
- Visual clutter and ambiguity, as seen from highly sensitive receptor locations. This can occur at any distance, but tends to occur beyond 2-3km, where turbines can become stacked in perspective and a more two-dimensional layout is perceived.
- A combination of both of the above effects.

In terms of potential landscape impacts, from baseline studies and early stage assessment specific to the proposed Castlebanny Wind Farm (as previously detailed in Section 13.3.4.2, and see Figure 13-11 above), the site of the proposed development contains three sensitive elements: 'Altitude above 200m', 'Principle Ridgeline' and 'Transitional woodland scrub.' However, it is worth repeating that these individual elements are considered as component parts of the overall landscape character of an area, as none are indisputably sensitive in isolation or in any particular context. Concurrently, mature conifer plantations are in abundance across this hilltop site: a land use not typically associated with sensitive landscapes.

### 13.6 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 main forms of landscape and visual mitigation employed are:

- Consolidation of the turbine layout;
- Staggered linear layout to complement its elongated ridgeline setting;
- The buffering of residential receptors;

### 13.6.1 Turbine Height versus Density Relationship

The relationship between the height and the density or number of turbines required to achieve the best use of the site is a key design consideration. The use of tall turbines as part of a mitigation strategy may seem counter-intuitive, but this is one of the key design attributes of the Castlebanny Wind Farm.

Firstly, it is important to repeat (as previously addressed in Section 13.3.4.1) that, in accordance with both the 2006 Wind Energy Development Guidelines and the Draft Revised Wind Energy Development Guidelines 2019, the site of the proposed development is considered to be located within a landscape that is generally consistent with the ‘Hilly and Flat Farmland’ landscape type. While the ‘height’ of turbines “tend not to be tall” for this landscape type, “*an exception to this would be where they are on a high ridge or hilltop of relatively large scale*”. Accordingly, a tip height of 185m is proposed for the site of the proposed development.





*Figure 13-21: Turbine height versus density relationship (same power output within view i.e. % relates to the proportion of view occupied by turbines, relative to the largest turbine).*

Secondly, there is a balance to be struck between the visual and spatial dominance of turbines and the clutter and frequency of turbines within a view, as both of these effects contribute towards the magnitude of visual impact. On the basis of these factors, and through design stage analysis, it is considered that the slightly increased sense of visual dominance derived from the proposed 185m turbines is preferable to the reduced level of permeability and increased visual clutter associated with a greater number of shorter turbines required to achieve the same output. This is illustrated in *Figure 13-16* above, which compares a similar energy yield across three turbine heights within the same view. Whilst *Figure 13-21* is an illustrative diagram, early design stage analysis was specifically undertaken for the Castlebanny site to examine the landscape and visual effects of different turbine heights. The results supported the use of fewer 185m TH turbines over an increased number of 170m TH turbines due to improved spacing characteristics with no material difference in visual presence or scale conflict within underlying landform and land use patterns (see *Figure 13-22* and *Figure 13-23*).



*Figure 13-22: Early stage height versus density relationship study (33 no. 170m TH and 25 no. 185m TH) for Castlebanny turbines (looking NE from local road at Newchapel) – superseded layout*



*Figure 13-23: Early stage height versus density relationship study (33 no. 170m TH and 25 no. 185m TH) for Castlebanny turbines (looking SE from local road near Mountainview Golf Course) – superseded layout*

It is considered that the elongated, ridge top nature of the site, in tandem with the extensive forest plantations can accommodate tall turbines without undue conflicts of scale. However, even at separation distances of greater than 750m (from the nearest point of the curtilage of any residential property to any of the proposed turbines) tall turbines have a greater potential to dominate the scale of rural dwellings and ancillary structures than shorter turbines. Nonetheless, due to developing technology and greater efficiency, turbines with tip heights comparable to those proposed are becoming more commonplace in recent years, with 169m-high (tip height) turbines now operating at Meenwaun in County Offaly and Oweninny Wind Farm (175m tip height) in County Mayo. In June 2020, An Bord Pleanála approved the proposed Derryadd Wind Farm in Co. Longford, which has 24 turbines, with a tip height of up to 185m, as well as Drumlin Hills Wind Farm (180m tip height) in Co. Monaghan.

### **13.6.2 Consolidation of the Turbine Layout**

Although a relatively large-scale development of 21 turbines, the design consolidates the turbine cluster within a single landscape and visual setting contained wholly within the network of local roads. In doing so, the potential for local residents to be exposed to views of turbines on both sides of local roads (as opposed to dead-end farm or forestry tracks), or from more than one or two aspects of their property/dwelling, is eliminated. The potentially confusing visual scenario of turbines popping up in different aspects of a view, particularly for those moving through the landscape, is also reduced. Overall, this is likely to reduce landscape and visual impacts.

### **13.6.3 Buffering of Residential Receptors**

For the proposed Castlebanny Wind Farm, the minimum setback distance from local residences is **approximately 780m**, which is well in excess of the established 500m minimum setback stipulated in the current 2006 Wind Energy Development Guidelines, and also in excess of the minimum 4 times blade tip height setback requirement (from the nearest point of the curtilage of any residential property to any of the proposed turbines) under the Draft Revised Wind Energy Development Guidelines (2019). By default, this has resulted in the proposed turbines



being placed into a robust receiving landscape of forestry and farmland. This degree of buffering from residential dwellings is of benefit to several aspects of residential amenity, including noise, shadow flicker and visual impact. In relation to visual impact, it is worth noting that, according to the laws of perspective, the doubling of viewing distance equates to a halving of perceived height. Increasing set back distances has exponential benefit in terms of reducing the potential for overbearing within the first few kilometres, as illustrated in Figure 13-24 below.

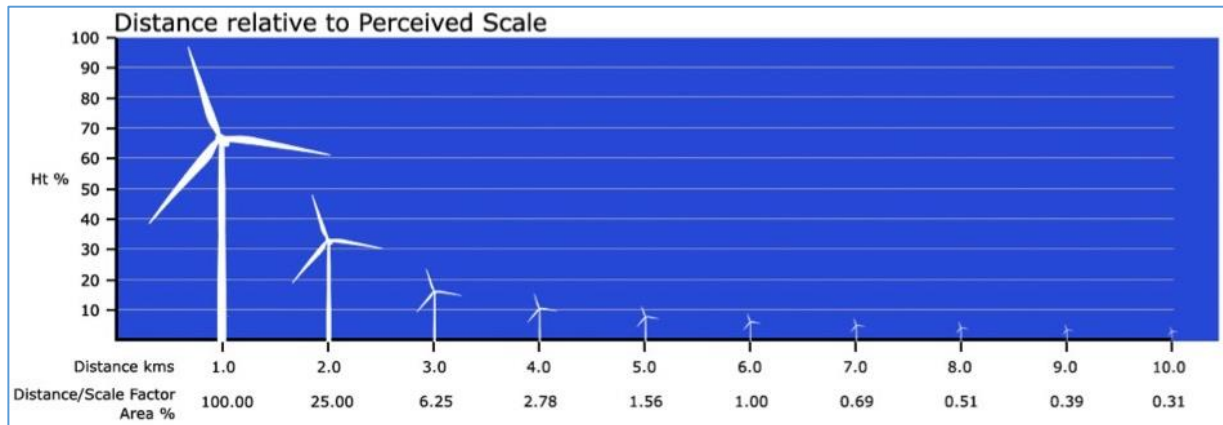


Figure 13-24: Turbine ‘scale in relation to distance’ relationship

## 13.7 RESIDUAL LANDSCAPE EFFECTS

### 13.7.1 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 (<5km), as well as the broader scale of the study area (5-20km). Landscape sensitivity in this project level LVIA context needs to go beyond the generic measures of sensitivity employed in the county Landscape Character Assessment and focus on the attributes of the receiving landscape and proposed development. In terms of sensitivity to this proposed wind farm development, the most sensitive landscapes and landscape features are likely to be those that exhibit enclosed, intricate landform and land use patterns, and/or a strong sense of heritage or past times not strongly influenced by modern development. Areas with a strong sense of the naturalistic, or with low levels of built development, are also likely to be sensitive to this wind farm proposal.

#### *Central Study Area (< c. 5km from nearest turbines)*

The proposed turbines will be placed primarily within commercial forestry (followed by pastoral farmland) within a site that is approx. 7.3km long (north/south) and 2.7km (east/west direction), and is predominantly covered in an active coniferous forestry plantation; factors that feed into the landscape value and character of the central study area. Thus, more than most proposed wind energy sites, the site and its character occupy a substantial portion of the central study area and its land use and landform influence the landscape character, value and sensitivity of the central study area. However, the most influential impact on landscape character within the vicinity of the site (i.e. within 1km) is rolling farmland that occupies the foothills of the Castlebanny range. Between pasture and tillage, this pattern is consistent with the reputation over several centuries of County Kilkenny hosting some of the most productive and innovative land use and management systems in the country.



Overall, the landscape of the central study area is one that is defined by robust and typically intensive land management and tends to relate more to sustaining the rural economy and rural lifestyle than to scenic or naturalistic value. Although across a well-known hill range, it is a plateau-like range that is distinctively low (i.e. all points remaining below 266m AOD) and that has been modified and managed over several centuries of human influence; a landscape that continues to evolve.

Natural watercourses within the central study area tend to be modest in volume and although a valued and age-old element in the landscape, they are not notable. Furthermore, there is a low concentration of built heritage features or demesne landscapes within the central study area and there are very few NPWS designations (i.e. all remain more than 1.5km away, at its closest point, from the nearest proposed turbine location). In addition, within the central study area there are neither designated protected views, nor any highly scenic areas. And while the landscape of the central study area contains some limited aesthetic and naturalistic values, those values are clearly secondary to that of productive and intensive land management. Combined with a rich and long legacy of settlement across this long elongated hill, it engenders a particularly anthropocentric sense of place.

In terms of the landscape designations within the Kilkenny CDP, as raised in Section 13.4, no sensitivity is ascribed to the Landscape Character Areas that occupy the site and the central study area. While the site of the proposed development contains three sensitive elements (i.e. 'Altitude above 200m', 'Principle Ridgeline' and 'Transitional woodland scrub'), it is worth repeating that these individual elements are considered as component parts of the overall landscape character of an area, as none are indisputably sensitive in their own right. Moreover, as part of a project specific landscape character assessment such as this, the aforementioned GLVIA 2013 suggests that existing Landscape Character Assessments be considered as a "first step in establishing the landscape baseline" (p77), but not that they be applied directly in determining landscape sensitivity for the specific site context. As is standard practice for LVIA in Ireland, universal criteria are used by assessors to determine landscape sensitivity of the development site and its surrounding context (refer to Table 13-1).

For these reasons, the sensitivity of the central study area is generally considered to be **Medium-low**.

*Wider Study Area (c. 5km – 20km from nearest turbines)*

As an overview, the land use, terrain, settlement and aesthetics in the wider study area are more diverse than the central study area, while also sharing certain overlaps. Thus, its character, value and sensitivity is likely to be similarly diverse, while also sharing certain overlaps.

For instance, while land in the wider study area is typically lower than the Castlebanny site (e.g. below 200m AOD), it also contains the highest terrain in the area: Brandon Hill, at 515m AOD, in the northeast of the study area. The wider study area also hosts more substantial and better-known watercourses (e.g. the River Suir, Nore and Barrow), and settlements (e.g. Waterford City, New Ross, Callan) than the central study area, while also having marginally more diversity of land use. Nonetheless, similar to the central study area, the landscape of the wider study area is much-modified and ever-evolving. It is a landscape renowned for its progressive, productive and intensive land management. However, it also contains some nationally renowned cultural/historical sites (e.g. Jerpoint Abbey) and amenity landscapes (e.g. Mount Juliet), as well as multiple highly scenic locales along some picturesque river valleys (e.g. Inistioge, Graiuenamanagh, St. Mullins) and some national waymarked trails (e.g. South Leinster Way).



At a broad brushstroke, the sensitivities of these landscape character areas and types vary from the lower order to the higher order.

Overall, balance must be struck between such a vast range of landscapes with an according range of sensitivities. However, on balance of these numerous factors, the wider study area is also considered to be of a **Medium-low** landscape sensitivity, albeit containing some discrete areas of high sensitivity.

### *13.7.2 Magnitude of Landscape Impact*

The proposed turbines, as well as the ancillary development such as access and circulation roads and areas for the substation and hard standing for the turbines, are certain to impact the physical landscape of the proposed development site, as well as its character. However, the only likely landscape impact upon the wider central study (i.e. outside the proposed development site) will be the impact upon landscape character.

#### Impact upon Physical Landscape

It is considered that the proposed development will have a proportionately modest physical impact on the landscape within the proposed development site, because none of the proposed features have an extensive physical ‘footprint’.

The topography and land cover of the proposed development site will remain largely unaltered. Aside from the 21 no. proposed turbines, construction will be limited to an onsite 110kV substation, tracks, areas of hard standing for the turbines, one on-site met mast and 2 no. temporary site construction compounds.

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, of which there will be approx. 11km of upgraded access tracks and approx. 11km of new access tracks, has been designed to try and avoid environmental constraints, and every effort has been made to minimise the length of necessary roadway by upgrading existing forest access roads. Furthermore, the road layout has been designed to follow the natural contours of the land, wherever possible.

As part of the proposed development there will be a requirement to clearfell approx. 82.88 ha of commercial forestry in the areas immediately around the footprint of the wind farm infrastructure, out of a total of more than 1300 ha of commercial forest within the site (i.e. less than 10%). This commercial crop, comprising mostly of Sitka spruce, is scheduled to be felled in the future, regardless of the proposed development. Harvesting will be done by clearfelling, which involves most or all of the trees in an area being cut down. Brash left onsite after clearfelling can be unsightly, particularly if the forest flanks a public walkway/ waymarked trail (i.e. in this instance, the South Leinster Way). However, the majority of the areas to be clearfelled for the proposed development occur within commercially managed forestry and any potential landscape impacts generated by clearfelling will also be applicable in the do-nothing scenario, in the course of normal forest harvesting that would occur at Castlebanny.

Within two years of felling, c.7.88 ha will be replanted in the location of the northern construction compound and 3 No. borrow pits, following reinstatement. These areas will be replanted with the same tree species that were felled, namely Sitka spruce, Lodgepole pine,



Eucalyptus and Birch. For more information, please refer to the forestry report found in Appendix 2-4, as well as the Recreation Development Plan found in Appendix 2-6.

The proposed 110kV Substation has been located in the centre of a commercial forestry block and at an elevation of approximately 200m, below the ridge line. The substation compound will be approx. 150m x 120m. It will be enclosed by an approx. 2.6m high security fence and will contain one control building, one switchgear room, as well as ancillary equipment, including the transformers, switch gear, fault protection, metering and car parking. The approx. 25m x 1800m x 8.69m (to peak of roof) sized substation building will be a single story pitched roof structure with traditional rendered finishes. It is proposed to supply the power from the Castlebanny Wind Farm to the Irish electricity network via loop-in underground cables to the existing overhead 110kV power line in the townland of Ballyvool, Co. Kilkenny (where two steel masts will be constructed to facilitate the connection). In the context of this broad forested site and the proposed wind turbines the 110kV substation and associate infrastructure is a modest ancillary development that will be well screened by surrounding vegetation.

The proposed underground grid connection will run from the proposed onsite substation in an easterly direction towards the boundary of the proposed wind farm site. The first 370m will be located within a proposed new site access road, after this it will move off road across a field and forestry until it crosses the L-7451 local road in the townland of Cappagh. It continues eastwards across fields and forestry, crossing a small stream, the L-8273 local road and then crossing the River Arrigle and along a field until it reaches the L-3418 local road in the townland of Garrandarragh. The route runs in the field alongside this road northwards for approximately 200m, then enters the road corridor to continue northwards for approximately 300m until it turns eastwards, off road again in the townland of Ballyvool across pasture fields. From here it sweeps in an arc to the east where it crosses the L-8276 local road and reaches the existing overhead 110kV line in Ballyvool. In addition, two loop-in masts are proposed for the end of the grid connections. Overall, the proposed grid connection infrastructure will have a notably small physical impact on the landscape of the central study area.

### Impact upon 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 not just a familiar feature of the wider study area, but two such wind farms are located within approx. 6km of the site. In tandem with the aforementioned commercial conifer plantations across the hill range, existing wind turbines contribute in a modest but noticeable way to the prevalent landscape character of this elevated landscape.

The two aforementioned, existing wind farms - one of which is on the southern slopes of same hill range as the site, and within 1km of the site boundary - ensure that the proposed development will not be a new or unfamiliar feature of its wider landscape setting. The effect, therefore, is one of intensification of an established land use type in this landscape and for wind energy development to become gradually more of a characteristic feature of this predominantly rural landscape.

In terms of scale and function, the proposed development is well assimilated within the context of the central study area, which consists of a range of productive rural land uses. Although it represents a higher level of built development than currently exists on the site, it will not detract





significantly from its productive and utilitarian elevated rural character. Site activity will be at its greatest during the construction phase, due to the operation of machinery on site, as well as movement of heavy vehicles to and from site. This phase will have a more significant impact on the character of the site, but it is a temporary impact that will cease as soon as the proposed development is constructed and becomes operational.

It is important to note that in terms of duration, with the exception of the proposed substation and access roads, the proposed development represents a long term, but not permanent, impact on the landscape and it is reversible. The lifespan of the project is 35 years, after which time it is likely to be dismantled and the landscape reinstated to prevailing conditions. However, the proposed substation will remain in-situ after decommissioning. Within 2-3 years of decommissioning, there would be little evidence that a wind farm ever existed on the site.

The decommissioning phase will have similar temporary impacts as the construction phase, with the movement of large turbine components away from the proposed development. There may be a minor loss of roadside and trackside vegetation that has grown during the operation phase of the development, but this will be reinstated upon completion of decommissioning. Areas of hard standing that are of no further use will be reinstated and reseeded to blend with the prevailing land cover in the direct vicinity at that time.

In summary, there will be physical impacts on the land cover of the site as a result of the proposed development, but these will be relatively minor in the context of this much-modified, permanently evolving, rural landscape. While 21 turbines are being proposed for this development, they will be positioned across a site that is up to approx. 7.3km long and 2.7km wide. It is a 'Strategic Infrastructure Development' scale of development, but it is also a strategic scale site with a broad / consistent land form and land cover context seldom found outside of peatland and upland areas. Thus, such scale of development can be comfortably assimilated into this landscape context without undue conflicts of scale with underlying landform and land use patterns.

On balance of the reasons outlined above the magnitude of landscape impact is deemed to be High-medium within the site itself because of the combined physical impacts and distinct increase in the level of built development resulting in marked change to the immediate landscape character. Beyond the site boundary the impact on landscape character is deemed to be Medium in the central study area (< c. 5 km), reducing at increasing distances beyond this threshold as the wind farm becomes a proportionally smaller feature of a wider landscape context. In essence the site itself will be defined by the wind farm, albeit with underlying forestry, whilst the landscape character beyond will principally remain that of an upland rural area of farmland and forestry that also incorporates a substantial scale wind farm.

### Significance of Landscape Impacts

As outlined in Section 13.2.4 above, the significance of landscape impacts is a function of landscape sensitivity weighed against the magnitude of the landscape impact. This is established on the basis of the significance graph (Table 13-3) in conjunction with professional judgement.

For the site itself the significance of landscape impact is deemed to be **Substantial-moderate**, whilst for the remainder of the central study area the significance of landscape impact is judged to be **Moderate**. Landscape Impact significance will reduce to Slight and Imperceptible at increasing distances thereafter.



## 13.8 RESIDUAL VISUAL EFFECTS

### 13.8.1 Summary of visual impacts

Table 13-7 (below) summarises the full textual assessment of visual effects for each View Point (VP) contained in **Appendix 13.1**. Whilst the ‘receptor sensitivity analysis table’ and full textual assessment for each VP is normally contained within the landscape and visual chapter, in this instance, given the considerable number of VPs, 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. 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 Visual Effects at Viewshed Reference Points (VRP's)*

VRP No.	Distance to nearest turbine (km)	No. of turbine nacelles visible	Visual receptor Sensitivity (from Appendix 13-1a)	Visual Impact Magnitude	Significance of Visual effect
VP1	14.7km	16	Medium-low	Low	Slight
VP2	15.1km	0	Medium-low	Negligible	Imperceptible
VP3	10.5km	0	Medium	Negligible	Imperceptible
VP4 (N)	7.6km	0	High-medium	Negligible	Imperceptible
VP4 (C)	7.4km	0-3	High-medium	Low-negligible	Slight
VP4 (S)	7.1km	0	High-medium	Negligible	Imperceptible
VP5 (N)	5.6km	0	High-medium	Negligible	Imperceptible
VP5 (C)	5.5km	0	High-medium	Low-negligible	Slight-imperceptible
VP5 (E)	5.5km	0	High-medium	Negligible	Imperceptible
VP6 (N)	7.1km	0	Medium-low	Medium	Moderate
VP6 (C)	7.4km	3	Medium-low	Low	Slight
VP6 (S)	7.1km	0	Medium-low	Low-negligible	Slight-imperceptible
VP7	18.0km	6	Medium-low	Negligible	Imperceptible
VP8	4.5km	0	Medium	Negligible	Imperceptible
VP9	3.0km	0	Medium-low	Medium	Moderate-Slight
VP10	1.8km	10	Medium-low	High-medium	Moderate
VP11(N)	1.2km	21	Medium-low	High-medium	Moderate



VRP No.	Distance to nearest turbine (km)	No. of turbine nacelles visible	Visual receptor Sensitivity (from Appendix 13-1a)	Visual Impact Magnitude	Significance of Visual effect
VP11(S)	1.5km	1	Medium-low	Medium-low	Slight
VP12	5.5km	21	Low	Medium-low	Slight
VP13	17.4km	0	Medium-low	Negligible	Imperceptible
VP14	3.7km	20	Medium-low	High-medium	Moderate
VP15	4.8km	20	Medium-low	Medium	Moderate-slight
VP16	1.7km	4	Medium-low	Medium-low	Slight
VP17	5.0km	0	Medium-low	Low	Slight
VP18	6.5km	19	Low	Medium-low	Slight
VP19	6.5km	20	Medium	Medium	Moderate-slight
VP20	15.9km	10	Medium-low	Low-negligible	Slight-imperceptible
VP21	18.8km	3	Medium	Negligible	Imperceptible
VP22	9.8km	0	Medium-low	Negligible	Imperceptible
VP23	15.7km	18	High-medium	Low-negligible	Slight
VP24	12.9km	8	Medium-low	Low	Slight
VP25	3.0km	13	Medium	Medium	Moderate
VP26	7.9km	0	High-medium	Low-negligible	Slight-imperceptible
VP27	8.3km	11	Medium	Low	Slight
VP28	6.9km	3	Medium	Low	Slight
VP29	6.5km	0	High-medium	Negligible	Imperceptible
VP30	1.3km	5	Medium-low	High-medium	Moderate
VP31	16.0km	0	High-medium	Negligible	Imperceptible
VP32	11.6km	10	Medium-low	Low	Slight
VP33	14.9km	0	Medium	Negligible	Imperceptible
VP34	17.9km	10	Medium	Low-negligible	Slight-imperceptible
VP35	11.1km	19	High-medium	Low	Slight
VP36	2.4km	15	Medium-low	High-medium	Moderate
VP37	2.0km	9	Medium-low	High-medium	Moderate
VP38	914m	5	Medium-low	High-medium	Moderate





A cursory summary reveals that of the 45 viewpoints covering 38 receptors (i.e. for some receptors, there are two or more viewpoints recorded), which are sourced from a variety of different distances, angles, contexts and receptor types within the study area, over two-thirds experience a visual impact significance of no higher than ‘Slight,’ with almost one-third (i.e. 14 out of 45 VPs) experiencing an ‘Imperceptible’ visual impact significance. Three of the viewpoints experience a ‘Moderate-slight’ visual impact significance and a further nine experience a ‘Moderate’ visual impact significance; the highest visual impact significance recorded for the proposed development.

Often a summary of visual impacts will be categorised simply by receptor type, however in this instance, there is a strong distinction between the various landscape context / visual settings of the study area. Furthermore, the elongated array appears distinctly different from the east and west than it does from the north and south. Thus, it is considered more pertinent to understand the range and nature of visual impacts based on geographical location as follows;

- Local community views in the central study area (<5km including; VP8, VP9, VP10, VP11, VP12, VP14, VP15, VP16, VP17, VP25, VP30, VP36, VP37, VP38)
- Views from the north and south within the wider study area (5-20km including; VP1, VP2, VP3, VP4, VP5, VP6, VP7, VP18, VP19, VP20, VP21, VP22, VP23)
- Views from the east and west within the wider study area (5-20km including; VP13, VP24, VP26, VP27, VP28, VP29, VP31, VP32, VP33, VP34, VP35)

### *13.8.2 Local community views in the central study area*

Within the central study area there are two distinct settings. To the west of the site is a broad valley containing the M9 motorway in its lower reaches as well as the settlements of Knocktopher, Ballyhale and Mullinavat. To the east is the much more contained and lightly populated upland Arrigle valley.

Views of the proposed wind farm from the western side vary considerably in terms of visual exposure depending on localised topography and screening. For example, VP11 North and VP11 South are both adjacent to the Mountain View Golf Course, with the former affording unimpeded views of all turbines and the latter just partial glimpses of around four blade sets. From VP8 at Knocktopher Abbey to the northwest of the site, views of the proposed development are not afforded. Slightly closer in the same direction, at VP9 – Ballyhale, there is a partial view of around 6 of the proposed turbines rising above the brow of the hill. Thus, closer proximity does not result in clearer views of the proposed wind farm - instead, distance and relative elevation play a bigger part in visual exposure from the western side of the central study area. Examples include the views from elevated local roads of the opposing western slopes of the valley (VP14 and VP15) and also from VP12 on a local road overpass of the M9 motorway. In all of these instances a comprehensive view of the proposed turbines is afforded where they will have a broad lateral extent, but highly legible staggered linear layout trailing across the Castlebanny ridgeline. The significance of visual impact ranges between ‘Slight’ and ‘Moderate’ for these three views depending on receptor sensitivity and localised context, but is not considered to be significant in any of these cases. It is also worth noting that although VP12 is from an overpass above the M9, it does not reflect the much more restricted views from the M9 corridor itself, which is in cut through much of this area.

Localised terrain in the vicinity of VP10 sees slopes falling eastward in the direction of the site rather than away from the site as is the case for most receptors on the near western side flanks



of the Castlebanny ridge. Consequently, open views of around half of the proposed turbines are afforded from VP10 and despite the legibility of the array the significance of impact is deemed to be ‘Moderate’.

From within the Arrigle Valley to the east of the site there are a number of views selected at comparatively open sections of the local road network, which also hosts part of the South Leinster Way (VP25, VP36 VP37 and VP38). These all have a broadly similar viewing context, which resulted in a consistent significance of impact – ‘Moderate’. This is based on Medium-low / Medium sensitivity judgements for these contained and pleasant, but largely unexceptional, local views, balanced against High-medium / Medium levels of impact magnitude. Again, the turbines tend to have an orderly and legible layout within these views, but increase the scale and intensity of built development within this quiet rural setting. It is principally within the context of the Arrigle Valley that the highest levels of visual impact occur (Moderate) in respect of the proposed wind farm, but these are not considered to be significant effects.

Views from the north and south within the central study area (VP30 and VP16 respectively) are contained on forested/farmed slopes that fall away from site and afford restricted views of just one end of the array. Both locations allow partial views of around 7 turbines which fall away quickly in terms of scale in relation to distance from the nearest to furthest of the visible turbines. VP30 has the clearer/ closer view of turbines and is attributed a Moderate significance of impact whereas the more distant and restricted view from VP16 results in a Moderate-slight significance.

As has been referenced in Section 13.2.2, Route Screening Analysis (RSA) illustrates a moderate to strong degree of wind farm screening from the road network within the central study area, with ‘Screened Views’ being more common than ‘partial views’ or ‘open views’ from roads in the central study area. Indeed, beyond 1km, intervening vegetation (predominantly hedgerows and treelines) serve to restrict views to an extent that it is more common that the turbines will be fully screened than there will be either ‘Open Views’ or ‘Partial Views’ of them. Notably, all settlements, as well as the major transport route (i.e. the M9), in the central study area are primarily constituted by ‘screened views.’ The RSA also denotes that when an ‘open view’ of the development is afforded, the most common scenario (i.e. 66-82% of the time), pertains to the blade set of less than eight turbines. Indeed, the highest incidence experienced in the central study of ‘Open views’ of 15-21 turbines is only 12%.

### *13.8.3 Views from the north and south within the wider study area*

Views from within the northern aspects of the study area tend to be from the lowland farming context of the agricultural plains where localised screening from nearby hedgerows and treelines precludes clear long distance views of the proposed wind farm (see VP1, VP2, VP3 and VP7). Furthermore, when visible from these locations, the turbines are seen in a distant and tightly consolidated group.

The northern study area also contains several sensitive heritage and amenity receptors – Jerpoint Abbey (VP5) and Mount Juliet Golf Club (VP4) in the order of 5.5 to 7 km away respectively. Due to localised screening from topography and vegetation the view of turbines from both of these locations is highly restricted. Three viewpoints apiece were used to examine the visual impacts at these important receptors and visual impact significance was considered to be no greater than Slight-imperceptible at any of these, with the majority incurring Imperceptible impacts. It is important to note that concern about visual impacts at Jerpoint Abbey are specifically referenced in the Kilkenny Wind Energy Strategy as a rationale for why the upland area at Castlebanny is only an ‘Open for Consideration’ area for wind energy



development and therefore limited to small scale wind farms of 5 turbines or less. The very low degree of visual impact at Jerpoint Abbey from this proposed larger scale development should give comfort that this receptor is not the limiting factor it was anticipated to be.

Another important receptor in the middle distance northerly context is the settlement of Thomastown (VP6). Again, three viewpoints were selected to represent different elevations and contexts within this river town. The most elevated (VP6 North) incurred a visual impact significance of ‘Moderate’ because the condensed view along the proposed turbine array will result in a degree of visual clutter from numerous instances of turbine overlap. The lower views (VP6 Centre and VP6 South) have progressively less impact - Slight and Imperceptible respectively – due to increasing levels of terrain and vegetation screening.

Views from the south tend to be from elevated hilltops scattered from the middle distance to the furthest extents of the study area at Waterford and around the River Nore. When openly visible the turbines appear tightly bunched and cluttered as the length of the array is not apparent. However, any negative aesthetic effects from the condensed layout tend to be diluted at longer distances where the development is read as a distant background feature of broad views. Consequently, it is the nearest of these elevated southern views that is attributed the highest significance of impact – Moderate-slight at VP19 – Tory Hill. All other views in this set received impacts judgements in the range of Slight to Imperceptible.

#### *13.8.4 Views from the east and west within the wider study area*

There is very limited visibility of the proposed development from the outer western parts of the study area due to intervening terrain screening (see *Figure 13-16*). Indeed the only viewpoint selected in this area is VP13 that is deemed to have an Imperceptible impact. Of much greater importance are views from the outer eastern portion of the study area encompassing the scenic Nore and Barrow River valleys and the idyllic riverside settlements of Inistioge, Graiguenamanagh and St Mullins. There are also several scenic routes in this area, which is generally zoned for high scenic amenity in the Kilkenny County Development Plan. ‘Illustrative viewpoints’ from each of the settlements listed above were provided in accordance with the GLVIA (2013), which provides for views that illustrate the absence of effects at key receptors. This is the case for all three settlements due to terrain screening (VP29, VP31 and VP33).

Other views are from elevated locations on the South Leinster Way and scenic routes within the eastern portions of the study area (VP26, VP27, VP28 and VP35). At VP26 only one partial blade set is revealed, while partial views of the array are afforded from VP27 and VP28 rising above intervening ridgelines. Only from VP35 is a full view of the proposed wind farm afforded albeit at a distance of over 11km and with the legible and orderly layout that is typical of easterly and westerly views that reveal the full lateral extent of the development. Consequently, the range of visual impact significance is between Slight and Slight-imperceptible for this set of viewpoints and not considered to be significant.

### 13.9 CUMULATIVE IMPACTS

There are only two existing and no permitted/proposed wind energy developments within the study area. These entail:

**Ballymartin Wind Farm** – 7 no. turbines, approx. 2.6km southeast of the nearest proposed Castlebanny Wind Farm turbine (i.e. T1);





**Rahora Wind Farm** – 5 no. turbines, approx. 5.3km southeast of the nearest proposed Castlebanny Wind Farm turbine (i.e. T2).

### ***13.9.1 Department of Environment, Heritage and Local Government (DoEHLG) ‘Wind Energy Development Guidelines’ (2006)***

The DoEHLG guidelines provide direction on wind farm siting and design criteria for a number of different landscape types. This proposal site is deemed to be contained within a landscape context that is consistent with the ‘Hilly and Flat Farmland’ landscape type and the associated guidance is applicable, with respect to cumulative effect in this landscape type is:

**Hilly and Flat Farmland:** *“It is important that wind energy development is never perceived to visually dominate. However, given that these landscapes comprise hedgerows and often hills, and that views across the landscape will likely be intermittent and partially obscured, visibility of two or more wind energy developments is usually acceptable.”*

General guidance in relation to cumulative effects is provided in Chapter 6 of the Guidelines – ‘Aesthetic Considerations in Siting and Design’. The most relevant aspect of guidance in this instance is contained in the fourth bullet point, which states:

*“It is preferable to avoid locating turbines where they can be seen one behind another, when viewed from highly sensitive key viewpoints (for example, viewing points along walking or scenic routes, or from designated views and prospects), as this results in visual stacking and, thus, confusion. This may not be critical, however, where the wind energy development to the rear is in the distant background.”*

Given the long, linear, ridgetop layout of the proposed development, combined with the two existing wind farms being located to the southeast of the proposed development, the only potential for cumulative views are likely to be either from the southeast or northwest. Consequently, although both existing wind farms are within 6km southeast of the nearest proposed turbine (of the proposed Castlebanny Wind Farm), there will be few opportunities for respective turbines to be seen one behind the other, in perspective. This is also a result of a play on landform within the study area. For example, if viewed from 2km northwest of the proposed wind farm, the combination of the Castlebanny hill range in the foreground is likely to obscure views of the two existing wind farms in the study area. There is also a limited potential of this rolling landscape becoming ‘crowded’ or ‘dominated’ by wind energy developments as a result of the proposed development. For these reasons, it is considered that the siting and design of the proposed development is consistent with the Wind Energy Development Guidelines in respect of cumulative effects.

### ***13.9.2 Cumulative Zone of Theoretical Visibility***

A cumulative Zone of Theoretical Visibility (ZTV) map has been prepared for the wind energy developments contained within the study area and a small-scale version of this is included in Appendix 13-2.



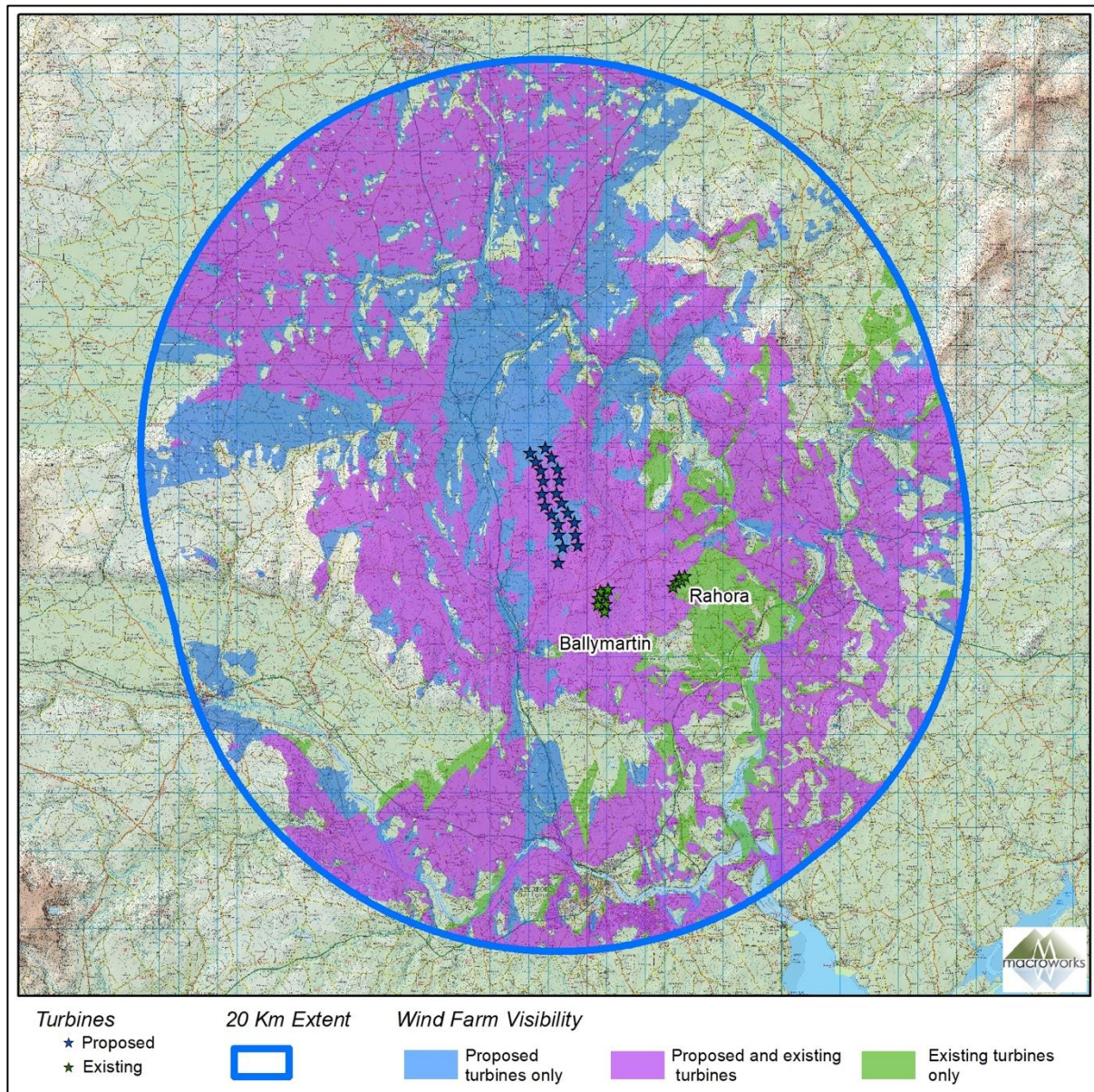


Figure 13-25: ZTV indicating the cumulative theoretical visibility of the proposed Castlebanny Wind Farm in combination with all other wind farms in the study area.

The cumulative ZTV map indicates the following key points:

- There is a moderate proportion (i.e. 43.8%) of theoretical intervisibility between the proposed wind farm and cumulative wind farms in the study area. This will result in the majority of the study area experiencing no cumulative visibility.
- Approx. one third of the study area (i.e. 32.8%) will not have any view of the turbines of the proposed Wind Farm or that of any existing wind farms. This is primarily owing to the valleys of the Barrow and Suir Rivers, in the northeast and southwest, respectively, of the study area.
- Almost one-fifth (i.e. 18%) of the study area will have visibility of the proposed Castlebanny turbines only. These areas are predominantly to the north and west of the proposed wind farm at greater distances to the existing wind farms and availing of intervening upland terrain screening.





- Visibility of the existing turbines only (i.e. at the Ballymartin Wind Farm and the Rahora Wind Farm) is limited to 5.4% of the overall study area and this occurs predominantly within 10km east and southeast of the proposed turbines.
- As the cumulative ZTV map does not account for vegetation screening it vastly overestimates the potential for intervisibility between these developments, particularly at distances of more than 10-12km from the proposed wind farm.

### 13.9.3 Nature of Cumulative Visibility

The nature of cumulative visibility within the study area is analysed in Table 13-8 below, using the same viewpoints that were used for the main visual effect assessment. This information is then used to make an assessment of the cumulative effects arising from the proposal.

Table 13-8: Assessment of Cumulative Visibility

VP Ref.	No. of other wind farms in view	Nearer or further than proposal	Combined view (within a single viewing arc)	Succession view (within a series of viewing arcs from the same location)	Sequential view (view of different developments moving along a linear receptor)
VP1	0	-	-	-	-
VP2	0	-	-	-	-
VP3	0	-	-	-	-
VP4	0	-	-	-	-
VP5	0	-	-	-	-
VP6	0	-	-	-	-
VP7	0	-	-	-	-
VP8	0	-	-	-	-
VP9	0	-	-	-	-
VP10	0	-	-	-	-
VP11	1	Further	Yes	No	Yes
VP12	1	Further	Yes	No	Yes
VP13	0	-	-	-	-
VP14	1	Further	Yes	No	Yes
VP15	1	Further	Yes	No	Yes



VP16	1	Further	Yes	No	Yes
VP17	0	-	-	-	-
VP18	1	Nearer	Yes	No	Yes
VP19	2	1 nearer; 1 further	Yes	No	No
VP20	1	Nearer	Yes	No	Yes
VP21	1	Nearer	Yes	No	Yes
VP22	2	Both nearer	Yes	No	Yes
VP23	2	Both nearer	Yes	No	Yes
VP24	2	Both nearer	Yes	No	Yes
VP25	2	Both similar distance	No	Yes	Yes
VP26	1	Further	Yes	No	Yes
VP27	1	Further	Yes	No	Yes
VP28	0	-	-	-	-
VP29	0	-	-	-	-
VP30	0	-	-	-	-
VP31	0	-	-	-	-
VP32	2	Nearer	Yes	No	Yes
VP33	0	-	-	-	-
VP34	1	Nearer	Yes	No	Yes
VP35	2	Both further	Yes	No	Yes
VP36	1	Further	Yes	No	Yes
VP37	0	-	-	-	-
VP38	0	-	-	-	-





### *13.9.4 Cumulative Impact Assessment*

Using the largely quantitative cumulative analysis outlined above, a summary assessment of the nature of cumulative effects is provided hereunder.

Half (i.e. 19 of 38) of the viewpoints will have no other cumulative wind farms visible within the same viewing context as the proposed Castlebanny Wind Farm. Of the 19 viewpoints where there *will be* other cumulative wind farms visible within the same viewing context, 12 viewpoints are likely to experience visibility of just one of the existing windfarms in the study area, and seven viewpoints are likely to experience visibility of both existing windfarms in the study area. Where such cumulative visibility does exist, in most cases it does so in a ‘combined view’ (i.e. within a single viewing arc) and rarely in a succession view (i.e. within a series of viewing arcs from the same location). This is directly as a result of both existing windfarms being within 6km southeast of the proposed turbines, rather than being potentially scattered at more substantial distances to, and angles from, the proposed turbines. It also has the broad visual effect of consolidating wind energy development into one extended, ostensible hill plateau within the study area, especially when viewed from more than 5km east or southeast of the proposed development, and thereby lowering the potentially more substantial cumulative effects that can be associated with wind energy developments in other contexts.

In nine of the 19 viewpoints that do record some cumulative visibility, the existing/constructed wind farms are seen as background features, in the context of the proposed wind farm at a number of viewpoints to the north, northwest and west of the proposed development. However, where viewpoints are recorded outside the central study area, from the broader southeast direction of the proposed development (i.e. VPs 21, 22, 23 and 24), the existing/constructed windfarms in the study area will be nearer to the viewpoint than the proposed development. However, this does not infer the existing/constructed windfarms will all be visible from these locations, as in some views from the broader southeast direction, the existing/constructed windfarms will not be visible.

Section 6.5 of the Wind Energy Development Guidelines 2006 highlight the potential aesthetic issue of turbines from different schemes becoming stacked in perspective, when viewed from “highly sensitive key viewpoints.” However, this only occurs in the one instance (i.e. VP23 from the summit of Slieve Coiltia in Co. Wexford: over 10km from both the existing/constructed turbines and the proposed development), and the Guidelines also add that, “This may not be critical, however, where the wind energy development to the rear is in the distant background.” In addition, atmospheric perspective (fading of distant objects) also serves to differentiate between the turbines of each development, reducing the likelihood of confusing or cluttered cumulative views of the two/three schemes.

It is considered that the number of cumulative schemes within the study area is low (i.e. two), with the existing/constructed wind farms containing a relatively low number of turbines (i.e. 12 turbines between the two aforementioned existing/constructed wind farms). However, the proposed development represents a distinct increase in the total number of turbines in the study area, as well as a marginally wider dissemination of those turbines within this landscape. However, it is an area where wind energy development is becoming a more characteristic and complementary feature of the productive, progressive rural landscape, but without becoming a dominant land use. In addition, there is no potential for cumulative impacts to be experienced from either Jerpoint Abbey or Knocktopher Abbey.

Lastly, as referenced in Section 13.7.2, it is estimated that a total of 75 ha of commercial forestry will be required to be replanted under the proposed forestry Harvest Management Plan. Of this,



7.88 ha will be replanted in the same location on site, once construction works are completed. However, an additional 75 ha will be replanted on off-site replacement lands, at a location outside the study area (refer to Appendices 2-5). Owing to these replacement lands being outside the study area, there will be no potential for cumulative impacts to arise from the proposed forestry Harvest Management Plan.

For the reasons outlined above, the magnitude of cumulative effects in respect of other wind farms is deemed to be **Low**. Thus, significant cumulative impacts are not considered to occur.

### 13.10 CONCLUSION

This Landscape and Visual Impact Assessment has separately considered landscape effects, visual effects and cumulative effects in the context of relevant planning policy and a comprehensive baseline study of the 20km radius study area. The assessment is also based on the most relevant, best practice guidance documents for landscape and visual impact assessment of onshore wind farms in Ireland. Based on the findings of this assessment, the proposed Castlebanny wind farm will result in noticeable landscape and visual change, particularly within its immediate context. However, even these localised effects are not considered to be significant and will reduce rapidly with increased viewing distances and broader landscape context.

Overall, it is considered that the proposed wind farm will not give rise to any significant landscape or visual impacts.