



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED BARNADIVANE WIND FARM & SUBSTATION, CO. CORK

VOLUME 2 – MAIN EIAR CHAPTER 8 - LANDSCAPE AND VISUAL ASSESSEMENT

Prepared for: Barna Wind Energy (B.W.E.) Ltd. & Arran Windfarm Ltd.

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Core House, Pouladuff Road, Cork, T 12 D773, Ireland

T: +353 21 4964 133 | E: tenders@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie

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8. LANDSCAPE AND VISUAL IMPACT ASSESSMENT (LVIA)

8.1 Introduction

This chapter describes the landscape context of the Proposed Development and assesses the likely landscape and visual impacts of the Proposed Development on the receiving environment. Although closely linked, landscape and visual impacts are assessed separately.

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

Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from; Visual Obstruction (blocking of a view, be it full, partial or intermittent) or; Visual Intrusion (interruption of a view without blocking).

Cumulative Landscape and Visual Impact Assessment is concerned with additional changes to the landscape or visual amenity caused by the Proposed Development in conjunction with other developments (associated or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.

This LVIA uses methodology as prescribed in the following guidance documents:

- Environmental Protection Agency (EPA) publication ‘*Guidelines on the Information to be contained in Environmental Impact Assessment Reports*’ (2022) and the accompanying “*Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*” (Draft 2015).
- Landscape Institute and the Institute of Environmental Management and Assessment publication entitled *Guidelines for Landscape and Visual Impact Assessment – Third Addition* (2013).
- Scottish Natural Heritage (SNH) Guidance Note: *Cumulative Effect of Wind Farms* (2012).
- Department of the Environment, Heritage and Local Government *Wind Energy Development Guidelines* (2006).
- Scottish Natural Heritage (SNH) *Visual representation of wind farms: Best Practice Guidelines* (version 2.2 - 2017).

8.1.1 Statement of Authority

This LVIA report was prepared by Richard Barker (MLA MILI) and Cian Doughan (BSLA MILI) of Macro Works Ltd. Macro Works Ltd, is a specialist LVIA company with over 20 years of experience in the appraisal of effects from a variety of energy, infrastructure and commercial developments. Relevant experience includes LVIA work on over 140 on-shore wind farm proposals throughout Ireland, including six Strategic Infrastructure Development (SID) wind farms. Macro Works and its senior staff members are affiliated with the Irish landscape Institute.



8.1.2 Description of the Proposed Project

The Proposed Project assessed in this EIA is comprised of the following key elements:

- The wind farm site (also referred to in this EIA as ‘the Proposed Windfarm’);
- The substation (within the site of the Proposed Windfarm) (also referred to in this EIA as ‘the Proposed Substation’);
- The turbine delivery route (also referred to in this EIA as ‘the TDR’); and
- The alternative grid connection route (also referred to in this EIA as ‘the AGCR’);

A detailed description of the Proposed Project assessed in the EIA is contained in Chapter 2.

8.1.3 Definition of the Study Area

The Wind Energy Development Guidelines (current 2006) published by the Department of the Environment, Heritage and Local Government specify different radii for examining the zone of theoretical visibility (ZTV) of proposed wind farm projects. The extent of this search area is influenced by turbine height, as follows:

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

In the case of the Proposed Project, the blade tips are 131m high and, thus, the minimum ZTV radius recommended is 20 km from the outermost turbines of the scheme. Notwithstanding the full 20km extent of the LVIA study area, there will be a particular focus on receptors and effects within the central study area where there is higher potential for significant impacts to occur. When referenced within this assessment, the Central Study Area is the landscape within 5km of the Proposed Development site. As there are no landscape or visual receptors of national and international importance within 25km of the Proposed Development site, the Wider Study Area will remain at 20km as per the Wind Energy Development Guidelines.

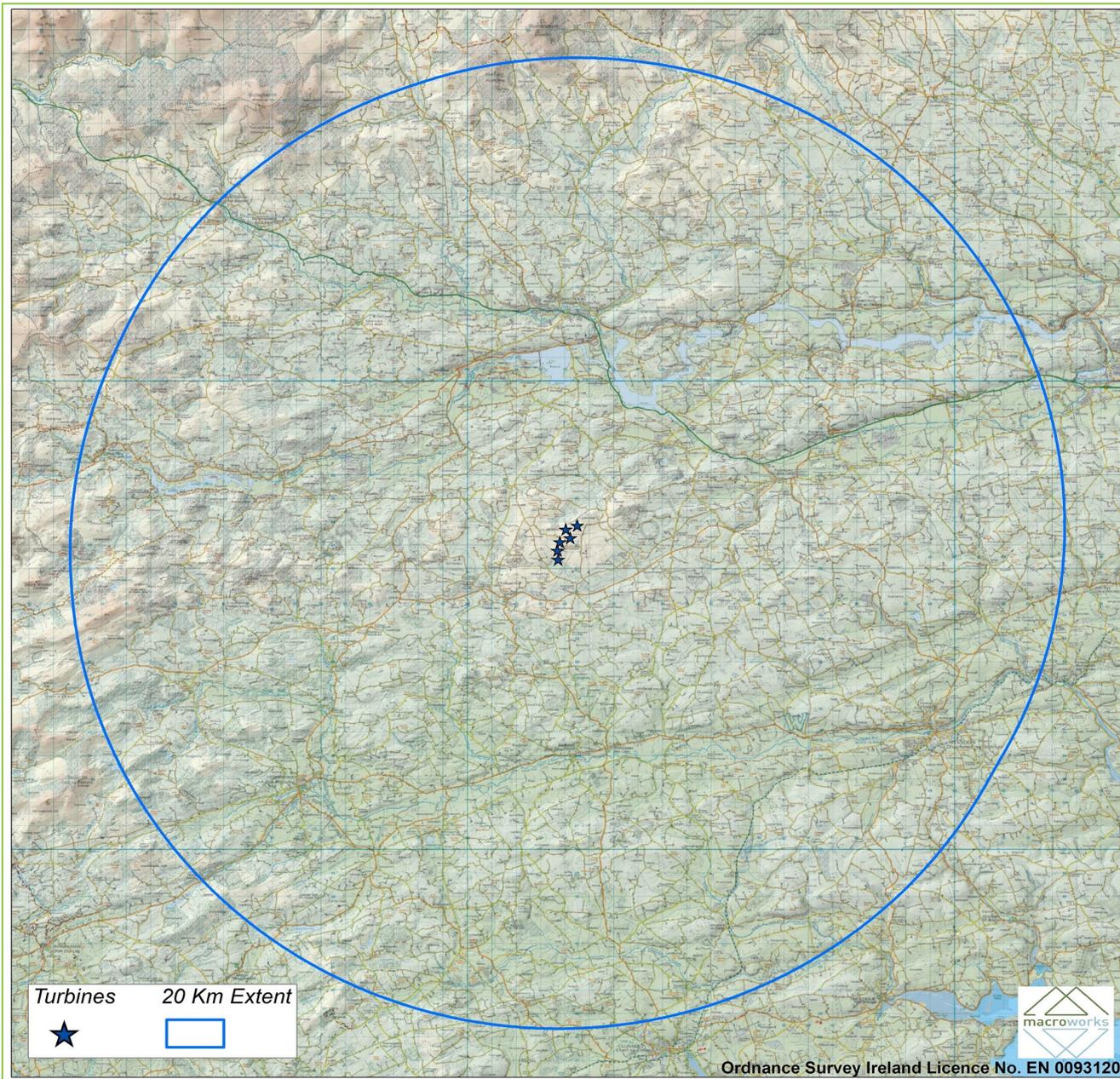


Figure 8-1: Full extent of the 20km study area.

8.2 Methodology

Production of this LVIA involved baseline work in the form of desktop studies and fieldwork comprising professional evaluation by qualified and experienced Landscape Architects as detailed in the preceding Statement of Authority. This entailed the following:



8.2.1 Desktop Survey

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

8.2.2 Fieldwork

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

8.2.3 Appraisal

- Consideration of the receiving landscape with regard to overall landscape character as well as the salient features of the Wider Study Area including landform, drainage, vegetation, land use and landscape designations.
- Consideration of the visual environment including receptor locations such as centres of population and houses; transport routes; public amenities, facilities and heritage features and; designated and recognised views of scenic value.
- Consideration of design guidance and planning policies.
- Consideration of potentially significant effects and the mitigation measures that could be employed to reduce such effects.
- Assessment of the significance of residual landscape impacts.
- Assessment of the significance of residual visual impacts aided by photomontages prepared at all of the selected VRP locations.
- Assessment of cumulative landscape and visual effects in combination with other surrounding developments that are either existing, permitted or proposed.



8.2.4 Assessment Criteria for Landscape Impacts

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

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

The sensitivity of the landscape to change is the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Landscape Value and Sensitivity is classified using the following criteria outlined in Table 8-1 below;

Table 8-1: 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 impact 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 impact resulting from the loss of landscape components and/or a change that extends beyond the proposal site boundary that may have an effect on the landscape character of the area. Table 8-2 refers.

Table 8-2: Magnitude of Landscape Impacts

Magnitude of Impact	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 impact is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. The significance of landscape impacts is arrived at using the following matrix set out in Table 8-3.



Table 8-3: Landscape Impact Significance Matrix

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

* Note: Judgements deemed 'substantial' and above are considered to be 'significant impacts' in EIA terms.

8.2.5 Assessment Criteria for Visual Impacts

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

8.2.5.1 Visual Sensitivity

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

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

8.2.5.1.1 Susceptibility of receptor group to changes in view

This is one of the most important criteria to consider in determining overall visual sensitivity because it is the single category dealing with viewer susceptibility.



In accordance with the IEMA Guidelines for Landscape and Visual Assessment (3rd edition 2013) 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 focused 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 focused on their work or activity, not their surroundings and where the setting is not important to the quality of working life.*

8.2.5.1.2 Values associated with the View

- **Recognised scenic value of the view** (County Development Plan designations, guidebooks, touring maps, postcards etc). These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, at least, a public consultation process is required;
- **Views from within highly sensitive landscape areas.** Again, highly sensitive landscape designations are usually part of a county's Landscape Character Assessment, which is then incorporated with the County Development Plan and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them;
- **Intensity of use, popularity.** Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale;
- **Connection with the landscape.** This considers whether or not receptors are likely to be highly attuned to views of the landscape i.e. commuters hurriedly driving on busy national route versus hill walkers directly engaged with the landscape enjoying changing sequential views over it;
- **Provision of elevated panoramic views.** This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.
- **Sense of remoteness and/or tranquillity.** Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example;
- **Degree of perceived naturalness.** Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by obvious human interventions;



- **Presence of striking or noteworthy features.** A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle;
- **Historical, cultural or spiritual value.** Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings;
- **Rarity or uniqueness of the view.** This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context;
- **Integrity of the landscape character in view.** This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components;
- **Sense of place.** This criterion considers whether there is special sense of wholeness and harmony at the viewing location; and
- **Sense of awe.** This criterion considers whether the view inspires an overwhelming sense of scale or the power of nature.

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

8.2.5.2 Visual Impact 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 occur where turbines are viewed as part of / beyond a busy street scene. The backdrop against which the project is presented and its relationship with other focal points or prominent features within the view is also considered. Visual presence is essentially a measure of the relative visual dominance of the proposal within the available vista and is expressed as such i.e. minimal, sub-dominant, co-dominant, dominant, highly dominant.

For wind energy developments, a strong visual presence is not necessarily synonymous with adverse impact. Instead, the 2012 Fáilte Ireland survey entitled 'Visitor Attitudes On The Environment – Wind Farms' found that *"Compared with other types of development in the Irish landscape, wind farms elicited a positive response when compared to telecommunication masts and steel electricity pylons"....* and that *"most (tourists) felt that their presence did not detract from the quality of their sightseeing, with the largest proportion (45%) saying that the presence of the wind farm had a positive impact on their enjoyment of sightseeing..."*. The purpose here is not to suggest that turbines are either inherently liked or disliked, but rather to highlight that the assessment of visual impact magnitude for wind turbines is more complex than just the degree to which turbines occupy a view. Furthermore, a clear and comprehensive view of a wind farm might be preferable in many instances to a partial, cluttered view of turbine components that are not so noticeable within a view.



On the basis of these reasons, the visual amenity aspect of assessing impact magnitude is qualitative and considers such factors as the spatial arrangement of turbines both within the scheme and in relation to surrounding terrain and land cover. It also examines whether the project contributes positively to the existing qualities of the vista or results in distracting visual effects and disharmony.

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

Table 8-4: Magnitude of Visual Impact

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 clutter 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 clutter 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 clutter 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

8.2.6 Visual Impact Significance

As stated above, the significance of visual impacts is a function of visual receptor sensitivity and visual impact magnitude. This relationship is expressed in the same significance matrix included for Landscape Impact Significance at Table 8-3 above.



8.2.7 Quality and Timescale in Effects

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

- Landscape and Visual effects are also categorised according to their duration:
- Temporary – Lasting for one year or less;
- Short Term – Lasting one to seven years;
- Medium Term – Lasting seven to fifteen years;
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years.

8.3 Existing Environment

8.3.1 Landscape Baseline

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

A description of the landscape context of the Proposed Development and Wider Study Area is provided below under the headings of landform and drainage and vegetation and land use. Centres of population, transport routes and tourism, recreation and heritage features form part of the visual baseline and are dealt with in section 8.4 below.



The Bandon River flows through the Wider Study Area in a similar direction but in the southern half of the Wider Study Area and is located some c.8km south of the site at its nearest point. The landform of the Wider Study Area is relatively consistent throughout, comprising rolling hills and ridges intersected by river valleys. Nonetheless, the land begins to rise swiftly in the northern and western periphery of the Wider Study Area towards the Boggeragh Mountain foothills and towards more elevated uplands further west of the Wider Study Area.

8.3.1.2 Vegetation and Land Use

The principal land use within the Central and Wider Study Area is agricultural farmland bound by a network of mixed hedgerow vegetation. The site is contained in a mix of agricultural farmland and low scrubby vegetation. Small blocks of conifer forest are located immediately west and north of the site, whilst more extensive areas of commercial conifer forestry are evident throughout the Central and Wider Study Area, especially in the wider western half of the Wider Study Area where the terrain rises towards more distant uplands. The elevated transitional lands in the wider western and northern extents of the Wider Study Area also encompass broad areas of mountain moorland. Some notable linear swathes of riparian vegetation also cloak the meandering river valleys throughout the Wider Study Area. The River Lee valley comprises some notable areas of riparian vegetation, especially in the surroundings of the Gearagh Nature Reserve in the northern half of the Wider Study Area. The settlements of Macroom, Bandon and Dunmanway, whilst other anthropogenic landscape features include the linear transport corridors of the N22 and N71, are situated in the northern and southern half of the Wider Study Area, respectively. Several active quarries are also located throughout the Wider Study Area, whilst several industrial and commercial land uses are also located on the outskirts of the larger settlements throughout the Wider Study Area. Existing wind farm developments are also notable land uses within the Central and Wider Study Area. The nearest existing wind farm development is located immediately east of the site in an almost identical landscape context.

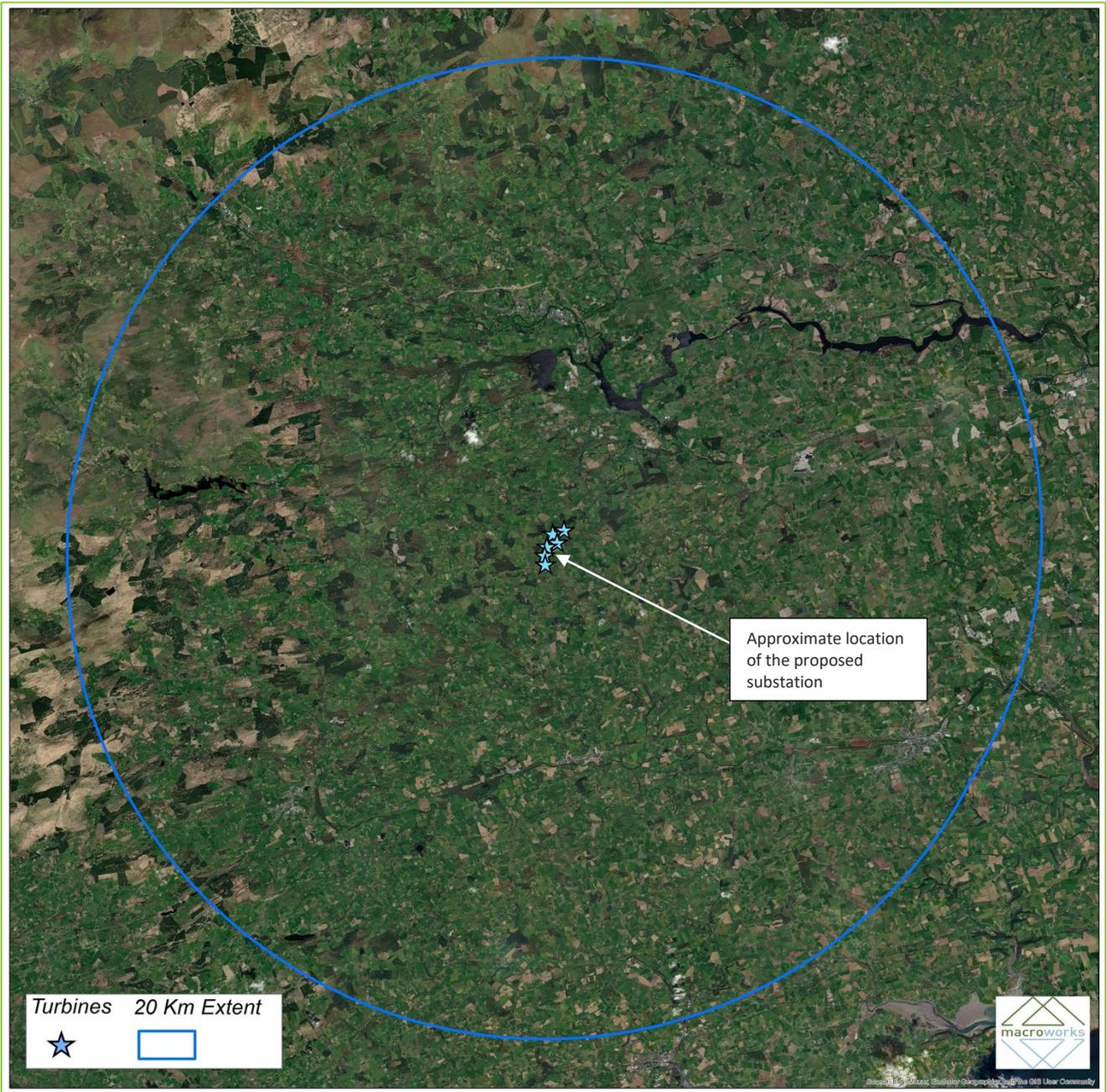


Figure 8-3: Aerial photograph showing the landscape context of the wider Study Area

8.3.2 Landscape Policy Context and Designations

8.3.2.1 *Department of Environment, Heritage and Local Government Wind Energy Development Guidelines 2006*

The 2006 Wind Energy Development Guidelines provide guidance on wind farm siting and design criteria for a number of different landscapes types (this section remains unchanged in the draft 2019 guidelines). The Central Study Area is considered to be located within a landscape that is consistent with the ‘Hilly and Flat Farmland’ landscape type . In general, the Proposed Development is relatively consistent with the guidance notes for the ‘Hilly and Flat Farmland’ landscape type.



A key consideration in this instance was the spatial extent guidance for this relatively modest scale development, which states *“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.”* Overall, it is considered that the Proposed Development is generally consistent with the guidance notes for the ‘Hilly and Flat Farmland’ landscape type.

8.3.2.2 Cork County Development Plan 2022 – 2028

The Cork County Development Plan 2022-2028 includes Chapter 14 ‘Green Infrastructure and Recreation’, within which sub-section 14.7 relates to landscape. A number of general objectives relating to landscape are noted within this chapter and are included below:

GI 14-9: Landscape

- a) *“Protect the visual and scenic amenities of County Cork’s built and natural environment.*
- b) *Landscape issues will be an important factor in all land-use proposals, ensuring that a pro-active view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability.*
- c) *Ensure that new developments meets high standards of siting and design.*
- d) *Protect skylines and ridgelines from development.*
- e) *Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.”*

GI 14-10: Draft Landscape Strategy

“Ensure that the management of development throughout the County will have regard for the value of the landscape, its character, distinctiveness and sensitivity as recognised in the Cork County Draft Landscape Strategy and its recommendations, in order to minimize the visual and environmental impact of development, particularly in areas designated as High Value Landscapes where higher development standards (layout, design, landscaping, materials used) will be required.”

A Landscape Character Assessment was undertaken as part of the Draft Cork Landscape Strategy (2007). This has been incorporated within the Cork County Development Plan (2022-2028) and divides the county into 16 No. Landscape Character Types (LCTs). The Proposed Development is situated entirely within the Landscape Character Type ‘10a – Fissured Fertile Middleground’ which is classed as having ‘local importance’, ‘low value’ and ‘low sensitivity’ (refer to Figure 8-5 below).

Within the Cork Landscape Strategy (2007), LCT 10a – ‘Fissured Fertile Middleground’ is described as comprising of *“an area rising above adjacent plains with moderate to low relief of elongated interlocking hills forming sinuous rivers. It is an elevated landscape, which is sequentially fissured by these rivers and their valleys elevated landscape, which is sequentially fissured by these rivers and their valleys... It is a reasonably fertile farming landscape comprising a mosaic of medium sized fields but also includes the occasional small marginal field.*



Hedgerows are typically broadleaf but this can include or be replaced by gorse higher up with punctuation given here and there by conifer shelterbelts. Similarly, in some instances where the rivers are deeply incised their steep valley sides are covered in dense broadleaf vegetation at lower elevations and gorse above.”

Other LCTs that occur within the central study area include ‘LCT 6a – Broad Fertile Lowland Valleys’, ‘LCT 8 – Hilly River and Reservoir Valleys’, ‘LCT13a – Valleyed Marginal Middleground’ and ‘LCT 15a – Ridged and Peaked Upland’. All of these landscapes are classified with a ‘high’ value and ‘high’ sensitivity, and with varying levels of landscape importance ranging between ‘local’ and ‘national’.

LCTs within the Wider Study Area include, ‘LCT 7a – Rolling Patchwork Farmland’, ‘LCT 10b – Fissured Fertile Middleground’, ‘LCT 12a and 12b - Rolling Marginal and Forested Middleground’, ‘LCT15b – Ridged and Peaked Upland’ and ‘LCT 16b - Glaciated Cradle Valleys’

The value of the landscape in county Cork “is defined as the environmental or cultural benefits, including services and functions, which are derived from various landscape attributes. Value is evaluated using criteria ranging from Very High to Low”. It should be noted that the Proposed Development is not situated in an area recognised as ‘high value landscape’ (HVL), however and the nearest HVL designation relates to ‘LCT 8 – Hilly River and Reservoir Valleys’, which is located just over c. 1.8km northeast of the site at its nearest point (Figure 8-7 refers).

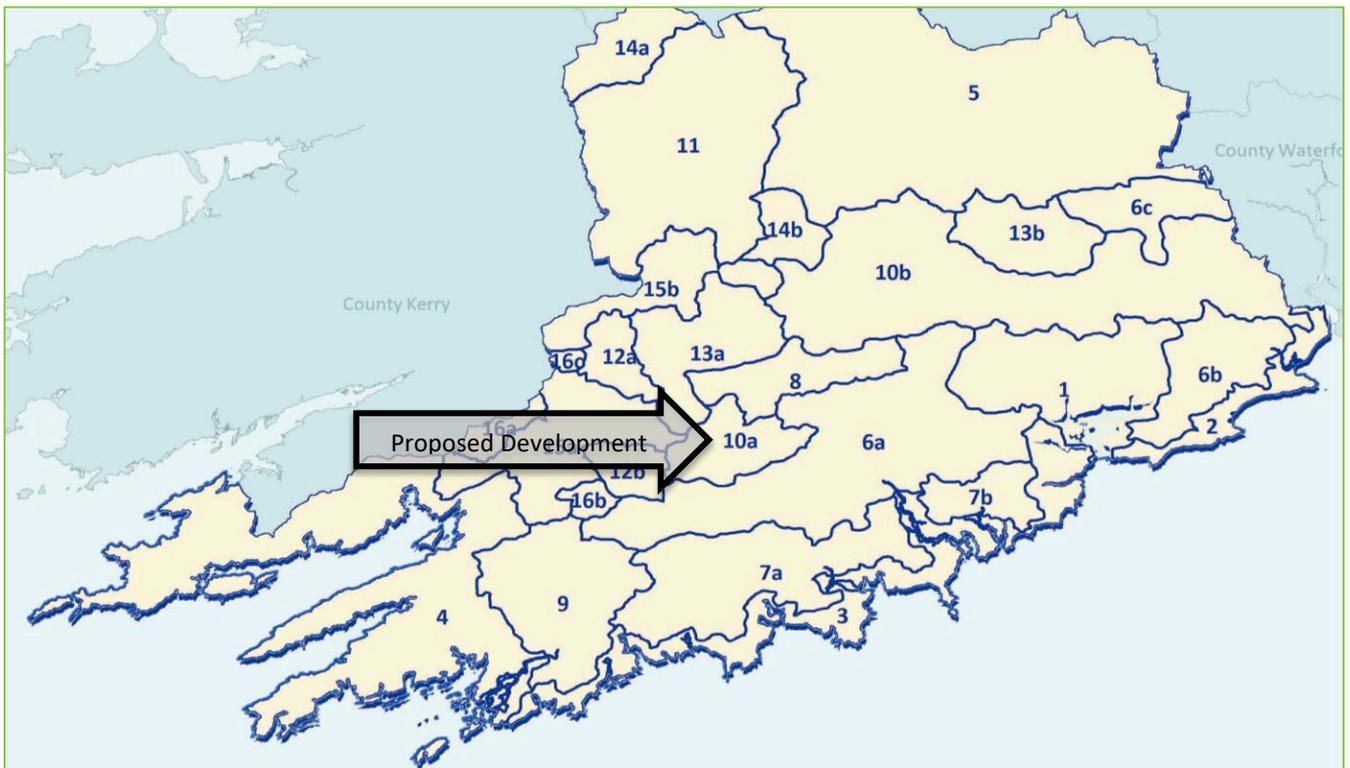


Figure 8-4: Excerpt from Cork County Development Plan (2022-2028). Appendix F, Map 2 showing approximate location of proposed development in relation to Landscape Character Types. Site located within LCT10a.

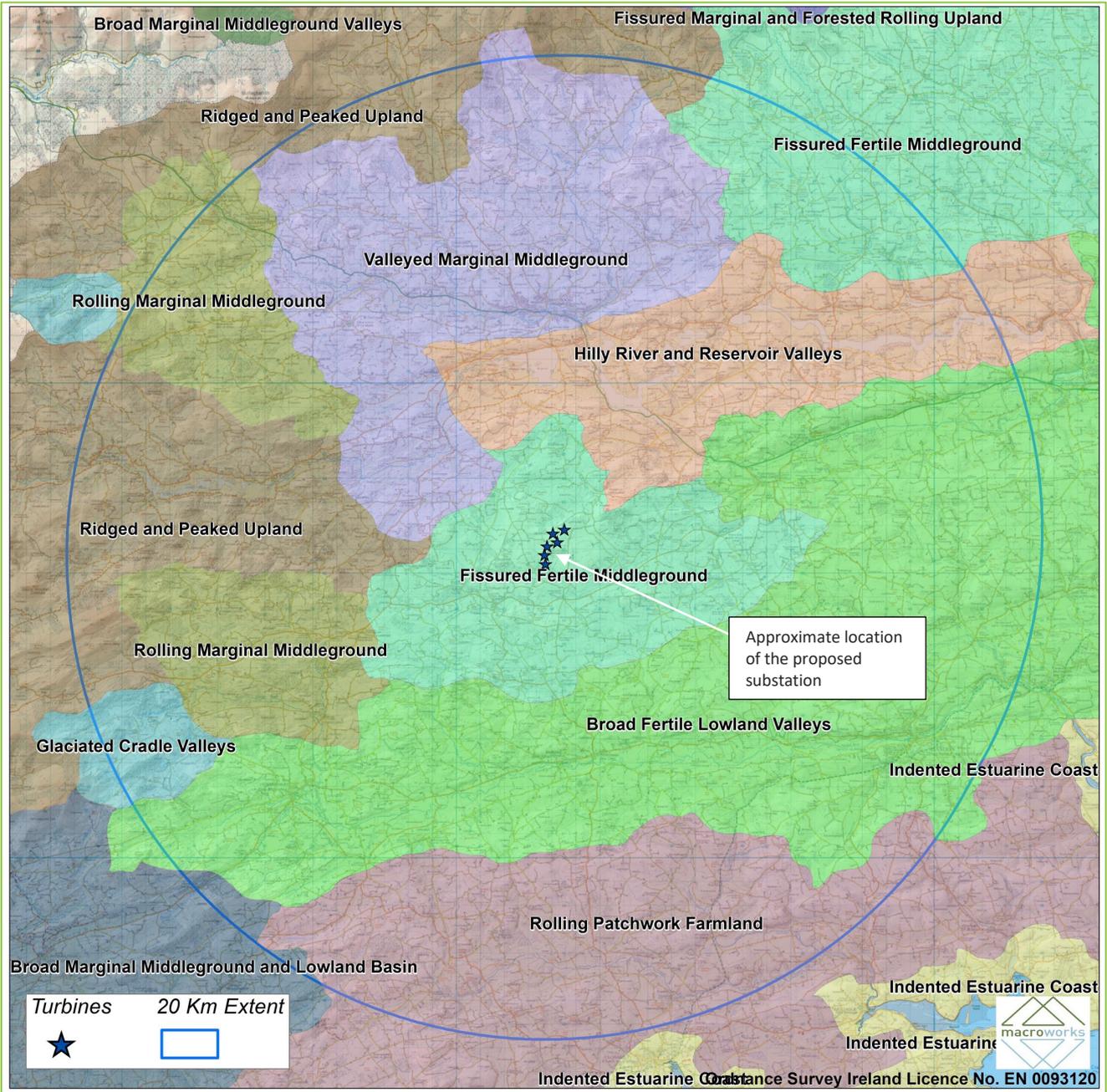


Figure 8-5: Excerpt from Cork County Development Plan (2022-2028) map browser, showing transition landscape character types in relation to the location of the proposed development.

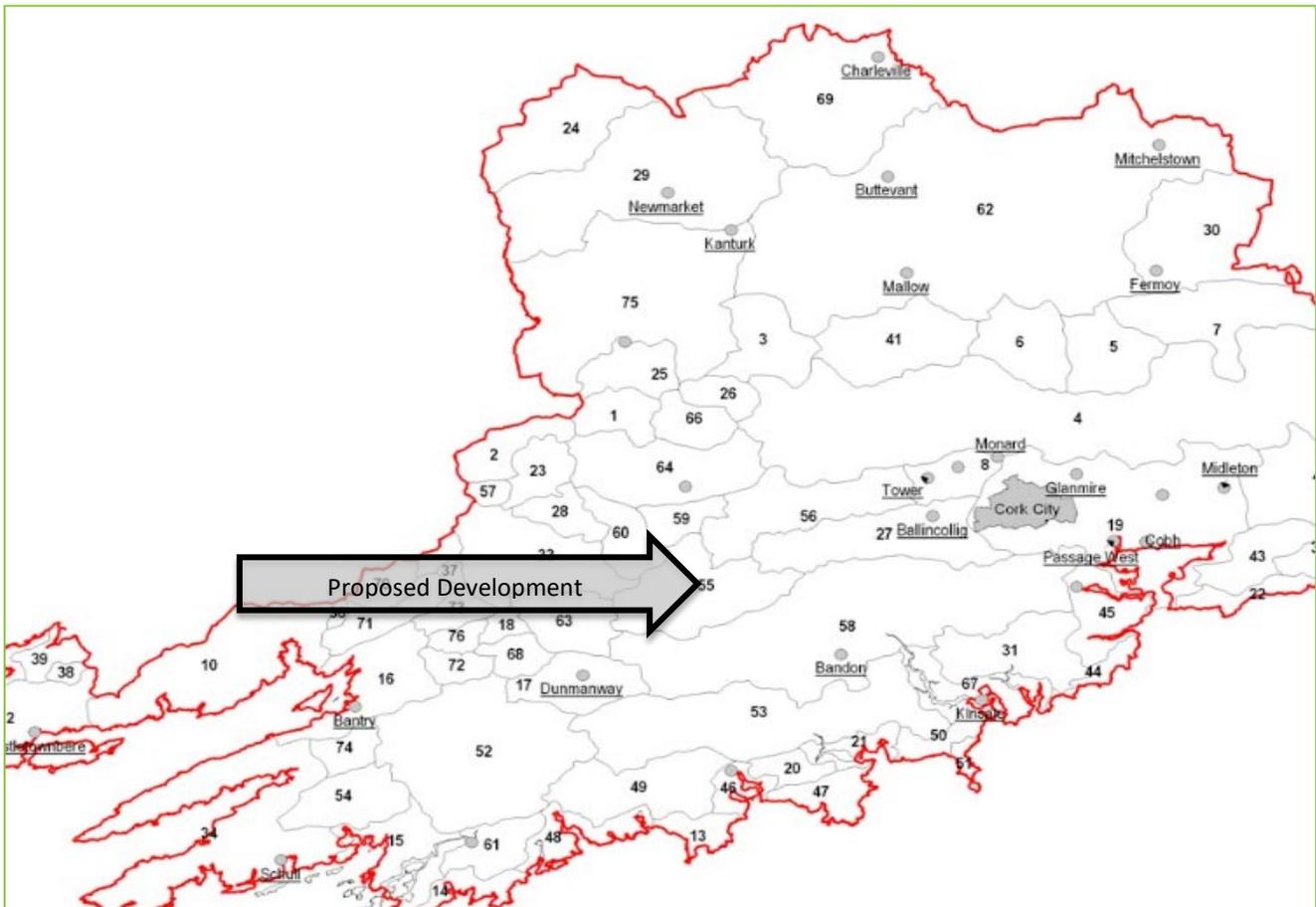


Figure 8-6: Excerpt from County Cork Draft Landscape Strategy 2007. Map 1 showing approximate location of proposed site in relation to Landscape Character Areas. Site located within LCA55.

A number of general recommendations are outlined in the Draft Cork County Landscape Strategy regarding LCT10a, some of which relate to the Proposed Development:

LCT 10a – Fissured Fertile Middleground

- *“Respect the remote character and existing low-density development in this LCT.*
- *Maintain the visual integrity of the area, which has retained a dominantly undisturbed upland character.*
- *Ensure that the approach roads to villages are protected from inappropriate development which would detract from the setting of these settlements.*
- *The majority of this landscape is farmed relatively intensively therefore the promotion of agriculture as the major land use in this LCT will help maintain the existing features of the landscape while also supporting the local economy and rural diversification.*
- *Hedgerows, where possible, should be retained in order to reflect field patterns.*
- *Discourage developments that entail the removal of attractive roadside hedgerows and trees. Where the removal of part of the roadside boundary is necessary the new boundary should reflect the old boundary.*
- *Encourage appropriate landscaping and screen planting of proposed developments by using predominately indigenous/local species and groupings.”*

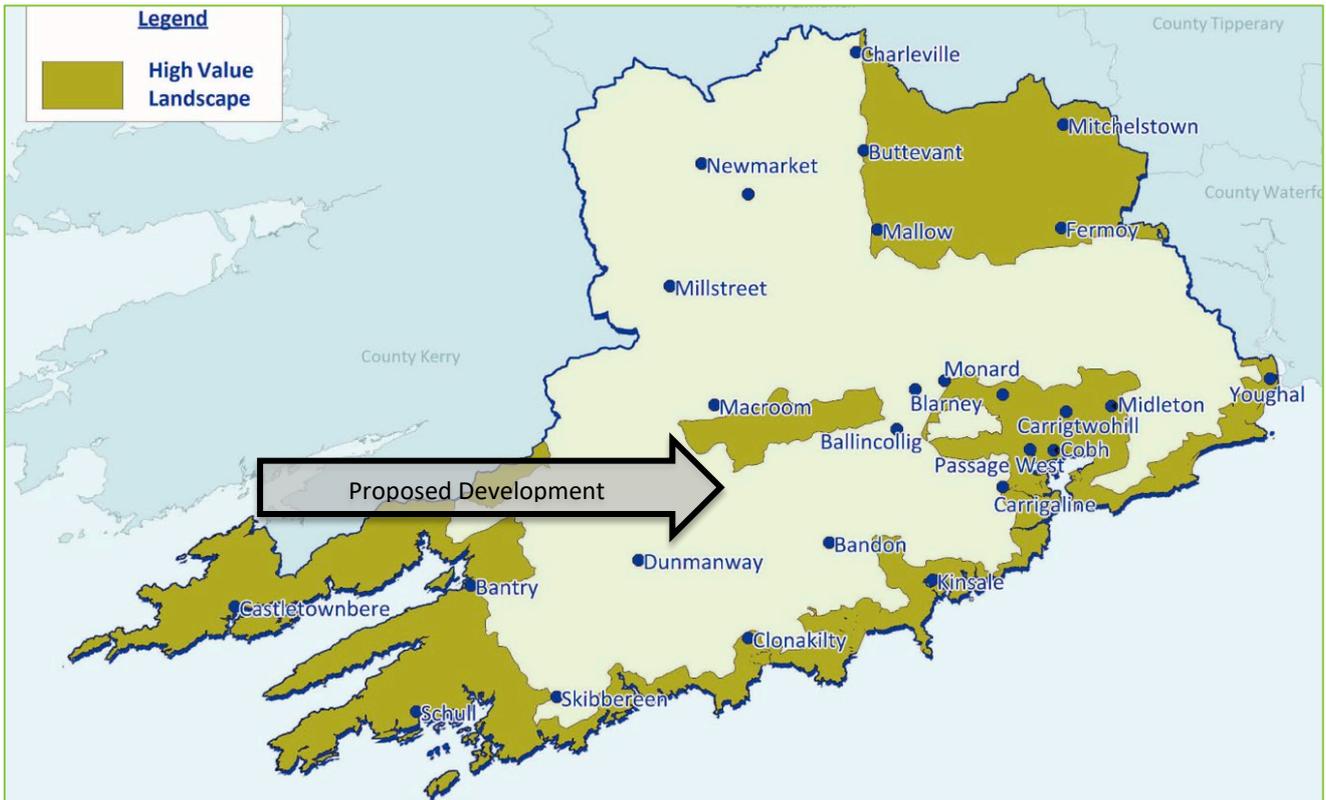


Figure 8-7: Excerpt from Cork County Development Plan (2022). Chapter 14, Figure 14.2 showing approximate location of proposed development in relation to high value landscapes.

8.3.2.3 Cork County Development Plan 2022-2028 – Wind Energy Policy

Section 13.6 of the Cork County Development Plan 2022-2028 covers onshore wind energy within County Cork. A number of objectives relating to the Proposed Development are outlined therein:

County Development Plan Objective ET 13-4: Wind Energy - In order to facilitate increased levels of renewable energy production consistent with national targets on renewable energy and climate change mitigation as set out in the National Energy and Climate Plan 2021-2030, the Climate Action Plan 2021, and any updates to these targets, and in accordance with Ministerial Guidelines on Wind Energy Development, the Council will support further development of on-shore wind energy projects including the upgrading, repowering or expansion of existing infrastructure, at appropriate locations within the county in line with the Wind Energy Strategy and objectives detailed in this chapter and other objectives of this plan in relation to climate change, biodiversity, landscape, heritage, water management and environment etc.

County Development Plan Objective ET 13-5: Wind Energy Projects (b) - On-shore wind energy projects should focus on areas considered ‘Acceptable in Principle’ and ‘Areas Open to Consideration’ and generally avoid “Normally Discouraged” areas as well as sites and locations of ecological sensitivity.

Figure 13.2 of the Cork County Development Plan 2022-2028 shows a map with policy considerations for wind energy projects (Figure 8-8 refers) and identifies areas likely to be most suitable for wind energy developments. The site is situated within an area identified as an ‘Area Likely to be Most Suitable’.

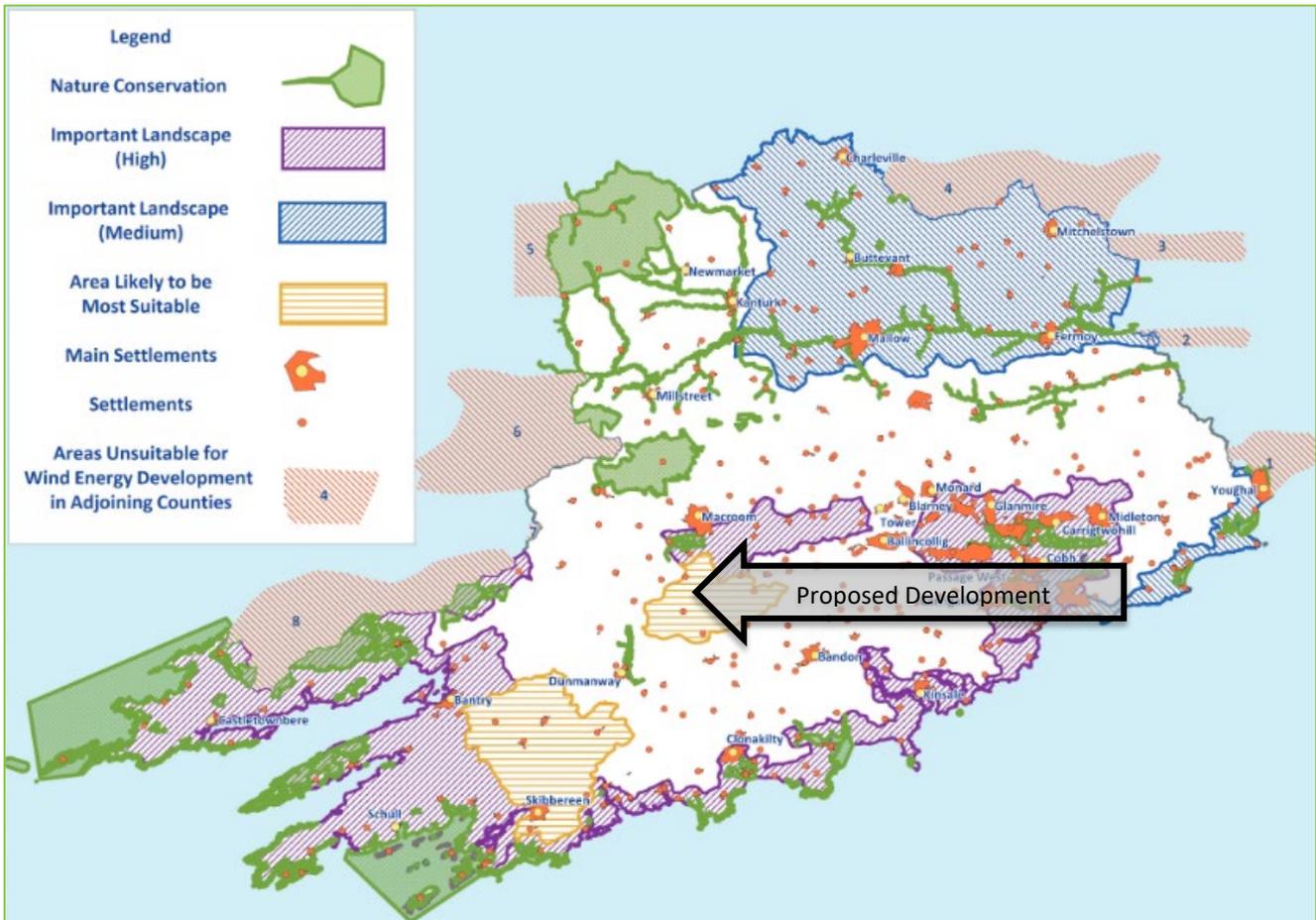


Figure 8-8: Excerpt from Cork County Development Plan (2022), Chapter 13, Figure 13.2 showing approximate location of proposed development in relation policy considerations for wind energy projects.

Figure 13.3 of the county development plan identifies areas of the county where wind energy developments are ‘Acceptable in Principle’, ‘Open to consideration’ and ‘Normally discouraged’ (Figure 8-9 refers).

The Proposed Development is entirely situated in an area designated as ‘Acceptable in Principle’. These areas are “areas (River Ilen basin north of Skibbereen and an area south of Macroom) are an optimal location for wind farm development with minimal environmental impacts. They have viable wind speeds (>7.5m/s) and good proximity and access to the grid. These areas exclude urban areas and town green belts, avoid Natura 2000 Sites (SPAs and SACs), high value landscapes and Natural Heritage Areas (NHAs).”. Objectives outlined within the Cork County Development Plan relating to areas identified as ‘acceptable in principle’ are included below:

County Development Plan Objective ET 13-6: Acceptable in Principle - Commercial wind energy development is normally encouraged in these areas subject to protection of residential amenity particularly in respect of noise, shadow flicker, visual impact and the requirements of the Habitats, Birds, Water Framework, Floods and EIA Directives and taking account of protected species of conservation concern.



County Development Plan Objective ED 3-5: Open to Consideration - Commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on:

- Residential amenity particularly in respect of noise, shadow flicker and visual impact;
- Urban areas and Metropolitan/Town Green Belts;
- Natura 2000 Sites (SPA and SAC), Natural Heritage Areas (NHA's) or adjoining areas affecting their integrity. Architectural and archaeological heritage;
- Visual quality of the landscape and the degree to which impacts are highly visible over wider areas.

The nearest 'normally discouraged' wind energy designation is situated to the north of the site and relates to HVL designation and 'LCT 8 - Hilly River and Reservoir Valleys', whilst much of the landscape in the wider south, west and eastern periphery of the Wider Study Area is contained in a 'Open to Consideration' designation.

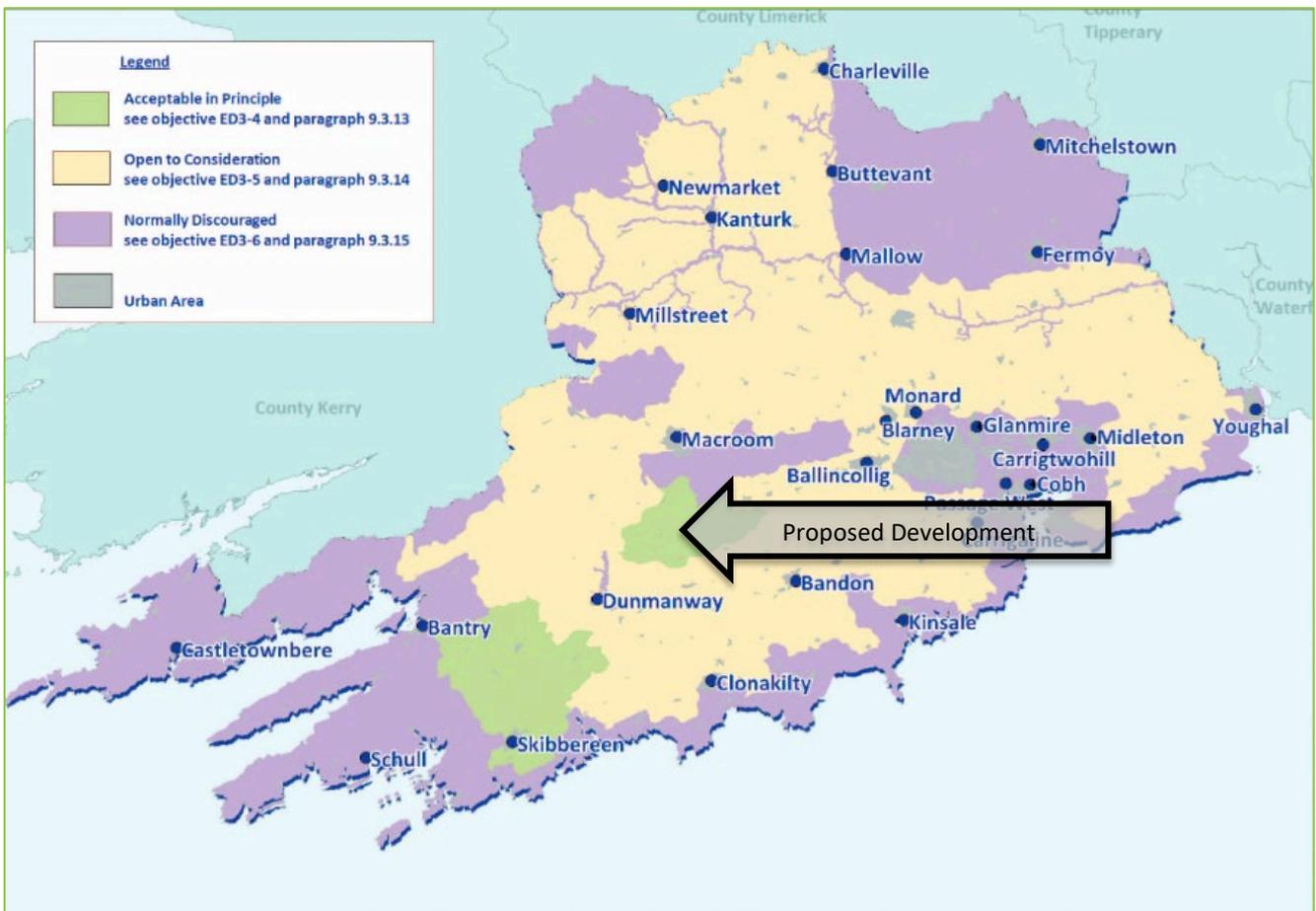


Figure 8-9: Excerpt from Cork County Development Plan (2022-2028), Chapter 13, Figure 13.3 showing approximate location of proposed development in relation Cork's Wind Energy Strategy.

8.3.2.4 Ecological Designations

Ecological designations such as Special Areas of Conservation (SAC's), Special Protection Areas (SPA's) and Natural Heritage Areas (NHA's) are relevant to the LVIA as they can identify areas that are likely to exhibit naturalistic character and low levels of built development.



They also highlight areas to which landscape conservation values are attached and they are often associated with outdoor amenity facilities where people go to enjoy the landscape setting.

In this instance, there are a number of ecological designations throughout the Wider Study Area which are included below.

- The Gearagh SPA & SAC – c. 6km northwest of the site
- Mullaghanish to Musheramore Mountains SPA – c. 14km northwest
- Bandon River SAC – c. 10km southwest
- St. Gobnet’s Wood SAC - c. 19.5km northwest

8.4 Visual Baseline

Only those parts of the Wider Study Area that potentially afford views of the Proposed Development are of interest to this part of the assessment. Therefore, the first part of the visual baseline is establishing a ‘Zone of Theoretical Visibility’ and subsequently, identifying important visual receptors from which to base the visual impact assessment.

8.4.1 Zone of Theoretical Visibility (ZTV)

A computer generated Zone of Theoretical Visibility (ZTV) map has been prepared to illustrate where the Proposed Development is potentially visible from. The ZTV map is based solely on terrain data (bare ground visibility), and ignores features such as trees, hedges or buildings, which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the Proposed Development will definitely not be visible, due to terrain screening within the 20km Wider Study Area. The ZTV below is based on the max tip height of the proposed turbines as a worst-case scenario.

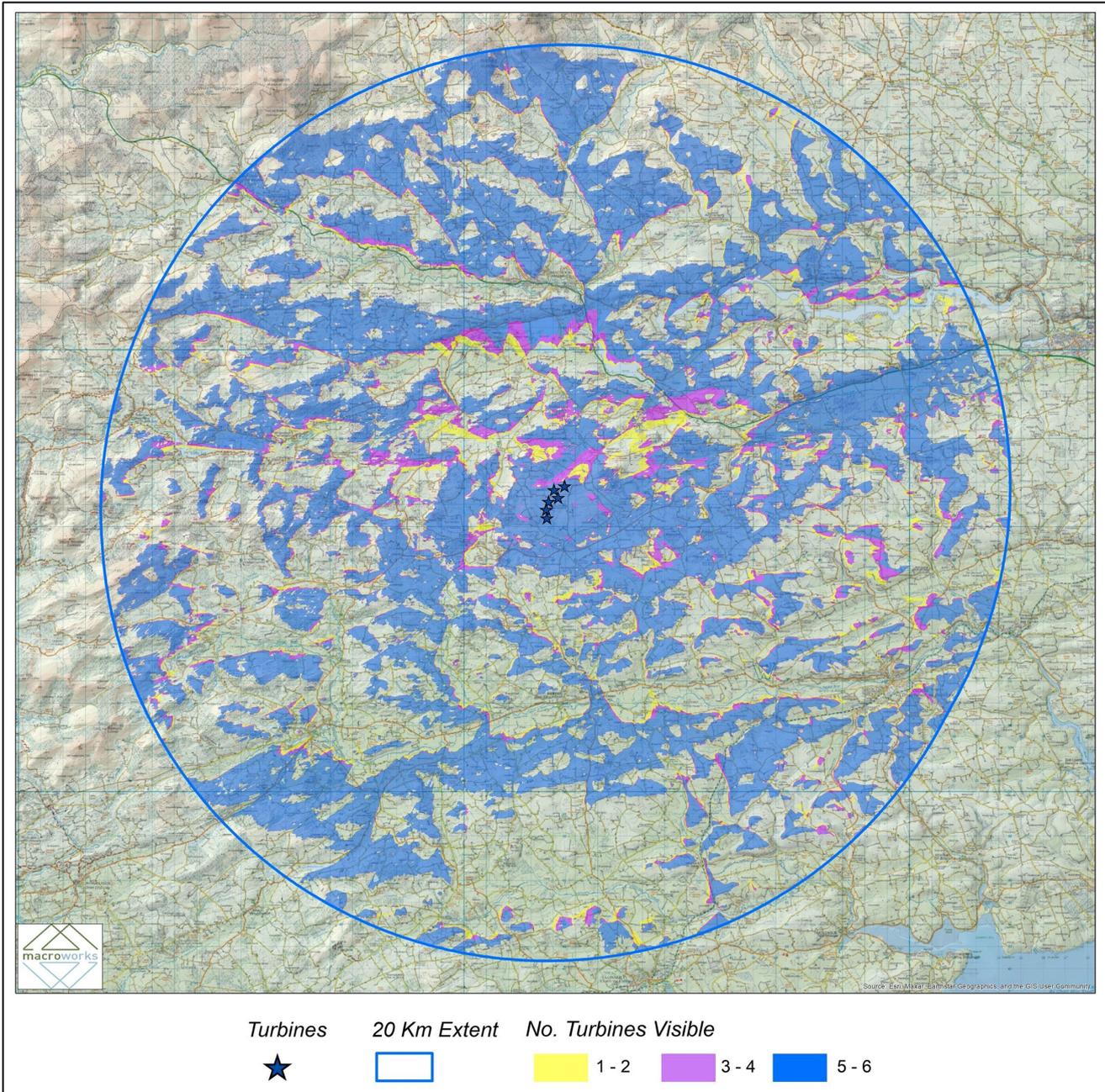


Figure 8-10: ZTV Map (Tip Height) for proposed development (See Appendix 8.2 for full scale annotated ZTV maps.)

The following key points are illustrated by the ‘bare ground’ ZTV map (Figure 8-10 refers);

- As a consequence of the rolling nature of the landscape within the Wider Study Area, the ZTV presents with a ‘sand-ripple’ like effect, which highlights numerous small blocks of comprehensive visibility, which principally relate to the most elevated hilltops and ridges within the Wider Study Area.
- The immediate surrounds of the site, up to c. 1-2km in all directions, will afford comprehensive theoretic visibility (blue colour pattern) of the Proposed Development. Nonetheless, beyond c.1-2km from the site, the Proposed Development will only ever be intermittently visible along the most elevated parts of the surrounding Wider Study Area.



- In the northern half of the Wider Study Area, large blocks of no turbine visibility occur in the surrounds of the River Lee valley as a consequence of the rolling ridges south of the river corridor. The ZTV also identifies no potential for turbine visibility in the central areas of Macroom, however, there will be some limited potential for turbine visibility on the rolling hills north of the settlement.
- In terms of surrounding settlements, there will be intermittent potential for turbine visibility at the settlements of Kilmurry, Crookstown and Coachford northeast of the Proposed Development site, whilst the Proposed Development will be almost entirely screened at the larger settlements of Bandon and Dunmanway in the southern half of the study area. The nearest settlement to the Proposed Development site is the small village of Teerelton and will be almost entirely screened from the proposed development, even from the near distance of under c.2.8km. The village of Coppeen located long the R585 to the southwest of the Proposed Development site will have some potential for comprehensive site visibility but only in its eastern extents. The western half of the settlement will be entirely screened from the Proposed Development.
- Whilst there will be some broad areas of comprehensive ZTV visibility (blue pattern) within the Wider Study Area, these areas often relate to the most elevated parts of the surrounding landscape, which are typically less populated than their surrounding lowland valleys.

8.4.2 Visual Receptors

8.4.2.1 *Centres of Population and Houses*

The nearest centres of population in relation to the Proposed Development are the small rural villages of Coppeen and Teerelton. The small village of Teerelton is located some 2.8km northwest of the Proposed Development site and is situated along a locally elevated rolling hill. The village of Coppeen is similarly located 2.6km from the site but to its southwest and is situated along the R585 regional road corridor. The small village of Castletowkenneigh is located some 4.5km south of the site, whilst the small village of Kilmurry is situated along a locally rolling hill some 5km northeast of the site, and the village of Crookstown is located some 8km northeast of the Proposed Development site. The settlement of Macroom is located north of the Lee Valley and is situated some 8.5km north of the Proposed Development site. The settlement Dunmanway is contained across the banks of three rivers and is situated some 13km southwest of the Proposed Development site. Bandon is one of the larger settlements within the Wider Study Area and is located along the Bandon River, some 16km southeast of the Proposed Development site. The village of Enniskean is similarly located along the banks of the Bandon River and is some 8km south of the Proposed Development site at its nearest point. Other small settlements within the Wider Study Area include Inchigeelagh, Carriganimmy and Newcestown. A modest rural population also exists in the surroundings of the Proposed Development site and comprises small linear clusters of dwellings, isolated farmsteads and cross-road settlements.

8.4.2.2 *Transport Routes*

The most notable major route in relation to the Proposed Development is the N22, which traverses the Wider Study Area in a general east-west direction some c. 5.4km northeast of the site at its nearest point. Additionally, the N71 passes through the southern portion of the Wider Study Area in a general north-south direction and is located some c. 13km southeast of the Proposed Development site at its nearest point.



A network of regional roads also traverses the Central and Wider Study Area. The nearest of these to the Proposed Development is the R585 regional road situated c.1.5km south of the Proposed Development site at its nearest point. The R587 occurs to the west of the Proposed Development site, where it links the settlements of Dunmanway to Toonsbridge and is located c. 5.6km west of the Proposed Development site at its nearest point. Other regional roads situated in the Wider Study Area include the R586, R637, R599, R588, R602 and R603 to the south, the R590, R585, R619, and R618 to the east, the R582 to the north and the R584 and R587 in the southern half of the Wider Study Area.

The Central Study Area also contains a network of local roads interconnecting many smaller settlements. The nearest of these is a local road L-8514 that traverses the Proposed Development site in an east-west direction.

8.4.2.3 *Tourism, Recreational and Heritage Features*

One of the most notable aspects of recreation within the Wider Study Area relates to the River Lee valley, which is a notable fishery and is home to several local walking trails. Located along the River Lee, the Gearagh is a nature reserve which encompasses popular looped walking trails and is located some 6.5km north of the Proposed Development site. The Coachford Greenway and Farran Wood walks are situated along the corridor of the River Lee and are located some 14km northeast of the Proposed Development site. Warrenscourt Forest is situated adjacent to the Buingea River, a tributary of the River Lee and is located c.5km northeast of the Proposed Development site and encompasses several walking trails and picnic areas. Other notable amenity features include Macroom Golf Club, Lee Valley Golf and County Club and Bandon Golf Club, all of which are situated in the Wider Study Area.

The Wider Study Area also encompasses several notable heritage features and historical associations. One of the most notable of these is the Michael Collins Memorial site, which is situated some 6.5km east of the Proposed Development site. In addition, Kinneigh Round Tower, which dates back to 900AD is located some 5km southwest of the Proposed Development site, whilst the remnants of Macroom Castle are visible adjacent to the main street of Macroom some 9km north of the Proposed Development site. Numerous other Churches, Graveyards and other heritage features are also located throughout the Wider Study Area and its wider surroundings.

8.4.3 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, guide books, road side rest stops or on post cards that represent the area.

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

8.4.3.1 *Cork County Development Plan 2022-2028*

Section 14.9 of the current Cork County Development Plan relates to ‘landscape views and prospects’ and states that the “*scenery and landscape is of enormous amenity value to residents and tourists and constitutes a valuable economic asset*”.



It is important to note that section 14.9.2 of the current Cork County Development Plan differentiates between the sensitivity of designated scenic routes depending on whether they traverse ‘High Value Landscapes’ where it states, “It is important to protect the character and quality of those particular stretches of scenic routes that have special views and prospects particularly those associated with High Value Landscapes”. This is relevant in this instance as the nearest and most relevant scenic routes are not contained within a ‘High Value Landscape’ where views of the proposed development might be afforded. The only scenic routes located within HVL designations include S37 and S38, both of which are situated in the Wider Study Area over 8km from the nearest turbine.

All identified views situated within the 20km study radius are included in Table 8-5 below in addition to their rationale for selection/omission as a viewpoint for this assessment. It is important to note that due to the large agglomeration of scenic routes in some parts of the Wider Study Area, in some instances one view has been chosen to represent several scenic designations.

Table 8-5: Rationale for selection of scenic designations within the Cork County Development Plan

Cork CDP ref:	Relevance to visual impact appraisal?	VP ref no. herein
S20	Yes Relevant – Potential for distant views of the Proposed Development	VP1
S21	Yes Relevant – Potential for distant views of the Proposed Development	VP1
S23	Not Relevant – Limited potential for visibility along the nearest sections of this route to the site. Where theoretic visibility along this route exists, the route is heavily contained by roadside vegetation	-
S26	Yes Relevant – Potential for distant views of the Proposed Development.	VP5
S29	Not Relevant – Scenic route located outside of ZTV	-
S30	Not Relevant – Scenic route located outside of ZTV	-
S31	Yes Relevant – Potential for distant views of the Proposed Development	VP23
S32	Yes Relevant –Whilst the principal aspect of visual amenity along this route relates to views of Lough Allua immediately north of this scenic route, some elevated views of the Proposed Development have the potential to be afforded along the southern extents of this route	VP5
S33	Yes Relevant – Potential for distant views of the Proposed Development	VP5
S34	Yes Relevant – Potential for distant views of the Proposed Development	VP5
S35	Yes Relevant – Potential for views of the Proposed Development	VP5
S36	Yes Relevant – Potential for views of the proposed Development	VP8
S37	Yes Relevant – Potential for distant views of the Proposed Development	VP2
S38	Yes Relevant – Potential for distant views of the Proposed Development but only from a brief section of this route that occurs north of the River Lee	VP2
S64	Not Relevant – Scenic route located outside of ZTV	-



GI 14-12: General Views and Prospects

“Preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountains, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty as recognized in the Draft Landscape Strategy.”

GI 14-13: Scenic Routes

“Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this Plan. The scenic routes identified in this Plan are shown on the scenic amenity maps in the CDP Map Browser and are listed in Volume 2 Heritage and Amenity Chapter 5 Scenic Routes of this Plan.”

GI 14-4: Development on Scenic Routes

- a) *“Require those seeking to carry out development in the environs of a scenic route and/or an area with important views and prospects, to demonstrate that there will be no adverse obstruction or degradation of the views towards and from vulnerable landscape features. In such areas, the appropriateness of the design, site layout, and landscaping of the proposed development must be demonstrated along with mitigation measures to prevent significant alterations to the appearance or character of the area.*
- b) *Encourage appropriate landscaping and screen planting of developments along scenic routes (See Chapter 16 Built and Cultural Heritage)”*

8.4.4 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 Development in detail. It is not warranted to include each and every location that provides a view of this Proposed Development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the Proposed Development. Instead, a variety of receptor locations was selected that are likely to provide views of the Proposed Development 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) (KV);
- Designated Scenic Routes (SR) and Views;
- Local Community views (LCV);
- Centres of Population (CP);
- Major Routes (MR); and
- Amenity and heritage features (AH).

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 (KV)

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

Designated Scenic Routes and Designated Views (SR)

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 Wider 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 (LCV)

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

Centres of Population (CP)

VRPs are selected at centres of population primarily due to the number of viewers that are likely to experience that view. The relevance of the settlement is based on the significance of its size in terms of the Wider 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 (MR)

These include national and regional level roads and rail lines and 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 Proposal Development site, but with a preference towards close and/or elevated views. Major routes typically provide views experienced whilst in motion and these may be fleeting and intermittent depending on screening by intervening vegetation or buildings.

Amenity and Heritage Features (AH)

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



Table 8-6 Selected Viewshed Reference Points (VRP's)

VRP No.	Location	Representative of:	Distance to nearest turbine	Direction of view
VP1	Local road at Maulnahorna	SR	18.3km (T1)	S
VP2	R681 at Coolalta	MR, SR	10.3km (T1)	SW
VP3	R584 east of the Gearagh at Sleveen West	MR, AH	7.6km (T1)	S
VP4	N22 at Ballytrasna	MR	6.1km (T1)	SW
VP5	Local road at Inchinaneave	SR	9.1km (T2)	SE
VP6	Local road at Teerelton	CP	2.7km (T2)	SE
VP7	Local graveyard at Kilmurry	CP, LCV, AH	5.1km (T1)	SW
VP8	Local road at Knockane	SR, LCV	1.3km (T2)	SW
VP9	Local road at Lackareagh	LCV	316m (T1)	W, SW
VP10	Local road at Barnadivane	LCV	575m (T4)	E, S
VP11	Local road at Barnadivane (Kneeves)	LCV	323m (T3)	N, W
VP12	R585 at Murragh south of the River Bride	LCV, MR	3.9km (T1)	NW
VP13	Michael Collins Memorial at Glannarouge West	AH	6.5km (T1)	W
VP14	Local road at Garranereagh	LCV	942m (T3)	W, NW
VP15	Local road at Moneygaff East	LCV	603m (T6)	NE
VP16	Local road intersection at Garraneagh southeast of site	LCV	1.3km (T6)	NW
VP17	R585 at Bengour West	MR, LCV	3.0km (T3)	NW
VP18	R585 Moneynacroha Cross Roads	MR, LCV	1.5km (T6)	N
VP19	R585 at Moneygaff West, east of Coppeen	CP, LCV, MR	2.4km (T6)	NE
VP20	R587 north of Glan Cross Roads	MR	6.6km (T6)	NE
VP21	Kinneigh Round Tower south of the R588	MR, AH	5.1km (T6)	N
VP22	Ballmodan Cemetery south of Bandon	CP, AH	18.2km (T3)	NW
VP23	Local road at Grillagh sound of the Bandon River	SR	11.1km (T6)	NE



Viewpoint Locations

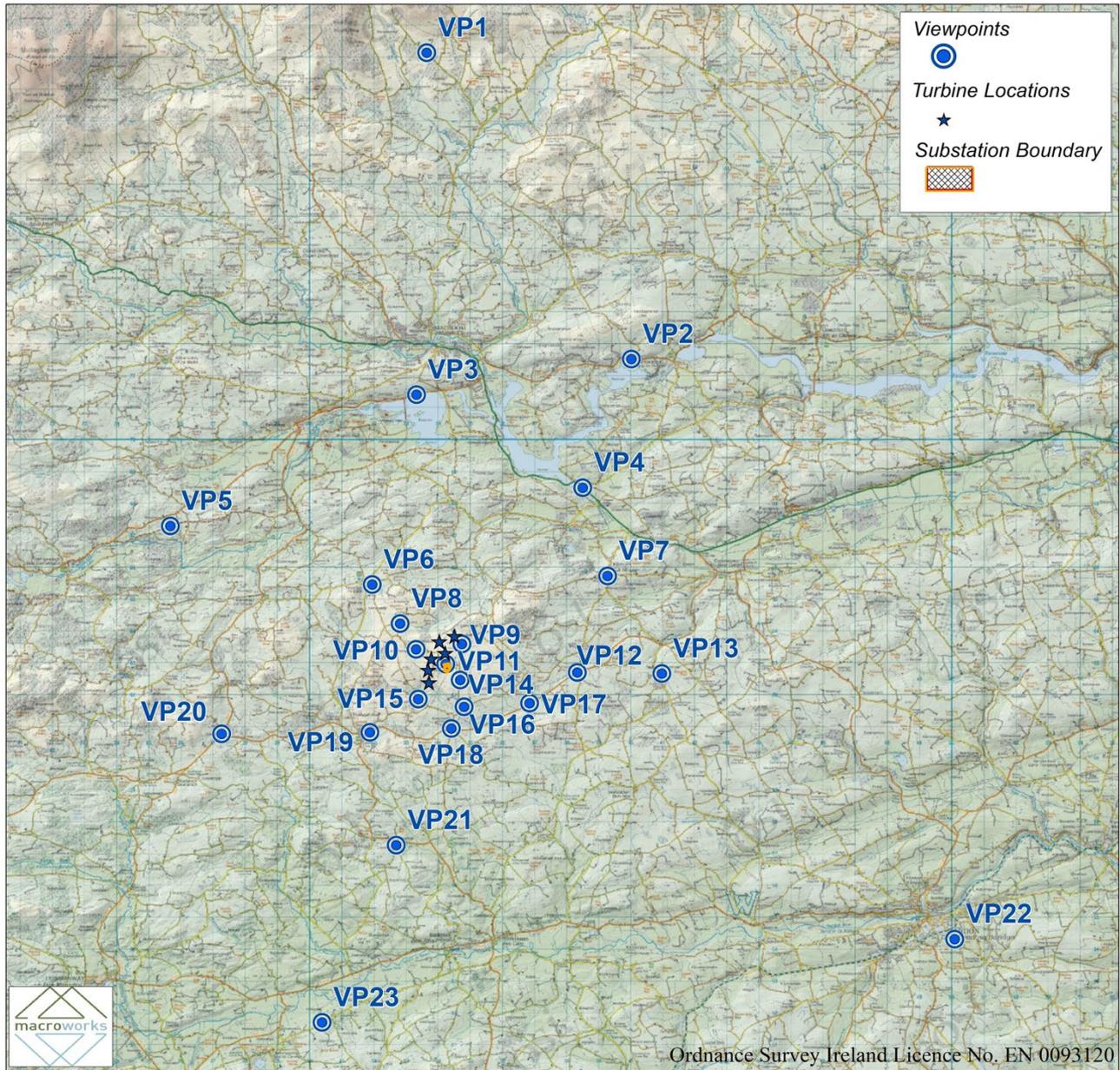


Figure 8-11: Map of Viewpoint Locations

8.5 Potential Impacts

Based on the assessment criteria employed herein, potential significant 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 Table 8-1, Table 8-2 and Table 8-4). From Macro Works previous experience of this type of proposed development in a rural setting, it is considered that potentially significant landscape and visual impacts have the potential to occur in the following ways.



Landscape Impacts

- a) Irreversible physical effects on sensitive landscape features
- b) Disruption of existing land use patterns
- c) Incongruous change to areas of sensitive landscape character

Visual Impacts

- a) A combination of visual and spatial dominance as seen from highly sensitive receptor locations. This is most likely to occur within 1-3km of the proposed development.
- b) Visual clutter and ambiguity as seen from highly sensitive receptor locations. This can occur at any distance, but tends to occur beyond 2-3km as turbines can become stacked in perspective and a more two dimensional layout is perceived.
- c) A combination of both of the above effects.

From baseline studies and early stage assessment specific to the Proposed Development, some of the most highly sensitive physical landscape receptors are considered to be the River Lee and The Gearagh Nature Reserve, both of which are situated in the wider northern half of the Wider Study Area.

The most sensitive visual receptors are likely to be the designated scenic routes identified in the Cork County Development Plan in addition to the local walking trails along the River Lee and its surrounding tributaries, which are sensitive receptor locations on the basis that they represent a notable degree of scenic and recreational amenity.

8.6 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 form of landscape and visual mitigation employed was:

- Mitigation by avoidance and design

8.6.1 Mitigation by Avoidance and Design

In this instance, the main mitigation by avoidance measure is the siting of the proposed development in a robust part of Cork's landscape that is not heavily influenced by susceptible landscape receptors. Indeed, the current Cork CDP reinforces the robust nature of this landscape context as the Proposed Development is situated in a part of Cork classified as 'Areas Most Likely to be Suitable' in relation to wind energy development. Furthermore, the current CDP also designates the landscape of much of the central study area with 'local importance', 'low value' and 'low sensitivity', further highlighting the typical and non-distinctive nature of this landscape context that can well accommodate a modest-scale wind energy development.



It is also important to note that the Proposed Development is also sited adjacent to an existing wind farm development, and therefore, the proposed wind farm represents the intensification of an existing land use and not the introduction of a new and unfamiliar one.

8.7 Residual Landscape Effects

8.7.1 Landscape Character, Value and Sensitivity

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

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

The Proposed Development is located in a relatively typical landscape comprising rolling hills and ridges south of the River Lee valley in Cork. The Proposed Development site and Central Study Area are typical working rural areas that are not highly distinctive, nor do they comprise any highly susceptible landscape features. In terms of land uses, the working nature of the Wider Study Area is highlighted by the broad areas of agricultural farmland and commercial forestry that cloak the majority of this rolling landscape context. Due to the relatively near distance of the central study area to Cork City, there is a notable rural population within the Wider Study Area, often comprising small cross-road settlements, linear clusters of dwellings and isolated farmsteads. The small village settlements of Teerelton, Coppeen and Kilmurry, are the only notable settlements within the Central Study Area.

In terms of landscape designations, the typical and non-distinctive nature of the Central Study Area is further reinforced in the Cork County Development Plan, which classifies the 'LCA 10a – Fissured Fertile Middleground', which contains a large proportion of the central study area, with a 'local importance', 'low value' and 'low sensitivity'. This robust landscape classification is further emphasised by the 'areas most likely to be suitable' for wind energy development designation within the current Cork CDP. Nonetheless, due to the elevated nature of the terrain within the vicinity of the Proposed Development site, there is some designated scenic amenity within the Central Study Area. This predominately relates to an elevated looped scenic route that extends across a rolling hilltop summit northwest of the Proposed Development site and affords broad views across the wider landscape. Nonetheless, it is not considered that this scenic route is one of the more highly susceptible scenic routes in County Cork as its key characteristics of land use are described as 'subsistence farming & forestry', it does not run through or adjoin a 'high-value landscape', and the landscape this route is contained in is classified with a 'low value'.

Overall, the Central Study Area is considered a typical robust rural landscape that is not highly rare or distinctive on a local, regional or national level. Whilst there are some notable landscape associations, principally relating to the birthplace of Michael Collins, it is not considered that this landscape context is highly susceptible to development, reinforced by the existing wind farm development located immediately east of the Proposed Development site. Overall, it is considered that landscape values within the Central Study Area are principally related to rural productivity and subsistence for the local population, as opposed to any highly susceptible recreational amenity, naturalistic or scenic values.

Consequently, the site and Central Study Area are considered to have a **Medium-low** landscape sensitivity which is generally consistent with the current Cork Landscape Character Assessment classifications.



Wider Study Area (c. 5-20km)

The Wider Study Area has similar landscape characteristics to the Central Study Area, albeit it comprises several more notable landscape features, such as the River Lee corridor. The River Lee valley is one of the most sensitive aspects of the Wider Study Area and encompasses various landscape values, which relate to the naturalistic, recreational amenity and scenic amenity. A number of walking trails, cycling routes and highly sensitive landscape areas, such as the Gearagh Nature Reserve, are all associated with the River Lee corridor within the Wider Study Area. The scenic nature of this landscape area is highlighted by the numerous designated scenic routes located along the corridor of the River Lee or in its near surrounds. Whilst the most notable aspects of scenic amenity are predominately associated with the Lee valley and other river corridors throughout the Wider Study Area, several scenic designations also occur along some of the more elevated transitional parts of the Wider Study Area to the north and west.

In terms of landscape designations, the Wider Study Area comprises a variety of contrasting landscape character types, which highlight the contrasting and varied landscape values and sensitivities throughout the Wider Study Area. Indeed, the most susceptible landscape character area within the Wider Study Area is that of 'LCT7 - Hilly River and Reservoir Valleys', which is also designated a 'High Value Landscape' in the current Cork CDP. This LCT encompasses a broad part of the River Lee and also includes the Gearagh Nature Reserve.

Whilst landscape values in the majority of the Wider Study Area often relate to typical rural practices, there are also some highly sensitive and susceptible landscape features and receptors within the Wider Study Area. Nonetheless, these areas tend to be well contained by either surrounding landforms, dense mature vegetation, or a combination of both. The Wider Study Area also has a notable working character and is influenced by the modest-sized settlements of Macroom, Bandon and Dunmanway, which are all interconnected by web or major route corridors that include the N22 national primary route and the N71 national secondary route. Furthermore, the Wider Study Area to the north, west and south has a notable presence of existing wind energy development, further reinforcing its working characteristics.

For the reasons outlined above, the Wider Study Area is generally considered to be of a **Medium-low** landscape sensitivity, but with occasional landscape features and areas of higher sensitivity such as the Gearagh Nature Reserve and the River Lee corridor.

8.7.2 Magnitude of Landscape Impacts

The physical landscape as well as the character of the Proposed Development and its Central Study Area (<5km) is affected by the Proposed Development as well as ancillary development such as access and circulation roads, areas of hard standing for the turbines, borrow pit, grid connection and the substation compounds. By contrast, for the wider landscape of the Wider Study Area, landscape impacts relate exclusively to the influence of the Proposed Development on landscape character. The aspects of the Proposed Development that are likely to have an impact on the physical landscape and landscape character are described in Chapter 2 (Description of Proposed Development) with construction processes described in the Construction and Environmental Management Plan (CEMP) at Appendix 2.2

8.7.2.1 *Construction Stage Effects on the Physical Landscape*

It is considered that the Proposed Development will have a modest physical impact on the landscape within the site as none of the Proposed Wind Farm features have a large 'footprint' and land disturbance/vegetation clearing will be relatively limited.



The topography and land cover of the proposed site will remain largely unaltered with construction being limited to tracks, areas of hard standing for the turbines, temporary site construction compound, proposed met masts and borrow pits. Excavations will tie into existing ground levels and will be the minimum required for efficient working. Any temporary excavations or stockpiles of material will be re-graded to marry into existing site levels and reseeded appropriately in conjunction with advice from the project ecologist.

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

The Proposed Substation will cover an area of approximately 163m x 106m on plan including a buffer area to the perimeter. There will be three single storey control buildings on the site. The control buildings will be of standard masonry construction, rendered externally with a pitched roof. Finishes will be in keeping with the surrounding buildings. The floor area of Control Building A&B will be 195m², with the maximum floor area of Control Building C being 223m². The height of the Control Buildings A&B will be approximately 6.2m above finished ground level, and the height of Control Building C will be approximately 6.5m above finished ground level. The control buildings and electrical equipment will be enclosed by a 2.4m high steel palisade perimeter fence painted green encompassing an area of approximately 76m x 97m. The Proposed Substation will be connected to the public road via a short access track approximately 200m long. It is also proposed to plant native hedgerow vegetation on the embankments surrounding the substation and along the substation access. The most notable construction stage landscape impacts resulting from the Proposed Substation relate to the construction of concrete foundations to facilitate that substation building. Overall, these construction stage effects are relatively minor and compare to the construction of an industrial farm shed.

All internal site cabling will be underground and will follow site access tracks without the need for trenching through open ground. Indeed, the land cover of the site will only be interrupted as necessary to build the structures of the proposed wind farm and to provide access. Impacts from land disturbance and vegetation loss at the site are considered to be modest in the context of this landscape setting.

One permanent meteorological (Met) mast will be erected on site and will comprise of 90m high lattice steel mast with a shallow concrete foundation. The most notable construction stage effects here relate to the minor amount of ground excavation required to facilitate the shallow foundations for the steel mast structure.

Site activity will be at its greatest during the construction phase due to the operation of machinery on site and movement of heavy vehicles to and from site. This phase will have a more significant impact on the character of the site than the operational phase, but it is a 'short-term' impact that will cease as soon as the proposed development is constructed and becomes operational (approximately 12-18 months from the commencement of construction).

There will be some long term/permanent construction stage effects on the physical landscape in the form of turbine foundations and hardstands, access tracks and a the Proposed Substation, but only the Proposed Substation is likely to remain in perpetuity as part of the national grid network. It is likely that with the exception of some residually useful access tracks, all other development features will be removed from the Proposed Development site and it will be reinstated to agricultural use or forestry upon decommissioning. Thus, the construction stage landscape effects of the Proposed Development are largely reversible.



There will be some construction stage effects on landscape character generated by the intensity of construction activities (workers and heavy machinery) as well as areas of bare-ground and stockpiling of materials as identified in the Construction and Environmental Management Plan (CEMP) in Appendix 2.2. Such effects will be temporary/short term in duration and are, therefore, not considered to be significant.

8.7.2.2 *Operational and Decommissioning Stage Effects on Landscape Character*

For most commercial wind energy developments, the greatest potential for landscape impacts to occur is as a result of the change in character of the immediate area due to the introduction of tall structures with moving components. Thus, wind turbines that may not have been a characteristic feature of the area become a new defining element of that landscape character. In this instance, wind turbines are a characteristic feature of the immediate and Wider Study Area, most notably to the immediate east of the site where the existing Garranereagh Wind Farm is located in an almost identical landscape context. Furthermore, numerous existing wind farm developments are located in the wider northern, western and eastern half of the Wider Study Area. The effect, therefore, is one of intensification and extension of an established land use in this landscape and not the introduction of a new and unfamiliar feature.

In terms of scale and function, the Proposed Development is well assimilated within the context of the Central Study Area. This is due to the relatively broad scale of the landform, landscape elements and land use patterns. These attributes prevent the height and extent of the Proposed Development causing the type of scale conflict that can occur in more intricate landscape areas. The rolling hills and ridges in the immediate surrounds of the Proposed Development have a notable utilitarian character due to the presence of the existing wind energy development to the east, in addition to the large number of commercial conifer plantations that occur within and around the Proposed Development site. Although the Proposed Development represents a stronger human presence and level of built development than currently exists on the Proposed Development site, it will not detract significantly from its productive rural character, which wind turbines are already a feature of.

It is important to note that in terms of duration, this Proposed Wind Farm represents a long term, but not permanent impact on the landscape and is reversible. The lifespan of the project is 25 years, after which time it will be dismantled and the landscape reinstated to prevailing conditions. Within 2-3 years of decommissioning there will be little evidence that a wind farm ever existed on the site, albeit the Proposed Substation will remain in perpetuity as part of the national grid infrastructure, in addition to residually useful access tracks.

The decommissioning phase will have similar temporary impacts as the construction phase with the movement of large turbine components away from the site. There may be a minor loss of roadside and trackside vegetation that has grown during the operation phase of the project, but this can be reinstated upon completion of decommissioning. Areas of hard standing that are of no further use will be reinstated to blend with the prevailing surrounding land cover of the time. It is expected that the decommissioning phase would be completed within a period of approximately 6 months.

In summary, there will be physical impacts on the land cover of the site as a result of the Proposed Development during the operational phase, but these will be relatively minor in the context of this productive rural landscape that comprises of existing wind energy development and commercial conifer forest plantations and extensive areas of agricultural farmland. The scale of the Proposed Development will be well assimilated within its landscape context without undue conflicts of scale with underlying land form and land use patterns. For these reasons the magnitude of the landscape impact is deemed to be **Medium** with the Central Study Area. Beyond 5km from the site, the magnitude of landscape impact is deemed to reduce to **Low** and **Negligible** at increasing distances as the Proposed Development becomes a proportionately smaller component of the overall landscape fabric.



8.7.3 Significance of Landscape Effects

The significance of landscape impacts is a function of landscape sensitivity weighed against the magnitude of the landscape impact. This is derived from the significance matrix (Table 8-3) used in combination with professional judgement. Based on the assessment described in Sections 8.7.18.7.2 the significance of landscape impact is considered to be **Moderate** throughout the Central Study Area.

For the wider study area (beyond 5km from the site), landscape impact significance is not considered to exceed **Slight** and will reduce to Slight and Imperceptible at increasing distances as the project becomes a progressively smaller component of the wider landscape fabric even in the context of higher sensitivity landscape units / features.

8.8 Residual Visual Effects

Table 8-7 below summarises the full textual assessment of visual effects for each Viewshed Reference Point (VRP) contained in Appendix 8.1. Whilst the ‘receptor sensitivity analysis table’ and full textual assessment for each VRP is normally contained within the landscape and visual chapter, in this instance, given the considerable number of VRPs, it is considered more prudent to place this material in a separate appendix and focus herein on the significance of the findings.

Table 8-7: Summary of Visual Effects at Viewshed Reference Points (VRP’s)

VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 8.1)	Visual Impact Magnitude	Significance of Visual effect
VP1	18.3km (T1)	High-medium	Negligible	Imperceptible / Neutral / Long Term
VP2	10.3km (T1)	High-medium	Low-negligible	Slight-Imperceptible / Negative / Long Term
VP3	7.6km (T1)	High-medium	Low	Slight / Negative / Long Term
VP4	6.1km (T1)	Medium-low	Negligible	Imperceptible / Neutral / Long Term
VP5	9.1km (T2)	High-medium	Low-negligible	Slight-Imperceptible / Negative / Long Term
VP6	2.7km (T2)	Medium	Negligible	Imperceptible / Neutral / Long Term
VP7	5.1km (T1)	Medium	Low	Slight / Negative / Long Term
VP8	1.3km (T2)	Medium	Medium	Moderate / Negative / Long Term
VP9	316m (T1)	Medium-low	High-medium	Moderate / Negative / Long Term
VP10	575m (T4)	Medium-low	High-medium	Moderate / Negative / Long Term



VRP No.	Distance to nearest turbine km	Visual receptor Sensitivity (see appendix 8.1)	Visual Impact Magnitude	Significance of Visual effect
VP11	323m (T3)	Medium	High	Substantial-moderate / Negative / Long Term
VP12	3.9km (T1)	Medium-low	Medium-low	Slight / Negative / Long Term
VP13	6.5km (T1)	High-medium	Negligible	Imperceptible / Neutral / Long Term
VP14	942m (T3)	Medium-low	High-medium	Moderate / Negative / Long Term
VP15	603m (T6)	Medium-low	High-medium	Substantial-moderate / Negative / Long Term
VP16	1.3km (T6)	Medium-low	Medium	Moderate / Negative / Long Term
VP17	3.0km (T3)	Medium-low	Medium-low	Slight / Negative / Long Term
VP18	1.5km (T6)	Medium-low	Medium	Moderate-slight / Negative / Long Term
VP19	2.4km (T6)	Medium-low	Low-negligible	Slight-imperceptible / Negative / Long Term
VP20	6.6km (T6)	Medium-low	Low	Slight / Negative / Long Term
VP21	5.1km (T6)	High-medium	Low-negligible	Slight-imperceptible / Negative / Long Term
VP22	18.2km (T3)	High-medium	Negligible	Imperceptible / Neutral / Long Term
VP23	11.1km (T6)	High-medium	Low-negligible	Slight-imperceptible / Negative / Long Term

8.8.1 Impacts on Designated Views

With regard to the Proposed Development, there are a notable number of scenic routes located throughout the study area. However, many of these occur in the wider surrounds of the study area. The nearest and most relevant scenic route to the Proposed Development is Scenic Route S36, the only scenic designation located within the Central Study Area. VP8 was selected as a representative viewpoint for scenic route S36. Whilst the Proposed Wind Farm will be clearly visible from the southern section of this scenic route, they present in a highly legible manner with very few aesthetic issues. The significance of visual impact from VP8 was deemed 'Moderate' on the basis that the visible turbines will be viewed here at a notable scale and will increase the intensity of wind energy development along this section of the scenic route designation. Nevertheless, the Proposed Development will not be visible along the entire section of this scenic route designation, which encircles a rolling hilltop summit. The northern aspect of this scenic route in the surrounds has limited potential for turbine visibility, with some sections located outside of ZTV. Furthermore, the current CDP identifies the overall landscape value in the surrounds of this scenic route as 'Low', whilst its key characteristic of land uses are deemed 'Subsistence farming & forestry' and are not considered to be highly rare or distinctive.



All other viewpoints representing scenic routes within the Wider Study Area were deemed to have a visual impact of ‘Slight-imperceptible’ or ‘Imperceptible’ as a consequence of their distance from the site and/or limited visibility of the proposed turbines. It is also important to note that the depicted viewpoints located along these scenic routes represent a static view. However, in reality, these routes are experienced as a journey and not as a series of fixed views. Thus, the representative viewpoints typically reflect the worst-case scenario in terms of turbine visibility. Furthermore, from many of these scenic routes, distant views of existing wind turbines are commonplace, and therefore the Proposed Wind Farm will not appear incongruous in this robust landscape context. Consequently, it is not considered significant visual impacts will occur in respect of scenic route designations.

8.8.2 Impacts on Local Community views

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

Up to 12 views were chosen to represent the local community, some of which also represent scenic routes, amenity features, and centres of population and include VP7, VP8, VP9, VP10, VP11, VP12, VP14, VP15, VP16, VP17, VP18 and VP19. The sensitivity of these views ranges from ‘Medium-low’ to ‘Medium’, with those of a higher sensitivity attributed to the designated scenic routes and/or broad long distant views. Of the 12 views, the highest significance of visual impact is ‘Substantial-moderate’ at viewpoints VP11 and VP15, representing some of the nearest views of the Proposed Wind Farm. The turbines in both of these views present with a dominant visual presence and will be the most prominent built features in the local landscape context. Whilst VP11 affords a broad distant view of the uplands, it is not considered that the Proposed Wind Farm or Proposed Substation will block or notably obstruct this view. Instead, the generous spacing characteristics of the Proposed Wind Farm allow for a notable degree of visual permeability through the proposed wind farm and the downhill location of the Proposed Substation reduces its potential to notably block the view. At VP15, the proposed turbines present at a considerable scale and will result in some notable negative aesthetic effects which relate to a minor degree of visual dwarfing and some clear instances of turbine overlap. Nonetheless, in all instances, the proposed turbines will not appear out of place in terms of their scale or function as they are viewed in the context of broad-scale landforms and broad underlying land use patterns. Furthermore, this local landscape context comprises an existing similar-sized wind farm, and the effect, therefore, is the intensification of an existing land use as opposed to the introduction of a new and unfamiliar one.

In terms of other local community receptors, five of these are deemed to experience a visual impact significance of ‘moderate’ and include VP8, VP9, VP10, VP14 and VP16. VP9 represents the nearest of these views to the Proposed Development, however, it does not represent the clearest view of all six proposed turbines. The northernmost turbine in the array will be visible from a near distance at VP9, however, the remaining turbines in the array will be partially and heavily screened by mature vegetation. VP10 represent one of the clearest views of all six of the turbines, where they present in a highly legible manner, are evenly spaced, and generate a strong sense of perspective, highlighting the depth of the Proposed Wind Farm across this sloping landscape context. Whilst the turbines will be a prominent feature from here, they are offset from the most sensitive aspect of this view, which is to the south and towards distant rolling hills and ridges in the southern half of the Wider Study Area. Nonetheless, the proposed turbines will present at a reasonably large scale due to their near distance to some of these local community receptors, but they will not appear incongruous in this productive rural context already characterised by existing wind farm development.

Consequently, it is not considered significant visual impacts will occur in respect of local community views.



8.8.3 Impacts on Centres of Population

Five viewpoints were chosen to represent centres of population within the Central and Wider Study Area (VP6, VP7, VP19 and VP22). Whilst there are a number of other notable centres of population within the Central and Wider Study Area, many of these will have no or limited potential to afford visibility of the proposed turbines (Macroom, Inchigeelagh, Dunmanway, Ballineen and Eniskean and Newcestown) as identified in the ZTV map Figure 8-10. Those with the most theoretical potential to afford visibility of the turbines were included as representative viewpoints. Nonetheless, even some of the nearest settlements to the site represented by VP6 (Teerelton) and VP7 (Kilmurry) will have limited and even no visibility of the Proposed Wind Farm. The residual visual impact at VP6 was deemed 'Imperceptible' as a near ridge will entirely screen the Proposed Wind Farm, whilst heavily filtered and partial views of the Proposed Wind Farm have the potential to be afforded from the settlement of Kilmurry, resulting in residual impacts no greater than Slight. The settlement of Coppeen is the nearest centre of population to the Proposed Development, situated just over 2.5km southwest of the site. Despite this, much of the settlement will have no potential for views of the Proposed Development due to a low ridge located to the north/northwest of the small village. Furthermore, even from the eastern outskirts of the town along the R585 regional road (represented by VP19), the Proposed Development will be heavily screened by stacked dense vegetation in the direction of the site and will generate residual visual impacts no greater than 'Slight-imperceptible'.

As a result of the reasons outlined above, it is not considered that the Proposed Development will result in significant visual impacts at centres of population within the study area. Instead, visual impacts from even some of the nearest centres of population will result in a visual impact significant to no greater than 'Slight/Slight-imperceptible'.

8.8.4 Impacts on Major Routes

Up to nine views were chosen to represent major routes (VP2, VP3, VP4, VP12, VP17, P18, VP19, VP20 & VP21, some of which were also chosen as representative views for the local community, centres of population and scenic designations. The most notable major routes include the N22 and N71, both of which are located in the Wider Study Area and will have limited potential to afford views of the Proposed Development due to their contained nature, distance from the Proposed Development and high degree of roadside screening. The nearest major route corridor to the Proposed Development is the R585 regional road, represented by viewpoints VP12, VP17, VP18 & VP19. The highest residual significance of visual impact of 'Moderate-slight' occurs along the nearest section of this route to the Proposed Development, represented by VP18 adjacent to Moneynacroha Cross Roads. The proposed turbines will be visible from here at a notable scale and are viewed in combination with the existing Garranereagh turbines. Whilst the proposed turbines represent some degree of visual change, they will likely be viewed as an extension to the existing wind farm development located to the east.

As a result of the reasons outlined above, it is not considered that any significant visual impact will occur in respect of major route receptors.

8.8.5 Impacts on Heritage and Amenity Features

Although the central and wider study area are not heavily synonymous with outdoor recreation, five representative viewpoints were chosen to represent heritage and amenity features within the Wider and Central Study Area and include VP3, VP7, VP13, VP21 and VP23, with many of these representing local heritage features. One of the more notable areas of outdoor recreation within the Wider Study Area is the Gearagh Nature Reserve, which is situated south of Macroom along the banks of the River Lee and is represented by VP3.



The proposed turbines will be revealed to varying degrees along the distant ridge and are viewed adjacent to the existing Garranereagh turbines, which are only partially visible here. Nonetheless, whilst the Proposed Development will marginally increase the intensity of built development in the local surrounds of the Gearagh, the Proposed Development will not result in any notable detractor in the scenic amenity afforded here, which is currently influenced by a range of other anthropogenic land uses such as major route corridors, a large industrial manufacturing facility and the existing Garranereagh turbines. As a result, the significance of visual impact was deemed 'Slight'.

The visual impact appraisal also included representative views from several other local heritage features. In all instances, there will be limited visibility from these susceptible receptors resulting in a residual visual impact significance no greater than 'Slight'. As a result of the reasons outlined above, it is not considered that any significant visual impact will occur in respect of amenity and heritage features within the study area.

8.8.6 Summary of Visual Impacts

Based on the visual impact assessments outlined in section 8.8.1 - 8.8.5 above, the significance of visual impacts for the 'Designated Scenic Routes', 'Centre of Population', 'Major route' and 'Amenity and Heritage Feature' receptor categories are generally in the mid to low range. Only in respect of the 'Local Community Views' are impacts considered to be higher, however, these impacts are not considered to be significant. The most notable impacts will likely arise from those local receptors in the immediate vicinity of the site (i.e. less than 1km from the turbines). Nevertheless, even from these near-distances, the Proposed Development will not appear over-scaled or with any strong sense of overbearing and relate in terms of scale and function to this local landscape context, which is also influenced by existing wind energy development of a similar scale and nature.

Overall, it is not considered that the Proposed Development will result in significant visual impacts, albeit there will be some localised areas in the immediate proximity of the site that will experience impacts that are close to significant. Nonetheless, this is considered a robust working landscape that is not highly susceptible to development (reinforced by the 'Low' sensitivity classification in the Cork CDP) that can well accommodate a development of this scale and nature.

8.9 Do Nothing Scenario

In a Do-Nothing scenario the existing areas of pastoral farmland that cloak the site and its surrounding landscape would continue to be managed through typical agricultural practices.

8.10 Cumulative Impacts

The Scottish Natural Heritage (SNH) Guidance relating to 'Assessing the Cumulative Effects of Onshore Wind Farms (2012) identify that cumulative impacts on visual amenity consist of combined visibility and sequential effects. The same categories have also been subsequently adopted in the Landscape Institute's 2013 revision of the Landscape and Visual Impact Assessment Guidelines. The principal focus of wind energy cumulative impact assessment guidance relates to other wind farms - as opposed to other forms of development. This will also be the main focus herein, albeit with a subsequent consideration of cumulative impacts with other forms of notable development (existing or permitted), particularly within the Central Study Area.



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

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

Cumulative impacts 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 (2005) and the DoEHLG Wind Energy Guidelines (2006), cumulative impacts can be experienced in a variety of ways. In terms of landscape character, additional wind energy developments might contribute to an increasing sense of proliferation. A new wind farm might also contribute to a sense of being surrounded by turbines with little relief from the view of them.

In terms of visual amenity, there is a range of ways in which an additional wind farm might generate visual conflict and disharmony in relation to other wind energy developments. Some of the most common include visual tension caused by disparate extent, scale or layout of neighbouring developments. A sense of visual ambivalence might also be caused by adjacent developments traversing different landscape types. Turbines from a proposed development 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 8-8 below provides Macro Works’ criteria for assessing the magnitude of cumulative impacts, which are based on the SNH Guidelines (2012).

Table 8-8: Magnitude of Cumulative Impacts

Magnitude of Impact	Description
Very High	<ul style="list-style-type: none"> • The proposed wind farm will strongly contribute to wind energy development being the defining element of the surrounding landscape. • It will strongly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. • Strongly adverse visual effects will be generated by the proposed turbines in relation to other turbines.
High	<ul style="list-style-type: none"> • The proposed wind farm will contribute significantly to wind energy development being a defining element of the surrounding landscape. • It will significantly contribute to a sense of wind farm proliferation and being surrounded by wind energy development. • Significant adverse visual effects will be generated by the proposed turbines in relation to other turbines.
Medium	<ul style="list-style-type: none"> • The proposed wind farm will contribute to wind energy development being a characteristic element of the surrounding landscape. • It will contribute to a sense of wind farm accumulation and dissemination within the surrounding landscape.



Magnitude of Impact	Description
	<ul style="list-style-type: none"> Adverse visual effects might be generated by the proposed turbines in relation to other turbines.
Low	<ul style="list-style-type: none"> The proposed wind farm will be one of only a few wind farms in the surrounding area and will be viewed in isolation from most receptors. It might contribute to wind farm development becoming a familiar feature within the surrounding landscape. The design characteristics of the proposed wind farm accord with other schemes within the surrounding landscape and adverse visual effects are not likely to occur in relation to these.
Negligible	<ul style="list-style-type: none"> The proposed wind farm will most often be viewed in isolation or occasionally in conjunction with other distant wind energy developments. Wind energy development will remain an uncommon landscape feature in the surrounding landscape. No adverse visual effects will be generated by the proposed turbines in relation to other turbines.

8.10.1 Cumulative Impact Assessment

There are 11 operational and 2 consented wind farms within the study area. These are set out in Table 8-9 below in

Table 8-9: Cumulative Wind Farms within the study area

Wind Farm Name	Number of turbines	Distance and Direction from proposed site	Status
Garranereagh Wind Farm	4	c. 1km west of site	Operational
Carrigarierk Wind Farm	5	c.11km west of site	Operational
Kilvinane Wind Farm	3	c.11.5km southwest of site	Operational
Bawnmore Wind Farm	5	c.14km north of site	Operational
Cleanrath Wind Farm	9	c.14km northwest	Operational
Shehymore Wind Farm	11	c.16km west of site	Operational
Derragh Wind Farm	6	c.17.6km northwest of site	Operational
Dromleena Wind Farm	9	c.17km southwest	Consented
Currabwee Wind Farm	7	c. 18km southwest of site	Operational
Kilpatrick Wind Farm	1	c. 18km southeast of site	Operational
Knockeenboy Wind Farm	7	c.18km southwest of site	Consented
Carriganimma Wind Farm	6	c.19km northwest of site	Operational
Coomatallin Wind Farm	4	c.19km southwest of site	Operational



8.10.2 Cumulative Impact Assessment

The appraisal of cumulative impacts with other wind energy developments is based on the cumulative ZTV maps and wireframes provided at **Appendix 8.2 and 8.3**. Given the absence of other tall structures within the study area, it is considered that there is no potential for in combination effects with other types of development.

8.10.2.1 Nature of Cumulative Visibility

The nature of cumulative visibility within the study area is analysed in Table 8-10 below using the same viewpoints that are used for the main visual impact assessment.

Table 8-10: Nature of cumulative visibility

VRP Ref.	Number of other wind farms potentially visible	Nearer or further than the Proposed Development	Combined View (within a single viewing arc - 90°)	Succession View (within a series of viewing arcs from the same location)	Sequential View (view of different developments moving along a linear receptor)
VP1	3+	Nearer and Further	Yes	Yes	Yes
VP2	1	Similar distance	Yes	-	-
VP3	1	Similar distance	Yes	-	-
VP4	-	-	-	-	-
VP5	2	Nearer & Further	Yes	Yes	Yes
VP6	3+	Further	-	Yes	Yes
VP7	1	Nearer	Yes	-	-
VP8	1	Further	Yes	-	Yes
VP9	1	Further	-	Yes	-
V10	3	Further	Yes	Yes	-
VP11	3+	Further	Yes	Yes	-
VP12	1	Nearer	Yes	-	-
VP13	-	-	-	-	-
VP14	3+	Similar Distance and Further	Yes	Yes	-
VP15	1	Further	Yes	-	-
VP16	1	Similar Distance	-	Yes	-
VP17	1	Nearer	Yes	-	-
VP18	1	Further	Yes	-	-
VP19	1	Further	Yes	-	-
VP20	1	Further	Yes	-	-
VP21	-	-	-	-	-
VP22	3+	Similar distance & Further	Yes	Yes	-
VP23	1	Similar distance	Yes	-	-

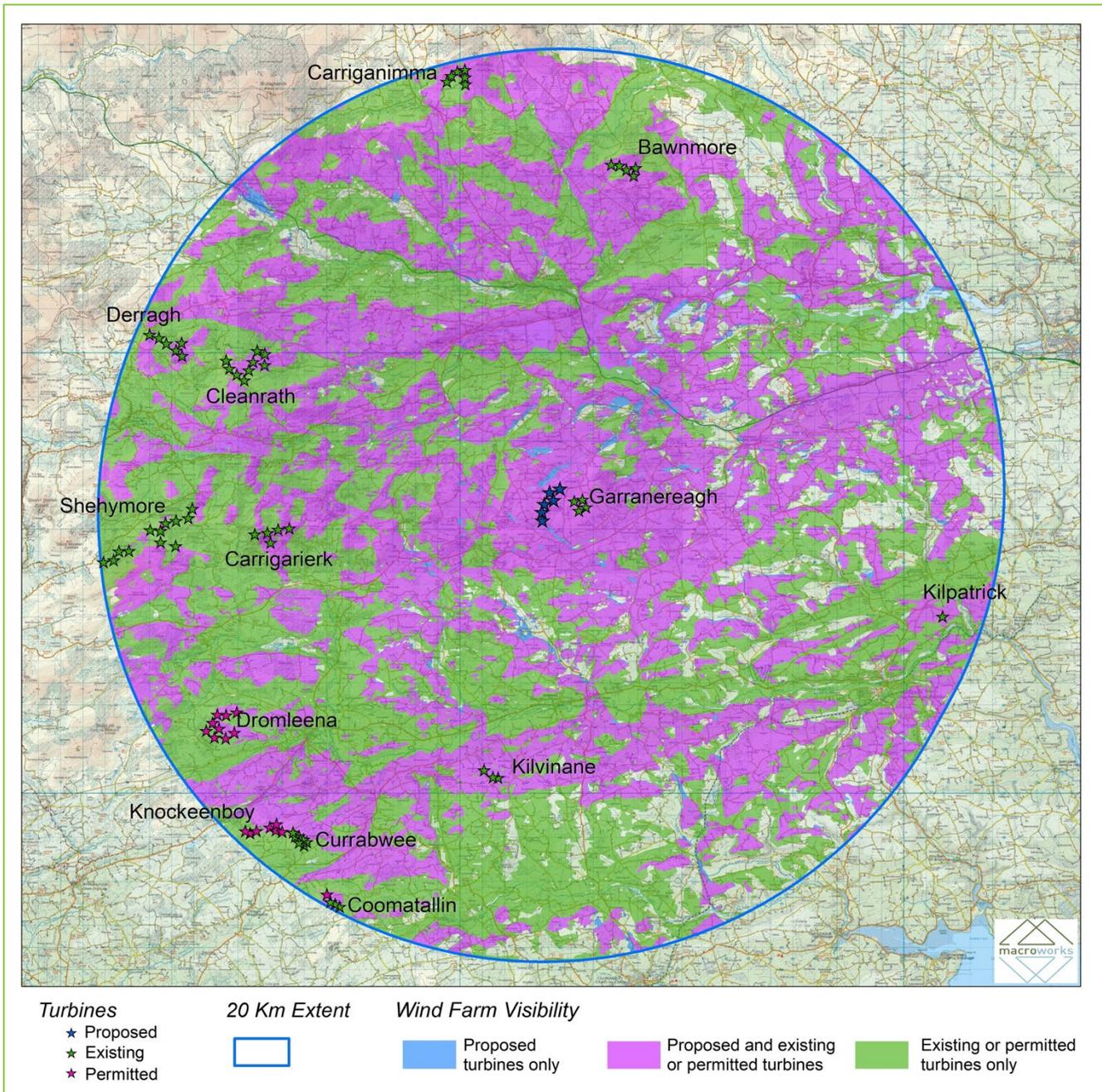


Figure 8-12: Cumulative ZTV Map (Tip Height) for proposed development identifying the potential for intervisibility of the proposed Wind Farm and existing wind farms within the study area (See Appendix 8.2)

8.10.2.2 Nature of Cumulative Visibility

Although the analysis contained in Table 8-10 and consideration of the Cumulative ZTV map in Appendix 8.2 relates principally to cumulative visual impacts (i.e. utilising the selected VP set), it also informs the closely related assessment of cumulative landscape impacts, particularly those relating to cumulative effects on the overall landscape character of the study area. The assessment below, therefore, relates to both cumulative visual effects and cumulative landscape effects.



The cumulative ZTV map (**Appendix 8.2**) shows the potential for cumulative visibility between the Proposed Development and all other existing wind farm developments within the 20km study area. At present there are 11 other operating wind farms within the study area. For ease of assessment, the cumulative wind farms within the study area can be broken down into 3 clusters; cumulative turbines in the immediate surrounds of the site, cumulative turbines in the wider western half of the study area and cumulative turbines in the northern half of the study area.

Table 8-10 above gives an analysis of the nature of cumulative visibility within the Wider Study Area based on the selected VRP's. In almost all cases where the proposed project will be clearly visible, it will also be theoretically visible in combination with at least one other existing development. Indeed, this principally relates to the Proposed Development near the existing Garranereagh Wind Farm, located less than 1km east of the Proposed Development site in an almost identical landscape context. This is most notable from visual receptors along the R585 regional road, where the Proposed Wind Farm and existing Garranereagh turbines are often clearly visible together. As a result, the visual impact appraisal in Appendix 8.1 is essentially a cumulative assessment of the Proposed Wind Farm and adjacent existing development. Where visible together, the Proposed Wind Farm and existing turbines usually present in a clear and legible scale, albeit some minor instances of scale conflict are apparent when viewing the Proposed Wind Farm and existing turbines from the south-eastern portions of the Central Study Area (refer to VP15). Overall, whilst the Proposed Development will notably increase the intensity of wind farm development by more than doubling the number of wind turbines in the central study area, the Proposed Wind Farm and existing Garranereagh turbines are of a similar scale and are located in an almost identical landscape context. Thus, the proposed turbines will typically be viewed as an extension to the existing Garranereagh development in the local and wider surrounds of the Wider and Central Study Area.

With regard to existing and permitted wind farm developments within the wider surrounds of the study area, the most notable potential for combined views of these turbines and the proposed turbines will be from the most elevated locations in the Wider Study Area. Nonetheless, due to the considerable separation distances between these developments and the Proposed Development, there is limited potential for any notable cumulative impacts to occur.

In terms of sequential views, the proposed turbines have the potential to be visible along a number of key linear receptors within the study area, such as scenic routes and major route corridors. Nevertheless, as identified in the visual impact appraisal, the significance of visual impact at 'Scenic designations' and 'Major routes' are generally in the mid to low range, which also accounts for the Proposed Developments' cumulative impact in relation to the existing Garranereagh turbines. As a result, whilst the proposed turbines will increase the quantum of wind energy development along sections of scenic routes and major route corridors in the central and wider surrounds of the study area, they will be viewed clearly offset by a considerable distance from existing and permitted developments in the wider surrounds of the Wider Study Area. Thus, there is limited potential for any notable sequential cumulative impacts to occur in relation to the Proposed Development and existing and permitted development in the wider surrounds of the study area.

Overall, this is considered to be a robust working landscape where existing wind energy development is already a characteristic feature, especially in the study areas' wider surrounds, in combination with forest plantations and other anthropogenic landscape features such as major route corridors. With reference to Table 8-8 above, the Proposed Development is considered to contribute an additional cumulative effect that is in the order of Medium-low within the central study area, which will reduce to Low in the wider surrounds of the study area where the proposed turbines will appear as an extension of the Garranereagh turbines.



In respect of cumulative impacts with other forms of development, the permitted AGCR consists entirely of underground 38kV cable and will connect the Proposed Wind Farm to the Carrigarierk Wind Farm. The Carrigarierk Wind Farm will connect to the Carrickdangan 110kV substation, which in turn will connect to the Dunmanway ESB substation. The AGCR will involve the installation of ducting, joint bays and ancillary infrastructure and the subsequent running of cables along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches and road surfaces, and will result in minor and very localised cumulative landscape and visual effects. Large components associated with the Proposed Development construction will be transported to the Proposed Development site via the identified TDR. It is likely that turbines will be delivered via the N22 Cork-Killarney road, as far as the junction with the R585 at Inchirahilly. From here, the route will follow the R585 road (Crookstown-Bantry) as far as the junction with the local road L6008, at Bengour West. From here it will follow the local road network through Lackareagh, as far as the proposed entrance to the site. A grant of permission by Cork County Council was received for the Enabling TDR Works at the junction of the R585 and L6088 at Bengour West (CCC PI. Ref. 146803). The Enabling TDR Works will only be required during the operational phase in the unlikely event of a major turbine component replacement. It is expected that these temporary accommodation works will not be required for the decommissioning phase as turbine components can be broken up on site and removed using standard HGVs. In the context of the proposed wind farm development, it is considered that these additional works will result in brief, minor and localised cumulative landscape and visual effects that will likely only occur during the construction phase of the development. Thus, cumulative impacts arising from the TDR are not considered to be significant.



**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING**

www.fehilytimoney.ie

📍 Cork Office

Core House
Pouladuff Road,
Cork, T12 D773,
Ireland
+353 21 496 4133

📍 Dublin Office

J5 Plaza,
North Park Business Park,
North Road, Dublin 11, D11 PXT0,
Ireland
+353 1 658 3500

📍 Carlow Office

Unit 6, Bagenalstown Industrial
Park, Royal Oak Road,
Muine Bheag,
Co. Carlow, R21 XW81,
Ireland
+353 59 972 3800

