MWP

CHAPTER 15 LANDSCAPE & VISUAL

Brittas Wind Farm Project

Brittas Wind Farm Ltd

November 2024

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Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
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15. Landscape and Visual

15.1 Introduction

This chapter describes the Landscape and Visual Impact Assessment (LVIA) of a proposed wind farm (named Brittas Wind Farm) at approximately 3km to the north of Thurles, Co. Tipperary in the townlands of Brittas, Rossestown, Clobanna, Brownstown, Killeenleigh and Kilkillahara. The proposed grid route to the existing Thurles 110kV substation is located within or along the boundaries of the townlands of Killeenleigh, Coolgarrane, Clobanna, Athnid More, Rossestown, Cassestown, Farranreigh, Laghtagalla, Furze, Loughlahan and Ballygammane.

The elements of the proposed project most relevant to this landscape and visual assessment is for the construction of 10 no. wind turbines and associated infrastructure, including;

- The Wind Farm Site which includes ten wind turbines with a height of 180m, associated tracks and infrastructure, an on-site 110kV electrical substation;
- A Battery Energy Storage System (BESS) and;
- The 7km Grid Connection Route (GCR), which consists of an underground electrical grid connection from the Wind Farm Site to the existing Thurles 110kV substation.

Please refer to Chapter 2 – Description of the Proposed Project for this EIAR for a full project description.

15.1.1 Study Area

The Wind Energy Guidelines (2006) and Draft Wind Energy Guidelines (2019) state that a study area of 20 kilometres is adequate for proposed wind turbines over 100m in height but consideration should be given to a radius of 25 kilometres if this would include a landscape of International or National importance. In this instance, consideration of such an important landscape (i.e. the Rock of Cashel, which is located 20-25 kilometres from the proposed project) will be made, although a 20 km study area will be used for the LVIA

The study area is indicated on Figure 15-1, below, and is also defined on the ZTV (Zone of Theoretical visibility) mapping. This map is included in a reduced format below, and at full size (A3) in Appendix 15A. The Zone of Theoretical Visibility (ZTV) map also extends to a radius of 20 kilometres; thus, the extent over which the turbines are theoretically visible are represented for this distance on these maps.

Please note that for the purposes of this assessment, a 20km study area will be employed, the central study area refers to the area within approx. 5km of the site. The central study area is an approximate area that entails those locations where landscape and/or visual receptors are more likely to generate significant effects, in comparison to locations in the wider study area that are further from the site.

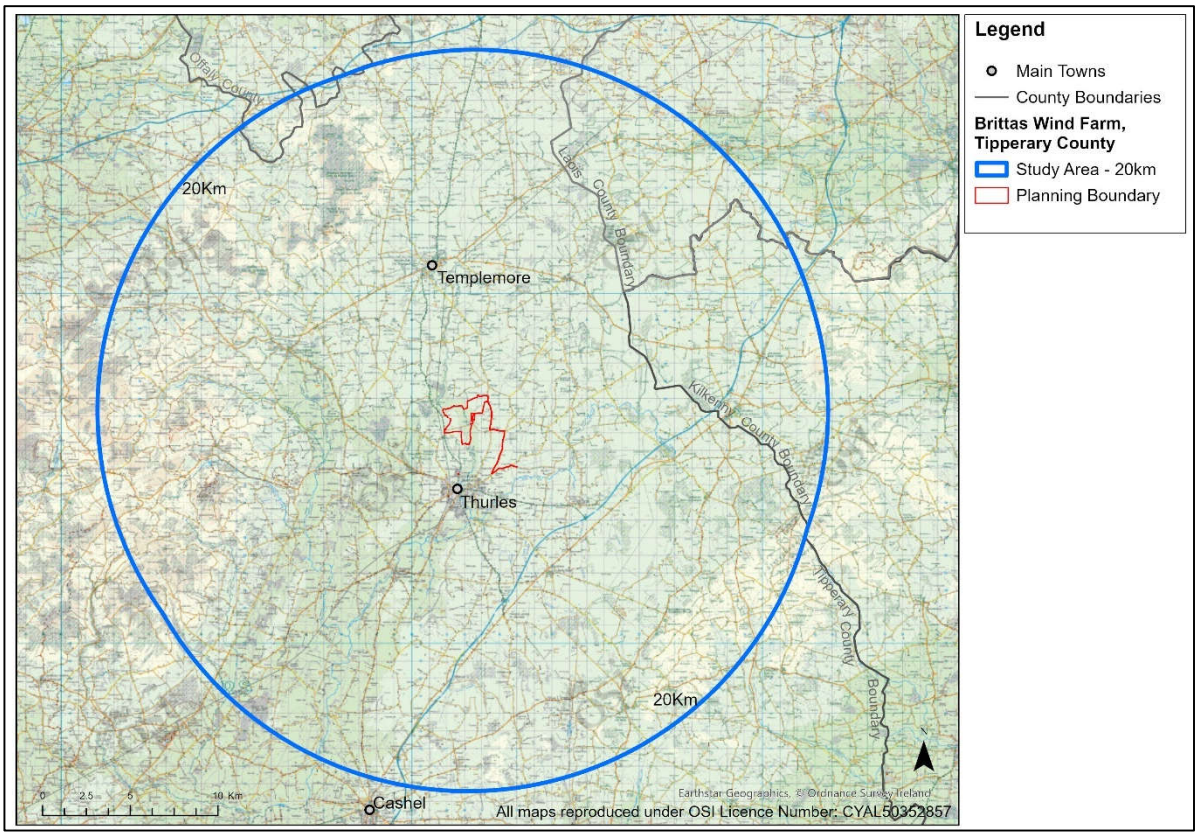


Figure 15-1: Study Area – 20km radius

15.1.2 Competency of Assessor

This Landscape and Visual Assessment was carried out by Jamie Ball, BA LA, MILI. Having graduated in 1998 from the University of Gloucestershire with a BA Hons in Landscape Architecture, Jamie has ten years' experience specifically in Landscape and Visual Assessment (LVIA). He has worked on the Landscape and Visual assessment for a range of wind energy developments throughout Ireland, from single turbine developments to 21-turbine Strategic Infrastructure Developments. He also has experience in a range of other LVIA projects including solar energy, infrastructure, residential, commercial and recreation projects.

Oversight of the chapter was provided by Declan O' Leary, B. Agr Sc. Land. Hort., Dip LA, CMLI, MILI, Managing Director of Cunnane Stratton Reynolds. Declan is CSR's Principal Landscape Architect, fronting the Landscape Architecture team and heading all Landscape Planning & Architecture aspects, with a particular focus on Landscape Appraisal. He has 30 years' experience in impact assessment of a wide range of project types, including wind energy developments.

15.2 Methodology

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity. The methodology followed in Ireland for LVIA is that set out in the Guidelines for Landscape and Visual Impact Assessment (GLVIA) by the Landscape Institute and the Institute of Environmental Management and Assessment (2013), 3rd Edition (hereafter referred to as the GLVIA).

Ireland is a signatory to the European Landscape Convention (ELC). The ELC defines landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. This definition is important in that it expands beyond the idea that landscape is only a matter of aesthetics and visual amenity. It encourages a focus on landscape as a resource in its own right - a shared resource providing a complex range of cultural, environmental, and economic benefits to individuals and society. It is also important to note that this definition of landscape applies not only to all types of rural landscape, marine and coastal landscapes (seascapes) but also to the landscape of villages, towns and cities.

The GLVIA notes that as a cultural resource, the landscape functions as the setting for our day-to-day lives, also providing opportunities for recreation and aesthetic enjoyment and inspiration. It contributes to the sense of place experienced by individuals and communities and provides a link to the past as a record of historic socio-economic and environmental conditions. As an environmental resource, the landscape provides a habitat for fauna and flora. It receives, stores, conveys, and cleans water, and vegetation in the landscape stores carbon and produces oxygen. As an economic resource, the landscape provides the raw materials and space for the production of food, materials (e.g. timber, aggregates) and energy (e.g. carbon-based fuels, wind, solar), living space and for recreation and tourism activities.

The GLVIA notes that landscape is not unchanging. Many different pressures have progressively altered familiar landscapes over time and will continue to do so in the future, creating new landscapes. For example, within the receiving environment, the environs of the proposed project have altered over the last thousand years, from wilderness to agriculture and settlement or townscape.

Many of the drivers for change arise from the requirement for development to meet the needs of a growing population and economy. The concept of sustainable development recognises that change must and will occur to meet the needs of the present, but that it should not compromise the ability of future generations to meet their needs. This involves finding an appropriate balance between economic, social and environmental forces and values.

The reversibility of change is also described as an important consideration. If change must occur to meet a current need, can it be reversed to return the resource (in this case, the landscape) to its previous state to allow for development or management for future needs.

Climate change is one of the major factors likely to bring about future change in the landscape, and it is accepted to be the most serious long-term threat to the natural environment, as well as economic activity (particularly primary production) and society. The need for climate change mitigation and adaptation, which includes the management of water and more extreme weather and rainfall patterns, is part of this.

The assessment of Landscape and Visual effects assesses the effects of the development on the landscape as a resource, and on the fabric and character of the landscape. Assessment of visual effects relates to the change in views and visual amenity experienced by groups of people. The assessment includes the review of the proposed project, desktop study, and several site visits both to the site and the wider landscape. This approach emphasises the distinction between the assessment of Landscape effects and Visual effects, which, though related, are assessed separately. The methodology is as follows:

Baseline Study: Following a desk-based study, a site visit was carried out in April 2023 to establish the existing receiving environment and key landscape and visual characteristics, and to identify relevant national and local designations and polices. Scenic routes, protected views and other landscape designations were reviewed. Aerial imagery, OSI Discovery series mapping, CORINE Landcover Maps (2018) were also reviewed to gather accurate information on the study area.

Assessment of Effects: A number of tools are used to assist in the assessment of visual effects. These include Zone of Theoretical Visibility (ZTV) Maps, which are maps generated to show the areas from which the proposed wind

farm will be potentially or theoretically visible, and how many turbines will be theoretically visible, strictly in a bare ground scenario. Further limitations of ZTVs are discussed in Section 15.2.1 below. Initial viewpoints for photomontages are selected partly based on ZTV maps, with actual visibility confirmed in the field. The completed photomontages are also used to assist in the assessment of visual effects.

15.2.1 Zone of Theoretical Visibility (ZTV) Maps

ZTV Maps are produced to solely indicate theoretical visibility and are based on topographical information (i.e. the base mapping data supplied uses contours at 10 metres intervals) to indicate areas which may have views of the turbines. It is important to note that these maps, though useful, have limitations as they are based on topography alone, and represent a bare-earth scenario (i.e., a landscape without any structures, buildings, or vegetation). In reality, many of these elements combine to screen our views of the landscape, so the ZTV maps represent a considerably greater extent of visibility than will be the case in reality.

It is important to note the limitations of ZTV maps which include those identified by Scottish Natural Heritage (SNH):

- ZTV maps do not include any vegetation, buildings or other structures in the landscape so are different to actual visibility.
- ZTV maps give information on the likely extent and pattern of visibility but not the nature or magnitude - and what the visual effect is likely to be.
- It is not easy to test the accuracy of a ZTV in the field, though some verification will occur during the assessment from viewpoints.

ZTV maps are useful to determine potential visual receptors and viewpoints, as they show areas which will not have any visibility of the proposed project. They also show the pattern of visibility, the numbers of turbines likely to be visible, and how much of the turbines is potentially visible. However, as they do not take into account the presence of vegetation or structures, for example, in the landscape, areas showing theoretical visibility on the ZTV maps will often not have visibility in reality.

Photomontages are also used as a tool to assist in the assessment of visual effects and in particular, the nature of the visual effect. They can be used in the development of the wind farm design; and can help to illustrate the location and nature of the visual effects of a proposed wind farm. Further details on the photomontages are contained in Section 15.2.2 below as well as the assessment in 15.6.2. The Photomontage Booklet is contained in Volume 4 of this EIAR.

15.2.2 Visualisations/Photomontages

A set of 28 no. verified photomontages were produced from carefully selected viewpoints, to assist in assessing the visual effects, from various locations throughout the study area. These verified photomontages were produced by Innovision Media Ltd. and are included in the Photomontage Booklet in Volume 4.

While these verified photomontages are extremely useful in giving an impression of the proposed turbines and assist in the assessment as well as the layout of the proposed turbines, the SNH guidance notes the uses and limitations of visualisations. These include:

- Visualisations provide a tool for assessment but should never be considered as a substitute for visiting a viewpoint in the field.

- It must be noted that photographs cannot replicate a view as seen by the human eye. They also only represent a view from a single location, at a particular time and in particular weather conditions.
- Static visualisations cannot convey the effect of turbine blade movement.

15.2.3 Guidelines and Best Practice

The methodology for assessment of the landscape and visual effects is in compliance with he following key guidance documents, namely:

- Landscape Institute and the Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition (GLVIA).
- *Wind Energy Development Guidelines* (Department of the Environment, Heritage and Local Government 2006)
- *Wind Energy Development Guidelines Public Consultation Draft* (Department of Housing, Planning and Local Government 2019)
- *Guide to Visual Representation of Wind Farms* (Scottish Natural Heritage, 2017)
- *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (May 2022) published by the Environmental Protection Agency (EPA).

The 2013 GLVIA is authored by the Landscape Institute in the UK and the IEMA, which contains a network of members in UK and Ireland and internationally. The guidance was prepared within the parameters of relevant EU directives at the time and is updated, where necessary, by Landscape Institute bulletins online. The GLIVA is used internationally and is the industry standard for LVIA in Ireland. The EPA guidance (2022) refers to the use of topic specific guidance and specifically references the GLVIA in relation to professional judgement. It recognises (at para 3.72) that:

> *"Some uncertainty is unavoidable in EIA, especially about matters that involve an element of judgement, such as assigning a level of significance to an effect. Such judgements should be explicit and substantiated rather than presented as objective fact. This is best done using agreed referable approaches, e.g. the Guidelines on Landscape and Visual Impacts Assessment provide guidance on what constitutes a severe visual effect".*

References are also made to the 'Landscape and Landscape Assessment – Consultation Draft of Guidelines for Planning Authorities' document, published in 2000 by the Department of Environment, Heritage and Local Government.

Based on the above guidance, and in particular the GLVIA guidance, the following assessment criteria is used. It should be noted that the approach advocated in the GLVIA is that landscape consultants should prepare the assessment criteria suitable to the project, and the Guidelines themselves contain suggestions on how to prepare criteria.

15.2.4 Landscape and Visual Assessment Process

The GLVIA outlines the assessment process, which combines judgements on the sensitivity of the resource, and the magnitude of the change as a result of the proposed project. These are then combined to reach an assessment of the significance of the effect. Another key distinction to make is that in the GLVIA methodology makes a distinction between landscape effects and the visual effects of a proposed project.

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

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

The GLVIA outlines the assessment process, which combines judgements on the sensitivity of the resource and the magnitude of the change it is likely to undergo as a result of the proposed project. These are then combined to reach an assessment of the significance of the effect.

15.2.4.1 Establishment of Baseline

The process set out in the GLVIA and in the EPA (2022) involves the preparation of the baseline or receiving environment characteristics. This includes two stages, which are a desk based study, followed by the site visit/field study. These allow the assessor to establish the existing receiving environment and key landscape and visual characteristics and their sensitivities.

The desk-based study includes:

- Familiarisation with the location and context of the site, a review of the proposed development and identification of the 20km study area.
- Review of the current Tipperary, Kilkenny, Laois and Offaly County Development Plan(s) within the study area, and any other plans as appropriate, to identify relevant national and local designations and policies.
- This includes designations within the Co. Tipperary Landscape Character Assessment, the Co. Tipperary Wind Energy Strategy, National Parks & Wildlife Service (NPWS) designations, as well as scenic designations in each of the four counties within the study area.
- Other information includes aerial imagery, OSI Discovery series mapping, historic (6-inch and 25 inch) mapping and CORINE Landcover Maps (2018).

A site visit is then carried out to review and/or confirm the findings of the desk based study and provide a more detailed description of the landscape and visual character of the study area. Based on both the desk study and site visit, the assessor identifies landscape and visual receptors and their relative sensitivity. The site visit for the assessment was carried out in March 2023.

15.2.4.2 Assessment of Effects

Once the baseline is established, the likely evolution of the baseline in the absence of the proposed development is assessed and the proposed project drawings and descriptions reviewed, the assessment process is commenced.

Use of 'Impact' and 'Effect':

Section 1.16 of the GLVIA (referring to the EIA Directive), advises that the terms 'impact' and 'effect' should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed project, the impact would include the installation of the turbines, creation of internal tracks etc.

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

15.2.4.2 Landscape Assessment Criteria

Landscape sensitivity is determined by the value of the landscape, and its susceptibility to change.

Landscape values can be identified by the presence of landscape designations or policies which indicate particular values, either on a national or local level. In addition, a number of criteria are used to assess the value of a landscape.

Landscape susceptibility is defined in the GLVIA as, *"the ability of the landscape receptor to accommodate the proposed project without undue consequences for the maintenance of the baseline scenario and/or the achievement of landscape planning policies and strategies."* Susceptibility also relates to the type of development; a landscape may be highly susceptible to certain types of development but have a low susceptibility to other types of development.

Landscape susceptibility in relation to wind energy developments can include, though is not limited to, consideration of:

- Topography and skyline: while uplands, for example, can have a greater capacity to absorb wind energy development, this is also influenced by siting, scale and design, among other factors;
- Landscape pattern and landcover: a simple landscape pattern can be less susceptible than a complex pattern, including varying types of landcover and;
- Settlement pattern: this can influence susceptibility of any proposed project.

Landscape Sensitivity ranges from Low to Very High as outlined in Table 15-1.

Table 15-1: Categories of Landscape Sensitivity

Sensitivity	Description
Very High	Areas where the landscape exhibits a very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The character of the landscape is such that its capacity for accommodating change in the form of development is very low. These attributes are recognised in landscape policy or designations as being of national or international value and the principal management objective for the area is protection of the existing character from change.
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The character of the landscape is such that it has limited/low capacity for accommodating change in the form of development. These attributes are recognised in landscape policy or designations as being of national, regional or county value and the principal management objective for the area is conservation of the existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principal management

Sensitivity	Description
	objective may be to consolidate landscape character or facilitate appropriate, necessary change.
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character of the landscape is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and where the principal management objective is to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character of the landscape is such that its capacity for accommodating change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands or extraction sites, as well as sites or areas that are designated for a particular type of development. The principal management objective for the area is to facilitate change in the landscape through development, repair or restoration.

Magnitude of Landscape Change: The magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape with reference to its key elements, features and characteristics (also known as 'landscape receptors'). For the purpose of assessment, five categories are used to classify Magnitude of Landscape Change, from Very High sensitivity to Negligible. (These categories are defined in **Table 15-2)**.

Table 15-2: Magnitude of Landscape Change

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in alteration or compromise to key elements, features or characteristics, and/or introduction of large elements considered uncharacteristic in the context. Such development results in a moderate to large change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily uncharacteristic in the context. Such development results in moderate change to the character of the landscape.
Low	Change that is limited in extent, resulting in minor alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is very limited in extent, resulting in no alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are characteristic in the context. Such development results in minimal change to the character of the landscape.

15.2.4.3 Methodology for Visual Assessment

In Section 15.5 and 15.6 of this report, the visual effects of the proposed project are assessed. Visual assessment considers the sensitivity of the viewers (i.e. groups of people) and the magnitude of the changes to the composition and character of views. The assessment is made for a number of viewpoints selected to represent the range of visual receptors in the receiving environment. The significance of the visual effects experienced at these locations is assessed by measuring the visual receptor sensitivity against the magnitude of change to the view resulting from the proposed project.

Sensitivity of the Visual Receptor

Visual receptor sensitivity is a function of two main considerations:

1) *Susceptibility of the visual receptor to change.* This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention or interest is focussed on the views or visual amenity they experience at that location.

Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage or other attractions and places of community congregation where the setting contributes to the experience. Visual receptors less susceptible to change include travellers on road, rail and other transport routes (unless on recognised scenic routes which would be more susceptible), people engaged in outdoor recreation or sports where the surrounding landscape does not influence the experience, and people in their place of work or shopping where the setting does not influence their experience.

1) *Value attached to the view.* This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. by appearing in arts).

For the purpose of assessment, five categories are used to classify visual receptor sensitivity. These categories range from Very High to Negligible and are described in Table 15-3.

Table 15-3: Categories of Visual Receptor Sensitivity

Sensitivity	Description
Very High	Viewers at iconic viewpoints - towards or from a landscape feature or area - that are recognised in policy or otherwise regarded as being of very high value or national value. This may also include residential viewers whose primary view is of very high value.
High	Viewers at viewpoints that are recognised in policy or otherwise designated as being of high value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features) and are valued by the local community. This would include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.
Medium	Viewers at viewpoints representing people travelling at slow or moderate speed through or past the affected landscape in cars or on public transport, where they are partly but not entirely focused on the landscape, or where the landscape has some valued views. The views are generally not designated, but which include panoramic views or views judged to be of some scenic quality, which demonstrate some sense of naturalness, tranquillity or some rare element in the view.
Low	Viewers at viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping, etc. The view may present an attractive backdrop to these activities but there is no evidence that

Sensitivity	Description
	the view is valued, or that it is regarded as an important element of these activities. Viewers travelling at high speeds (e.g. motorways) may also be considered of low susceptibility.
Negligible	Viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities, such as shopping, where the view has no relevance or is of poor quality and not valued.

Magnitude of Change to the view

Classification of the magnitude of change takes into account the size or scale of the intrusion of the proposed project into the view, relative to the other elements and features in the composition(i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral, or glimpses). It also takes into account the geographical extent of the change, the duration and the reversibility of the visual effects.

Five categories are used to classify magnitude of change to a view. These range from Very High to Negligible and are defined in Table 15-4

Table 15-4: Magnitude of Visual Change

Magnitude of Change	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs highly valued features or characteristics, or the introduction of elements that are completely out of character in the context, to the extent that the development becomes dominant in the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

In this case, a number of tools are used to assist in the assessment of visual effects. These include Photomontages, which are produced from selected viewpoints. Initial viewpoints for photomontages are selected during the desk study with the exact location confirmed in the field during the site visit. The completed photomontages are also used to assist in the assessment of visual effects.

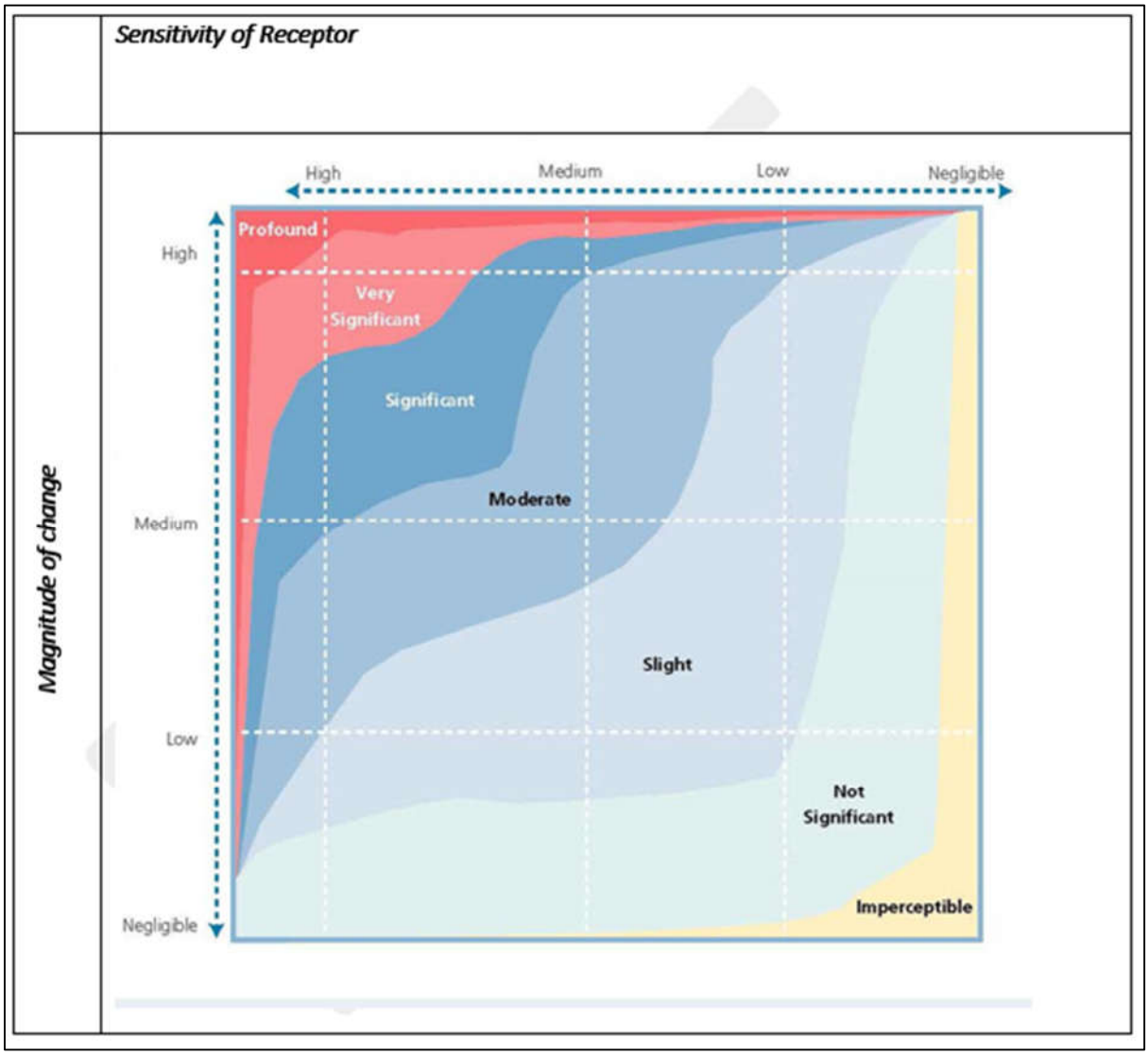
Significance of Effects

In order to classify the significance of landscape and visual effects, the predicted magnitude of change is measured against the sensitivity of the landscape/viewpoint. The definitions used by the EPA (2022) provide a useful scale to describe the significance of the effects.

There are seven classifications of significance, namely: (1) imperceptible, (2) not significant, (3) slight, (4) moderate, (5) significant, (6) very significant, (7) profound.

The relationship between the magnitude of change and sensitivity of the receptor with the varying classifications of Significance is illustrated on the below extract from the EPA (2022) Guidelines (with labels amended and simplified based on GLVIA.) Please note that unlike **Table 15-1** to **Table 15-4**, a 'Very High' sensitivity of receptor and a 'Very High' magnitude of change are not shown on **Table 15-5,** below. However, if/where a 'Very High' sensitivity is measured against a 'Very High' magnitude, it will result in a 'Profound' significance of effect.

Table 15-5: Significance of Effect (Source: EPA 2022)



Note: This graphic is a guideline only, and an element of professional judgment is also applied. The assessor also uses professional judgement informed by their expertise, experience and common sense, to arrive at a classification of significance that is reasonable and justifiable.

GLVIA recognises (at para 2.23) that:

"professional judgement is a very important part of LVIA. While there is scope for quantitative measurement of some relatively objective matters, much of the assessment must rely on qualitative judgements."

In accordance with EPA guidance, impacts/ effects are also classified as beneficial, neutral or adverse. This is not an absolute exercise; in particular, visual receptors' attitudes to development, and thus their response to the impact of a development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn. Please refer to Table 15-6, below.

Table 15-6: Quality of Effect (Source: CSR based on GLVIA 2013)

Definition of quality of effects	
Adverse/negative	Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape (townscape) view to be diminished;
Neutral	Scheme complements (or does not detract from) the scale, landform and pattern of the landscape (townscape)/view and maintains landscape quality;
Beneficial /positive	Improves landscape (townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

In accordance with EPA guidance, impacts/effects are also categorised according to their longevity or timescale, as in Table 15-7 below:

Table 15-7: Duration of Effect (Source: EPA 2022)

Definition of duration of effects	
Duration	Description
Temporary	Effects lasting one year or less
Short Term	Effects lasting one to seven years
Medium term	Effects lasting seven to fifteen years
Long Term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years

15.2.4.3 Process of Identifying suitable Viewpoints and selection

For each viewpoint, a table is included which includes the following information:

- The existing view is described (this is the 'Baseline Photograph') to express the landscape context.
- With the Volume 4 Photomontage booklet, a wireframe view is also shown underneath the existing view, illustrating theoretical visibility of the turbines. This includes existing, permitted or consented turbines, as well as proposed turbines (those which have not yet been determined).
- Magnitude of Change is then described in the 'Proposed Photomontage' view. The Photomontage view is shown as 53.5 degrees, (as per SNH guidance) with some viewpoints requiring two or more 53.5 degree views. For some viewpoints (View 1, 3, 4, and 27) in closer vicinity to the site, there are two or more Photomontage views, as these locations are in close proximity to the proposed turbines.

- Other headings include Visual Receptor Sensitivity, Significance of Effect and cumulative visibility. These are assessed, as per **Table 15-1** to **Table 15-5.** The quality of the effect is also assessed, as per **Table 15-6**.
- In the operational phase, the duration of the visual effect will be long term (i.e. lasting 15-60 years, according to the EPA - see **Table 15-7**). It is important to note that, in the advent of planning permission being granted, the turbines may be decommissioned after 35 years (i.e. any further proposals for development at the site during or after this time will be subject to a new planning permission application). The change, therefore, is considered to be reversible, as the removal of turbines, and other tall elements of the proposed project, will remove the visual effects associated with it.
- It should be noted that, where relevant, the photomontages also depict cumulative visibility, and this heading describes visibility of other turbines. Any existing turbines are depicted in the baseline views and/or in the wireframe view. These are briefly referenced in the descriptions in **Section 15.6.2** but are later addressed and assessed separately in the cumulative visual effects **Section 15.7.**

Please refer to **Appendix 15A** and **15B** in **Volume 3,** for the mapped viewpoint locations. The viewpoint numbers and descriptions are as follows:

Table 15-8: Viewpoint Locations

Viewpoint No	Description	Distance from nearest proposed turbine (km)
1	View from residences at Rossestown	1.36
2	View from residences at Brownstone Crossroads	1.07
3	View from Rossestown Bridge, near the centre of site	0.27
4	View from residences by N62, to immediate west of site	0.77
5*	View from castle at Dovea	2.73
6	View from residences by N62, on Northern outskirts of Thurles	1.52
7	View from Thurles town centre	2.77
8	View from Twomileborris	6.76
9	View from residences at Kilcooney townland	3.35
10	View from Templetuohy	8.47
11	View from Loughmore Abbey	3.91
12	View from Templemore	8.09
13	View from Bouladu (i.e. 'The Ragg')	6.05
14	View from Holy Cross Cistercian Abbey	8.37
15	View from M8 & N62- northern roundabout at Junction 6	9.34
16	View from Tipperary designated scenic route at Borrisoleigh	9.24
17	View from Tipperary designated scenic route along N62 at Clonakenny townland	15.44
18	View from Tipperary designated scenic route at New Bermingham	14.93
19	View from Clonoulty village	14.69
20	View from Johnstown	16.09
21	View from Liath Mor heritage site	10.09
22	View from Rock of Cashel	21.3
23*	View from Brittas Castle	0.59

Viewpoint No	Description	Distance from nearest proposed turbine (km)
24	View from Tipperary scenic route (v55) along R503	9.57
25	View from Devils Bit	12.29
26	View from Moyne village	5.76
27	View from residences at Brownstown	0.85
28*	View from Clobanna church and graveyard	0.7

*Viewpoints 5, 23 & 28 being assessed in this chapter but is only being assessed in the cultural heritage chapter.

15.2.4.4 Method for Assessing Proposed Turbine Flexibility

Three types of turbines will be assessed in this chapter. All three types of turbines have a tip height of 180m but differ in the blade length (between 73m and 76m), hub height (between 102.5m and 105m) and rated power (between 5.7 and 6.6 MW). Please refer to Table 15-9, below.

Table 15-9: Turbine Option Types

Turbine Identifier	Tip Height	Blade length	Hub Height	Rated Power
Type A	180m	73.7m	105m	6MW
Type B	180m	76m	102.5m	6.6MW
Type C	180m	73m	105m	5.7MW

With regards to likely landscape or visual effects, the spectrum of different turbine types presents with such an insignificant range of differences, as to be negligible. Owing to the minor differences in specification for each of these turbines, they do not have the capacity to generate any material or discernible change to either landscape or visual effects, be it in the construction or operational stage. This is further evidenced by Section 2.4.1 within Chapter 2, with particular reference to Figure 2-8 and planning drawing number 23318-MWP-00-00-DR-C-5401 & 5402.

Nonetheless, Type A was selected for the purposes of the visual impact assessment, as it represents the (joint) tallest hub height of the three options, while having a blade length of 73.7m. Thus, the resulting verified photomontages have been generated using Type A specifications. While Type A marginally represent the 'worst case scenario' of the three turbine options, in terms of potential visual impacts, it is worth emphasizing that such marginal differences in turbine specification is highly unlikely to be discernible from visual receptors within the vicinity of the site, let alone from several kilometres from the site. Accordingly, a visual impact assessment of each turbine type, from each viewpoint, is not necessary.

15.2.5 Statement on Limitations and Difficulties Encountered

No limitations or difficulties were encountered during this assessment.

15.3 Existing Receiving Environment

15.3.1 Landscape Policy Context

There are a number of policy documents which are relevant, including local policy contained in the relevant

County Development Plans, as well as National policy on wind energy developments. These are summarised below.

The 20km study area encompasses sections of four different counties. The vast majority of the study area, including all areas within approx. 9km of the site, is within Co. Tipperary. In addition, eastern sections of the study area are within Co. Kilkenny; the northeast section of the study area is within Co. Laois, while a small north-western section of the study area is within Co. Offaly.

Thus, while the current County Development Plan (CDP) for Tipperary will be examined for all landscape & visual related policies, objectives and designations, only the relevant scenic designations, policies and objectives of counties Kilkenny, Laois and Offaly will be identified, where relevant.

15.3.2 Tipperary County Development Plan (CDP) 2022-2028

15.3.2.1 Landscape Character

CDP 11.9: It is the policy of the Council to:

11-16 - *"Facilitate new development which integrates and respects the character, sensitivity and value of the landscape in accordance with the designations of the Landscape Character Assessment, and the schedule of Views and Scenic Routes (or any review thereof). Developments which would have a significant adverse material impact on visual amenities will not be supported."*

11-17 - *"Ensure the protection of the visual amenity, landscape quality and character of designated 'Primary' and 'Secondary' amenity areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. New development shall have regard to the following:*

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

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

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

15.3.2.2 Scenic Routes and Views

Section 11.7.2 of Volume 3 of the Tipperary County Development Plan designates scenic views, scenic routes and two types of designated landscapes, Primary and Secondary Special Amenity. The Plan notes that there is a need to protect and conserve views adjoining key heritage sites and inter-county scenic tourism routes, and emphasises that when assessing new developments, consideration shall be given to ensuring that views are not obstructed or significantly altered, and that the visual impact of new development shall be minimised by careful design and siting.

There are two categories of landscape designations, Primary and Secondary Amenity areas. These areas are described as:

"…particularly notable by virtue of their scenic and visual quality and offer significant opportunities for tourism development and rural recreational activities. The Council will seek to ensure that a balance is achieved between the protection of sensitive landscapes and the appropriate socio-economic

development of these areas. In this respect, development proposals will be required to demonstrate that they integrate and respect the visual quality of the amenity area."

There are no Primary Amenity Areas within the study area. However a number of designated Second Amenity Areas are located more than 10km from the site to the north-western, western and south-eastern extents of the study area (illustrated in **Figure 15-2**).

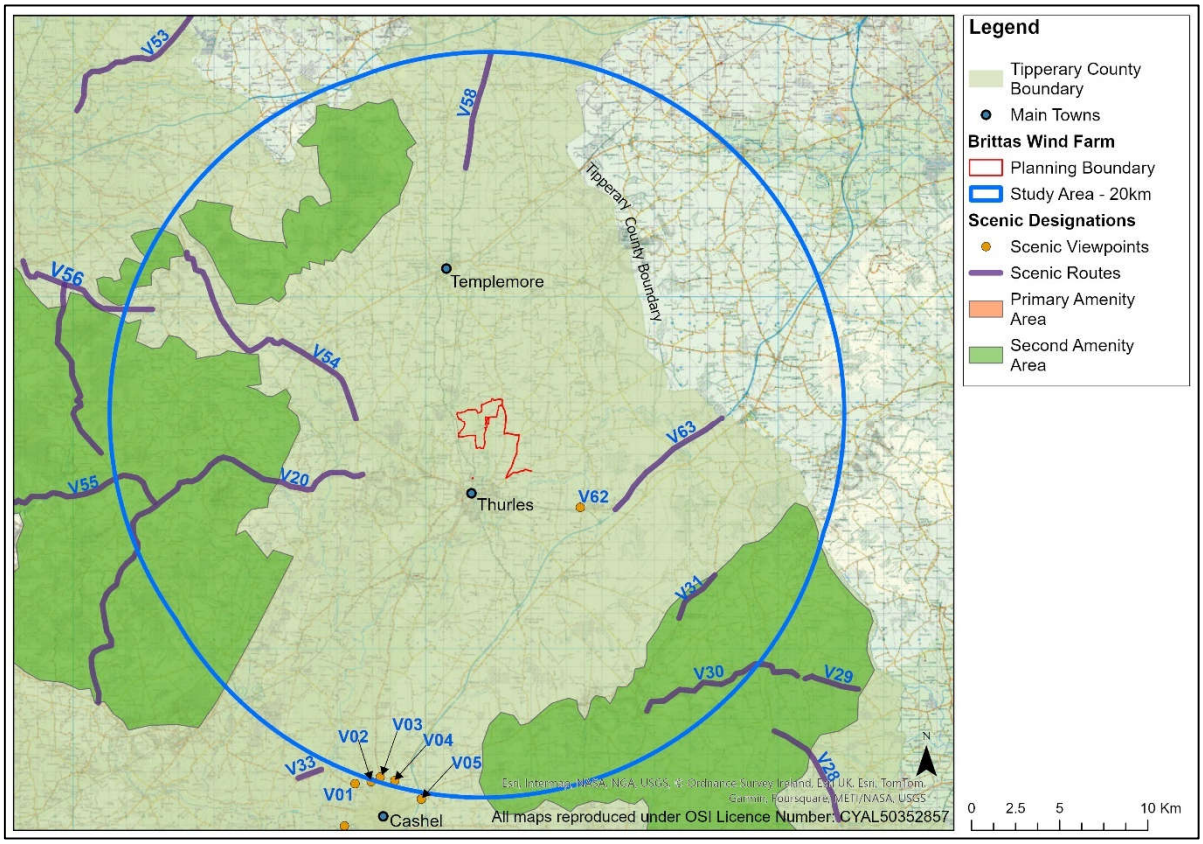


Figure 15-2: Scenic Designations - Co. Tipperary

Scenic Views and routes are outlined in the Volume 3 Landscape Character Assessment and illustrated in **Figure 11.1** of this Volume of the Tipperary County Development Plan. A number of scenic routes are located in the study area. However, none enter within 7km of the site. However, sections of three such scenic routes enter between 7-10km of the site, with all other scenic routes remaining more than 10km from the site. All scenic routes within 20 kilometres are listed in **Table 15-10** below and shown, along with other landscape designations, and the proposed planning boundary, on **Figure 15-2** above. In terms of scenic views, there is only one such Co. Tipperary designated scenic view within 18km of the site. This is V62, which is located approx. 6.5km southeast of the site.

Table 15-10: Scenic Routes & Views, Co. Tipperary

Scenic Route & Views No	Description
V02	View towards the Rock of Cashel from Ardmayle Road
V03	View towards the Rock of Cashel from Boherlahan Road
V04	View towards the Rock of Cashel from Dublin Road
V20	Views in all directions from Ironmills to Milestone Road (R497)
V30	Views to the west and south along road R691.

Scenic Route & Views No	Description
V31	Views to the west between Glengoole and Ballysloe, along road R689.
V54	Views from the R498 from Bouladuff through Borrisoleigh
V55	North and south of the R503 from Newport to Ballycahill
V56	V56 - East and west of the R497
V58	West on the N62 north of Templemore
V62	Views from the N75 in Borris, east of Thurles
V63	Views from M8 near Longford's Pass

15.3.2.3 Landscape Character Assessment of County Tipperary

A Landscape Character Assessment for Tipperary was prepared in 2016 and is included as **Appendix 3** of the current CDP. The Assessment identified 23 distinctive 'Landscape Character Areas', so that proposed projects within such areas will be required to integrate with the character, sensitivity and value of the area.

Figure 15-3 below, which is a reproduction of **Figure 1** in the Plan, includes the Landscape Character Areas into which the County is divided, and the proposed planning boundary of the Brittas development. The site is located within LCA5 Templemore Plains. However, there are nine other LCAs lying within the 20km radius of the study area. These are: LCA1 Urban and Fringe Area, LCA2 Thurles Hinterland, LCA3 Nenagh Corridor, LCA4 River Suir Central Plain, LCA5 Templemore Plains, LCA8 Littleton Raised Bog, LCA9 Littleton Farmland Mosaic and Marginal, LCA17 Hollyford Hills Mountain Mosaic and LCA22 Devilsbit Upland.

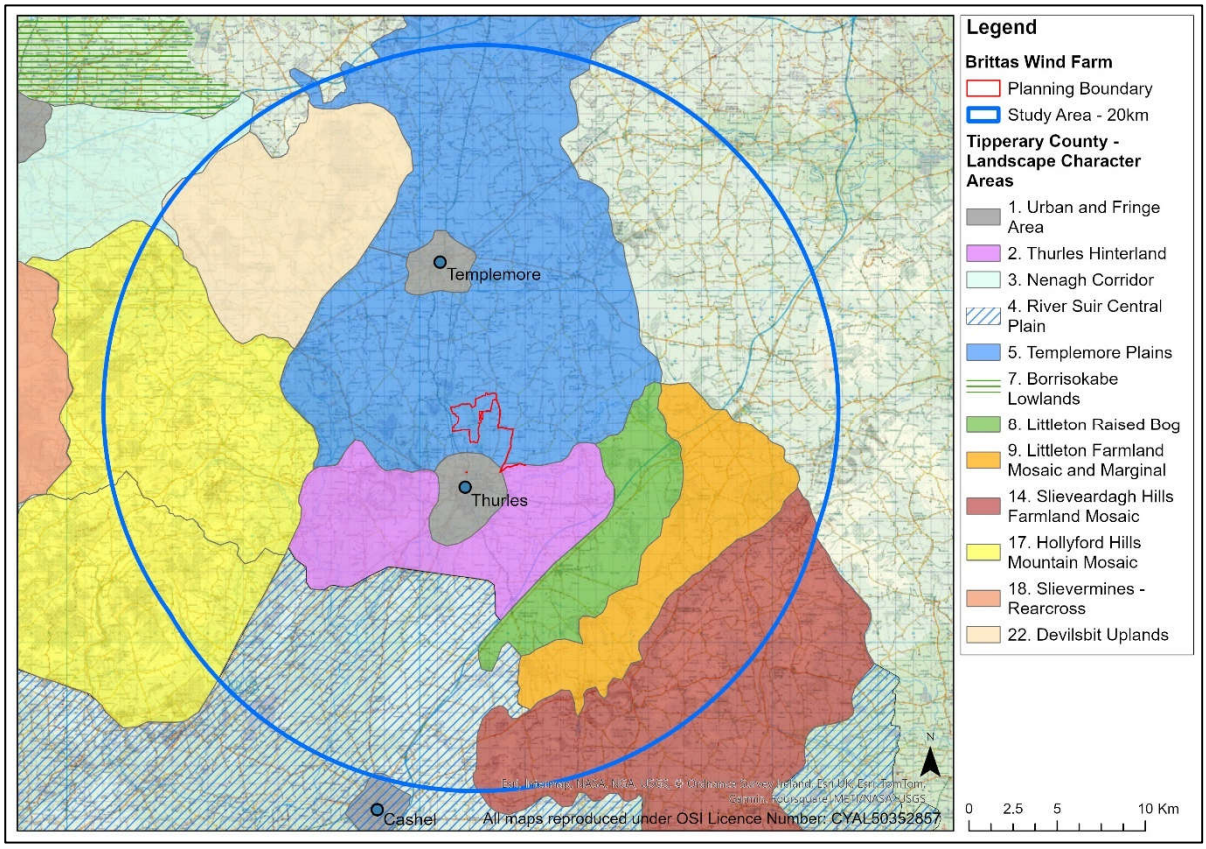


Figure 15-3: Landscape Character Areas in Co. Tipperary (with proposed Brittas planning Boundary)

LCA5 Templemore Plains

The site is within LCA5 Templemore Plains, while only a small section of the grid connection route is outside this LCA. This LCA is described in the Landscape Character Assessment as part of the Plains Lowland Pasture and Arable LCTs. The Templemore Plains LCA is described as forming a large, gently undulating lowland area that is framed by Devilsbit and Borrisnoe Mountain to the west and extending to Roscrea in the north and the county boundary with Laois to the east.

In terms of "Landscape Sensitivity and Capacity", it states that:

> *"In the context of the County Landscape Capacity, this is a high capacity/ low sensitivity Landscape i.e. Change or Development generally acceptable – subject to all other relevant objectives and policies - as it may beneficially alter, enhance or reinforce landscape character and value (e.g. the landscape is robust in its character, undergoing change or the precedent for such and similar development is set and the landscape is capable of absorbing considerable change without detriment)."*

" Principles for Landscape Management" of this Landscape Character Area entail:

- *"Monitoring and management of ecological and landscape value of raised bog areas will be an ongoing requirement.*
- *The wider LCA, being intensively farmed, will depend on the retention and proper maintenance of deciduous hedgerow systems in order to preserve some of its original character.*
- *Sensitive siting and design of individual buildings and groups of buildings as well as site treatment appropriate to the area will be of importance in this landscape. Specific design guidance should be provided to facilitate these outcomes.*
- *Design guidance in respect of commercial forestry in upland areas should be provided in order to integrate this landuse into the landscape"*

The main aspects of "Landscape Condition" of this LCA includes:

> *"The majority of this LCA which surrounds the town of Templemore is intensively farmed with little deciduous vegetation other than the highly managed hedgerows that define the field boundaries. This confers a very man made and mechanised quality to this landscape and therefore renders it as quite unremarkable in terms of scenic quality. Coniferous forestry is very conspicuous in such a visually open setting and further impacts on the scenic quality."*

LCA2 Thurles Hinterland

A small portion of the planning boundary of the proposed project (i.e. only a small section of the grid connection route) enters the northern region of the Thurles Hinterland LCA2, which is also described in the Landscape Character Assessment as part of the Plains Lowland Pasture and Arable LCTs. It is characterised as a gently undulating area stretching eastwards from the Clodiagh River towards Littleton and extending northwards along the R498 to the west and north above the Drish River valley.

In terms of "Landscape Sensitivity and Capacity", it states that:

> *"In the context of the County Landscape Capacity, this is a high capacity/ low sensitivity, Class 1 Landscape i.e. Change or Development generally acceptable – subject to all other relevant objectives and policies - as it may beneficially alter, enhance or reinforce landscape character and value (e.g. the landscape is robust in its character, undergoing change or the precedent for such and similar development is set and the landscape is capable of absorbing considerable change without detriment)."*

" Principles for Landscape Management" of this Landscape Character Area entail:

- *"Sensitive siting and design of individual buildings and groups of buildings as well as site treatment appropriate to the area will be of importance in this landscape. Specific design guidance should be provided to facilitate these outcomes.*
- *Design guidance in respect of commercial forestry in upland areas should be provided in order to integrate this land use into the landscape.*
- *Habitat and landscape character value of the wetlands of the River Suir are of great importance and the designated status requires that these areas are maintained and enhanced."*

The main aspects of "Landscape Condition" of this LCA includes:

> *"This is an open working landscape which is in good condition but is relatively unremarkable in terms of scenic quality. The influence of the foothill landscape type associated with the Upperchurch and Kilcommon area, viewed from the Thurles hinterland is an enhancement to this landscape character. The presence of regional, national and local road infrastructure together with an abundance of settlements and dwellings render this a landscape that reflects high levels of human intervention."*

LCA1 Town and Urban Fringes

The next nearest LCA is located south of the planning boundary and is categorised as LCA1 Town and Urban Fringes. In this LCA are the urban extents of Thurles, which is the third largest town in County Tipperary, with a population of 8,185 according to the 2022 census. This LCA, however, also represents the largest settlements in the county; those which are considered to have an urban character that distinguishes them from the surrounding rural hinterland. Also part of this LCA, and within the study area, is Templemore town, while near the south-western edge of the study area is the town of Cashel. The Landscape Character Assessment also emphasises that each of these settlements is an integral part of the character of the Central Plains and are therefore considered sub-areas of their respective LCAs.

In terms of "Landscape Sensitivity and Capacity", it states that:

> *"The growth and development of the towns is an integral element of the character of the county. In general the towns have a robust capacity for growth and development and are, generally, classified as being Robust Class 0 with very high and low sensitivity – subject to the observance of general planning objectives and policies."*

" Principles for Landscape Management" of this Landscape Character Area entail:

> *"The County Development Plan settlement strategy sets out a framework for growth for each of these towns. This is based on a full assessment of the potential for growth and the role of each settlement. It also assesses the environmental capacity of the hinterlands of these settlements to accommodate growth. Growth should be achieved in line with the settlement strategy."*

The main aspects of "Landscape Values" of this LCA includes:

- *"The historical architectural features of the towns and especially the central areas are highly valuable to the character of the towns and should be maintained and made accessible where possible;*
- *Accessibility to public areas and locally important sites and monument;*
- *Ecological (Conservation Values);*
- *Green linkages and open spaces, where relevant tree stands and natural areas;*
- *Socio-economic (Enhancement / Development Values);*

- *Centres of community, employment and services for the county. The towns contribute to the sense of identity of the county;*
- *Junctions on the key transport infrastructures in the county and;*
- *The towns of the county are capable of adsorbing development and change without affecting their character. Development and growth can have a positive effect on the character and sense of place of these settlements. Key to positive change will be the focus on the protection of transport links, historical sites, the vitality of the town centres educational facilities etc."*

LCA8 Littleton Raised Bog

In the east-southeastern portion of the study area, between approximately 6 and 10 km from the planning boundary, is located the LCT8 Littleton Raised Bog, characterised by the Assessment as a distinct area of raised bog extending eastwards from the N8 where it meets the county boundary with Kilkenny.

Landscape Sensitivity and Capacity

> *"In the context of the County Landscape Capacity classes, this is a Sensitive landscape i.e. Class 3 having a high sensitivity to change and limited capacity to accommodate change without detriment. Such landscapes require significant additional care during design and assessment of alternatives to determine how established patterns of use and settlement can be accommodated."*

Principles for Landscape Management

- *"Sensitive siting and design of individual buildings and groups of buildings as well as site treatment appropriate to the area will be of importance in this landscape. Specific design guidance should be provided to facilitate these outcomes;*
- *Design guidance in respect of commercial forestry in upland areas should be provided in order to integrate this land use into the landscape;*
- *Clear felling practices regarding commercial forestry should be revised to mitigate against negative visual impact;*
- *The untouched raised bog habitat is a valuable asset. All land use management Principals need to consider the protection and enhancement of same;*
- *A village design statement for Littleton and its environs would assist in retaining and enhancing the settlement character of the area and;*
- *Farming practices should be such as to minimise hedgerow removal."*

The main aspects of "Landscape Condition" of this LCA includes:

> *"The condition of the bogland landscape, where subjected to turf cutting activities and the infrastructure associated with this activity has been greatly altered and is now industrial in character. By contrast, the natural character and scenic quality is greater for the tracts of raised bog that remain intact with birch, gorse and heather scrub layer. Commercial coniferous forestry presents itself in very large scale crops which are also have substantial landscape impacts."*

LCA4 River Suir Central Plain

In the southern and south-western portion of the study area, between approximately 6 and 20km from the planning boundary, is the most cohesive and extensive LCA in the county, the LCT4 River Suir Central Plain, where the town of Cashel is located within. The Assessment characterises this LCA by its fertile agricultural land used for both arable and pastoral farming and by its rolling topography.

In terms of "Landscape Sensitivity and Capacity", it states that:

> *"In the context of the County Landscape Capacity, this is a high capacity/ low sensitivity, Class 1 Landscape i.e. Change or Development generally acceptable – subject to all other relevant objectives and policies - as it may beneficially alter, enhance or reinforce landscape character and value (e.g. the landscape is robust in its character, undergoing change or the precedent for such and similar development is set and the landscape is capable of absorbing considerable change without detriment)."*

" Principles for Landscape Management" of this Landscape Character Area entail:

> *"The River Suir Central Plain is an actively worked and highly productive environment and new development would sit comfortably in the landscape and not interfere with or eliminate its character and values subject to appropriate sitting and design. Outside of the settlements the land is intensively farmed and highly productive in line with its reputation as the 'Golden Vale' of the county."*

The main aspects of "Landscape Condition" of this LCA includes:

> *"The landscape of the Suir Central Plain has been heavily influenced by man's activities since early times and the LCA offers a rich palimpsest of layers of agriculture and settlement activity. It is considered that in general the Suir Valley Central Plain is robust in its ability to absorb change and especially change associated with the existing agricultural uses outside of settlements and change associated with development and growth in the larger towns and smaller villages."*

15.3.2.4 Wind Energy Strategy

The Tipperary CDP asserts that the National Guidelines for Wind Energy Development (DEHLG, 2006) are currently being revised and that this revision focuses on several areas, including new mechanisms for local community involvement, taking into account investment/benefit, turbine setback and noise limits.

The Appendix 2 Renewable Energy Strategy Volume 3 of the Plan identifies 3 different Standardised Wind Energy Policy Areas, and these are: Areas Unsuitable for new Wind Energy Development, and Areas Open for Consideration for New Wind Development. As shown in Figure 15-4 below, except for a small section of the grid connection route, the site is located entirely in an 'Area Open for Consideration.'

Relevant policies of this session are as follows:

> TWind 4 - Areas 'Open for Consideration' – *"Wind energy development in these areas may or may not be appropriate, depending on the character of the landscape and the potential impact of the proposed development. Any impact on the environment must be low and subject to proper planning and sustainable development, and the guidelines set out in this policy document."*
>
> *TWind 4.2 – "Proposals in Areas 'Open for Consideration' shall be sited having consideration to the landscape sensitivity and capacity analysis set out in the Tipperary Landscape Character Assessment 2016 and the provisions of the County Development Plan (as varied) in relation to landscape (Chapter 7). All applications shall have regard to the visual impact of turbines and ancillary development (such as access roads, boundary fencing, control buildings and grid connections)."*

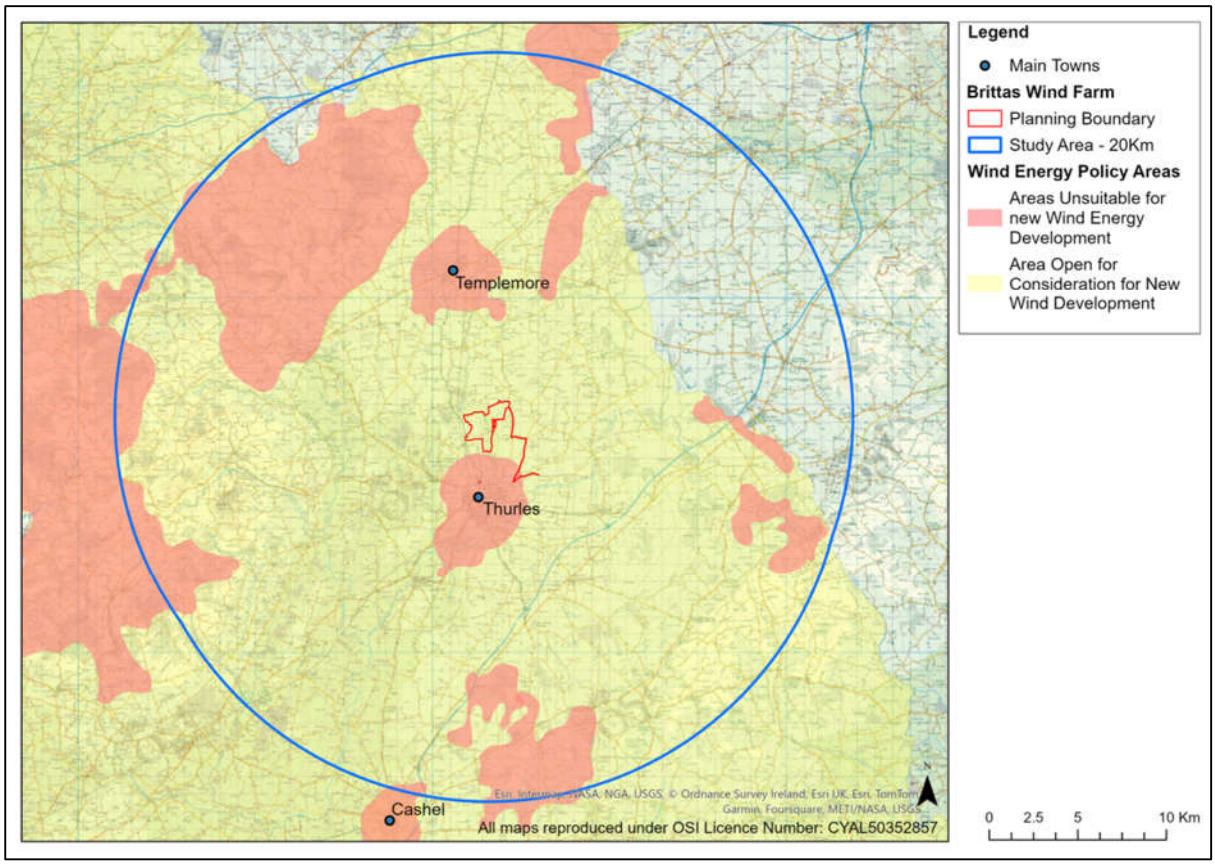


Figure 15-4: Tipperary CDP 2022-2028 Appendix 2 Renewable Energy Strategy Map 1 (Adapted)

15.3.3 Kilkenny County Development Plan 2021-2027

The eastern periphery of the study area enters County Kilkenny. A Landscape Character Assessment has been prepared for County Kilkenny and this is incorporated into the current Kilkenny CDP. Kilkenny has an adopted schedule of Views, Prospects and Scenic Routes, as part of the existing Kilkenny County Development Plan, and there is only one Scenic Designation that is within the study area. As set out below in Figure 15-5, below, and as per Appendix H of the CDP, this is Scenic View 14. This viewpoint is located more than 18km from the site, comprises views to the north and east on the Johnstown/Gattabaun Road.

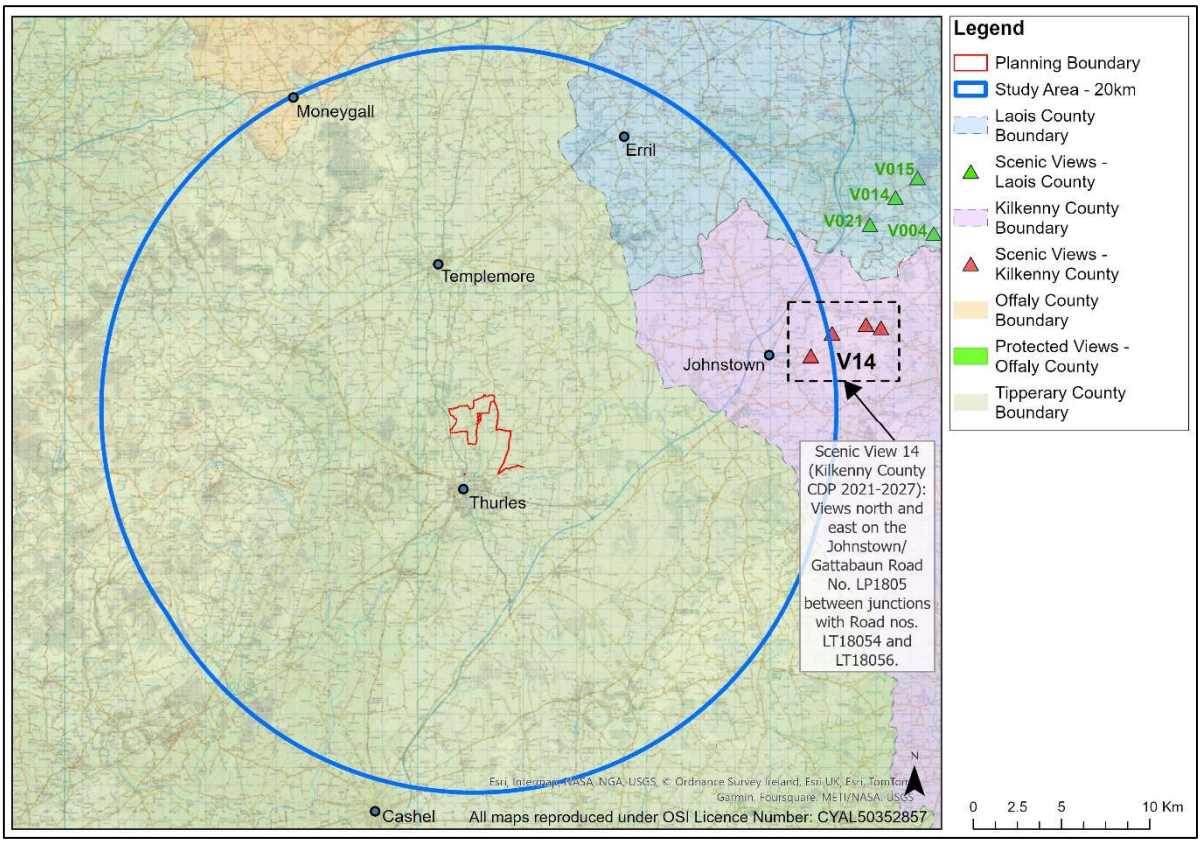


Figure 15-5: Scenic Designations - Kilkenny CDP 2021-2027, Offaly CDP 2021-2027, Laois CDP 2021-2027 (Adapted)

Whilst the Scenic View 14 adjoins the study area at its extremity, about 20km from the planning boundary, the greater portion of County Kilkenny within the study area is classified, as shown in Figure 9.2 of the Landscape Character Assessment, as part of the Slieveardagh Western and Central Transition Zone LCT. This is not identified as a highly scenic area or as having a significant amenity value.

Relevant policies of section 9.2.12.6 'Views and Prospects' including landscape and visual designations and the Landscape Character Areas are outlined below:

Development Management Requirements:

> *"To protect the landscape character, quality and local distinctiveness of County Kilkenny, and have regard to the guidance set out in the Landscape Character Assessment."*
>
> *"To facilitate appropriate development that reflects the scale, character and sensitivities of the local landscape throughout the county and require that developments minimise the loss of natural features such as trees, hedgerows and stone walls."*
>
> *"To ensure that development in upland areas or on steep slopes will not have a disproportionate or dominating visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere or detract from scenic upland vistas, or when viewed from public areas, scenic routes, viewpoints or settlements."*

15.3.4 Laois County Development Plan 2021-2027

County Laois enters the study area in the north-eastern portion of the study area, more than 10km from the planning boundary. Although the portion of the Laois County within the study area is predominately classified as LCT6 Rolling Hills Areas, there are no scenic designations within the study area, as per Map 11.8 Views and Prospects of the Laois County Development Plan.

15.3.5 Offaly County Development Plan 2021-2027

A relatively small stretch of Offaly County enters the north-western extent of the study area, lying more than 17km from the site. The edge of the study area intersects the town of Moneygall and the Regional Road R445. According to Table 4.21 'Key Scenic Views and Prospects in Offaly' from 'Chapter 4 Biodiversity and Landscape' and Figure 8.10 from 'Chapter 8 Sustainable Transport Strategy', there are no scenic designations or key amenity routes within the study area.

15.3.6 National Parks & Wildlife Service (NPWS)

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

There are a number of NPWS designations within the study area, but none within or adjoining the site. However, within the central study area (i.e. within approx. 5km from the site), there is only one such designations and it is a proposed Natural Heritage Area, while all SPAs/NHAs/SACs remain more than 5km from the site. All NPWS designations within 20 kilometres are listed in Table 15-11 below and shown, along with the proposed planning boundary and study area, on Figure 15-6 below.

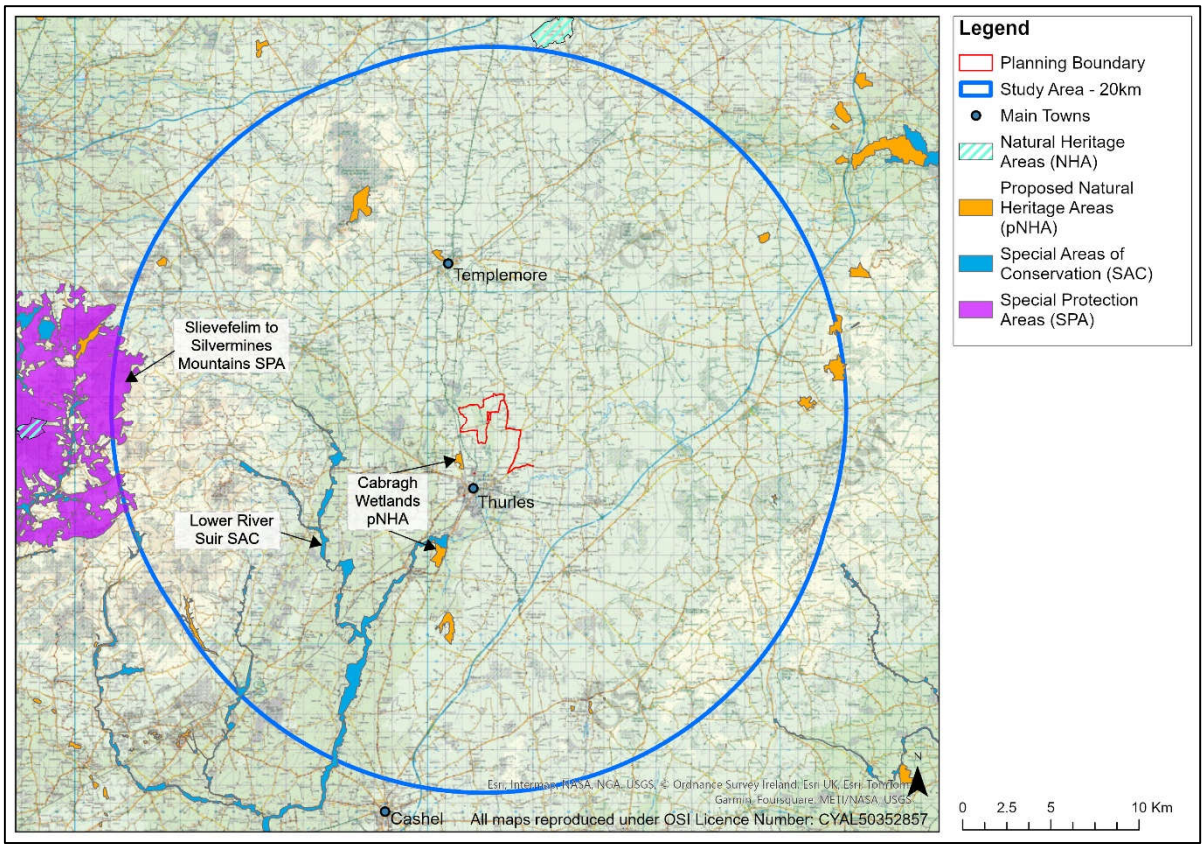


Figure 15-6: NPWS Designations & proposed Brittas planning Boundary

Table 15-11: NPWS Designations

Site Code	Classification	NPWS Designation Description
002137	SAC	Lower River Suir
004165	SPA	Slievefelim to Silvermines Mountains
001934	pNHA	Cabragh Wetlands
000959	pNHA	Killough Hill
000942	pNHA	Templemore Wood
000934	pNHA	Kilduff, Devilsbit Mountain
000407	pNHA	The Loughans
000849	pNHA	Spahill And Clomantagh Hill
001858	pNHA	Galmoy Fen
000948	pNHA	Aughnaglanny Valley
001178	pNHA	Killavalla Wood

15.3.7 National Policy – DoEHLG Guidelines

The Department of the Environment Wind Energy Guidelines (2006) provided guidelines on aesthetic considerations relating to wind energy development, including the siting and design of windfarms. However, in December 2019, a draft revised version of the Wind Energy Development Guidelines was published. The 2019 draft Guidelines have been reviewed and the siting and design advice referred to below remains the same as the 2006 Guidelines. However, while the 2006 guidance remains current, the proposed development is in accordance with both sets of Guidelines.

Both the 2006 Guidelines and the 2019 draft Guidelines state that landscape character types (LCTs) provide a useful basis for practical application of siting and design guidelines in relation to wind energy developments. Siting and design guidelines are set out for six Landscape Character Types which represent most of the landscape types in the country, which include:

- Mountain Moorland;
- Hilly and Flat Farmland;
- Flat Peatland;
- Transitional Marginal Land;
- Urban/Industrial and;
- Coast.

The Guidelines note that it is common for a wind energy development to be located in one landscape character type and visible from another. This requires the entire visual unit to be considered, and to decide which landscape character type more strongly influences the approach. For each of these character types listed above, guidance is given on the location, spatial extent and scale, cumulative effect, spacing, layout and height of the turbines. In this instance, the dominant and most salient landscape character type of both the central study area and the wider study area, as well as being representative of the entire site, is the 'Hilly and Flat Farmland' landscape character type.

Hilly and Flat Farmland - Siting and Design Guidance

This is defined as intensively managed farmland with a patchwork of fields, and it is a working and inhabited landscape. Important considerations include that of the scale and the regard for the surrounding houses, farmsteads and population.

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

Spatial Extent: (This is defined as the area covered by a wind energy development, reflecting the number of turbines and their spacing.) *'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.'*

Spacing: '*The optimum spacing pattern is likely to be regular, responding to the underlying field pattern. The fields comprising the site might provide the structure for spacing of turbines. However, this may not always be the case*

and a balance will have to be struck between adequate spacing to achieve operability and a correspondence to field pattern.'

Layout: *'The optimum layout is linear and staggered linear on ridges (which are elongated) and hilltops (which are peaked), but a clustered layout would also be appropriate on a hilltop. Where a wind energy development is functionally possible on a flat landscape a grid layout would be aesthetically acceptable.'*

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

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

15.3.8 Summary of Landscape Policy Context

- With regards to Co. Tipperary scenic designations, there are no Primary Amenity Areas within the study area. However a number of Second Amenity Areas are located more than 10km from the site. No scenic routes enter within 7km of the site. However, sections of three such scenic routes enter between 7-10km of the site, with all other scenic routes remaining more than 10km from the site. In terms of scenic views, there is only one such Co. Tipperary designated scenic view within 18km of the site, which is located approx. 6.5km southeast of the site;
- With regards to the Co. Tipperary Landscape Character Assessment, except for a small section of the grid connection route, the site is located within 'LCA5 Templemore Plains'. This LCT *"is a high capacity/ low sensitivity Landscape i.e. Change or Development generally acceptable – subject to all other relevant objectives and policies."* In terms of 'Landscape Condition,' this LCT '*is intensively farmed with little deciduous vegetation other than the highly managed hedgerows that define the field boundaries. This confers a very man made and mechanised quality to this landscape and therefore renders it as quite unremarkable in terms of scenic quality.';*
- After LCA5, the next nearest LCA is 'LCA2 Thurles Hinterland'. A small section of the grid connection route is located in 'LCA2' which has a similar '*high capacity/ low sensitivity Landscape.'* This third closest LCA to the site is 'LCA1 Town and Urban Fringes.' In terms of "Landscape Sensitivity and Capacity," it states that, "*In general the towns have a robust capacity for growth and development and are, generally, classified as being Robust Class 0 with very high and low sensitivity – subject to the observance of general planning objectives and policies.";*
- In terms of Co. Tipperary Wind Energy Strategy, except for a small section of the grid connection route, the site is located entirely in an 'Area Open for Consideration.';
- In terms of Co. Kilkenny scenic designations, there is only one such designation in the study area, but it is located more than 18km from the site;
- There are no Co. Laois or Co. Offaly scenic designations in the study area;
- In terms of National Parks & Wildlife Service (NPWS) designations, there are a number of these within the study area, but none within or adjoining the site. However, within the central study area (i.e. within approx. 5km from the site), there is only one such designations and it is a proposed Natural Heritage Area, while all SPAs/NHAs/SACs remain more than 5km from the site and;

- In terms of the DoEHLG Guidelines: the dominant landscape character type of both the central study area and the wider study area, as well as being representative of the entire site, is the 'Hilly and Flat Farmland' landscape character type.

15.4 Receiving Environment – Landscape Character of Site and Surrounds

This section describes the landscape character of the site and the wider context, which includes the landscape of the wider study area, as illustrated on Figure 15-1. The site is in the eastern region of Tipperary County and close to the northern and north-eastern fringe of Thurles town. Within the study area also lies County Kilkenny to the east of the site, and to the north-east County Laois, both approximately 10km from the site in its closest environs. To the north-west, County Offaly also enters the study area at approximately 17.5km from the site.

The landscape character is described under several headings below, with the landscape character of the site and immediate surrounds described separately to the character of the wider landscape. The wider landscape focuses primarily on the town of Thurles and its surroundings and considers relevant aspects of the environs within the study area.

15.4.1 Topography and Drainage

Site and immediate surrounds

The topography of the site is low-lying by nature. It features a gentle undulation that rises from its north-eastern region, in the vicinity of Killeenleigh, to a height of approximately 110m AOD, and gently lowers to 100m AOD in its central region. It gently rises again to 110m AOD in the south-west, where it encounters the N62. The River Suir is the main watercourse in the site. It dissects the northern half of the site, and then, as it flows south, aligns the site's south-eastern edge. A tributary stream enters the Suir near Rossestown Bridge.

Figure 15-7: View of the River Suir as it flows through the site. Please note the presence of distant turbines

Figure 15-8: gently undulating terrain within the site, with the Silvermines Mountains in the distance.

Wider Landscape

The topography of the wider study area is lowland in nature, with more apparent hills in the eastern and western extents. Thurles town has gentle undulations ranging from 100m AOD to 110m AOD. Among the highest elevations within the wider landscape are the Slievefelim to Silvermines Mountains Special Protection Area to the west, with elevations reaching 411m AOD. Approx. 13km northwest of the site is the Devilsbit Mountain (see Figure 15-9, below) and adjacent Borrisnoe Mountain, which range between 400-500m AOD. The east of the study area, south-east of Johnstown in County Kilkenny, reaches to 349m AOD.

The River Suir angles through Thurles and is the largest watercourse in the study area. South of Thurles, the River Drish feeds into it. The Suir extends over a wide section of the study area within the Tipperary County, flowing in a general north-south direction.

Figure 15-9: View from The Devil's Bit, approximately 13Km north-west of site area

15.4.2 Land Use and Land Cover

Site and immediate surrounds

Reflective of the predominant character of these section of Tipperary County, the site's landcover is that of intensively managed agricultural fields, in the form of pasture. Field sizes tend to be medium-large in size, although in sections of the site (e.g. the east or northeast), field sizes are smaller. An area of broadleaf forestry is located within the southwest section of the site.

Figure 15-10: pasture in the central north of the site

According to the CORINE landcover 2018 the area of the site is predominantly covered by pasture, with complex cultivation patterns also present in a small area of its eastern region and broad-leaved forest along two small areas entering the southern and western portions of the planning boundary.

When examining the area in and near the southwest of the site on Historic/19th Century 6-Inch maps, the legacy of Brittas Castle (and associated cultural heritage buildings) has left a distinct impact upon the landscape pattern and fabric of the site. While Brittas Castle and associated buildings are located outside the site, the tree-dotted 'parkland' adjacent to the castle is highly apparent. In combinations with generous broadleaf woodland, tangible remnants of this historical landscape fabric are present to this day (see **Figure 15-11**, below). Within the site, fields sizes have generally increased in size over the last 150-200 years, resulting in the removal of hedgerows/ field boundaries.

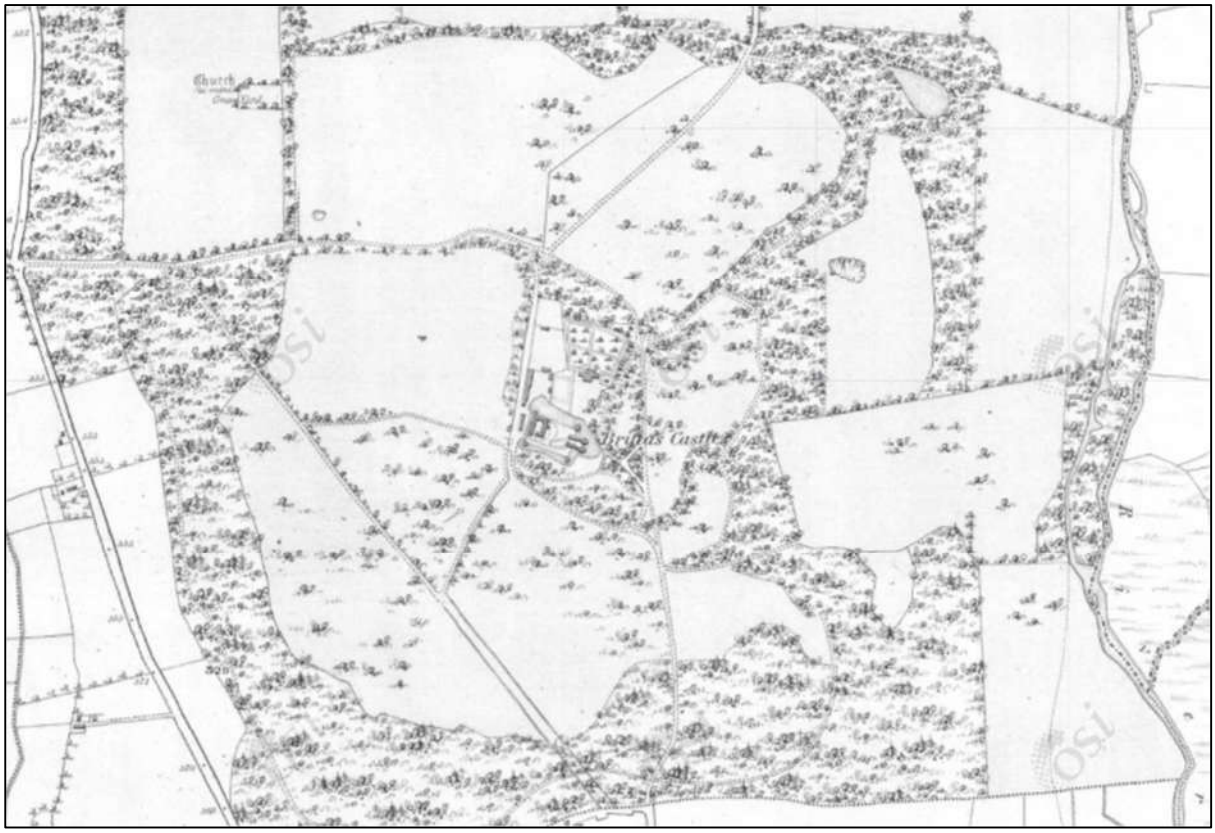


Figure 15-11: Historic 6-Inch Map / Brittas Castle and demesne landscape surrounding it

Wider Landscape

The majority of the study area is also characterised by pastures. Peat bogs constitute a fairly extensive area, stretching from the north-east, entering County Kilkenny and stretching across Tipperary County for its entire eastern section towards the south-east. There are also numerous urban settlements in the wider landscapes.

Much of the area in the western zone of the study area, where the Silvermines Mountains are located, presents a greater diversity in landcover. Here there is the occurrence of commercial coniferous forest, transitional woodland-shrub, agricultural land, areas of natural vegetation, along with peat bogs areas.

The occurrence of numerous operational Wind Farms located within the study area is also apparent, although none are located in the central study area (i.e. approx. 5km from the site). In total, there are 12 Wind Farms in operation within the study area. The nearest is Lisheen Wind Farm, at about 9.8 kilometres north-east of the site and located on the border between Tipperary and Kilkenny County. This is followed by the Borrisbeg Wind Farm (not yet consented), at approx. 12.9 kilometres from the site and located within the Tipperary Count, and the Gortnahalla Wind Farm (single turbine), approx. 13.4 kilometres from the site, also within the Tipperary County.

Figure 15-12: The Lisheen Wind Farm, located about 9.8Km north-east of the site

15.4.3 Cultural Heritage and Built Form

Site and Immediate surrounds

Adjacent to the Rossestown Road is located a cottage listed as a Regional NIAH building. The cottage is a detached three-bay single-storey vernacular house, built c.1800 and known to be a well-preserved example of Irish vernacular architecture. Within the immediate vicinity of the south-western region of the site is Brittas Castle (please note: the castle and adjacent buildings are more than 200m west of the site boundary). Built in 1830 by Major Henry Langley, according to the NIAH Survey of North Tipperary, the castle was intended to be the first nineteenth-century 'archaeological' castle in Ireland (see Figure 15-13, below).

Figure 15-13: The Brittas Castle, located near the south-western area of the site.

Wider Landscape

Thurles is the birthplace of the Gaelic Athletic Association (GAA) in 1884. It is the third largest town in the County, behind the towns Clonmel and Nenagh, with a population of 8,185 according, to the 2022 census. Some of the more renowned buildings in the town include Semple Stadium, Thurles Cathedral and Bridge Castle, which is upon the banks of the Suir and dates to 1453. Templemore comprises the second largest settlement within the study area and lies approx. 9 kilometres north-west of the site. Sections of Templemore display a rich character of built

heritage, evidenced by historic buildings that range from the ruins of Blackcastle in the city park, to the Victorian townscape of Main Street and Talavera Place, where British military barracks were built.

Although located approx. 2km southwest of the study area, the Rock of Cashel is of particular note, being one of the most recognisable heritage sites in the country. Most of the buildings within the complex date from the 12th to the 14th centuries and served as the traditional seat of the kings of Munster for several hundred years before the Norman invasion. Please refer to the **Chapter 11** Cultural Heritage for more information. Overall, the landscape is highly settled (in the context of rural Ireland), with numerous dwellings outside of settlements, and is not considered especially remote or tranquil.

15.4.4 Recreation and Amenity areas and Trails

Recreation and amenity elements may include recreation trails situated in the counties of Tipperary, Kilkenny, Laois and Offaly, in their respective extents that fall within the study area.

No trails are to be found within 5km of the site (i.e. the central study area), while with the exception of the Moneygall Rock of Loyer Loop located in County Offaly, all the trails listed in **Table 15-12** below are within Tipperary County.

Table 15-12: National Trails Register

Trail Name	Length	Closest Distance from Brittas
Cosan Felim Inch Loop Walk	5.3Km	Approximately 6.9km West
Birchhill Loop	7.5Km	Approximately 10.2km West
Devils Bit Loop	3.7Km	Approximately 12.5Km North-west
Knockalough - Mór Loop/Lúibe Mór Cnoc an Loig	10.4Km	Approximately 14.4Km West
Ormond Way	74.5Km	Approximately 14.6Km West
Upperchurch - Eamonn a Chnoic Loop via Mogland	7.5Km	Approximately 14.7km West
Upperchurch - Eamonn a Chnoic via Glown	6.6Km	Approximately 14.7km West
Loch Dhoire Bhile Loop	2.7Km	Approximately 14.8km South-east
The Source of the Nore Walking Trail	2.5Km	Approximately 16.6Km North
Multeen Way	36.7Km	Approximately 18.4 Km West
Grange - Crag Loop	4.8Km	Approximately 18.5Km South-east
Grange - Grange Loop	2.9Km	Approximately 18.6Km South-east
Moneygall Rock of Loyer Loop	6.2Km	Approximately 19.5Km North-east

15.4.5 Transport

A network of local roads lies in the vicinity of the site. The aforementioned L8017/ Rossestown road is linked to the N62, a national secondary road that aligns a small section of the western extent of the site, connecting the counties of Westmeath and Offaly with Tipperary. There are numerous regional roads in the study area, but none within approx. 2km of the site; the nearest being the R498, R503, R660 and R659. Close to the N62 in the western region, and approx. 200m west of the site boundary, is the Dublin-Cork railway line, which stops at Thurles railway station.

Figure 15-14: The Rossestown Bridge and River Suir

Figure 15-15: The Rossestown Road/ L8017 intersects the centre of the site

15.4.6 Summary of Landscape Characteristics

- The site's topography is low lying, with terrain gently undulating between 100 - 110m AOD, and with the River Suir flowing through it. The wider landscape reflects that of the site, although towards the eastern, western and north-western extents of the study area, there are numerous tall hills/low mountains. Throughout the study area, the Suir remains the main watercourse present;
- Similar to that of the wider study area, the site's landcover is that of intensively managed pasture, with field sizes tending to be medium-large in size. Adjacent to the southwest section of the site is the former demesne landscape of Brittas Castle, where an 18/19th Century 'parkland' field pattern and tree cover

remain palpable. The occurrence of numerous operational Wind Farms located within the study area is also apparent;

- There are numerous towns and villages within the study area, with the nearest being Thurles, located approx. 3km south of the site. Thus, a palpable urban fabric is present in specific locations of the central study area, as well as wider study area;
- In terms of recreation and amenity, there is only one known (publicly accessible) trail within 10km of the site, which is located approx. 7km from the site. However, there are 12 such trails located between 10-20km of the site;
- In terms of transport network, a network of local roads lies in the vicinity of the site, while the L8017 traverses the centre of the site, crossing the River Suir at Rossestown Bridge. The N62 aligns a small section of the western extent of the site. Approx. 200m west of the site boundary, is the Dublin-Cork railway line and;
- Overall, the landscape is highly settled (in the context of rural Ireland), with numerous dwellings outside of settlements, and is not considered especially remote or tranquil.

15.4.7 Summary of Landscape Values

The GLVIA Guidelines sets out the methodology for assigning landscape sensitivity. This is based on combining judgements on landscape value, and landscape susceptibility which relates to the type of development proposed. Landscape sensitivity will be further addressed and then assessed, in Section 15.5.1.1, along with the assessment of likely landscape effects.

Landscape values are derived from both indications of value as seen in national and local policy, as well as other indications that a landscape or landscape element, is valued. These values can further be categorised in two ways – values which should be conserved, and those that provide opportunity for enhancement.

Landscape value, as referred to above, can be identified by the presence of landscape designations or policies which indicate particular values, either on a national or local level. These include international designations (such as UNESCO World Heritage sites) national designations, and local designations such as scenic routes, scenic views or amenity designations which are included in County Development Plans. Important tourism, cultural heritage or recreational areas are also indicative of value. In addition, where landscapes do not have designations, a number of criteria are used to assess the value of a landscape. For undesignated landscapes in the vicinity of the site, these criteria include:

- Landscape Quality/Condition;
- Cultural Heritage/Conservation value;
- Aesthetic/Scenic Quality;
- Rarity or Representativeness and;
- Public Accessibility and Recreation Value

15.4.7.1 Landscape Value – Site and immediate surrounds

The landscape value of the site and the immediate surrounds is an area of highly modified, intensively managed pastural agriculture with a modest and/or unremarkable visual amenity associated with it. Field sizes tend to be medium-large in size. Adjacent to the southwest section of the site is the former demesne landscape of Brittas

Castle, the woodland of which adds to the naturalistic and aesthetic qualities of the immediate site surrounds. In contrast, the N62 aligns a section of the western extent of the site.

The presence of the Suir River flowing through this low-lying, slightly-sloping site allows for a degree of naturalistic and/or aesthetic relief to this highly productive, utilitarian landscape. The utilitarian nature of this landscape is reflected in the fact that there is no scenic designation (e.g. amenity areas, scenic routes or scenic views) within 6km of the site. No NPWS designations are located within or adjacent to the site, within only one such designation in the central study area. This, and other factors, is reflected in the fact that, except for a small section of the grid connection route, the site is located entirely in an 'Area Open for Consideration' for wind energy development.

On balance, the landscape value of the site and immediate surrounds is considered to be Low-Medium.

15.4.7.2 Landscape Value – Wider landscape

Numerous of the aforementioned factors contributing the landscape value of the site and surrounds are also applicable to the wider study area. This is particularly apparent with regards to the degree of highly modified, intensively managed pastural agriculture present across the wider landscape.

However, towards the eastern, western and north-western extents of the study area, there are numerous tall hills/low mountains, displaying more extensive land practises and naturalistic land cover. The occurrence of numerous operational Wind Farms located within the wider study area is also apparent. Generally, as one moves from 10-20km from the site, there are more scenic designations and more (publicly accessible) trails.

A palpable urban fabric is present in specific locations of the central study area, as well as wider study area. The landscape is highly settled (in the context of rural Ireland), with numerous dwellings outside of settlements, and is not considered especially remote or tranquil.

On balance, the landscape value of the wider landscape is also considered to be Low-Medium.

15.4.8 Potential Visual Receptors and Theoretical Visibility

Potential visual receptors include a variety of viewers, both in close proximity to the proposed project and those at some distance, as turbines are likely to be seen over a wider spatial area than most other types of development. Consequently, turbines are the element of a wind farm most likely to generate visual effects.

As set out in Table 15-3, sensitive visual receptors are identified by combining viewers of high susceptibility to the proposed change in views, with highly valued viewpoints. Potentially sensitive receptors are indicated below. Two ZTV Maps have been prepared, with one showing theoretical visibility to Hub height and one showing to Tip height. These are included in Appendix 15A and 15B in Volume 3. Both ZTVs are also included in reduced format below, as Figure 15-16(Hub Height) and Figure 15-17(Tip Height).

As noted in Section 15.2.1, ZTVs do not include any vegetation, buildings or other structures in the landscape. They are referred to here as they give an indication of areas that may potentially have views of the proposed turbines, and areas that will not have visibility of the turbines. Therefore, the maps are of assistance in identifying potential visual receptors, in areas where theoretical visibility is illustrated, and ruling out receptors in areas where there will be no visibility.

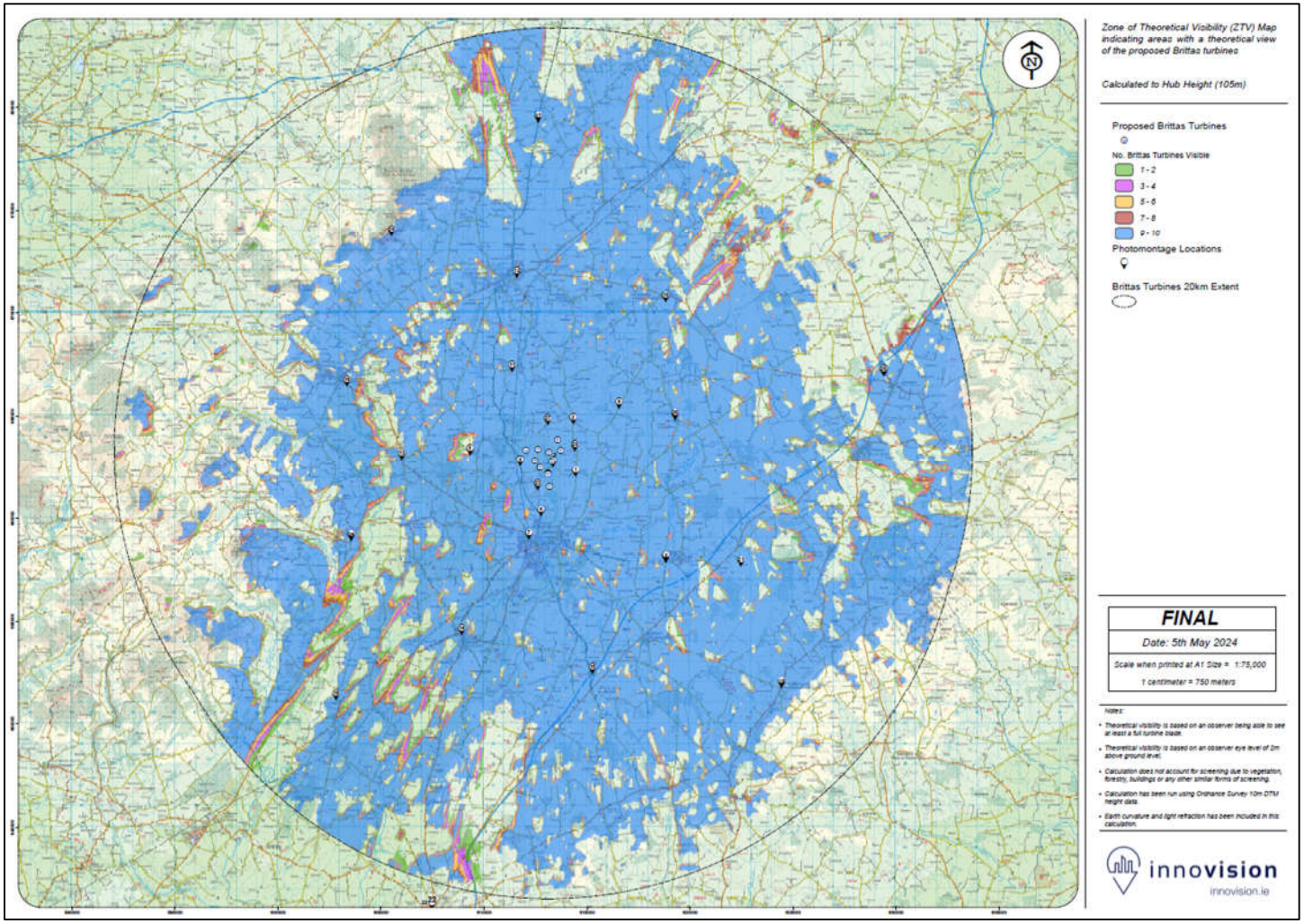


Figure 15-16: Hub Height ZTV

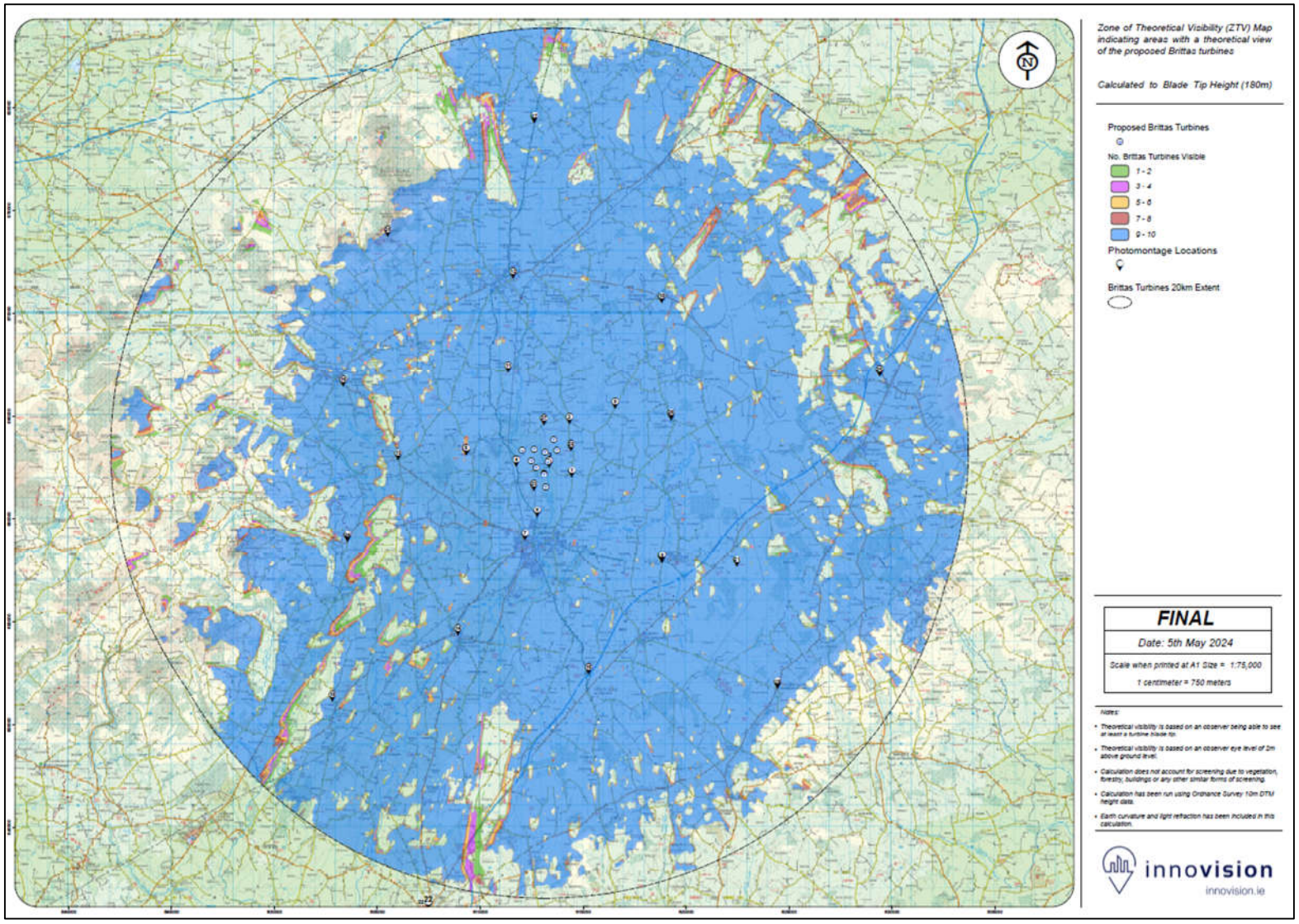


Figure 15-17: Tip Height ZTV

The Tip Height ZTV is referred to for the description below unless otherwise noted. As noted in the Visual Representation of Wind Farms (SNH, 2017), including both hub and tip height ZTV is a useful comparison that helps to identify areas where turbine blades may be visible, but not the tower.

ZTV Description – pattern and extent of theoretical visibility and actual visibility

Site and immediate surroundings

The site and immediate vicinity are shown in both the Hub and Tip Height ZTVs to have theoretical visibility of all turbines (areas shaded blue). This is largely due to the relatively low and marginally sloping lands of the site and surrounding area, as the ZTV is calculated on the bare earth topography only.

The ZTV does not account for the presence of high hedgerows and mature tree lines which are found along the intervening fields and roadside. This vegetation cover, along with buildings will help to restrict many views from the surrounding road and residential receptors. However, the tall form of the turbines in combination with a relatively flat landscape means these structures are likely to be visible to varying degrees from the central study area.

Areas without visibility

There are several areas which have no theoretical visibility on the Tip Height ZTV map (Figure 15-16). Though the ZTV maps and actual visibility are discussed in some detail with reference to potential visual receptors and also in Section 15.6.2, below, it is useful to note areas which do not need further consideration. The following areas will not have visibility of the proposed turbines:

- The far western and northwest extents of the study area, where a series of higher landforms help restrict views further west, with some exceptions to the highest summits of these hills. This will include some 'no visibility' from parts of secondary amenity areas and parts of lengths of scenic routes V20, V54 and V55;
- Smaller, intermittent areas of no visibility to the far north and northeast of the study area and;
- The far southeastern end of the study area where views are restricted by the western side of the Slieveard Hills.

Areas with blade tip visible only

Comparison between the Tip Height and Hub Height ZTVs indicate the areas where the blade tips *only* will be theoretically visible. Overall, there are limited differences between the two ZTVs, as indicated in **Figure 15-16**and **Figure 15-17** above. There is a slightly increased visibility of the blade tips *only*, notably from small portion of lands found to the far north and northeast end of the study area, including lands around north of the M8 motorway by Moneynamuck (Stopford) and directly west of the settlement of Rathdowney.

Potentially Sensitive Receptors

This section identifies the potential visual receptors, while also reviewing the likely theoretical visibility as outlined on the ZTV Maps. This then informs the selection of representative viewpoints, from which photomontages will be produced, to assist in the assessment of visual effects. The potential visual receptors fall into several categories, including those higher sensitive visual receptors and less sensitive visual receptors.

Higher sensitive visual receptors include:

- Residences in close proximity: residential clusters in the vicinity of the site, in the townlands of Rossetown to the east, Brittas to the west, Ballyduag to the northeast and Brownstown to the north. The ZTV maps show these areas as within the ZTV. These areas should be represented by viewpoints of the

nearest groups of residences to the site across a range of directions, while also considering that localised, foreground vegetation is likely to at least partially screen views of the proposed turbines;

- Recreational Trails/Amenity Areas: this includes the 13 routes as listed in Table 15-10. However, in the case of the study area, these are typically found within the wider landscape (i.e. beyond 10km from the site) and often on elevated lands. The ZTV shows varied potential coverage across these routes, although it doesn't account for potential screening by forestry blocks next to some routes or where the route passes directly through such forests. Visibility is likely to be limited and only possible from open stretches of routes along elevated hillside;
- Scenic Routes and Protected Views: those Tipperary scenic views and routes within the ZTV cover include V54 at Borrisoleigh; V58 along N62 at Clonakenny townland; V31 at New Bermingham; V55 along R503. Along these routes, it is likely that potential views will be affected in places by screening from buildings and vegetation within the intervening landscape not accounted for by the ZTV;
- Designated Landscapes: these chiefly entail Secondary Amenity Areas, as well as the more sensitive Landscape Character Types set out in Section 15.2.3.2, above. In addition, cultural heritage sites will also be addressed, such as the publicly accessible Loughmore Abbey or Liath Mor heritage site, while those relevant Cultural Heritage locations that are not publicly accessible have been identified, at the request of the project's Cultural Heritage consultant;

Less sensitive visual receptors include:

- National Roads and Motorways – viewers travelling at high speeds are generally considered of Low sensitivity since their focus is not on the landscape. Therefore, while views will be available from sections of these routes, viewers are not considered of high sensitivity and;
- Other viewers of lower sensitivity include those at work, as well as those working/living in urban areas.

15.4.9 Do-Nothing scenario/Likely Evolution of the Baseline

If the proposed project does not proceed, it is assumed that the likely evolution of the baseline would continue to be used mostly for agriculture purposes, for grazing and tillage production or similar, and the site would remain an intensively managed agricultural landscape. However, within the vicinity of the site, as well as about the wider study area, rural residences are likely to continue to be constructed. This may take the form of 'one-off' detached residences, often in linear/ribbon development along local roads, and/or encroaching upon agricultural land. The likely evolution of the baseline will also entail a permitted ESB overhead 38kV powerline passing through the site. Planning permission for the completion of this overhead line was permitted in mid-2023 and it is expected to be constructed prior to commencement of construction of the proposed wind farm. For more information, please see Chapter 2, Section 2.4.18.

Within the central study area, Thurles town is also likely to continue to evolve. In the wider study area, wind energy will continue to inform the landscape character, with two wind farms that are currently under-construction likely to be completed, while a third wind farm is 'under consideration' for planning permission. Please refer to Section 15.7, for more information on this.

15.5 Construction Phase Effects

The construction phase is expected to last for 18 months.

15.5.1 Construction Phase Landscape Effects

Landscape Effects, as described in Section 15.2.4.3, are a combination of the Magnitude of Change and the Sensitivity of the resource. The landscape effects can include effects on the physical fabric of the landscape, on the landscape as a resource, and also on the character of the landscape. The effect on the character includes aesthetic and perceptual aspects. Landscape Sensitivity relates to Landscape Value and Landscape Susceptibility. The sensitivity of the landscape receptor is related to the type of development proposed.

15.5.1.1 Landscape Sensitivity

Wind Farm Site

Owing to the multiple factors addressed in Sections 15.3 and 15.4, the landscape sensitivity of the wind farm site is considered to be Low-Medium.

Gird Connection Route

Owing to the multiple factors addressed in Sections 15.3 and 15.4, the landscape sensitivity of the grid connection route is considered to be Low-Medium.

Turbine Delivery Route

Owing to the multiple factors addressed in Sections 15.3 and 15.4, the landscape sensitivity of those sections of the turbine delivery route that are within the study area, is considered to be Low-Medium.

Wider Landscape

Owing to the multiple factors addressed in Sections 15.3 and 15.4, the landscape sensitivity of the wind farm site is considered to be Low-Medium.

Re-routing the permitted ESB 38kv overhead powerline

As this re-routing will occur within the site, its landscape sensitivity is also considered Low-Medium.

15.5.1.2 Magnitude of Change

Wind Farm Site

The construction of 10 No. turbines and associated elements, including the substation, Battery Energy Storage Facility (BESS), lidar and access tracks, is expected to take 18 months. Activities taking place at the construction phase include the creation of 4 No. new site entrances, followed by vegetation clearance.

Construction phase activities will also include 2 no. temporary construction site compounds and additional mobile welfare unit; spoil deposition areas; associated surface water management systems, and the provision of an on-site visitor cabin and parking. An on-site borrow pit location has been identified, which will be excavated to provide fill material required for the development.

Each wind turbine will have a reinforced concrete base pad foundation, which are anticipated to be circular in shape and approximately 32m in diameter and 4m in depth. The turbine foundations shall be constructed using standard reinforced concrete construction techniques. Each wind turbine will have an associated turbine hardstand area adjacent to the foundation. These hardstands are required to accommodate the delivery of the turbine

components prior to their erection, to support the cranes during erection and to provide a safe working area during construction, operation and decommissioning. The hardstand areas will be excavated with a foundation of 0.5-1.5m depending on the local bedrock profile, with the main hardstand area being 103.5m x 37.5m in size.

It is proposed to construct 6.48km of new, 5.5m wide internal tracks, with 352m of existing internal access tracks to be upgraded and widened to 5.5m. These access tracks will be elements similar to farm tracks and farm construction works, albeit in a larger scale. Where feasible, the proposed access tracks are located adjacent to existing hedgerows to screen the tracks. The proposed 2 no. temporary construction compounds will be located close to site entrances.

With regards to vegetation clearance, in accordance with Section 2.4.12 of Chapter 2 Project Description, it states that the *'felling of some hedgerows and portions of existing woodland is required within and around wind farm infrastructure to accommodate the construction of the turbine foundations and associated hardstands, access tracks, and turbine assembly and turbine delivery routes. Trees in a radius of 105m around each turbine will be felled as part of the project.'*

In total, the removal of 1.4ha of woodland, as well as 4086m of hedgerow, is required to accommodate the proposed project. However, it is proposed to replant these quantities of trees and hedgerows elsewhere within the site. In terms of replanted woodland, this will likely entail infilling sections of existing woodland that served part of the Brittas Castle demesne landscape. In terms of replanting over 4km of hedgerows, this will likely be along historical hedgerow/field boundary alignments that have been removed in more recent decades. The location of the reforestation on-site can only be confirmed after permission has been granted for the proposed development and afforestation licence obtained.

The construction phase will also involve multiple HGVs and other machinery entering and exiting the site and working on the site for the duration of the construction phase. This will result in a change from an area with occasional machinery (during seasonal agricultural activities) to an area with a short-term intense increase in noise, dust and construction works.

Overall, the magnitude of landscape change associated with the construction of the wind farm site elements of the proposed project are considered to be Medium-High, as the proposed works will affect both the landscape fabric of the site and its character.

Grid Connection Route

Construction of the proposed grid connection route will entail the excavation of a narrow trench to lay a 110kV underground cable. It will initially pass through agricultural fields within the proposed new access tracks. The route then enters the public road at the Wind Farm Site boundary and heads southeast towards its destination at the Thurles 110kv substation. The entire 7km route from the site is located along public local roads. Overall, the construction of the proposed grid connection is considered of Low magnitude of change to the landscape.

Turbine Delivery Route

The turbine delivery route will run from the port of Foynes, in Co. Limerick, to the site. Twenty-two pinch points have been identified along the route where various works will be required. These include the following:

- The temporary removal of traffic signs and lights
- The temporary removal of electricity poles, bollards and lamp posts
- Hedges and tree removal or trimming
- Temporary land take
- Lowering of some roadside banks

- Temporary Fence removal
- Road widening

In addition, two points have been identified where hardstanding areas are required. However, in the context of a route that is in excess of 100km, the construction-phase landscape impacts of the proposed project are considered to be of **Low-Medium** magnitude.

Re-routing the permitted ESB 38kv overhead powerline

At the date of writing this chapter, an incomplete but permitted ESB overhead 38kV powerline passes through the site. Planning permission for the completion of this overhead line was permitted in mid-2023. This powerline is expected to be constructed prior to the expected construction period of the proposed wind farm. The construction phase for the completion of this powerline will largely entail the drilling of multiple, evenly spaced utility poles across the site, similar to the utility poles already present within the site.

The construction of these elements is considered to be of **Negligible-Low** magnitude of change

Wider Landscape

The wider landscape will experience a **Negligible** magnitude of landscape change during the construction phase.

15.5.1.3 Significance of Effect

Wind Farm Site

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Medium-High magnitude of landscape change for the construction of the on-site elements of the proposed project, will result in a **Moderate** significance of landscape effect for the site and immediate surrounds. The quality of effect will be **Adverse** in nature and **Short-term** in duration.

Grid Connection Route

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Low magnitude of change to the landscape, will result in a '**Slight**' significance of landscape effect for the grid connection route. The quality of effect will be **Adverse** in nature and **temporary** in duration.

Turbine Delivery Route

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Low-Medium magnitude of change to the landscape, will result in a '**Slight**' significance of landscape effect for the turbine delivery route. The quality of effect will be **Adverse** in nature and **temporary** in duration.

Re-routing the permitted ESB 38kv overhead powerline

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Negligible-Low magnitude of change, will result in a '**Not Significant'** landscape effect. The quality of effect will be **Neutral-Adverse** in nature and **temporary** in duration.

Wider Landscape

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Negligible magnitude of landscape change, will result in an '**Imperceptible**' landscape effect during the construction phase. The quality of effect will be **Neutral** in nature and **Short-term** in duration.

15.5.2 Construction Phase Visual Effects

Visual effects of the turbines, as well as the non-turbine elements that have the potential to be viewed from the public sphere, are assessed using the aforementioned verified photomontages. The photomontages include depictions of the vertical forms of the proposed turbines. It is proposed to install lighting on the turbines in a pattern that is acceptable to the Irish Aviation Authority/AirNav Ireland for aviation visibility purposes. As this is yet to be agreed, these cannot be depicted on any montages. However the nature and location of such lighting is highly unlikely to have any material visual impacts upon visual receptors in the study area.

15.5.2.1 Visual Receptor Sensitivity and Viewpoint Selection

Section 15.2.1 addresses the presence and purpose of ZTVs for this application. In addition, a ZTV is used in viewpoint selection, to rule out areas with no visibility. Landscape policies/designations such as scenic routes, and locations identified in Section 15.3.1 - 15.3.6 where sensitive visual receptors have potential views of the site, contributed to an initial list of viewpoints.

This list of locations that will have potential visibility of the proposed turbines will differ from the ZTV map, as areas with theoretical visibility may be screened from the proposed project - as established by the site visit. Other factors in selecting viewpoints include public accessibility, and the number of people which may visit the viewpoint. As outlined in the SNH (2017) guidance (paragraph 76) on visual representation of windfarms, views at varying elevations, directions and distances and in varying contexts, and representing various types of visual receptor were visited. Following this, the list of potential viewpoints was further refined, with viewpoints where no open views occurred being removed from the list.

The initial, ZTV-based viewpoint selection process is set out in Section 15.4.8. This process is consistent with that outlined in SNH guidance on viewpoint selection as well as more general guidance in paragraph 6.20 of the GLVIA (2013). It should also be noted that the GLVIA notes (paragraph 6.21) there is no specific guidance on the number of viewpoints as this depends on the context, nature of the proposal and range and location of visual receptors.

Viewpoints 1-28 are described below and should be read in conjunction with the Photomontage Booklet in Volume 4. The viewpoints 1-28 include viewers in the immediate vicinity of the site and from the wider landscape. These are assessed below in Section 15.6.2. The viewpoint locations across the study area are illustrated on the ZTV Maps included in Appendix 15A in Volume 3.

Of the 28 viewpoints, three of them (i.e. VPs 5, 23 and 28) were selected only to help illustrate how the proposed project would potentially appear from certain cultural heritage locations within the study area. These three viewpoints were requested by Laurence Dunne Archaeological for the purpose of the cultural heritage assessment in **Chapter 11** . Thus, while they have been included among the verified photomontages, they do not form part of the LVIA's visual assessment, below.

The ZTV maps give an indication of the pattern and the extent of the likely visibility, while the photomontages indicate the likely nature of the visibility. The Tip and Hub height ZTVs are discussed in Section 15.4.8 while the Cumulative ZTV is discussed in Section 15.7.1.

15.5.2.2 Magnitude of Change

Those proposed construction works that have the capacity to generate landscape or visual effects have been set out above in Section 15.5.1.2.

Wind Farm Site

Construction Phase visual effects on the wind farm site are likely to be localised and affect only the site and immediate vicinity, with some partial views from public roads. During the construction phase, the excavation of

the foundations and hardstanding areas, as well as other ground level works within the site, are likely to have a Negligible-Low magnitude of visual change, due to presence of existing hedgerows, trees, embankments and walls in the vicinity of the site, combined with the lack of public access. The proposed on-site borrow pit will be filled with excess material generated on-site during the construction phase and thereafter topped with topsoil recovered from construction areas and stored for later use in landscaping. The borrow pit site will then be revegetated and restored to pasture.

The magnitude of construction-phase visual change in relation to the gradual and phased erection of the 10 No. turbines on the wind farm site, in tandem with the presence of large cranes required to facilitates this, is considered to be **Medium-High .**

Grid Connection Route

In terms of the proposed grid connection route, the magnitude of construction-phase visual change is considered **Low** magnitude, along the road network of the proposed grid connection.

Turbine Delivery Route

In terms of the proposed grid connection route, the magnitude of construction-phase visual change is considered **Low** magnitude, along the road network of the proposed grid connection.

Re-routing the permitted ESB 38kv overhead powerline

In terms of the re-routing of the permitted ESB 38kV overhead powerline, as this will be occurring within the site, the magnitude of construction-phase visual change is considered **Negligible-Low** magnitude.

Wider Landscape

The wider landscape will experience a **Negligible-Low** magnitude of visual change during the construction phase.

15.5.2.3 Significance of Effect

Wind Farm Site

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the site, in tandem with the magnitude of the visual effects, the significance of the visual effects from the wind farm site during the construction phase are considered **Moderate, adverse** in the vicinity of the site. However, these will be **short-term** in duration.

Grid Connection Route

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the grid connection route, in tandem with the magnitude of the visual effects, the significance of the visual effects from the grid connection route during the construction phase are considered to be **Not Significant, adverse** and will be **temporary** in duration.

Turbine Delivery Route

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the turbine delivery route, in tandem with the magnitude of the visual effects, the significance of the visual effects from the turbine delivery route during the construction phase are considered to be **Not Significant, adverse** and will be **temporary** in duration.

Re-routing the permitted ESB 38kv overhead powerline

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the site, in tandem with the magnitude of the visual effects, the significance of the visual effects from the re-routing of this overheard powerline within the site, during the construction phase, are considered to be **Imperceptible, neutral** and will be **temporary** in duration.

Wider Landscape

Taking into consideration the broader nature of visual sensitivity of receptors in the wider study area, in tandem with the magnitude of the visual effects, the significance of the visual effects on the wider landscape during the construction phase, are considered to vary from **Imperceptible** to **Not Significant,** and from **neutral** to **adverse**, and will be **short term** in duration.

15.6 Operational Phase Effects

15.6.1 Operational Phase Landscape Effects

15.6.1.1 Landscape Sensitivity

Owing to the multiple factors addressed in **Sections 15.3** and **15.4**, the landscape sensitivity of the site and immediate surrounds, as well as the wider landscape of the study area, is considered to be **Low-Medium.**

It is worth noting, that this Low-Medium landscape sensitivity therefore also applies to the Grid Connection Route, the Turbine Delivery Route and the Re-routing the permitted ESB 38kv overhead powerline.

15.6.1.2 Magnitude of Change

Wind Farm Site

Change to the landscape can consist of changes to the fabric of the landscape, as well as to the character and perceptual aspects. Construction stage landscape effects typically relate to the former, while operational stage landscape effects typically pertain to the latter.

Prior to the construction-stage, the landscape character of the site and immediate surrounds was chiefly informed by that of lowland, gently undulating terrain made up of intensively managed pasture, with field sizes tending to be medium-large in size, and with the former demesne landscape of Brittas Castle adjacent to the southwest section of the site.

Post-construction (i.e. operational phase), the landscape character of the site and immediate surrounds will continue to be informed by those factors. However, the proposed 10 No. turbines within the site will inform the site's landscape character and will impart a larger degree of change to the local landscape. While wind energy is a palpable facet of the wider landscape, there are no such developments (i.e. operational, permitted or proposed wind energy developments) within the immediate vicinity of the site, or, indeed, the central study area. It is worth noting that the proposed tree and hedgerow replanting within the site is not taken into account under these operational phase effects, as the planting of such has been addressed in the construction phase effect.

In summary, the presence of 10 No. turbines of large scale will impart a **High** operational-phase magnitude of change to the landscape character of the immediate locality.

Grid Connection Route

In terms of the proposed grid connection route, as this will chiefly entail the excavation of a long, narrow trench, the magnitude of operational-phase landscape effects is considered to be of **Negligible** magnitude.

Turbine Delivery Route

In terms of the proposed turbine delivery route, the magnitude of operational-phase landscape effects is considered to be **Negligible** magnitude.

Re-routing the permitted ESB 38kv overhead powerline

In terms of the re-routing of the permitted ESB 38kV overhead powerline, the magnitude of operational-phase landscape effects is considered to be of **Negligible** magnitude.

Wider landscape

As the proposed 10 No. turbines within the site will primarily inform the site's landscape character, it is worth noting that there are 15 No. wind energy developments (i.e. operational, permitted or proposed) within the wider study area, although none with 9km of the site.

In summary, the proposed project will impart a **Low** operational-phase magnitude of change to the landscape character of the wider landscape.

15.6.1.3 Significance of Effect

Wind Farm Site

In accordance with **Table 15-5** a Low-Medium landscape sensitivity, in combination with a High magnitude of landscape change for the on-stie elements of the proposed project, will result in a **Moderate** significance of landscape effect for the site and immediate surrounds during the operational-phase. The quality of effect will be **Adverse** in nature and **long-term** in duration.

Grid Connection Route

In accordance with **Table 15-5,** a Low-Medium landscape sensitivity, in combination with a Negligible magnitude of change, will result in an **Imperceptible** significance of landscape effect on the grid connection route during the operational-phase. The quality of effect will be **Neutral** in nature and **long-term** in duration.

Turbine Delivery Route

In accordance with **Table 15-5,** a Low-Medium landscape sensitivity, in combination with a Negligible magnitude of change, will result in an **Imperceptible** significance of landscape effect on the turbine delivery route during the operational-phase. The quality of effect will be **Neutral** in nature and **long-term** in duration.

Re-routing the permitted ESB 38kv overhead powerline

In accordance with **Table 15-5,** a Low-Medium landscape sensitivity, in combination with a Negligible magnitude of change, will result in an **Imperceptible** significance of landscape effect along this powerline route during the operational-phase. The quality of effect will be **Neutral** in nature and **long-term** in duration.

Wider landscape

In accordance with **Table 15-5**, a Low-Medium landscape sensitivity, in combination with a Low magnitude of landscape change will result in a **Slight** significance of landscape effect for the site and immediate surrounds. The quality of effect will be **Adverse** in nature and **long-term** in duration.

15.6.2 Operational Visual Effects

Section 15.5.1.1 and 15.5.1.2 described the 28 No. viewpoints, which will be assessed here and should be read in conjunction with the Photomontage Booklet in Volume 4.

15.6.2.1 Assessment of Operational Visual Effects of on-site elements of proposed project

Please note that this section pertains to the visual effects of those elements of the proposed project within the wind farm site. If/where visible, this includes the proposed turbines, substation and BESS, as well as the re-routing of the permitted ESB 38kv overhead powerline within the site.

Viewpoint 1: View from residences at Rossestown
Existing View This view is taken from a crossroads of two local roads, looking across open improved grassland in the foreground. In the middle ground are some modern farm buildings, farmhouse and other nearby residences with these built structures partially contained by a mix of trees, hedgerows, and scrub. In the background are the outline of distant hills peering above the treelines and hedgerows in the middle ground.
Visual Receptor Sensitivity This view represents a local view from surrounding residence. The view includes some open views experienced by road users and some nearby residences, while other residential views are more enclosed by their garden hedges. The view is of a working rural landscape and residences which has some pleasant qualities with the background hills. Overall, the sensitivity is considered Medium.
Proposed Photomontage - Magnitude of Change The photomontage figure is divided into A and B. View A: The turbines will be clearly visible as a group rising above the mid-ground farm buildings/dwelling and as a single turbine offset to the left, through the gap between the line of poplar trees. Some of the existing tree coverage will partially block views of a small portion of the turbine's moving blades. However, these will become more apparent in the winter months when the trees are lacking leaves. View B: Allows for another five turbines of the proposed project to be visible, which will be of a similar degree of visibility as those to the left within View A. The presence of low electric and telephone wires in front of the turbine's towers and moving blades will cause some visual discord. The magnitude of change is considered High, as per the definitions in Table 15-4.
Significance of Effect The medium receptor sensitivity and the high magnitude of change results in a Moderate-Significant visual effect, as per Table 15-5. The visual effect is considered adverse, as turbines' tall vertical form and scale detract from the existing view and will be present for a Long-Term duration.
Cumulative Visibility Although the wireframe shows the three operational Lisheen windfarms present, these are not visible within the existing view or photomontage, due to their distance or intervening vegetation/structures.

Viewpoint 2: View from residences at Brownstone Crossroads
Existing View

Viewpoint 2: View from residences at Brownstone Crossroads

This view is taken from a local road to the northeast of the proposed project and contains a mix of intensive farmland and rural housing.

View across the open improved grassland in the foreground is framed by the hedgerows bounding the adjoining field and residence's garden. Peering above these hedges are the rooflines of the nearby house and shed with some other rural houses partially visible above the undulating fields further along the road. Various electrical wires and posts and tv aerials create a clustering of vertical elements within the middle ground view. Against the background, to right of the shed are the outline of distant hills upon which there is an existing wind farm and single turbine are barely visible.

Visual Receptor Sensitivity

This view represents one of a local view. The view includes some open views experienced by road users and some nearby residences, while other residences views are more enclosed by their garden hedges. The view is of a working rural landscape and residences which has some scenic qualities. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

All 10 turbines will be partially visible as a perceptible unit beyond the residence in this view, with two blade sets curtailed by the house's roofline. All the turbines' bases are hidden by intervening hedgerows. The vertical form of the turbines will be read alongside the existing electrical poles, with their wiring running in front of some the turbines, generating some visual discordancy.

The magnitude of change is considered **Medium**, as per the definitions in **Table 15-4.**

Significance of Effect

The medium visual receptor sensitivity and the medium magnitude of change results in a **Moderate** visual effect, as per **Table 15-5**. The visual effect is considered adverse, as the group of turbines' tall vertical form and scale will be a prominent feature from a small number of residences and road users and will be present for a Long-Term duration.

Cumulative Visibility

The existing baseline view and wireframe shows the three operational Lisheen windfarms with varying degrees of visibility of its turbines in the background.

Viewpoint 3: View from Rossestown Bridge, near the centre of site

Existing View

The baseline view is recorded over three images capturing the view from the southwest through to north from a stone bridge on a local road (L-8017), located within the project site and very close to the development footprint areas located to either side of the road.

View 3A – looks south-westerly over the bridge, with open views extending from the foreground to middle ground of the flat intensive-managed, improved grassland. There are partial views of the river and some remnants of wetland scrub and marginal planting along the river's edge. Against the background the view is contained by mature tree cover lining the field boundaries (i.e. the woodland surrounding the Brittas Castle demesne landscape).

View 3B 1&2 – looks westerly along the road, from the low bridge in the foreground to the large area of flat and open intensive grassland broken up by lengths of low hedgerows and occasional mature hedging and scrub. There are several manmade vertical elements within part of the middle ground, including electricity post/wires, mobile mast and the site's existing temporary anemometer. Also partially visible are some modern farm buildings.

Viewpoint 3: View from Rossestown Bridge, near the centre of site

Against the background is the outline of several hills, some of which contain a windfarm that is faintly visible in the distance.

View 3C - the foreground fields are similarly of open intensively managed pasture with hedgerow and an inconsistent treeline along the field boundaries. Beyond the foreground field, the middle ground view contains views of the surrounding ostensibly flat fields which are partially enclosed by mature hedgerows. The background view is contained by various mature hedgerows in the distance.

Visual Receptor Sensitivity

This view represents one of a local view which is only experienced by road users as there are no residences within the immediate area.

The intensively worked rural landscape visually detracts from the river setting, although the mature tree and distant hills adds some scenic value to these rural views. Overall, the sensitivity is considered **Medium-Low**.

Proposed Photomontage - Magnitude of Change

Given the proximity to the site and open farmland, road users will have close-up views of several turbines, which will be clearly visible as dominant features set against the skyline. As the turbines are located nearby on both sides of the road, users will experience views as passing through a windfarm.

The magnitude of change across all three views is considered **Very High**, as per the definitions in **Table 15-4**.

Significance of Effect

The medium-low receptor sensitivity and the very high magnitude of change results in a **Significant** visual effect as per **Table 15-5**. The visual effect is considered adverse and will be present for a Long-Term duration.

Cumulative Visibility

The wireframe of View 3B shows operational wind farms present, but barely visible. In the wireframe of 3C, the operational Bruckana and Lisheen wind farms (screened by hedgerows) and the proposed Borrisbeg Turbines are detectable. However, these are not visible within the existing view or photomontage.

Viewpoint 4: View from residences along N62, to immediate west of the project site

Existing View

The baseline view is of some single-storey residences located next to the busy national road, with mature trees located within the respective gardens, or to the rear of the residences within the field boundaries of the site. The baseline view is split between 4A, 4B and 4C.

View 4A and 4B: The hedge in the foreground helps restricts views into the two nearby residences, with only their upper gable and rooflines visible in the middle ground. Next to the low houses are some roadside utility posts and OHL wires, with the wires passing over the same roadside hedge. The background is framed by the mature treelined field boundaries of the site.

View 4C: The view is similar to 4A and 4B, with the same roadside hedge in the foreground restricting views to the nearby residence and of the field visible in the middle ground. The background views are similarly contained by the mature field hedgerows.

Visual Receptor Sensitivity

This view represents one of a small group of local residences but whose setting is affected by their proximity to the busy transport route. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

Viewpoint 4: View from residences along N62, to immediate west of the project site

Seven of the proposed turbines will be partially visible from this busy national road-side location. Some of the proposed turbine's towers and lower rotating blades will be screened by the foreground hedgerow. However, the proposed structures are likely to become more marginally visible during the winter months when lacking leaf cover. The discordant manner in which many of the proposed turbines will be viewed from this location are likely to lead to some visual disharmony (e.g. stacking of turbine and blade tip 'cutting' above the foreground skyline). However, the proposed turbines will be viewed from a busy national road and they will not obscure or screen any notable sources of visual amenity.

The magnitude of change across these views is considered **High**, as per the definitions in **Table 15-4**

Significance of Effect

The medium receptor sensitivity and the high magnitude of change results in a **Moderate-Significant** visual effect, as per **Table 15-5**. The visual effect is considered adverse, with a long-term duration.

Cumulative Visibility

The 4A1 and 2 baseline wireframe shows several windfarms but none of these are visible in the existing view.

View 5: View from castle at Dovea

This photomontage view is from a cultural heritage asset which was requested by the cultural heritage consultant for use within the cultural heritage chapter only. Consequently, this viewpoint is excluded from this LVIA assessment.

Viewpoint 6: View from residences along the N62, on Northern outskirts of Thurles

Existing View

The baseline view is along the northeastern urban-rural edges of the town of Thurles, next to the busy N62 national road. The urban-rural interface is visible across the foreground to middleground view, with elements including the busy road, pedestrian path with mown edges, various signage, tall street lights and electricity posts/wires. To the right/east of the road is the surrounding farmland. Two single-storey residences are visible in the middle ground, whose gardens are partially contained by the evergreen hedge along the nearest garden boundary. Against this background are the tops of various mature trees lining the field boundary hedgerows and roadside edges. Overall, this is a busy and complex scene, with numerous tall/vertical elements in the foreground that appear somewhat out of character with the low-lying, pastoral domain beyond.

Visual Receptor Sensitivity

This view represents a small group of local residences on the urban-rural fringes of Thurles town whose setting is affected by their proximity to the busy transport route and proximity to the town.

Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

Seven of the turbines will be visible to varying degrees, with views mostly limited to their upper towers and rotating blades. While in the broader line of sight of road users and pedestrians travelling north from Thurles, the proposed turbines occupy a relatively tight visual envelope (i.e. they appear, from this location, as a tight and coherent unit). However, the discordant manner in which many of the proposed turbines will be viewed from this location are likely to lead to some visual disharmony (e.g. stacking of rotating blade sets and blade tips 'cutting' above the foreground skyline).

The magnitude of change is considered **Medium**, as per the definitions in **Table 15-4.**

Viewpoint 6: View from residences along the N62, on Northern outskirts of Thurles

Significance of Effect

The medium receptor sensitivity and the medium magnitude of change results in a **Moderate-slight** visual effect, as per **Table 15-5.** The visual effect is considered adverse, as the turbines' tall vertical form and scale will be visible from the edge of the town and will be present for a Long-Term duration.

Cumulative Visibility

The baseline wireframes show the operational Lisheen Mine windfarm and Bruckana windfarms and the proposed Borrisbeg windfarm in the distant. None of these are visible within the photomontage due to screening by the house, intervening hedgerows and trees.

Viewpoint 7: View from Thurles town

Existing View

The baseline view is taken from the railway bridge on the R498 road as it provides for the most elevated view from the public realm, within the town looking out towards the site. This roadside view looks down onto playing pitches in the foreground with the town's fire station and Gortaggart housing estate visible in the middle ground. These buildings are backdropped by a line of mature deciduous trees.

Visual Receptor Sensitivity

This view represents a view from within the town which includes road users and pedestrians within an urban context. Thus, the sensitivity is considered **Low**.

Proposed Photomontage - Magnitude of Change

Views of the proposed turbines are highly limited to only the nearest turbine's rotating upper blade tips rotating above the trees behind the housing estate. The lack of visibility of this turbine's remaining structure will cause some visual discordancy. There is the potential that the remaining turbines may be visible to varying degrees during the winter months when the group of mature trees are lacking leaf cover. However, such views of these structures will be heavily filtered through gaps in the tree's branches.

The magnitude of change is considered **Low**, as per the definitions in **Table 15-4**

Significance of Effect

The low receptor sensitivity and the low magnitude of change results in a **Slight** visual effect, as per **Table 15-5**. The visual effect is considered adverse, as limited visibility of the proposed turbines will be at marginal odds with the surroundings and will be presence for a Long-Term duration.

Cumulative Visibility

The baseline wireframes show the operational Lisheen Mine windfarm and Bruckana windfarms in the distant. None of these are visible within the photomontage due to screening by the housing and mature trees, on the edge of the town.

Viewpoint 8: View from Twomileborris

Existing View

The baseline view is on the edge of Twomileborris by location of scenic viewpoint (V62), looking north-westwards and is contained by housing and local vegetation patterns. This view is from N62, while scenic viewpoint (V62)

Viewpoint 8: View from Twomileborris

has been sourced from the aforementioned Section 11.7.2 of Volume 3 of the Tipperary County Development Plan (see **Section 15.3.2**).

A gap between the houses along the roadside allows for views directly onto the surrounding pasturelands, extending out to the pastoral view. Within the view are two single storey houses visible to varying degrees. The small area of farmland visible is divided up by various heights of hedgerow, with taller mature hedgerow containing the view. Peering above these dense hedgerows are partial views of the outline of hills in the distant background.

Visual Receptor Sensitivity

This view represents a small group of local residences on the urban-rural fringes of the small linear settlement of Twomileborris, whose setting is affected by their proximity to the busy transport route. While there may have once been a distinct visual amenity to support such a scenic designation, it is no longer apparent. In more recent years/decades, ribbon housing development along this busy national road has served to reduce the inherent visual amenity of the setting. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

More than 6km away, the blade tips of up to six of the proposed turbines may be visible 'cutting' above intervening treelines. The angle of view means the turbines' blade sets are seen clumped together, resulting in visual stacking, causing visual discordance as a result.

The magnitude of change is considered **Low**, as per the definitions in **Table 15-4.**

Significance of Effect

The medium receptor sensitivity and the low magnitude of change results in a **Slight** visual effect, as per **Table 15-5.** The visual effect is considered adverse, as the group of turbines tall vertical form and scale will be visible in the background and will be present for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows a group of windfarms in the distant hills to the left. These are not visible in the existing view, due to them being screened by an intervening house and vegetation.

Viewpoint 9: View from residences at Kilcooney townland

Existing View

The baseline view is of rural residence located more than 3km to the northeast of the site. The view looks across the road with the foreground view partially screened by the low roadside hedge. A large, ostensibly flat field of pasture is visible in the mid-distance, culminating in stacked hedgerows/treelines on the horizon.

A two-storey residence, and associated garden hedge, limits views of the surrounding agricultural land. The rooflines of more distant farm sheds can be seen peering above the hedge.

Visual Receptor Sensitivity

This view represents a rural residences. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

Over 3.3km from the nearest turbines, there will be varying visibility of six of the proposed turbines' nacelles or rotating upper blade sets, with some of the lower rotating blade tips screened by hedging and trees. The scene is one of discordance, as the proposed turbines do not appear as a coherent whole, with disparate blade tips

'cutting' above intervening vegetation and rooflines. Views of the proposed turbines will be possible from the residence, but the main views from the property are orientated away from the proposed project.

The magnitude of change is considered **Medium**, as per the definitions in **Table 15-5**

Significance of Effect

The medium receptor sensitivity and the medium magnitude of change results in a **Slight-Moderate** visual effect. The visual effect is considered adverse, owing to the aforementioned scale of discordance and visual disharmony, when viewed from this location. The duration of effect will be long term.

Cumulative Visibility

The baseline wireframe shows existing turbines on the hills in the far distance. However, these turbines are not visible in the existing view.

Viewpoint 10: View from Templetuohy

Existing View

The baseline view is from the small settlement of Templetuohy. It has been captured from a GAA club pitch, as it provides the most open views in the direction of the site from within the settlement and is a valued and highly visited local community asset.

The view looks directly onto the playing pitches with the foreground and middle ground view containing various elements associated with the pitches, including the tall vertical elements of the goal posts, football fencing and floodlights. The background view is visually curtailed by various mature tree cover.

Visual Receptor Sensitivity

This view represents user of and visitors to the GAA club. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

There are no views of the proposed turbines from this location, due to the intervening vegetation and a distance of approx. 8.5km to the nearest proposed turbine.

The magnitude of change is considered **Negligible,** as per the definitions in **Table 15-4**.

Significance of Effect

The medium receptor sensitivity and the medium magnitude of change results in an **Imperceptible** visual effect, as per **Table 15.5.** There will be a neutral quality of effect for the project's Long-Term duration.

Cumulative Visibility

The baseline view shows the western most turbine of the Lisheen windfarm turbine partially visible through the pitch's safety nets/ball stops. The baseline wireframe shows the same turbine and other turbines on the hills in the far distance. However, the latter are not visible on the existing view due to the intervening vegetation.

Viewpoint 11: View from Loughmore Abbey

Existing View

The small village of Loughmore is located almost 4km north of the site. Settlement is linear in the village, with few clear views from road, in the direction of the site. An aged church yard, located adjacent to the Church of Nativity, present the most open views from the village, in the direction of the site. The baseline view is located within the graveyard of the old abbey grounds, which also is of heritage interest.

Viewpoint 11: View from Loughmore Abbey

The view looks across the surrounding graveyard with the various heights and styles of gravestones within the foreground view. Beyond the graveyard, are the ostensibly flat and gently undulating pastureland with mature hedgerow boundaries found across the mid-ground view. In the far background are the outline of distant hills. Overall, the far-off landscape is of average visual amenity, while the main source of visual amenity comes from the foreground heritage site, including the crumbling aged walls of the abbey.

Visual Receptor Sensitivity

This view represents a local historic, cultural and religious site in the public sphere. Overall, the sensitivity is considered **Medium-High**.

Proposed Photomontage - Magnitude of Change

All ten proposed turbines will be largely visible against the skyline within the central part of this view. The layout of turbines means they are divided into three groups with some turbine stacking resulting in visual discordancy.

The magnitude of change is considered **Medium**, as per the definitions in **Table 15-4**.

Significance of Effect

The medium-high receptor sensitivity and the medium magnitude of change results in a **Moderate** visual effect, as per **Table 15-5**. The visual effect is considered adverse, as the group of turbines tall vertical form and rotating blade sets will add an apparent feature visible from within the graveyard and will be presence for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows the turbines on the hills in the far distance but these not visible in the existing view.

Viewpoint 12: View from Templemore

Existing View

The baseline view is located within a more open part of the settlement of Templemore that is within the town's graveyard.

The view looks across the surrounding graveyard with the various heights and styles of gravestones within the foreground view. Beyond the graveyard, the view across the middle ground contains various built elements in the form of factory buildings, along with narrow vertical elements in the form of lighting, electrical post/wire and pitch netting/ballstops. A thick band of mature trees, as well as tall industrial buildings in the background, helps to contain the view. Overall, this a complex, busy scene, with an array of strong vertical elements visible in the foreground and mis-distances.

Visual Receptor Sensitivity

This view represents one from a local importance. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

The upper portions of all ten blade sets will be visible, to varying degrees, rotating above the industrial roofs and tree line in the background. Some blade set will overlap, causing visual stacking of the blades, resulting in some visual discordancy. Some of the lower blade tips will be screened by the intervening trees. However, these blades sets will be located more than 8km away; will be viewed from the context of an urban context, and, while visible, are unlikely to be noticeable in the context of such a busy and complex foreground.

The magnitude of change is considered **Low**, as per the definitions in **Table 15-4**

Viewpoint 12: View from Templemore

Significance of Effect

The medium receptor sensitivity and the low magnitude of change results in a **Slight** visual effect, as per **Table 15-5** The visual effect is considered adverse, for some of the aforementioned factors, and will be of a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows the turbines on the hills in the far distance but these are not clear on the existing view, due to being screened by the intervening vegetation/buildings.

Viewpoint 13: View from Bouladuff (i.e. The Ragg) 9km north west of the project site

Existing View

The baseline view is located from a more open and elevated part of the settlement of Bouladuff next to The Ragg pub/restaurant.

A low roadside wall allows open views into the surrounding pasture within the foreground and middle ground, which are framed by the mature treeline and hedgerows on the boundary. Several electricity posts/wires cross through the fields. To the left (north) is the Inch National School and some residences. In the background are the tops of mature field boundaries and in the far distance is the outline of far-off low hills.

Visual Receptor Sensitivity

This view represents one from a small settlement. Overall, the sensitivity is considered **Medium-low**.

Proposed Photomontage - Magnitude of Change

There will be partial views of three proposed turbines, with some screening of their bases and rotating blade tips provided by the intervening hedge and trees. The remaining seven proposed turbines are screened by the line of intervening mature trees.

During the winter months, when the vegetation is lacking leaf cover, there will be some increased views of the structures of the three visible turbines in the view. Similarly, there will be heavily filtered views of the remaining seven turbines visible through the line of mature trees in winter. However, this will be viewed from the context of small, but built-up settlement.

The magnitude of change is considered **Medium-Low**, as per the definitions in **Table 15-4**.

Significance of Effect

The medium receptor sensitivity and the medium-low magnitude of change results in a **Slight** visual effect, as per **Table 15-5** The visual effect is considered adverse, and of Long-Term duration.

Cumulative Visibility

The baseline wireframe shows a number of groups of turbines on the hills in the far distance, with some being barely visible on the existing view, with other fully screened by the intervening vegetation/buildings.

Viewpoint 14: View from Holy Cross Cistercian Abbey 8.5km south west of the project site

Existing View

The baseline view is located within the grounds of the Holy Cross Cistercian Abbey. This section is representative of community receptors visiting a relatively recent graveyard. The foreground view is looking north-eastwards

Viewpoint 14: View from Holy Cross Cistercian Abbey 8.5km south west of the project site

from the rear of the abbey building across to the existing graveyard and various gravestones. Beyond the graveyards is surrounding farmland and some rural housing. The background view is contained by the stacked lines of mature trees.

Visual Receptor Sensitivity

This view represents one from the wider grounds of a celebrated and well-visited Cistercian Abbey. Thus, the sensitivity is considered **High-Medium**.

Proposed Photomontage - Magnitude of Change

More than 8km away, the tips of two of the proposed turbines will be faintly visible 'cutting' above the tree line in the distance. If seen, this may cause some visual discordancy as the turbine's tower structure is not visible. However, these are unlikely to be noticed by most observers, owing to the distance from this location as the main sources of inherent visual amenity being in the fore- to mid-distance.

The magnitude of change is considered **Negligible**, as per the definitions in **Table 15-4**

Significance of Effect

The High-Medium receptor sensitivity and the negligible magnitude of change results in a **Not Significant** visual effect, as per **Table 15-5.** The visual effect is considered neutral and will be of a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows the upper blade tips of a number of groups of turbines on the hills in the far distance. However, none are visible in the existing view, due to being fully screened by the intervening vegetation/buildings.

Viewpoint 15: View from M8 and M62 – northern roundabout at Junction 6 located 9.5km south of the proposed project site

Existing View

By way of context, this view is from the M8 overpass, at Horse and Jockey. The baseline view is located from the elevated section of road providing a 'worst case' view from the motorway experienced by road users. In the foreground is the overpass, along with the cluttering of various signage and lighting columns associated with the road. The foreground and mid-distant views is one replete with adroit, vertical elements of this arterial context. Beyond this the lighting columns continue into the middle ground view, which also contains partial views of rural houses, flat farmland and hedgerows. To the background is the distinct outline of several hills.

Visual Receptor Sensitivity

This view represents one from a road user on a national route. Overall, the sensitivity is considered **Low**.

Proposed Photomontage - Magnitude of Change

The distant rotating blade sets of some of the proposed turbines will be visible to the right/northwest of the image. Located more than 9km away, the proposed turbines will have varying degrees of visibility of their upper towers and rotating blades sets above the intervening tree cover. However, in light of the arterial setting, along with the engineered foreground/mid-distance containing multiple vertical elements, even if seen by road users, the proposed project is unlikely to palpably detract from the already low inherent visual amenity of this setting.

The magnitude of change is considered **Low**, as per the definitions in **Table 15-4.**

Significance of Effect

Viewpoint 15: View from M8 and M62 – northern roundabout at Junction 6 located 9.5km south of the proposed project site

The Low receptor sensitivity and the Low magnitude of change results in a **Slight** visual effect, as per **Table 15-5.** The visual effect is considered adverse, and of a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows a number of groups of turbines on the hills in the far distance, but none of these are visible on the existing view as they are fully screened by the intervening vegetation.

Viewpoint 16: View from Tipperary designated scenic route at Borrisoleigh 17km north west of the proposed project site

Existing View

The baseline view is located from the R498 on the edge of the settlement of Borrisoleigh, which forms part of Tipperary designated scenic route V54.

The foreground view is looking southeasterly along the road and pavement, with a small, landscaped area and farmland to the left of the road. To the right is a single field enclosed by a high hedgerow which restricts views. Beyond this hedgerow and other roadside vegetation are the rooflines of a house and sheds on opposite sides of the road, along with other mature hedgerows within the middle ground views. Also within the view is several utilities poles and OHLs. Background views are limited by the intervening hedgerows.

Visual Receptor Sensitivity

This view represents road users on a section of a regional road designated for its scenic quality. However, in spite of its designation, there is a somewhat limited scenic or visual amenity available at this location. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

At over 9km from the site and with such a density of foreground vegetation obscuring more distant views, only the upper blade tip of a single turbine will be visible from this location.

The magnitude of change is considered **Low-Negligible**, as per the definitions in **Table 15-4**.

Significance of Effect

The Medium receptor sensitivity and the Low-negligible magnitude of change results in a **Not Significant** visual effect. The visual effect is considered neutral, and Long-Term in duration.

Cumulative Visibility

The baseline wireframe shows a small number of other turbines' upper blade tips across the hillside in the distance, but none of these are visible in the existing view as they are fully screened by the intervening vegetation.

Viewpoint 17: View from Tipperary designated scenic route along N62 at Clonakenny townland

Existing View

The baseline view is located from the national route N62 which forms part of Tipperary designated scenic route V58. Please note that the designated view is only orientated towards the western side of the N62 road (i.e. right side of image).

The foreground view at the junction includes views of signage and roadside verges. Beyond this, on either side of the road, is flat pastureland divided up by a mix of low and high hedgerows throughout the middle to background

Viewpoint 17: View from Tipperary designated scenic route along N62 at Clonakenny townland

view. A small cluster of houses and farm buildings are visible further down the road in the background. Electricity and telegraph post/wires follow along either side of the road throughout. There is a notable variation to the topography in the background, to the right of the view with a small hill visible.

Visual Receptor Sensitivity

This view represents one from a road user on a section of a national road designated for its scenic quality. However, the extent of the scenic view is located to the right side of the national road which only forms part of the overall view experienced from this viewpoint. Overall, the sensitivity is considered **Medium-low**.

Proposed Photomontage - Magnitude of Change

Less than four of the proposed turbine blade tips will be partially visible above the distant trees, albeit from a distance of over 16km. However, even if noticed by road users, these blade sets will be contained within a very tight visual envelope, with blade sets overlapping, and will not detract from the visual amenity of the setting. The proposed turbines will be located to the left side of the road and so are outside of the designated view to the right of the road.

The magnitude of change is considered **Negligible**, as per the definitions in **Table 15-4**.

Significance of Effect

The Medium receptor sensitivity and the Negligible magnitude of change results in a **Not Significant** visual effect. The visual effect is considered adverse, and of Long-Term duration.

Cumulative Visibility

The baseline wireframe shows the turbines of the proposed Borrisbeg windfarm visible. If constructed, this would be to the fore and left of the proposed project, when viewed from this location. More distant operational windfarms are visible in the wireframe, but are not visible in the existing view, as they are fully screened by the intervening vegetation.

Viewpoint 18: View from Tipperary designated scenic route at New Bermingham 15km south east of the proposed project site

Existing View

The baseline view is located from the R689 on the edge of the settlement of New Bermingham which forms part of Tipperary designated scenic route V31.

This section of elevated road, positioned between two roadside properties, allows for extensive views across the surrounding landscape, which changes from improved pasture in the foreground, to large areas of flat peatland across the middle ground that has been planted with small sections of conifer plantations. In the distance are numerous low hill ranges that are partially obscured by the haze of atmospheric perspective.

Visual Receptor Sensitivity

This view is representative of road users and residents on a section of a regional route designated for its scenic quality. Thus, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

The proposed turbines will be visible rising from a horizontal middle ground landscape with their structures partially backdropped by the hills behind. The grouping of turbines will lead to some visual stacking as result of the overlapping of blade sets. The visibility of the turbines will be reduced by the atmospheric perspective giving them a hazed appearance in the distance.

Viewpoint 18: View from Tipperary designated scenic route at New Bermingham 15km south east of the proposed project site

The magnitude of change is considered **Low**, as per the definitions in **Table 15-4**

Significance of Effect

The Medium receptor sensitivity and the low magnitude of change results in a **Slight** visual effect. The visual effect is considered neutral, as the turbines will sit within the landscape, backdropped by a higher skyline

Cumulative Visibility

The baseline wireframe shows a number of groups of turbines on the hills in the far distance. However, none of these are visible on the existing view as they are fully screened by the intervening vegetation.

Viewpoint 19: View from Clonoulty Village 15km south west of the proposed project site

Existing View

The baseline view is located from the GAA pitches which provided an open space from within the small settlement of Clonoulty and allow for the most open views in the direction of the site.

The foreground view looks onto the GAA pitch's carpark, with the pitch along with the associated structures including the narrow vertical forms of the lighting poles in the middle ground. Immediately beyond the pitch the land rises up to form a slight hill with small fields enclosed by low hedgerows and some mature trees and rural houses visible in the background.

Visual Receptor Sensitivity

This view is representative of residences within the settlement, as well as recreational users. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

Approx 15km away, the faint outline of three blade tips will be faintly visible in the distance, 'cutting' above the treetops. However, these are highly unlikely to be seen by the observer and even if seen, will have no effect on the inherent visual amenity of the scene.

The magnitude of change is considered **Negligible,** as per the definitions in **Table 15-4**

Significance of Effect

The Medium receptor sensitivity and the negligible magnitude of change results in an **Imperceptible** visual effect, as per **Table 15-5**. The visual effect is considered neutral, owing to the distant turbine blade tips being scarcely visible, and with a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows a small number of other turbines along the hillside in the far distance, but none of these are visible in the existing view as they are fully screened by the intervening vegetation.

Viewpoint 20: View from Johnstown 16km north east of the proposed project site

Existing View

The baseline view is located from the GAA pitches at Johnstown which provide an open space and community hub from within the small settlement. It also allows for the most open views in the direction of the site.

The foreground and middle ground view look onto the GAA pitch, with the pitch's goal post, netting/ballstops, lighting, scoreboard and some electricity post/wires by the boundary edges of the pitch visible in the middle ground. All these elements are framed by high hedgerows. Beyond the hedge, to the right of the image, is an existing windfarm and the partial outline of a distant hill in the background.

Visual Receptor Sensitivity

This view represents one from residences within the edge of the settlement and recreational users. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

None of the proposed turbines will be visible from this location, due to the distance, topography variations and screening provided by the evergreen hedge along the pitch and hedges/trees found across the intervening landscape. Thus, the proposed project will have no changes to the existing view.

The magnitude of change is considered **Negligible,** as per the definitions in **Table 15-4**.

Significance of Effect

The Medium receptor sensitivity and the negligible magnitude of change results in an **Imperceptible** visual effect, as per **Table 15-5**. The visual effect is considered neutral, as the proposed turbines will generate no change to the existing view, and for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows several groups of turbines across the intervening landscape and distant hills. The existing view shows only one existing windfarm.

Viewpoint 21: View from Liath Mor heritage site 10km south east of the proposed project site

Existing View

The baseline view is located from the grounds around Liath Mor heritage site, which dates back to the foundation of a monastery on this site in the 7th Century. The site comprises of a number of early Christian ruins, set within farmland, with a boreen running between some of these ruins.

The view looks across the improved grassland in the foreground to the stone ruins of the two churches and base of a round tower within the middle ground. Beyond the ruins the view is contained by the high mature hedgerows and tree lines to the background, with some partial outlines of distant hills visible through gaps in the tree cover.

Visual Receptor Sensitivity

This view represents one from a publicly accessible heritage site. Overall, the sensitivity is considered **High-Medium.**

Proposed Photomontage - Magnitude of Change

None of the proposed turbines are visible from this point due to the distance, topographic variations and screening provided by the hedge and other hedge/tree cover across the intervening landscape. Thus, the proposed project will have no changes to the existing view.

The magnitude of change is considered **Negligible,** as per the definitions in **Table 15-4.**

Significance of Effect

The High-Medium receptor sensitivity and the negligible magnitude of change results in an **Imperceptible** visual effect, as per **Table 15-5.** The visual effect is considered neutral, as the proposed turbines will have no change to the existing view, and it will be for a Long-Term duration.

Viewpoint 21: View from Liath Mor heritage site 10km south east of the proposed project site

Cumulative Visibility

The baseline wireframe shows several groups of turbines along the distant hills. However, none are visible on the existing view.

Viewpoint 22: View from Rock of Cashel 21km south of the proposed project site

Existing View

The baseline view is located from the grounds of the Rock of Cashel, which at approx. 21km from the site, falls outside of the 20km study area. However, out of an abundance of caution, it is included here due to its importance as a heavily visited heritage site.

This elevated view looks northwards down onto the productive plains of improved pasture fields that are divided up by roads and a series of hedgerows with and without treelines. A mix of rural houses and farm buildings are dotted through this landscape. The backdrop consists of far-off outline of distant hills on the horizon. Some wind turbines are faintly visible on the skyline to the right side (i.e. east side) of the view, through the haze (i.e. atmospheric perspective).

Visual Receptor Sensitivity

This view represents one from a heritage site of national importance and a key tourist destination. Thus, the visual sensitivity is considered **Very High**.

Proposed Photomontage - Magnitude of Change

The proposed turbines will be faintly visible on the horizon but set below the ridgeline of adjacent hills. At over 20km distance, the proposed turbines are unlikely to be noticed by the observer/visitor to the Rock of Cashel, and even if observed, they are unlikely to materially detract from the inherent visual amenity of the setting. It is also worth noting that the photography for the verified photomontages was captured in pristine weather conditions, whereas more typical Irish weather conditions will result in considerably less visibility of any elements more than 15 or 20km from the Rock.

At this distance the rigid form of the turbines will be reduced by atmospheric perspective which will help visually soften their overall appearance.

The magnitude of change is considered **Negligible,** as per the definitions in **Table 15-4**.

Significance of Effect

The High receptor sensitivity and the low-negligible magnitude of change results in **Not Significant** visual effect, as per **Table 15-5**. The visual effect is considered neutral, as the proposed project is so far away from this location (i.e. 21km distance) and does not detract from the scale, landform and pattern of the landscape, when viewed from the Rock of Cashel. The duration will be long-term.

Cumulative Visibility

The baseline wireframe shows several groups of turbines along the distant hills, with some of these already faintly visible in the existing view.

View 23: View from Brittas Castle

This photomontage view is from a heritage asset in close proximity to the site which was requested by the cultural heritage consultant for use within the cultural heritage chapter only. As Brittas Castle, or access to it, is not in the public sphere, this viewpoint is excluded from this LVIA assessment.

Viewpoint 24: View from Tipperary Scenic Route (V55) along R503 9km west of the proposed project site

Existing View

The baseline view is located along the R503 near and is one of the Tipperary County Council's designated scenic routes (V55). This elevated location along the road looks across the adjoining house's garden in the foreground and out to the lower-lying undulating fields. These fields are enclosed by mature hedgerows and trees, with some rural houses through the farmland within the middle to background view. The scene is one that is undramatic but broadly bucolic in nature. In the distance, the land gently rises to form a low, tree-dotted ridgeline, over which distant turbines can be perceived through the atmospheric perspective.

Visual Receptor Sensitivity

This view represents one from next to a residence and designated scenic route experienced in passing by road users on this regional road. Overall, the sensitivity is considered **High**.

Proposed Photomontage - Magnitude of Change

All of the proposed turbines will be visible upon the ridgeline, with all of the blade sets 'cutting' the intervening treetops. There will be some visual stacking of the blade sets, creating further visual discordancy. The scale of the proposed turbines will be larger and more apparent than the other turbines already present immediately to the north (i.e. left) of the proposed project.

However, at over 9km distance, and in an area where wind energy developments are also visible and long-established, the proposal is very unlikely to draw attention to itself and will remain sub-dominant in its visual presence.

The magnitude of change is considered **Low-Medium,** as per the definitions in **Table 15-4.**

Significance of Effect

The Medium receptor sensitivity and the low-negligible magnitude of change results in a **Slight-Moderate** visual effect, as per **Table 15-5**. The visual effect is considered adverse, owing to the proposal's likely effect on the inherent visual amenity, and for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows several groups of turbines along the distant ridge line, and that of the more distant hillside, with some of these already visible upon the ridge within the existing view.

Viewpoint 25: View from Devil's Bit 12km north west of the proposed project site

Existing View

The baseline view is located at the Devil's Bit, which is a popular recreational designation offering numerous trails.

The elevated view looks beyond views of the forestry and a folly in the foreground outwards to the broad plains in the middle ground. These plains contain fields of improved pasture framed by hedgerows and tree lines with rural housing scattered through the area, along with the settlement of Templemore being visible. One feature within this view are the existing wind farms across the plains, whose vertical form and rotating blade sets make them prominent in this view.

Visual Receptor Sensitivity

Viewpoint 25: View from Devil's Bit 12km north west of the proposed project site

This view represents one of recreational users visiting Devil's Bit. Overall, the sensitivity is considered **Medium**.

Proposed Photomontage - Magnitude of Change

Located more than 12km from this location, the proposed turbines will be visible on the plains, in tandem with the existing turbines. However, the proposed turbines will be located closer to the viewer than the existing windfarms. There will be some visual stacking of the proposed turbine's blade sets, creating some visual discordancy.

The magnitude of change is considered **Low,** as per the definitions in **Table 15-4**.

Significance of Effect

The Medium receptor sensitivity and the low magnitude of change results in a **Slight** visual effect, as per **Table 15-5**. The visual effect is considered neutral, as the proposal does not detract from the scale, landform and pattern of the landscape. The duration will be Long-Term.

Cumulative Visibility

The baseline wireframe shows several groups of turbines along the plains and distant hills in the background, with those turbines on the plains already visible on the existing view.

Viewpoint 26: View from Moyne Village 5.8km east of the proposed project site

Existing View

The baseline view is located from the graveyard within Moyne village as this location provides a location within the settlement which is likely to experiences more open views in the direction of the proposed project (i.e. more open than the central/main street through the village).

The immediate view in the foreground is of the surrounding gravestones in the graveyard. In the middle ground, there are limited partial views of the surrounding fields with most fields obscured by the tall mature hedgerows and treelines within field boundaries. A single-storey rural house is also visible in the distance. This is backdropped by the outline of hills in the distance, which contains some windfarm turbines, but which are hard to clearly distinguish.

Visual Receptor Sensitivity

This view represents one of users visiting the old graveyard including residences of the settlement. Overall, the sensitivity is considered **High-Medium.**

Proposed Photomontage - Magnitude of Change

At approx. 6km distance, the blades set of the proposed turbines will be visible rotating above/behind the intervening hedgerows/vegetation. The turbines will present within a relatively tight visual envelope, across the wider horizon. There will be some visual stacking of the proposed blade sets, creating a small degree of visual discordancy.

The proposed turbines, given their closer proximity to the viewer and larger scale, will be much more apparent than the existing turbines faintly visible on the distant hills. However, it is worth noting that there are existing, larger wind farms located within 3km northeast of Moyne village, and it is a setting where wind energy forms part of the landscape character.

The magnitude of change is considered **Medium-Low,** as per the definitions in **Table 15-4**

Significance of Effect

Viewpoint 26: View from Moyne Village 5.8km east of the proposed project site

The Medium receptor sensitivity and the medium-low magnitude of change results in **Slight-Moderate** visual effect as per **Table 15-5**. The visual effect is considered adverse, and for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows several groups of turbines along the distant hills in the background. Three of these turbines on the distant hills are faintly visible in the existing view.

Viewpoint 27: View from residences at Brownstown

Existing View

The baseline view is located along the nearest local road north of the proposed project and populated by a number of local residences, including a residence next to this viewpoint location.

The view is looking onto the foreground agricultural field, beyond which most of the fields across the middle ground are obscured by stacked, mature hedgerows. Also within the view is the rooflines of agricultural buildings and some rural housing scattered through the landscape. The existing temporary anemometer within the site is also visible.

Visual Receptor Sensitivity

This view represents one of local road users and residences. Overall, the sensitivity is considered **Medium.**

Proposed Photomontage - Magnitude of Change

The photomontages have been divided into 27A and 27B to capture the extent of the view.

View 27A: The proposed turbines will be visible against the skyline but spaced out into various groupings. There will be some cluttering of the turbines within the middle grouping, causing some visual disharmony. The lower tower bases of all the proposed turbines will be screened by the intervening hedgerows. The proposal increases the scale of built development in this scene, as well as notably increasing the vertical intensity of development.

View 27B:

The view is further to the right (south-westerly) of View 27A. Here there is a similar view as 27A with the turbines remaining prominent against the skyline, but less cluttered and more spaced out.

Overall, at less than 1km to the nearest turbine and little foreground/roadside screening present, this view represents an extensive intrusion by the proposal in the view, to the extent that it will become co-dominant in the scene, thereby materially detracting from the inherent visual amenity.

The overall magnitude of change is considered **High,** as per the definitions in **Table 15-4**

Significance of Effect

The Medium receptor sensitivity and the high magnitude of change results in **Moderate-Significant** visual effect, as per **Table 15-5**. The visual effect is considered adverse, for the aforementioned reasons, and for a Long-Term duration.

Cumulative Visibility

The baseline wireframe shows a group of turbines along the distant hills in the background. Two of these are faintly discernible on the existing view, although they are located more than 17km away.

View 28: View from Clobanna Church and graveyard

This photomontage view is from a heritage asset which was requested by the cultural heritage consultant for use within the cultural heritage chapter only. This site is entirely surrounded by, and fenced off from, a private agricultural field. As there is no known public access either into the field or to the graveyard complex, this viewpoint is excluded from this LVIA assessment.

15.6.2.2 Summary of Operational Visual Effects of on-site elements of proposed project

Table 15-13: Summary of visual effects – Photomontages 1-28

No	Viewpoint Visual Receptor Sensitivity	Magnitude of Change	Significance of Effect
1	Medium	High	Moderate-Significant, adverse
2	Medium	Medium	Moderate, adverse
3	Medium-Low	Very High	Significant, adverse
4	Medium	High	Moderate-Significant, adverse
5	NA	NA	NA
6	Medium	Medium	Moderate, adverse
7	Low	Low	Slight, adverse
8	Medium	Low	Slight, adverse
9	Medium	Medium	Slight-moderate, adverse
10	Medium	Negligible	Imperceptible, neutral
11	Medium-High	Medium	Moderate, adverse
12	Medium	Low	Slight, adverse
13	Medium-low	Medium-Low	Slight, adverse
14	High-Medium	Negligible	Not significant, adverse
15	Low	Low	Slight, adverse
16	Medium	Low- Negligible	Not Significant, adverse
17	Medium-low	Negligible	Imperceptible, neutral
18	Medium	Low	Slight, neutral
19	Medium	Negligible	Imperceptible, neutral
20	Medium	Negligible	Imperceptible, neutral
21	High-Medium	Negligible	Imperceptible, neutral
22	Very High	Negligible	Not Significant, adverse
23	NA	NA	NA
24	High	Low- Medium	Slight-moderate, adverse
25	Medium	Low	Slight, neutral
26	High-Medium	Medium-Low	Slight-moderate, adverse
27	Medium	High	Moderate-Significant, adverse

No	Viewpoint Visual Receptor Sensitivity	Magnitude of Change	Significance of Effect
28	NA	NA	NA

Table 15-13 above indicates visual receptor sensitivity, magnitude of change and the significance of effect of the 25 No. viewpoint locations assessed.

The visual effects of the 25 No. viewpoint locations assessed are summarised as follows:

- One viewpoint (VP 3) was judged to be Significant and adverse;
- Two viewpoints (VPs 1 & 27) were judged to be Moderate-Significant and adverse;
- One viewpoint (VP 4) was considered Moderate-Significant and adverse;
- Three viewpoints (VPs 2, 6 & 11) were considered Moderate and adverse;
- Three viewpoints (VPs 9, 24 & 26) were considered Slight-Moderate and adverse;
- Seven viewpoints were considered Slight (VPs 7,8,12,13 & 15 as adverse and VPs 18 & 25 as neutral);
- Three viewpoints were considered Not Significant and neutral (VPs 14, 16 & 22) and;
- Five viewpoints were considered Imperceptible and neutral (VPs 10, 17, 19, 20 & 21).

Local viewpoints – local roads, settlements and residences within approx. 3km

A number of viewpoints represent the local community of the proposed wind farm (Viewpoints 1, 2, 3, 4, 6, 7, 9 & 27). This ranges up to approx. 3km, with the closest views representing clusters of houses on local road adjacent to the site. These receptors are likely to experience varying visual effects. The more pronounced visual effects (i.e. Significant and adverse and Moderate-Significant and adverse) are illustrated in viewpoints 1, 3 & 27, which are viewpoints in close proximity (less than 1.5 kilometre) eastwards and northwards of the nearest turbines.

Viewpoints 2, 4, & 6 show slightly less pronounced visual effects as the proposed turbines are partly screened in places by intervening vegetation, with visual effects ranging from Moderate to Moderate-Significant, and adverse in all cases.

Viewpoint 7 is located from an elevated section of road within the settlement of Thurles, where visibility of the turbines will be limited by the screening of mature trees and distance to the windfarm. The visual effects from the viewpoints in this area are Slight and adverse.

Similar visual effects to Viewpoints 1, 2, 4, 6 & 27 are likely to be experienced in other locations at similar distances from the site, across the rural road network and rural residences dotted along them.

Scenic Routes and Views

A number of scenic routes and scenic viewpoints were considered above including from Viewpoints 8 (TCC View 62: View from the N75 in Borris, east of Thurles); 16 (TCC V 54: Views north and south of the R498 from Bouladuff through Borrisoleigh to Latteragh); 17 (TCC V58 N62 at Clonakenny townland); 18 (TCC V31: Views to the west between Glengoole and Ballysloe, along R689); and 24 (TCC V55: Views north and south on sections of the R503 from Newport to Ballycahill).

The distance of the proposed project from these views varies from approx. 6.7 - 15km away, with the most open views of the proposed turbines, visible in the distance, from views 18 and 24. These views were considered to be

Slight-moderate adverse (Viewpoint 24); Slight adverse (Viewpoint 8), Slight neutral (Viewpoint 18), Not Significant adverse (Viewpoint 16) and Imperceptible neutral (Viewpoint 17).

Settlements

The viewpoint selection represents the settled landscape of the wider surrounds. Several viewpoints represent settlements in Co. Tipperary, including from Thurles (Viewpoints 6 and 7); Twomileborris (Viewpoint 8); Templetuony (Viewpoint 10); Loughmore (Viewpoint 11); Templemore (Viewpoint 12); Bouladuff (Viewpoint 13); Holycross (Viewpoint 14); Borrisoleigh (Viewpoint 16); New Birmingham (Viewpoint 18); Clonoulty (Viewpoint 19) and Moyne (Viewpoint 26).

Many of the internal views within these settlements are restricted by the surrounding buildings, resulting in no likely visibility of the proposed project. Often it was necessary to select an area such as a graveyard, playing pitches or on the settlement's edge, in order to establish the least obscured view in the direction of the site. The visual effects from these settlements vary from Moderate adverse (Viewpoint 6); Slight-moderate adverse (Viewpoint26); Slight adverse (Viewpoints 7, 8, 12 & 13), Slight neutral (Viewpoint 18) and Not Significant adverse (Viewpoints 14 & 16), while the proposed project will not be visible from Viewpoint 10 & 19.

Cultural Heritage

Viewpoints 14 and 22 represent cultural heritage locations which are also National Monuments, at Holycross Abbey and the Rock of Cashel, respectively. The graveyards of Loughmore (11) and Moyne (26), which contain early Christian ruins, have been considered within the visual context of providing open views adjacent to their respective settlements.

Views from Holycross abbey grounds (Viewpoint 14) will be limited to distant views of the tips of two proposed turbines that will be faintly visible 'cutting' above the tree line, resulting in visual effects of Not Significant and neutral. The Rock of Cashel (Viewpoint 22) is located approx. 21km distance from the site. Its elevated setting allows for expansive views across the landscape in the direction of the site. The visual effects will be Not significant and neutral.

Other views from cultural assets include castles of Dovea Castle (Viewpoint 5) and Brittas Castle (Viewpoint 23), along with Clobanna church and graveyard (Viewpoint 28). These three locations are not in the public sphere and/or do not have public access. Thus, they are not assessed as part of this chapter but are considered in detail in the Cultural Heritage chapter (Chapter 11) of this EIAR.

Recreation and amenity

A viewpoint was captured from the public path loop walk on Devilsbit Hill (Viewpoint 25), located approx. 12.3km northwest of the proposed project. Views from the more open and elevated sections of this trail will allow for unhindered views in the direction of the site, leading to visual effects considered as Slight and neutral. Views were also assessed from directly next to GAA playing pitches (Viewpoints 10) at Templetuohy GAA grounds and (Viewpoint 19) Clonoulty GAA grounds, as noted above.

Landscape Character Areas

Viewpoints 6,7,12 & 22 represent views taken from within the LCA 1 Urban and Fringe Area's settlements of Thurles, Templemore and Cashel with views from the urban-rural periphery. The visual effects vary from Moderate-slight to Not Significant.

Viewpoints 8, 14, 15 & 24 are from within LCA 2 Thurles Hinterland, with the LCA found to the south of the site and either side of Thurles urban and fringe area LCA. These effects range from Slight-Moderate adverse to Not Significant adverse.

Viewpoints 1, 3, 4, 9, 10, 11, 13, 16, 17, 26 & 27 all fall within the LCA 5 Templemore Plains. The visual effects vary from Significant adverse to Imperceptible neutral, reflecting variations in these viewpoint distances to the site and the likely extent of visibility of the proposed turbines from these viewpoints.

Viewpoint 21 is from LCA 8 Littleton Raised Bog and will have an Imperceptible neutral visual effect. Viewpoint 19 is from LCA 9 Littleton Farmland and Mosaic Marginal and will have an Imperceptible neutral visual effect. Viewpoint 18 is from LCA 14 Slieveardagh Hills Farmland Music has Slight neutral effect. Viewpoint 25, from LCA 22 Devilsbit Upland, has a Slight and neutral effect.

15.6.2.3 Operational Visual Effects of Grid Connection Route

In terms of the proposed grid connection route, this will chiefly entail the excavation of a long, narrow trench that will be reinstated, post-construction. Thus, the magnitude of operational-phase visual change is considered to be of **Negligible** magnitude, along the road network of the proposed grid connection.

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the grid connection route, in tandem with the magnitude of the visual effects, the significance of the visual effects from the grid connection route during the operational phase are considered to be **Imperceptible, neutral** and will be **long-term** in duration.

15.6.2.4 Operational Visual Effects of Turbine Delivery Route

In terms of the proposed turbine delivery route, the magnitude of operational-phase visual change is considered to be of **Negligible** magnitude, along the road network of the proposed route.

Taking into consideration the broader nature of visual sensitivity of receptors in the vicinity of the turbine delivery route, in tandem with the magnitude of the visual effects, the significance of the visual effects from the turbine delivery route during the operational phase are considered to be **Imperceptible, neutral** and will be **long-term** in duration.

15.7 Cumulative Effects

Cumulative effects can be defined as the additional changes caused by a proposed project in conjunction with other similar developments, or as the combined effect of a set of developments, taken together, as noted by SNH (Assessing the Cumulative Impact of Onshore Wind Energy Development 2012).

The GLVIA refers to the SNH (2012) guidelines as specialist advice, and also notes the evolving nature of cumulative effects assessment in general. It notes that in most cases, the focus of the cumulative assessment will be on the additional effects of the project in conjunction with other developments of the same type.

The SNH guidance focuses on the effect of the proposed wind farm with other existing, permitted, and proposed wind farms. It notes that proposals within the planning system where the information is in the public domain should be considered. This therefore takes into account the existing and permitted wind energy developments in the vicinity.

No references are made by the SNH guidance to other types of development, and the focus of the cumulative effects assessment in the SNH guidance, (and also in the DOEHLG/DEHPLG guidance) is on other wind energy developments. The SNH guidance states:

> *"At every stage in the process the focus should be on the key cumulative effects which are likely to influence decision making, rather than an assessment of every potential cumulative effect."*

However, to ensure that all relevant projects are captured in the Cumulative Assessment, several non-wind farm developments are also considered and are listed below. Further information is contained in **Chapter 2.** The DoEHLG (2006) guidelines on Cumulative Effects for this landscape type as follows:

> *"Cumulative Effect: The open expanse of such landscapes can absorb a number of wind energy developments, depending on their proximity. The cumulative impact will also depend on the actual visual complexity of landform, whether steeply rolling, undulating or gently sweeping. The more varied and undulating an area is topographically, the greater its ability to absorb and screen wind energy developments. The aesthetic effect of wind energy developments in these landscapes is acceptable where each one is discrete, standing in relative isolation."*

On review of the montages, it is evident that where other wind energy developments are visible in the photomontage, they appear as discrete elements that are at some distance from each other. It is worth noting that no other wind energy developments are within 9km of the site, and only one such development is within 13km of the site. Wind turbines identified within 20km of the proposed Brittas development are listed in **Table 15-14**, below, and illustrated in **Figure 15-18**: Cumulative ZTV, below, with the full version of this figure found in **Appendix 15C.**

Table 15-14: Wind Farms within 20km of the Proposed Site

#	Wind Farm	Coordinates	Distance from Brittas	Status
1	Lisheen wind farm	ITM Easting 621489 ITM Northing 666703	Approximately 9.8km	Operational
2	Bruckana wind farm	TM Easting 622222 ITM Northing 670498	Approximately 13.5km	Operational
3	Gortnahalla (single turbine)	ITM Easting 600024 ITM Northing 662930	Approximately 13.4km	Operational
4	Ballincurry wind farm (Glengoole)	ITM Easting 625280 ITM Northing 651645	Approximately 14.7km	Under Construction
5	Gurteen Lower wind farm	ITM Easting 627374 ITM Northing 653337	Approximately 15.3km	Operational
6	An Cnoc wind farm	ITM Easting 631928 ITM Northing 655231	Approximately 19km	Operational
7	Ballybay wind farm	ITM Easting 633243 ITM Northing 656850	Approximately 20.4km	Operational
8	Kill Hill Wind farm	ITM Easting 614633 ITM Northing 643140	Approximately 16.5km	Operational

#	Wind Farm	Coordinates	Distance from Brittas	Status
9	Patrick Costello Wind Turbine (single turbine)	ITM Easting 596248 ITM Northing 656284	Approximately 17.1km	Operational
10	Hollyford Wind farm	ITM Easting 595285 ITM Northing 655052	Approximately 18.6km	Operational
11	Glenough Wind farm	ITM Easting 595268 ITM Northing 655070	Approximately 18.6km	Operational
12	Ballinveny Wind farm	ITM Easting 603159 ITM Northing 673998	Approximately 14.65km	Operational
13	Ballinlough Wind farm	ITM Easting 599225 ITM Northing 675472	Approximately 18.44km	Operational
14	Upperchurch Wind farm	ITM Northing 594703 ITM Easting 660533	Approximately 17.05km	Under Construction
15	Borrisbeg Wind farm	ITM Easting 613223 ITM Northing 675090	Approximately 12.88km	Awaiting decision

Note: Status includes operational, under construction, awaiting decision or appealed.

For the purpose of the Cumulative Assessment of Landscape and Visual, all existing and permitted wind farms, as well as wind farms pending a decision from the planning authority and/or An Bord Pleanála, within 20km from the outermost turbines of the proposed Brittas Wind Farm were identified for Cumulative Assessment.

15.7.1 Cumulative Landscape Effects

A Cumulative (hub height) ZTV map was produced (see **Figure 15-18**: , below), which indicates theoretical visibility of all wind farms in the vicinity. This is included in reduced format, below, and included in **Appendix 15C** at full size (A3). This informs both cumulative assessment of landscape *and* visual effects.

It is worth noting that **Figure 15-18**: , below, shows that the area shaded green indicates the theoretical visibility of Brittas Windfarm with other windfarms across the study area is very similar to the likely visibility of the (standalone) Brittas windfarm, previously indicated in **Figure 15-16** above. Please note that in **Figure 15-18**: , below, 'Cumulative Only' refers to theoretical visibility of those wind turbines within the study area, which are not the proposed Brittas turbines.

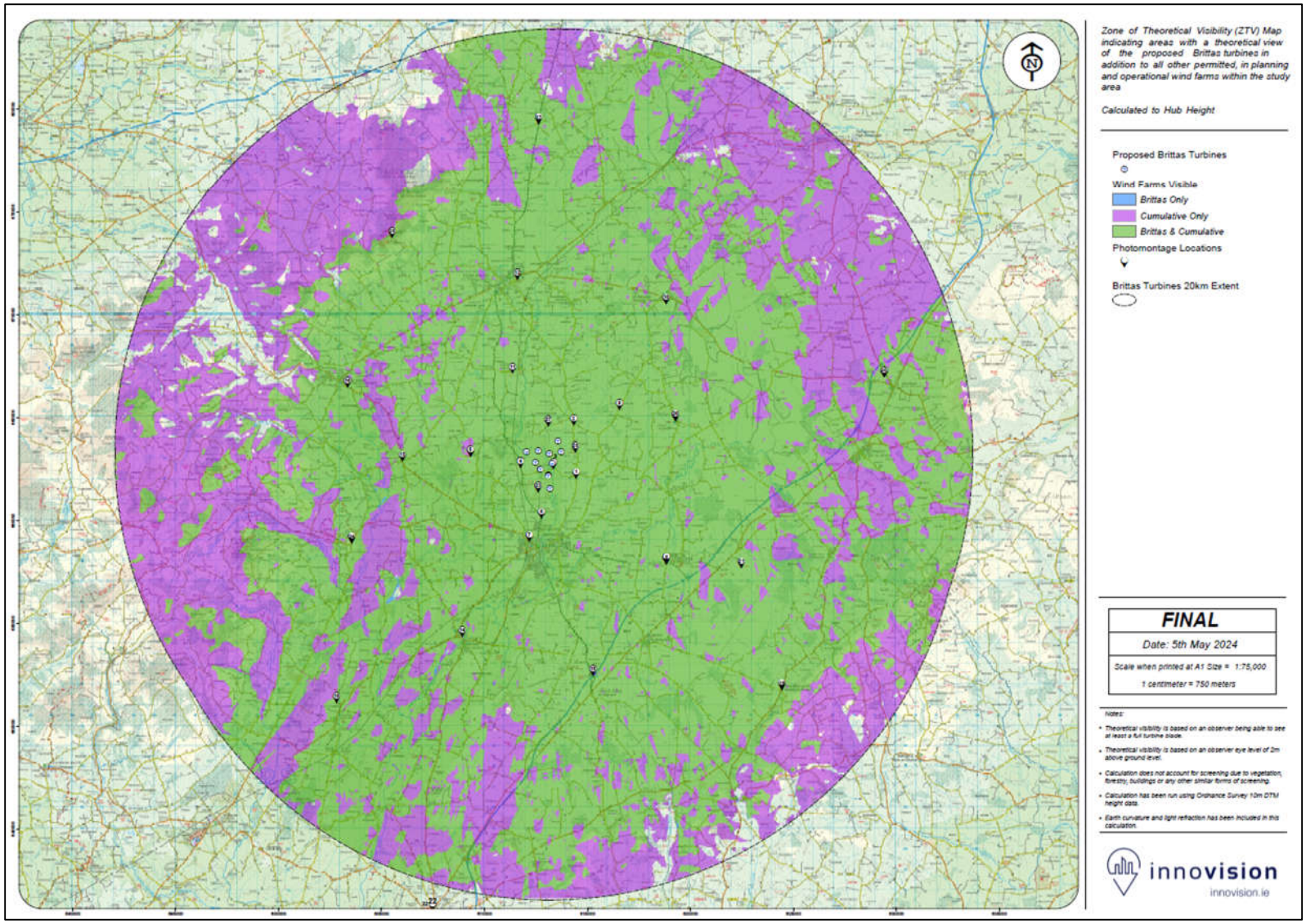


Figure 15-18: Cumulative ZTV (hub height)

There is a presence of existing wind energy development and other proposed project within the study area, as seen in the baseline photography of this LVIA, as well as the Photomontage booklet in Volume 4. However, most of these are found within the more elevated lands of the LCAs towards the outer sections of the study area.

Other existing windfarms are located on lower-lying lands, typically across/near to former worked bogland, within the No.5 Templemore Plain LCA and the adjoining Kilkenny LCA A1 - Slieveardagh Western Transition Zone LCAs. These include the Lisheen windfarm and Bruckana Windfarm, located between approx. 6.7km and. 13.5km to the northwest of the nearest proposed (Brittas) turbine. The proposed Borrisbeg windfarm, if consented, would further add to the visibility and presence of wind energy across the area of the No.5 Templemore Plain LCA, found further northeast of Templemore. Please note, with regard to cumulative landscape (or visual effects), there is only the potential for operational-stage cumulative effects to arise.

Magnitude of Change

Cumulative landscape effects include the effects as a result of the proposed project along with other wind farm developments, on the landscape character.

The greatest landscape change will occur where there is an increased presence of wind energy infrastructure across the lowland landscape of the No.5 Templemore Plain LCA within the central part of the study area. Here the Brittas windfarm, along with the proposed Borrisbeg windfarm (if consented), will further add turbines into the existing lowland landscape. The magnitude of landscape change as a result of the Brittas windfarm with these other lowland wind energy developments is likely to be greatest within the vicinity of these developments.

The distance of Brittas windfarm from other windfarms sited on the more elevated lands of LCA 17 Hollyford Hills Mountain Mosaic, LCA 18 Slivermines-Rearcross and LCA 14-Slivedaragh Hills Farmland Mosaic, reduces the potential for cumulative impacts with these existing developments.

Significance of Effect

This is considered to be a Slight to Moderate adverse cumulative landscape effect on certain parts of the landscape character of the No.5 Templemore Plain LCA.

15.7.2 Cumulative Visual Effects

The GLVIA and topic-specific guidance in relation to windfarms SNH (2010 and 2012) both refer to combined visibility. Combined cumulative visual effects are defined in the GLVIA as one of two types:

- Combined - in combination - where two or more developments are/would be visible in the viewer's arc of vision at the same time without moving their head;
- Combined - in succession - where the viewer has to turn their head to see the various developments – actual and realised. This often includes views in the opposite direction.

While sequential visual effects are also referred to in the guidance, the most relevant in this case is combined (in combination) effects. The photomontages allow for the assessment of combined (in combination) visual effects, resulting from other turbines being visible in the montage, as well as views where other turbines are visible in the wider baseline view, but not in the 53.5 degree montage view.

Combined Cumulative visibility was identified in a number of viewpoints, as noted in the viewpoint tables above and summarised below. See the Photomontage Booklet in Volume 4 of this EIAR in conjunction with Table 15-15.

Table 15-15: Summary of Cumulative Visual Effects

VP No.	Visual Receptor Sensitivity	Magnitude of change	Significance of effect
1	Medium	Negligible. A number of turbines are visible on the distant hills in the baseline wireframe view, but these are much less visible in the photomontage view due to screening and distance.	Imperceptible.
2	Medium	Low. A number of turbines of the existing Hollyford wind farm are faintly visible on the distant hills on the photomontage.	Slight
3	Medium-Low	Negligible. Across this viewpoint's multiple views, the baseline wireframes show some operational windfarms on the distant hills, as well as the proposed Borrisbeg windfarm. However, none of these are visible within the photomontage, due to screening by the intervening hedgerows and trees.	Imperceptible
4	Medium	Negligible. Across this viewpoint's various views, the baseline wireframes show the operational Lisheen Mine windfarm and Bruckana windfarms and the proposed Borrisbeg windfarm. None of these are visible within the photomontage, due to screening by the houses, intervening hedgerows and trees.	Imperceptible
5	NA	NA	NA
6	Medium	Negligible. The baseline wireframes show the operational Lisheen Mine windfarm and Bruckana windfarms and the proposed Borrisbeg windfarm in the distant. None of these are visible within the photomontage due to screening by the house, intervening hedgerows and trees.	Imperceptible
7	Low	Negligible. The baseline wireframes show the operational Lisheen Mine windfarm and Bruckana windfarms in the distant. None of these are visible within the photomontage due to screening by the housing and mature trees, on the edge of the town.	Imperceptible
8	Medium	Negligible. The baseline wireframes show the operational windfarms and proposed Borrisbeg windfarm in the distance. None of these are visible within the photomontage's extent, with any potential views fully screened by the intervening hedgerows and house.	Imperceptible
9	Medium	Negligible. The baseline wireframe shows some operational windfarms in the distance, but none of these are visible within the photomontage, due to screening by intervening hedgerows and houses.	Imperceptible
10	Medium	Negligible. The baseline wireframe and existing view shows the turbine on the western end of the operational Lisheen windfarm and some groups of windfarms in the distance. However, within the photomontage, none of the Brittas turbines or any other turbines are visible due to screening by the intervening trees and built structures.	Imperceptible
11	Medium-High	Negligible. The baseline wireframe shows some groups of windfarms in the distance. However, none of these are visible in the photomontage due to screening by vegetation.	Imperceptible

VP No.	Visual Receptor Sensitivity	Magnitude of change	Significance of effect
12	Medium	Negligible. The baseline wireframe shows some groups of windfarms in the distance, including some set directly behind some of the Brittas turbines. However, none of these other turbines are visible in the photomontage view due to being screened by vegetation and buildings.	Imperceptible
13	Medium-low	Negligible-Low. The baseline wireframe shows some groups of windfarms and single turbine in the distance. Only the single turbine is faintly visible to the right side of the existing view, as the other existing turbines are screened by the intervening vegetation. Both the proposed turbines and the single turbine are clearly separated, with the proposed Brittas wind farm more prominent within the view.	Not Significant
14	High-Medium	Negligible. Some tips of turbines are visible over distant hill on the baseline wireframe. However, none of these are visible in the existing view, due to screening by the intervening vegetation/buildings.	Imperceptible
15	Low	Negligible. The baseline wireframe shows the proposed Borrsibeg windfarm right of Brittas, while to the far right of the view is the cluster of Lisheen and Bruckana windfarm. However, none of the above are visible within the photomontage view due to screening by the intervening vegetation.	Imperceptible
16	Medium	Negligible. The baseline wireframe shows some distant views of groups of windfarms that are barely visible. However, none of these are visible within the photomontage.	Imperceptible
17	Medium-low	Low. The baseline wireframe shows some groups of operational windfarms on the distant hills which are not visible on the existing view due to being screening. The only potential cumulative visual change to this view will occur with the proposed Borrisbeg windfarm. However, this other development is sited closer to the viewer than Brittas and will be more clearly visible and prominent against the skyline. There will be some combined views of Borrisbeg's two most western turbines, with the upper tips of the Brittas turbines above the tree line, leading to some visual clutter.	Slight
18	Medium	Low. The baseline wireframe shows a number of windfarms located on distant views but none of these are visible in the existing view. There will be some potential views with the proposed Borrisbeg windfarm located further northeast of the Brittas windfarm. However the hedge in the field opposite is likely to screen these turbines.	Not Significant
19	Medium	Negligible. The baseline wireframe shows a number of windfarms in the far distance. However, none of these are visible within the existing view as they are fully screened by the intervening vegetation.	Imperceptible
20	Medium	Negligible. The baseline wireframe shows a number of windfarms. Of these, only several turbines of the Lisheen and Bruckana windfarms are visible in the exiting view. However, there are no cumulative views of these turbines with the Brittas windfarm as the	Imperceptible

VP No.	Visual Receptor Sensitivity	Magnitude of change	Significance of effect
		proposed project will not be visible from this location, due to being fully screened by the intervening vegetation.	
21	High-Medium	Negligible. The baseline wireframe shows a number of windfarms. However, none of these are visible on the existing view.	Imperceptible
22	Very High	Negligible. The baseline wireframe shows some windfarms along the distant hills. Also on the wireframe is the proposed Borrisbeg windfarm, located further north of Brittas. The photomontage shows combined views with some of the existing windfarms being faintly discernible, to the right of the existing view. However, there is considerable distance of both the existing turbines and the proposed turbines from the Rock of Cashel. In addition, the sizeable hill on the skyline physically separates, by a considerable degree, the location of the existing and proposed turbines.	Not Significant
23	NA	NA	NA
24	High	Low. The baseline wireframe shows some groups of windfarms along the distant hills. However, only a few are barely visible on the existing view. Also, on the far left of the wireframe is the proposed Borrisbeg windfarm. The photomontage shows Brittas with some more distant existing turbines. As Brittas will be more prominent, given its closer proximity to this location, there will be some visual discord between the scaling of the existing/proposed turbines. Meanwhile, the potential visibility of the proposed Borrisbeg windfarm falls outside the lateral extent of the photomontage but is likely to be marginally and distantly visible.	Slight
25	Medium	Low-Medium. The baseline wireframe shows the clustering together of the existing Lisheen and Bruckana windfarm located on the lowland plains, with some other turbines in the distance. Similarly, the same group of windfarms on the plains are visible in the existing view, although at considerable distance from this location. The photomontage shows combined views of Brittas with some turbines of Lisheen windfarm. The remainder of turbines in Lisheen windfarm and its neighbouring Bruckana windfarm is likely to be visible by the viewer, if looking at an adjacent direction from this elevated viewpoint. While the Brittas turbines will add additional turbines to this view, all such turbines will be located more than 12km away, and, if observed, will be in the context of an upland vast panoramic view.	Slight-Moderate
26	Medium-High	Negligible. The baseline wireframe shows several groups of turbines along the distant hills in the background. Three of these turbines on the distant hills are faintly visible in the existing view, and the proposed turbines will be viewed in combination with these. However, the considerable distance between the two	Not significant

VP No.	Visual Receptor Sensitivity	Magnitude of change	Significance of effect
		developments, as well as and differences in scale and elevation, is likely to negate the potential for cumulative impacts.	
27	Medium	Negligible. The wireframe shows some existing Kill Hill windfarm turbines, on distant hills more than 17km from this location. Two of these turbines are faintly discernible on the existing view. However, neither of these turbines are visible within the photomontage, due to screening by the proposed Brittas turbines.	Imperceptible
28	NA	NA	NA

As described in Table 15-15, above, numerous other existing/ permitted/ proposed turbines are indicated as being visible across many of the viewpoints on the baseline wireframe. However, the actual visibility of these turbines from many viewpoints are either fully screened by the intervening vegetation/ buildings or they are barely perceptible within the photomontages showing the proposed Brittas windfarm, resulting in an 'Imperceptible' cumulative visual effect. Such 'Imperceptible' viewpoints pertain to 17 of the 25 No. viewpoints assessed. This entails VPs 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 19, 20, 21 & 27.

A small number of viewpoints will likely have a marginal increase in the visibility of existing operational windfarm and/or the proposed Borrisbeg windfarm, in combination with the proposed Brittas windfarm. However, there will be notable and distinct separation distance between these other developments and the proposed project. Those viewpoints with 'Not Significant' cumulative visual effects entail VPs 13, 18, 22 & 26, while those viewpoints with 'Slight' cumulative visual effects entail VPs 2, 17 & 24.

The greatest cumulative visual effect is likely to occur from viewpoint 25. Owing to this viewpoint's elevated location and panoramic viewpoint, the Brittas Windfarm will be visible in tandem with the clustering of the operational Lisheen and Bruckana windfarms, and within the same viewing arc. There will be combined views of the proposed Brittas Windfarm with some of the Lisheen turbines and likely successive views entailing the remaining turbines of both existing windfarms. These factors result in a cumulative visual effect of Slight-Moderate for VP25.

Thus, receptors at the majority of viewpoints will not view the proposed project in combination with any existing/ permitted/ proposed turbines. In most viewpoints where other turbines are visible (in combination), these appear as distant and distinct turbines from other wind farms more than 9km from the proposed project.

In summary, cumulative visibility is considered to vary throughout the study area, ranging from 'Imperceptible', in the majority of viewpoints, to 'Slight-Moderate,' in one viewpoint. Thus, significant cumulative impacts are not considered to occur.

15.7.3 Extent of Theoretical Cumulative Visibility

Figure 15-18: 8, above, indicates that those areas within the study area that have theoretical visibility of the proposed turbines only (i.e. no other turbines) are minuscule. Indeed, areas in blue are challenging to determine within Figure 15-18: , without cross-referencing Appendix 15C at full/A3 size.

The areas shaded green in Figure 15-18: represent areas with theoretical visibility of both Brittas and the other turbines, while pink shaded areas represent areas where the 'Cumulative Only' turbines (i.e. non-Brittas turbines) are theoretically visible. On review of the study area's topography and of the 28 No. photomontages, above, the

proposed Brittas turbines are likely to be less visible at the far ends of the study area. This is also confirmed by Figure 15-18: .

15.7.3.1 Cumulative effects of other (i.e. non-wind energy) developments

A review of other non-wind energy developments was considered across the study area. These included large scale developments within 5km of the Brittas windfarm, which included several housing developments in Thurles, a community facility, solar farm and substation at Rahelty and 1 No. incomplete ESB powerline (Borrisoleigh to Thurles). However, those which have the capacity to generate cumulative landscape or visual impacts will be the ESB powerline and the solar farm, discussed and assessed further below.

ESB Powerline

The permitted, but not yet completed, ESB powerline (ABP-310934-21) route of c. 6.94Km is proposed to run overhead through the central area of the Brittas site. However, some of the route's OHL posts are already present within the site and surrounding landscape. Within the northern end of the site, the posts have been installed but the OHL not yet strung. This is similar to some other sections of the route across the wider landscape e.g. in Clonamuckoge Beg and Louglahan townlands.

A number of alternative routes for this OHL are to be proposed by the developer in a separate, future planning application, with the preferred option to reroute underground as it passes through the Brittas site, between Turbine 1 and 10. Alternatively, if an OHL route is required by ESB, then it could be achieved on lands either to the west or east of the proposed turbines. As much of this OHL route, including its installed posts, has already been completed, it's potential cumulative landscape and visual effects have already been addressed and assessed in combination with the proposed Brittas windfarm, in Sections 15.6.1 and 15.6.2, above.

The proposed variations by the developer to the already partially constructed ESB powerline route is unlikely to have any notable cumulative landscape and visual effects. If a section of route was placed underground, through the site, there would be some reduced cumulative visibility of Brittas windfarm in combination with the removed OHL lines and posts within the site. However, any such reduced cumulative visibility would be only visible from the local road dissecting the site, including Viewpoint 3. Such a scenario is likely to have imperceptible neutral-beneficial effects.

The two alternative OHLs routes are of a similar nature to the existing OHLs and are also located across farmland away from residential receptors. Thus, when considered with the Brittas windfarm, the marginal shift of the OHL's posts and wires onto lands either to the west or east of the site will have no notable cumulative visual impacts upon the surrounding receptors, when compared with the assessment of the proposed windfarm with the existing OHLs within the site.

Solar Farm

The only solar farm within the study area is the permitted, not yet constructed, ENGIE 38.3ha solar farm, located approximately 5km south-east of the site in the Rahelty and Shanballyduff townlands of Co. Tipperary (planning ref 19601012). This project was granted planning permission on the 14/4/2021. It is located within the Templemore Plains LCA (i.e. similar to the proposed project and the proposed Borrisbeg windfarms), further increasing renewable energy development within this LCA. The proposed Brittas windfarm and the permitted solar farm will be clearly separated by approx. 5km of intervening field hedgerows and topography. Overall, there will be a Not significant adverse cumulative landscape effect of the Brittas windfarm with the solar farm.

The solar panels' relatively low heights, together with high field hedgerows through its site and the surrounding landscape, will hugely restrict potential cumulative views of this development with the Brittas windfarm. There is the potential for highly limited, successive views of both developments by the solar farm's western entrance at

Rahealty. Similarly, some receptors will experience sequential views as they travel through the local road network, potentially viewing some/all of the proposed Brittas turbines and then/later, elements of the solar farms they directly pass by the solar farm's roadside entrance (or vice-versa). Cumulative visual effects are considered to be Not Significant and limited to being highly specific/localised locations.

Thus, significant cumulative impacts are not considered to occur in combination with other non-wind energy developments in the study area.

15.8 Mitigation and Avoidance

15.8.1 Landscape Mitigation Measures – Construction Phase

The construction works will occur over a phased period to minimise disruption.

- All construction works will be carried out in line with the Construction and Environmental Management Plan (CEMP) (see Appendix 2B) to minimize disturbance across the site and wider area. Amongst these measures will include installation of temporary fencing, where required, to protect landscape elements that are in close proximity to the construction activity.
- The borrow pit will be filled in with excess material generated during the construction works and regenerated/ returned to its current pasture use.

15.8.2 Avoidance, Mitigation and Enhancement - Operational Phase

Turbines are large structures in the landscape and not easily screened, except, where possible, with siting. Mitigation by design has been carried out where possible, with regard to the guidance in the DoEHLG (2006) and the Draft (2019).

- Mitigation measures applied by design and avoidance include a choice of appropriate grey or off-white turbine colour, sensitive siting and design of the turbines and associated elements. It also includes minimising vegetation removal, such as hedgerows and trees, and avoiding sensitive elements in the site, such as the archaeological monuments to the east and southwest of the site.
- Mitigation measures include the re-instatement of the areas following the construction phase. It also includes replanting 1.4ha of woodland, as well as 4086m of hedgerow. The new planting is subject to an afforestation licence but will likely include strengthening of field boundaries and provide ecological connectivity.
- Topsoil will be saved from the construction areas and reused across the site to restore the landscape

Enhancement measures will include the replanting of the woodland and hedgerow lost during construction. The replanting will be subject to an afforestation licence. The planting will likely be as follows:

- Existing retained internal treelines and hedgerows will be enhanced within the site, where possible. This includes planting up any large gaps with appropriate native shrubs and trees.
- Linear sections adjacent to the proposed internal access tracks, and reinstated areas around turbines will be allowed to be colonised with local plants through natural dispersion and germination

15.9 Decommissioning

At the end of the proposed 35-year lifespan of the proposed project, the Developer will make the decision whether to repower or decommission the turbines. Any further proposals for development at the site during or after this time will be subject to a new planning permission application. If planning permission is not sought after the end of life of the turbines, the removal of infrastructure will be undertaken in line with landowner and regulatory requirements applicable at the time. Access tracks will be left for use by the landowners.

Cranes of similar size to those used for construction will disassemble each turbine. The towers, blades and all components will then be removed. Wastes generated during the decommissioning phase will be taken off site and disposed of at an authorised waste facility. Any materials suitable for recycling will be disposed of in an appropriate manner.

At present it is anticipated that internal underground cables connecting the proposed turbines to the proposed on-site substation will be cut back and left underground. The cables will not be removed if an environmental assessment of the decommissioning operation demonstrates that this would do more harm than leaving them *in situ*. The assessment will be carried out closer to the time to take into account environmental changes over the project life. Hardstand and turbine foundation areas will be left in situ and covered with soil to match the existing landscape. Access roads will be left in situ for agricultural use.

In addition, the Proposed Grid Route will be left in situ, while there are no expected accommodation works along the Turbine Delivery Route, during the decommissioning phase. Therefore there will be no likely effects associated with either the Grid Connection Route or the Turbine Delivery Route during the decommissioning phase.

Overall, the impacts of decommissioning a wind farm will comprise of temporary visual disturbance such as cranes and on-site machinery. In this regard, the visual effects of the decommissioning phase are likely to be similar to that of the construction phase, only in reverse and less apparent. Once the site is fully decommissioned, however, the visual effects of the turbines will be reversed, and while viewers at close proximity may still see the agricultural-type access tracks, the hardstands will gradually re-vegetate.

As stated in Chapter 6 Biodiversity of this EIAR, prior to the decommissioning work, a comprehensive reinstatement proposal, including the implementation of a programme that details the removal of structures and landscaping, will be submitted to the Planning Authority for agreement.

15.10 Residual Effects

The landscape and visual residual effects are the same as those effects identified above in Operational Phase Landscape Effects (Section 15.6.1) and Operational Phase Visual Effects (Section 15.6.2.)

15.11 Summary of Effects

15.11.1 Landscape Effects

There are no Significant landscape effects associated with either the construction phase or operational phase of the proposed project.

15.11.2 Visual Effects

There are no Significant visual effects associated with the construction phase of the proposed project.

However, with regards to operational phase visual effects, of the 25 No. viewpoint locations assessed, there is one viewpoint judged to be 'Significant' and 'adverse,' while there are two viewpoints judged to be 'Moderate-Significant' and 'adverse.' However, the overwhelming majority (i.e. 22 of the 25 viewpoints) are not likely to experience 'Significant' visual impacts. Indeed, two-thirds of viewpoints (i.e. 15 of the 25 No. viewpoints) were judged to have a significance of visual effect no higher than 'Slight,' with a 'Neutral' quality of effect.

15.11.3 Cumulative Effects

There are no Significant cumulative landscape or visual effects associated with the proposed development.

15.12 References

- Department of the Environment, Heritage and Local Government (2006). *Wind Energy Development Guidelines* https://www.gov.ie/en/publication/f449e-wind-energy-development-guidelines-2006/;
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- Environmental Protection Agency (EPA) (2022). *Guidelines on the Information to be Contained in Environmental Impact Reports* (EIAR). Environmental Protection Agency, Wexford. https://www.epa.ie/publications/monitoring--assessment/assessment/guidelines-on-the-information-to-be-contained-in-environmental-impact-assessment-reports-eiar.php;
- Landscape Institute and the Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd edition, London: Routledge. (hereafter referred to as the GLVIA 2013);
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- Scottish Natural Heritage (2012) Assessing the Cumulative Impact of Onshore Wind Energy Development.
- Tipperary County Council (2022). *Tipperary County Development Plan 2022-2028 https://www.tipperarycoco.ie/planning-and-building/development-plan-consultation/tipperary-county-development-plan-2022-2028;*