

EIAR FOR POWERSTOWN BIOENERGY

Volume 2- Main Body of the EIAR

Chapter 16 – Landscape and Visual Impact

Prepared for:

Greengate Biogas 001 Ltd.



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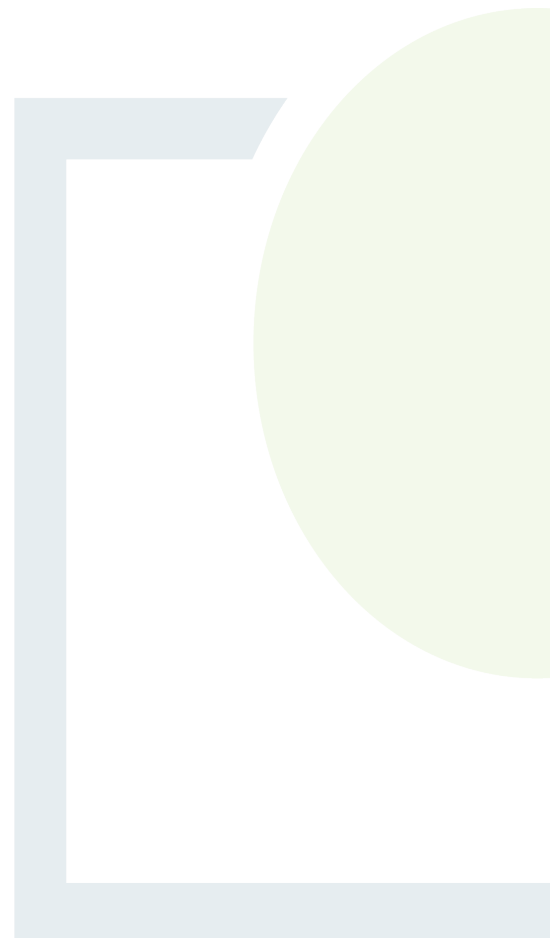


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16. LANDSCAPE AND VISUAL IMPACT

16.1 Introduction

This Landscape and Visual Assessment (LVIA) has been prepared to accompany a planning application for an anaerobic digestion (AD) facility for the production of 250GWh p.a. of renewable natural gas (RNG) and biogenic liquefied carbon dioxide (biogenic CO₂) from agricultural residues, including liquid farmyard manures (LFYM) and Solid Farmyard Manures (SFYM), collectively referred to as "feedstocks". All of the feedstocks will be compliant with Annex IX of the Renewable Energy Directive. The proposed development is shown within the planning boundary (red line) on the proposed site layout drawings in Volume 4 of this EIAR. The proposed development, Powerstown Bioenergy, is located in the townland of Powerstown in Co. Carlow. The proposed development is described in Chapter 3 of this EIAR.

This LVIA describes the landscape context of the proposed development and assesses the likely landscape and visual impacts of the scheme on the receiving environment. Although closely linked, landscape and visual impacts are assessed separately.

- Landscape Impact Assessment (LIA) relates to assessing effects of a development on the landscape as a resource in its own right and is concerned with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.
- Visual Impact Assessment (VIA) relates to assessing effects of a development on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from:
 - Visual Obstruction (blocking of a view, be it full, partial or intermittent) or;
 - Visual Intrusion (interruption of a view without blocking).

16.1.1 Approach

This LVIA adopts an approach that is founded in the following best practice guidance documents:

- Landscape Institute and the Institute of Environmental Management and Assessment (IEMA) publication entitled Guidelines for Landscape and Visual Impact Assessment, (GLVIA3) (IEMA, 2013).
- Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2022).
- Photography and Photomontage in Landscape and Visual Impact Assessment, Landscape Institute Technical Guidance Note 06 (Landscape Institute, 2019).



16.1.2 Description of the Proposed Development

A detailed description of the project and the proposed development is provided in Chapter 3 of this EIAR. For the purposes of this assessment, the project comprises the following two main components:

- A commercial Anaerobic Digestion (AD) facility and associated infrastructure (hereafter referred to as the proposed development).
- A 9.6 km gas pipeline connecting the proposed development to an AGI at Clogrennan, Co. Carlow (hereafter referred to as the proposed gas pipeline). Gas Networks Ireland as the Statutory Undertaker will be responsible for development consent; however, the assessment of the proposed gas pipeline route is included in the EIAR.

16.2 Statement of Authority

This LVIA was prepared by Nicole Crawford, Senior LVIA Consultant at Macro Works Ltd of Cherrywood Business Park, Loughlinstown, Dublin 18; a consultancy firm specialising in Landscape and Visual Assessment and associated maps and graphics. Macro Works' relevant experience includes LVIA's of a broad range of infrastructural, renewable energy, industrial and commercial projects since 1999, including numerous urban, residential, and mixed-use development projects. Nicole has carried out LVIA's for multiple projects, including National Infrastructure Projects, across Ireland and the UK, including wastewater treatment plants, linear infrastructure schemes such as roadways and greenways, pipelines, renewable energy developments such as solar farms and a wind farms, and AD anaerobic digestion (AD) facilities, an example of which is an AD facility located in Co. Monaghan capable of production of up to 120 GWh of renewable energy per annum. This scheme included similarly scaled infrastructure, including a stack, with planning application lodged in early 2026.

This LVIA has been reviewed by Mark Salisbury, Associate Director at Macro Works Ltd. Over the course of his professional career, Mark has gained extensive SLVIA/LVIA/TVIA experience across the UK and Ireland, in a variety of development contexts including an AD facility, major infrastructure projects, residential developments including strategic housing development (SHD), wind and solar energy developments, industrial and commercial developments, whisky distilleries, and a variety of mineral extraction sites. Many of these projects were carried out in or near seascapes / landscapes / townscape with designated sensitivities, including Conservation Areas, World Heritage Sites, Areas of Outstanding Natural Beauty and National Parks, where place specific design and mitigation responses were required. Mark has also delivered guest lectures to the University Sheffield Landscape course in relation to the process and application of LVIA thinking in practice.

CVs for Nicole Crawford and Mark Salisbury are included in Appendix 1.1 of Volume 3 of this EIAR.

16.3 Assessment Methodology

This document uses methodology as prescribed in the previously mentioned GLVIA3 (IEMA, 2013), which follows the European Landscape Convention (ELC) (Council of Europe, 2000) definition of landscape:

"Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe, 2000). Thus, GLVIA3 covers all landscapes from "high mountains and wild countryside to urban and fringe farmland (rural landscapes), marine and coastal landscapes (seascapes) and the landscapes of villages towns and cities (townscapes) - whether protected or degraded."



16.3.1 Scope of the Assessment

GLVIA3 (IEMA, 2013) establishes guidelines and is not a specific methodology. The preface recognises that:

“This edition concentrates on principles and processes. It does not provide a detailed or formulaic ‘recipe’ that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand” (IEMA, 2013).

The methodology for this assessment has therefore been developed specifically for this assessment to ensure that it is appropriate and fit for purpose. The LVIA Methodology included the following key tasks:

- desk study and site visits in October 2025 and February 2026
- defining the baseline landscape setting and conditions
- identification and evaluation of key components of the proposed development
- consideration of mitigation measures
- assessment of landscape effects
- assessment of visual effects
- summary statement of significance

16.3.2 Study area

From experience gained across comparable developments, such as the Anaerobic Digester facility proposed in Co. Monaghan (referenced in Section 16.2) which included infrastructure and vertical elements similar in scale to that proposed, as well as an odour stack 40m in height, it is anticipated that the proposed development is likely to be difficult to discern beyond approximately 5km and is not likely to give rise to significant landscape or visual impacts beyond approximately 2km.

Proportionality is advocated within GLVIA3, which states that “the study area should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner” (IEMA, 2013). Beyond 5km, the development parameters are not considered to have potential to generate significant landscape or visual effects given the landscape context and the degree to which any new built form would be visible. To maintain a proportionate focus, a 5km radius study area from the proposed development is adopted, within which an additional level of focus will be made on more proximate landscape and visual receptors, particularly where impacts are more localised in nature, such as related to the proposed gas pipeline.

The proposed study area is considered sufficient to understand the impacts of the proposals, and a study area of 5km has typically been used for the assessment of industrial projects in Ireland, Northern Ireland and Great Britain, and been deemed acceptable by multiple planning authorities. This is shown in Figure 16-1.

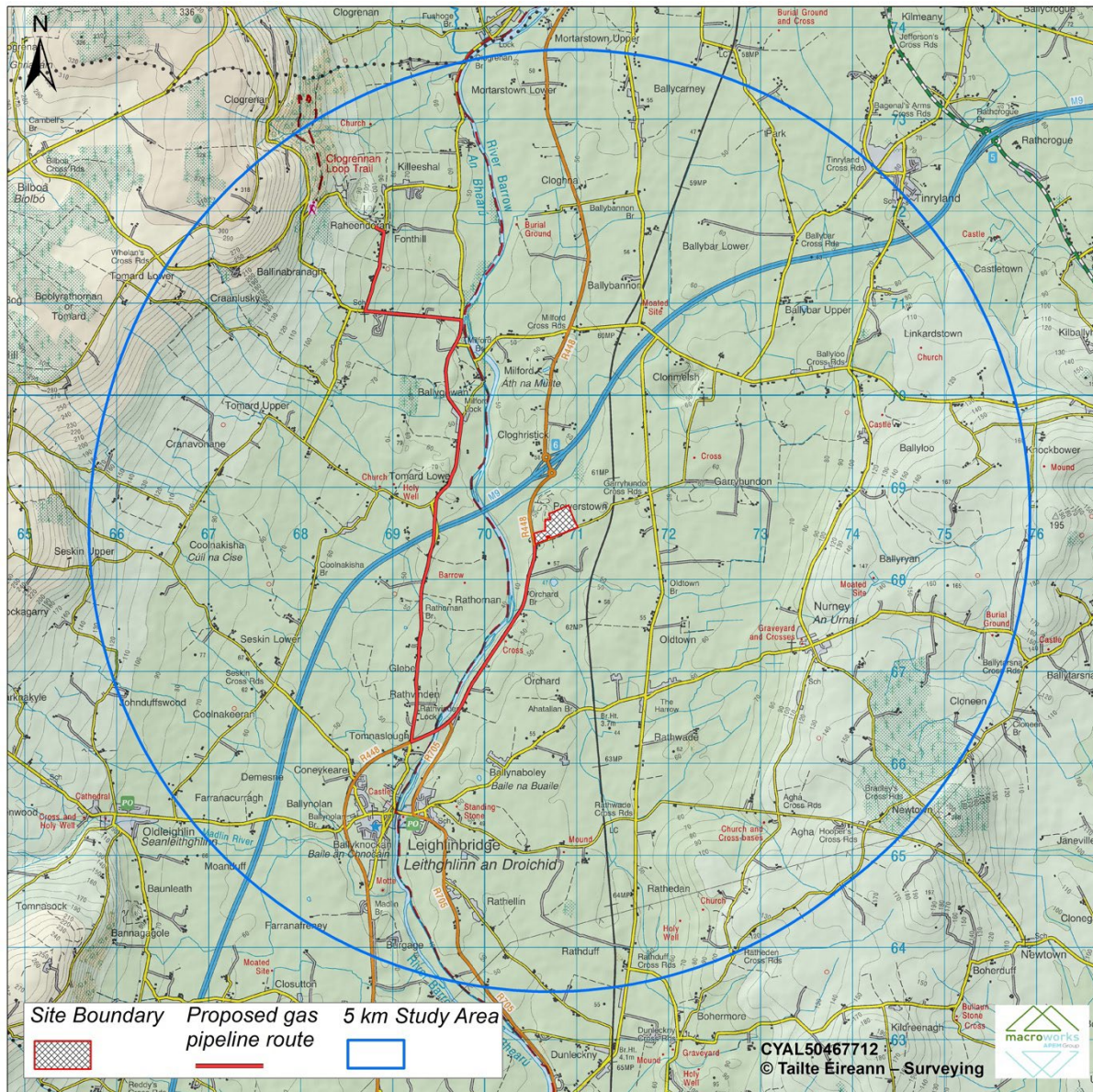


Figure 16-1: Extent of 5km study area

16.3.3 Landscape Impact Assessment Criteria

This part of the LVIA provides an assessment of how the introduction of the proposed development will affect the physical features and fabric of the landscape, and then how the proposals influence landscape character with reference to published descriptions of character and an understanding of the contemporary character of the landscape as informed through desktop and site studies. The desktop study was informed by the following data sources:

- Carlow County Development Plan 2022-2028 (Carlow County Council, 2022). Relevant components are discussed further in Section 16.4.1.
- Sport Ireland (Sport Ireland, 2026). Sport Ireland is a statutory authority, and their website provides mapping of trails throughout Ireland.
- EPA Map Portal (EPA, 2026) The Environmental Protection Agency (EPA) Ireland is an independent public body established under the Environmental Protection Agency Act, 1992 and their website provides data and mapping on Ireland's landscapes.



- GeoHive (Tailte Éireann, 2026). GeoHive is the state's free Geospatial Data Hub developed by Tailte Éireann and their website provides data and mapping on Ireland's landscapes.
- National Parks and Wildlife Service (Department of Housing, Local Government and Heritage, 2026). The National Parks and Wildlife Service (NPWS) is a government agency, and their website provides data and mapping on Ireland's landscapes.

When assessing the potential landscape effects of the development, the value and sensitivity of the landscape receptor is weighed against the magnitude of impact to determine the significance of the landscape effect. Criteria outlined below are used to guide these judgements.

16.3.3.1.1 Landscape Sensitivity

The sensitivity of the landscape to change is the degree to which a particular setting can accommodate changes or new elements without unacceptable detrimental effects to its essential characteristics. In accordance with GLVIA3 (IEMA, 2013), the sensitivity of a landscape receptor (Landscape Character Area or feature) is derived from combining judgements in relation to its susceptibility to change and its value. The judgement reflects such factors as its quality, value, contribution to landscape character and the degree to which the particular element or characteristic can be replaced or substituted. Landscape Value and Sensitivity is classified using the following criteria outlined in Table 16-1.

Table 16-1: Landscape Value and Sensitivity

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



16.3.3.2 *Magnitude of Change - Landscape*

The magnitude of change is a product of the scale, extent or degree of change that is likely to be experienced as a result of the proposed development and to a lesser extent the duration and reversibility of that effect. The magnitude takes into account whether there is a direct physical impact resulting from the loss of landscape components and/or a change that extends beyond the immediate setting that may have an effect on the landscape character.

Table 16-2: Magnitude of Change – Landscape

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

16.3.4 Visual Impact Assessment Criteria

This part of the LVIA provides an assessment of how the introduction of the proposed development will affect views within the landscape. It therefore needs to consider:

- Direct impacts of the proposed development upon views through intrusion or obstruction.
- The reaction of viewers who may be affected, e.g. residents, walkers, road users.
- The overall impact on visual amenity.

It has been deemed appropriate to structure the assessment around a series of representative viewpoint locations. All viewpoints are located within the public domain and are representative of views available from main thoroughfares and pedestrian areas within the vicinity of the proposed development. The selected viewpoints are considered to be comprehensive in communicating the variable nature of the visual effects.



When assessing the potential visual effects of the development, the sensitivity of the visual receptor is weighed against the magnitude of the visual impact to determine the significance of the visual effect. Criteria outlined in the following section are used to guide these judgements.

16.3.4.1 *Sensitivity of Visual Receptors to Change*

In accordance with GLVIA3, visual receptors most susceptible to changes in views and visual amenity are:

- “Residents at home...;
- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape and on particular views;
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience;
- Communities where views contribute to the landscape setting enjoyed by residents in the area;
- Travellers on road rail or other transport routes tend to fall into an intermediate category of moderate susceptibility to change.

Where travel involves recognised scenic routes awareness of views is likely to be particularly high.

Visual receptors that are less susceptible to changes in views and visual amenity include:

- People engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape;
- People at their place of work whose attention may be focused on their work or activity, not their surroundings and where the setting is not important to the quality of working life...” (IEMA, 2013).

16.3.4.2 *Values attached to the Views*

The value attached to a view is determined by considering the following:

- Recognised scenic value of the view (Development Plan designations, guidebooks, touring maps, postcards etc.). These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, for example, a public consultation process is required.
- Views from within highly sensitive landscape areas. These are likely to be in the form of Architectural Conservation Areas, which are incorporated within the County Development Plan and therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them.
- Primary views from residential receptors. Even within a dynamic city context, views from residential properties are an important consideration in respect of residential amenity.
- Intensity of use, popularity. This relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at a national or regional scale.
- Provision of vast, elevated panoramic views. This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.



- Sense of remoteness and/or tranquillity. Receptors taking in a remote and tranquil scene, which is likely to be fairly static, are likely to be more receptive to changes in the view than those taking in the view of a busy street scene, for example.
- Degree of perceived naturalness. Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by distinctly manmade features.
- Presence of striking or noteworthy features. A view might be strongly valued because it contains a distinctive and memorable landscape / townscape feature such as a cathedral or castle.
- Historical, cultural and / or spiritual significance. Such attributes may be evident or sensed by receptors at certain viewing locations, which may attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings.
- Rarity or uniqueness of the view. This might include the noteworthy representativeness of a certain landscape type and considers whether the receptor could take in similar views anywhere in the broader region or the country.
- Integrity of the landscape character. This looks at the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components.
- Sense of place. This considers whether there is special sense of wholeness and harmony at the viewing location.
- Sense of awe. This considers whether the view inspires an overwhelming sense of scale or the power of nature.

Those locations which are deemed to satisfy many of the above criteria are likely to be of higher sensitivity, and no relative importance is inferred by the order of listing.

It is recognised that a viewer's interpretation and experience of the landscape can have preferential and subjective components. Where relevant, judgements are made on those elements of the landscape that are considered to contribute more prominently and positively to the visual landscape resource as well as those elements that contribute negatively. Overall sensitivity may be a result of a number of these factors or, alternatively, a strong association with one or two in particular.

16.3.4.3 *Magnitude of Change - Visual*

The magnitude of change is again a product of the scale, extent, or degree of change that is likely to be experienced as a result of the proposed development. This is directly influenced by its 'visual presence / prominence', as experienced by visual receptors in the landscape. These terms are somewhat quantitative in nature and essentially relate to how noticeable or 'dominant' the proposal is within a particular view. Aside from the obvious influence of scale and distance, a development's visual presence is influenced by the extent and complexity of the view, contextual movement in the landscape, the nature of its backdrop, and its relationship with other focal points or prominent features within the view. It is often, though not always, expressed using one of the following terms: Minimal; Sub-dominant; Co-dominant; Dominant; Highly dominant. Criteria used to inform judgements are provided in Table 16-3.



Table 16-3: Magnitude of Change – Visual

Magnitude of Impact	Description
Very High	Complete or very substantial change in view, dominant, involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g., through removal of key elements
High	A major change in the view that is highly prominent and has a strong influence on the overall view. This may involve the substantial obstruction of existing views or a complete change in character and composition of baseline, e.g. through removal of key elements or the introduction of new features that would heavily influence key elements.
Medium	Moderate change in view: which may involve partial obstruction of existing view or partial change in character and composition of baseline, i.e., pre-development view through the introduction of new elements or removal of existing elements. Change may be prominent but would not substantially alter scale and character of the surroundings and the wider setting. View character may be partially changed through the introduction of features which, though uncharacteristic, may not necessarily be visually discordant.
Low	Minor change in baseline, i.e. pre-development view – change would be distinguishable from the surroundings whilst composition and character would be similar to the pre change circumstances.
Negligible	Very slight change in baseline, i.e. pre-development view – change would be barely discernible. Composition and character of view substantially unaltered.

16.3.5 Significance of Effect

The significance of a landscape or visual effect is based on a balance between the sensitivity of the receptor and the magnitude of change, and is categorised as Profound, Substantial, Moderate, Slight, or Imperceptible. Intermediate judgements are also provided to enable an effect to be more accurately described where relevant. ‘No Effect’ may also be recorded as appropriate where the effect is so negligible it is not noteworthy.

GLVIA3 defines ‘significance’ as “a measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic”. It does not define what may constitute a ‘significant’ effect or provide thresholds that indicate where effects would become significant rather than not significant but states that “there are no hard and fast rules about what effects should be deemed ‘significant’” (paragraph 3.32 of GLVIA3 (IEMA, 2013)).

The significance category judgement is arrived at using the Significance Matrix at Table 16-4 and indicative criteria descriptions in Table 16-5 as a guide. This applies the principle of significance being a function of magnitude weighed against sensitivity but employs slightly different terminology that avoids the potentially confusing use of the term ‘significant’ (as recommended by GLVIA3 Statement of Clarification 1/13 (The Landscape Institute, 2013)).



Table 16-4: Significance Matrix

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

Table 16-5: Indicative significance of effect criteria descriptions

Significance of Effect	Landscape	Visual
Profound	There are notable changes in landscape characteristics over an extensive area or a very intensive change over a more limited area.	The view is entirely altered, obscured or affected.
Substantial	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the landscape. There are notable changes in landscape characteristics over a substantial area or an intensive change over a more limited area.	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the visual environment. The proposal affects a large proportion of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. There are minor changes over some of the area or moderate changes in a localised area.	An effect that alters the character of the visual environment in a manner that is consistent with existing and emerging trends. The proposal affects an appreciable segment of the overall visual composition, or there is an intrusion in the foreground of a view.
Slight	An effect which causes noticeable changes in the character of the landscape without affecting its sensitivities. There are minor changes over a small proportion of the area or moderate changes in a localised area or changes that are reparable over time.	An effect which causes noticeable changes in the character of the visual environment without affecting its sensitivities. The affected view forms only a small element in the overall visual composition or changes the view in a marginal manner.



Significance of Effect	Landscape	Visual
Imperceptible	An effect capable of measurement but without noticeable consequences. There are no noticeable changes to landscape context, character or features.	An effect capable of measurement but without noticeable consequences. Although the development may be visible, it would be difficult to discern resulting in minimal change to views.

It is important that the likely effects of the proposals are transparently assessed and understood in order that the determining authority can bring a balanced, well-informed judgement to bear when making a planning decision. As such, whilst the significance matrix and criteria provide a useful guide, the significance of an effect is ultimately determined by the landscape specialist using professional judgement, and also in the context of occasionally using hybrid judgements (e.g. High-Medium, Medium-Low, etc.) to account for nuance.

As stated within 'Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3)', "as indicated at GLVIA paragraph 3.33, it is not necessary to establish thresholds for levels of significance, provided that it is made clear whether effects are, or are not, significant. However, typically, effects falling below the middle of the range of overall effect are assessed as not significant" (The Landscape Institute, 2024).

Within the outlined methodology, effects assessed as 'Substantial' or greater (shaded cells in Table 16-4 above) are considered to be the most notable in landscape and visual terms, and may be regarded as 'Significant'. Effects judged 'Moderate' or above may be considered significant depending on professional judgement and context. Evaluations are explained as part of the assessment.

It is important to note that Significant effects do not reflect their acceptability in planning terms.

16.3.6 Quality of Effects

In addition to assessing the significance of landscape and visual effects, the quality of the effects is also determined. Within this LVIA, effects are described as negative/adverse, neutral, or positive/beneficial, and the following criteria has been used to guide these judgements.

- Positive/beneficial - A change which improves the quality of the environment, enhancing the existing view/landscape.
- Neutral - No effects or effects that are imperceptible, within normal bounds of variation e.g. will neither detract from nor enhance the existing view/landscape.
- Negative/adverse - A change which reduces the quality of the environment, detracting from the existing view/landscape.

In the case of new energy / infrastructure developments within rural and semi-rural settings, the landscape and visual change brought about by an increased scale and intensity of built form is seldom considered to be positive / beneficial. Effects in these contexts are generally considered to be adverse in nature, or neutral, where the effect has little influence on the landscape/views.



16.3.7 Consultation

Chapter 5 Scoping and Consultation of Volume 2 of this EIAR provides the full details of consultation completed to date which commenced in early 2025 with the initial stakeholder consultation document sent to various stakeholders in April 2025, followed by a public consultation event in Carlow in April 2025. A revised stakeholder consultation document was sent in November 2025.

The full list of stakeholders are also included in Chapter 5 Scoping and Consultation of Volume 2 of this EIAR and include biodiversity-relevant private and public stakeholders, including Department of Housing, Local Government and Heritage and the National Parks and Wildlife Services (NPWS), Inland Fisheries Ireland (IFI), Local Authority heritage and biodiversity officers, Bat Conservation Ireland, Birdwatch Ireland, Irish Wildlife Trust, and Biodiversity Ireland.

Various pre-application consultations were undertaken during 2025 and 2026 detailed in Chapter 5 Scoping and Consultation of Volume 2 of this EIAR, including a meeting with NPWS, held on Thursday, 15 January 2026 14:00-15:00. Please refer Appendix 11 in Volume 3.

Of relevance to this chapter was commentary from NPWS regarding the proposed Landscape Plan. NPWS stated that consideration must be given to using native and local species, and species that flower at different times of the year. NPWS recommended interspersing landscaping with trees as this will improve the landscape features for bats. This requirement has been included in the Landscape Plan (Appendix 16.2 of Volume 3).

16.4 Landscape and Visual Policy Context and Designations

16.4.1 Carlow County Development Plan 2022-2028

The project and study area are located entirely within County Carlow. The Carlow County Development Plan 2022-2028 (Carlow County Council, 2022) (hereafter referred to as the CCDP) is the main strategic planning policy document which guides the future development of County Carlow.

16.4.1.1 General Policies and Objectives

Within the CCDP, a number of policies and objectives are outlined with regard to the landscape. Those deemed relevant to landscape and visual matters include:

- "LA P1: Protect and maintain the overall integrity of the County's landscape, by recognising its capacity to sustainably integrate and absorb appropriate development, and by ensuring that development protects, retains and, where necessary, enhances the appearance and character of the landscape, and does not unduly damage or detract from those features which contribute to its value, character, distinctiveness and sensitivity e.g. landform, habitats, scenic quality, settlement pattern, historic heritage, amenity, land use and tranquillity.
- LA P2: Ensure that development will not have a disproportionate landscape or visual impact in sensitive upland areas of the County (due to siting, layout, design or excessive scale, height and bulk) and will not significantly interfere with or detract from scenic upland vistas, when viewed from the surrounding environment, including nearby areas, scenic views and routes, and from settlements."



- "LA P5: Protect and maintain the landscape quality and visual integrity of river valleys and river corridors, and to ensure development in these sensitive landscape areas does not adversely affect or detract from scenic views, including views from bridges, or from distinct linear sections such as open floodplains.
- LA P6: Require all developments, having regard to their landscape setting, to be appropriate in siting, layout, design and scale, in order to ensure any potential adverse or landscape and visual impacts are minimised and/or removed where necessary, and that natural site features and characteristics are retained and maintained."
- "LA P8: Require, where appropriate, Landscape/Visual Impact Assessments to be prepared by suitably qualified professionals, for development proposals which may have significant landscape or visual impacts, and/or which are located within or adjacent to sensitive landscapes."
- "LA P10: Ensure that features which contribute to local landscape character, including historic features and buildings, trees, hedgerows, shelter belts and stone walls, are retained, protected, and enhanced where appropriate, so as to preserve the appearance and local landscape character of an area, whilst supporting sustainable landscape change and development. Development proposals necessitating the removal of such features will be discouraged.
- LA P11: Protect and preserve the established appearance and aesthetic attributes of views and prospects that contribute to the inherent quality of the County's landscape, including views, prospects and scenic routes listed in Tables 9.3 and 9.4 , and particularly views to and from mountains, hills, river valleys and river corridors, and views of historical or cultural value (including buildings and townscapes) and views of natural beauty."
- "GI P3: Protect and preserve landscape features which contribute to green infrastructure in the County, including trees, hedgerows, woodlands, wetlands, watercourses and other habitats.
- GI P4: Require all new development to contribute to the protection and enhancement of existing green infrastructure and the delivery of new green infrastructure, as appropriate."
- "WT P1: Protect and manage existing woodlands, trees and hedgerow which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their consideration, protection and management when undertaking, approving or authorising development.
- WT P2: Ensure that hedgerow removal to facilitate development is kept to an absolute minimum and, where unavoidable, a requirement for mitigation planting will be required comprising a hedge of similar length and species composition to the original, established as close as is practicable to the original and where possible linking in to existing adjacent hedges. Native plants of a local provenance should be used for any such planting."
- "WT P4: Encourage the protection of historic hedgerows or significant hedgerows which serve to link habitat areas to each other and the surrounding countryside.
- WT P5: Recognise the biodiversity and archaeological importance of townland boundaries, including hedgerows, and promote their protection and retention."
- "WT P8: Ensure a Tree Management Plan is provided so as existing tree planting is adequately protected during development and incorporated into the layout and design of new developments." (Carlow County Council, 2022)



16.4.1.2 *Carlow County Landscape Character Assessment and Schedule of Protected Views*

A landscape character assessment and schedule of protected views was prepared by Carlow County Council in July 2015 and has been incorporated as an appendix into the adopted CCDP. The relevant components of this document are outlined below:

16.4.1.2.1 Landscape Character and Sensitivity

16.4.1.2.1.1 Landscape Character Areas (LCAs)

The landscape character assessment within the CCDP divides the county into 4 no. distinct Landscape Character Areas (LCA). The project and associated 5km study area are situated within two LCAs, primarily the 'Killeshin Hills' LCA, the key characteristics of which are cited as:

- "Rural character with few settlements.
- Distinct prominence of Castlecomer Plateau forms a backdrop to the area and separates the County from Kilkenny.
- Mixture of grassland, rough grazing, and forestry plantations at higher elevations.
- River Barrow forms eastern edge of area.
- Isolated stone quarries and lime workings have left a mark on the landscape.
- Open views and vistas with extensive views across the entire County from ridges and from the Castlecomer Plateau."

The proposed development and study area are also partially located within the 'Central Lowlands' LCA, the key characteristics of which are cited as:

- "Most of the County lies within this character area
- Landscape is level to gently rolling.
- Predominantly fertile agricultural lands with medium to large fields defined by low trimmed hedgerows and occasional to frequent mature hedgerow trees.
- Open views and vistas, notably on ridge farmland.
- Low vegetation – grassland - and long distant views with a limited capacity to absorb developments unobtrusively.
- Extensive road network penetrating the character area.
- The character area contains most of the County's designated habitats and listed buildings." (Carlow County Council, 2022)

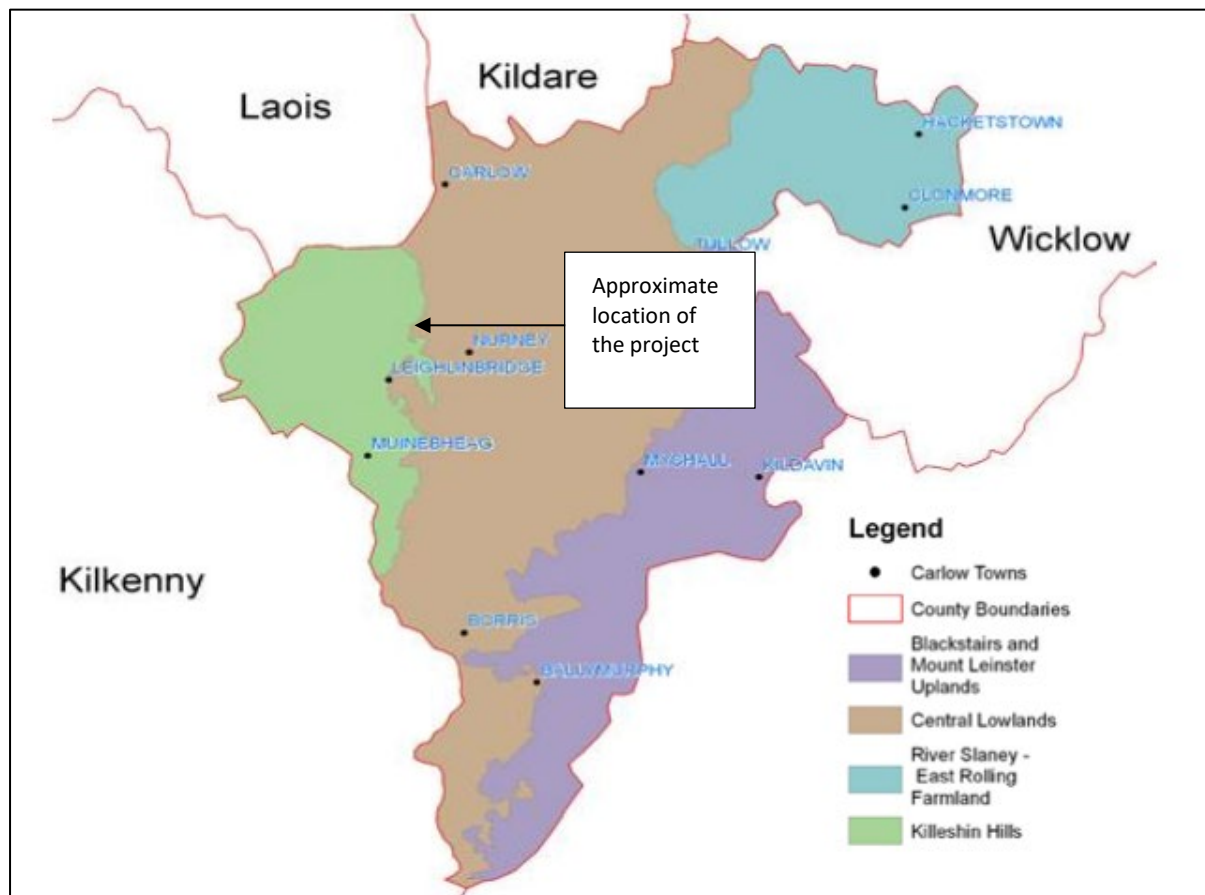


Figure 16-2: Excerpt from the CCDP showing the approximate location of the project in relation to Landscape Character Areas (LCA)

16.4.1.2.1.2 Landscape Types (LTs)

The landscape character assessment within the CCDP further subdivides each LCA into a series of 7 no. Landscape Types (LT) (refer to Figure 16-3).

Within the 'Killeshin Hills' and 'Central Lowlands' LCAs, the project is primarily situated within the 'Broad River Valley' LT, though a portion of the proposed development and pipeline corridor are located within the 'Farmed Lowland' LT.

There are also three other LT within the study area, these being 'Built Up Areas', 'Farmed Ridges', and 'Uplands'.

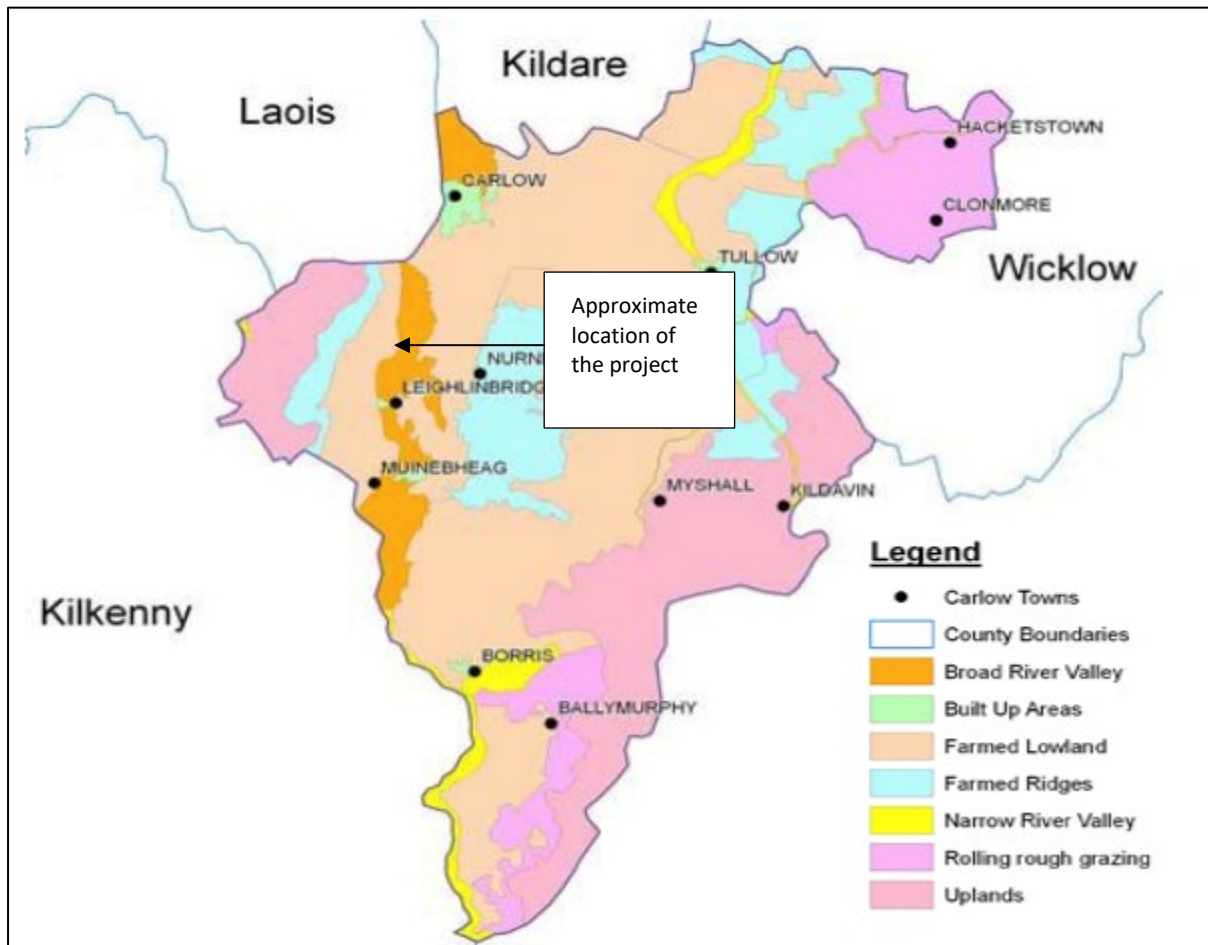


Figure 16-3: Excerpt from the CCDP showing the approximate location of the project in relation to Landscape Types (LT)



16.4.1.2.2 Policy Objectives and General Recommendations

In the landscape character assessment within the CCDP, a number of general policy objectives and recommendations are outlined with regard to the LCA. Some of these have been deemed relevant to the project and are included in Table 16-6:

Table 16-6: Policy Objectives and General Recommendations excerpt from the CCDP

LCA	Policy Objectives	General Recommendations
'Killeshin Hills' LCA	• "Balance conservation with enhancement of the existing landscape character. • New developments to maintain integrity of landscape character area though careful location, siting and design."	• "Conserve character of land pattern and landform typified by small fields defined by hedges and occasional stone walls. • Review the hedge maintenance regime. • Encourage the use of native and indigenous planting in new developments to integrate buildings into the surrounding landscape."
'Central Lowlands' LCA	• "Conservation, restoration and enhancement of the existing landscape character. • New developments to maintain integrity of landscape character area though careful location, siting and design."	• "Maintain the existing grain of the landscape with its well-developed pattern of fields, hedgerows, trees and shelterbelts. • Review the hedge maintenance regime. Overcutting reduces species richness and consequently, their contribution to biodiversity. • Discourage the replacement of hedgerow boundaries with wire fences. • Encourage the use of native and indigenous planting in new developments to integrate buildings into the surrounding landscape. Compile a list of suitable trees and shrubs for planting in the County. • The use of traditional styles, materials and colours in new developments should be encouraged. • New developments should not be sited in prominent locations such as ridges and areas with open exposed vistas."

16.4.1.2.3 Landscape Sensitivity

The sensitivity of the landscape is associated with the LCA and LT identified within the Landscape Character Assessment. The sensitivity of each (as cited from the Landscape Character Assessment), is identified in turn below.



16.4.1.2.3.1 Landscape Character Areas

The 'Killeshin Hills' LCA has been deemed to have "a moderate level of sensitivity and moderate potential capacity to absorb different types of development." However, regarding the 'Killeshin Hills' LCA, the landscape character assessment also states "the east-facing slopes enjoy sweeping panoramic views over most of the County. Due to this upland character and relative exposure, it has a low potential capacity to absorb rural housing or industrial development."

The 'Central Lowlands' LCA is "...deemed to be moderately sensitive to development" and "...has capacity to absorb most types of development subject to the implementation of appropriate mitigation measures." However, this LCA is more specifically considered to "...have a low potential capacity to absorb plantation forestry or industrial development."

16.4.1.2.3.2 Landscape Character Types

The landscape character assessment within the CCDP proposes the adoption of a Landscape Sensitivity Map (refer to Figure 16-4) in order to classify the general sensitivity of each LT on a scale of 1-5, from least to most sensitive. The sensitivity of each LT within the study area is as follows:

- 'Farmed Lowland' – The sensitivity of this LT is classified as a combination of 2-Decreasing, 3-Moderate, and 4-Increasing.
- 'Broad River Valley' – The sensitivity of this LT is classified as 4-Increasing
- 'Built Up Areas' – The sensitivity of this LT is classified as 1-Least
- 'Farmed Ridges' – The sensitivity of this LT is classified as 4-Increasing
- 'Uplands' – The sensitivity of this LT is classified as 5-Most

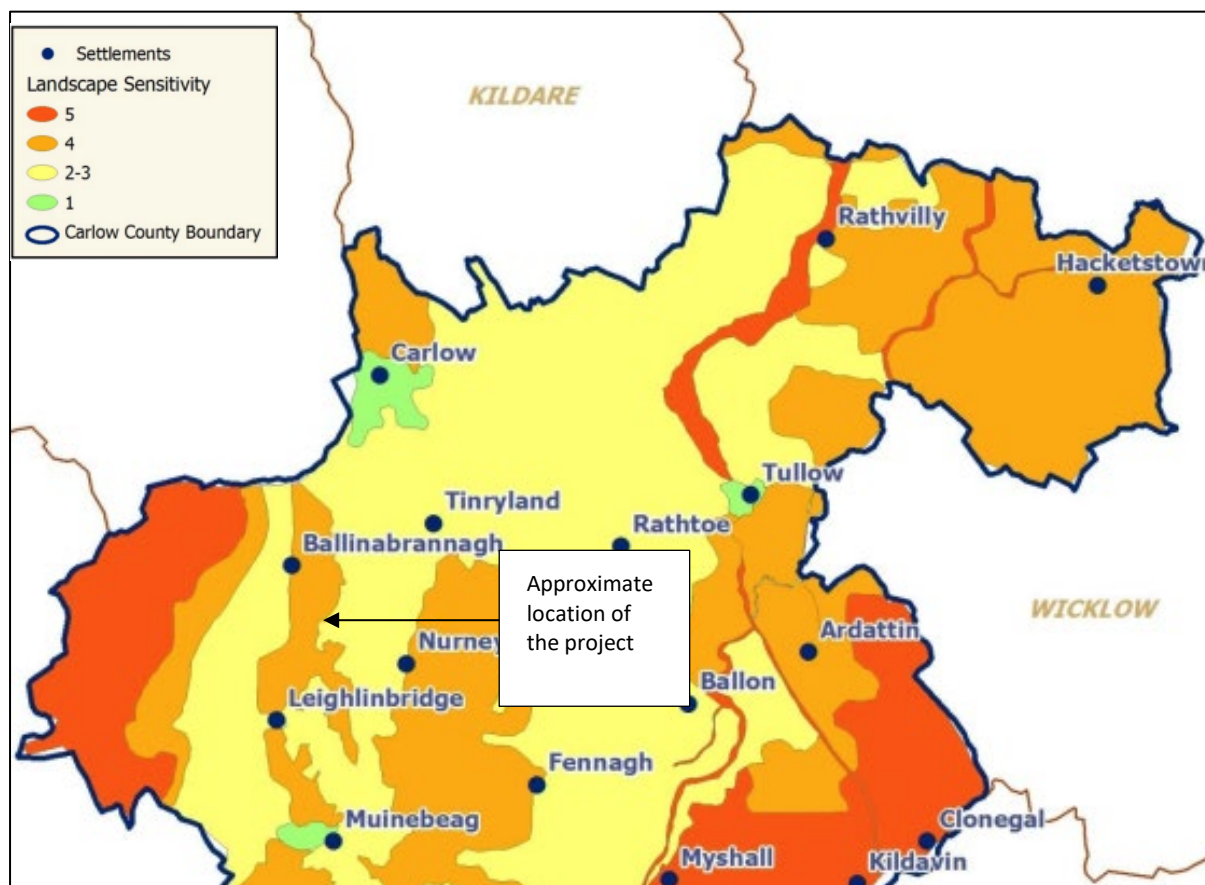


Figure 16-4: Excerpt from the CCDP showing the approximate location of the project in relation to Areas of Landscape Sensitivity

16.4.1.2.4 Schedule of Views, Prospects, and Scenic Routes

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

There are a number of views, prospects, and scenic routes, identified within the CCDP that fall within the study area. These are outlined in Table 16-7 and Figure 16-5 to Figure 16-6:

Table 16-7: Scenic Routes and Scenic Views within the study area

Scenic Designation (Carlow County Council, 2022)	Relevance to Assessment
Scenic Route 5 'Ballyryan', located along the L3052-42. This is a view across the mixed level landscape, with a low level to the west. There are 4 qualities that qualify this view as scenic.	Relevant – An elevated road located approximately 2.8km east of the project at its nearest point, oriented towards the project with potential for views.
Scenic Route 9 'Tomard lower', located along the L3041-19. This is a panoramic view across the central plain of the landscape. There are 2 qualities that qualify this view as scenic.	Relevant – An elevated road located approximately 4km west of the project at its nearest point, oriented towards the project with potential for views.



Scenic Designation (Carlow County Council, 2022)	Relevance to Assessment
Scenic View 27 'south of Nurney', located along the L7416. This is a view looking northwest from a hill at Newtown/Bradley's Cross. There are 3 qualities that qualify this view as scenic.	Potentially Relevant – Located approximately 3.6km west of the project at its nearest point, oriented somewhat towards the project.
Scenic View 29 'Leighlinbridge', located at the R705-24. This is a view looking north at the River Barrow. There are 2 qualities that qualify this view as scenic.	Potentially Relevant – Located approximately 3km south of the project at its nearest point, oriented somewhat towards the project.
Scenic View 30 'Leighlinbridge', located at the R705-24. This is a view looking south at the River Barrow and Black Church. There are 2 qualities that qualify this view as scenic.	Not Relevant – Primary aspect of amenity oriented away from the project.
Scenic View 33 'Milford', located at the L3039. This is a view looking east and north at the River Barrow. There are 2 qualities that qualify this view as scenic.	Not Relevant – Primary aspect of amenity oriented away from the project.

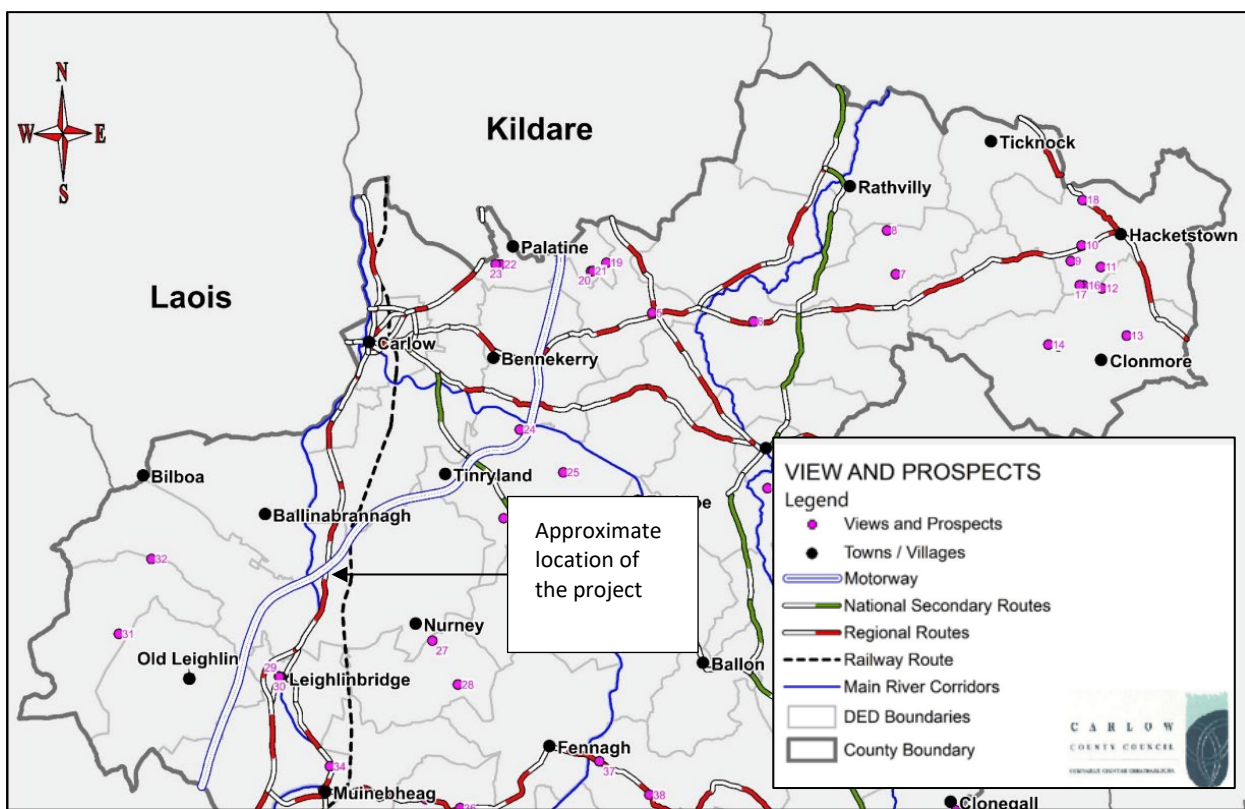


Figure 16-5: Excerpt from the CDDP showing the approximate location of the project in relation to Designated Views and Prospects

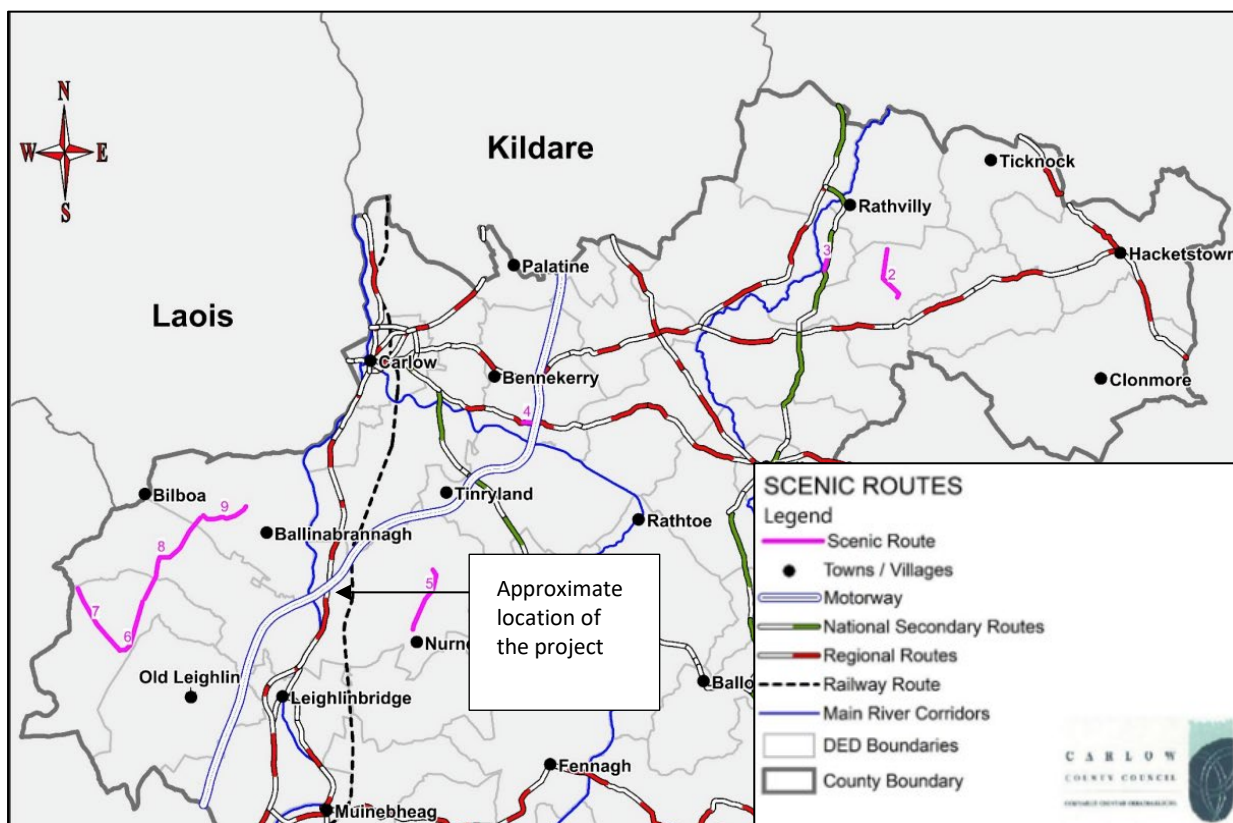


Figure 16-6: Excerpt from the CCDP showing the approximate location of the project in relation to designated Scenic Routes

16.5 Landscape Baseline Environment

The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the proposed development will be assessed. A description of the landscape context of the project site and wider study area is provided below. Although this description forms part of the landscape baseline, many of the landscape elements identified also relate to visual receptors i.e. places and transport routes from which viewers can potentially see the proposed development. The visual resource will be described in greater detail in the visual baseline section below.



Figure 16-7: Landscape context

16.5.1 Landform and Drainage

The landscape of the study area is influenced by the corridor of the River Barrow and the upland areas to the east and west. The proposed development itself is contained across as relatively flat area of land adjacent to the valley of the River Barrow, albeit the proposed gas pipeline corridor travels along this river valley. This river valley comprises a central portion of the study area; the River Barrow meanders in a general north to south direction within the study area and is located around 300m west of the proposed development at its nearest point. Beyond this valley, the terrain begins to rise swiftly to the west and more gently to the east.



16.5.2 Vegetation and Land Use

The predominant land use within the study area is agriculture, with medium to large-sized fields bounded by networks of mixed hedgerows and mature trees. This land use comprises a mix of arable and pastoral land use, with arable located centrally north to south within the study area associated with lower lying areas. The study area also contains several large quarries, the closest of which is located around 100m south of the proposed development at its nearest point, as well as some mid-sized blocks of coniferous forestry and large linear swathes of riparian woodland along the River Barrow. The proposed development site itself is both a former and currently operational quarry. Brownfield sites, including the closed landfill, utility land use, including the Powerstown Civic Amenity Site, as well as the M9 motorway corridor and National Railway line are all located within immediate study area, and contribute to a notable level of activity in the landscape around the site.

16.5.3 Centres of Population and Housing

The principal centre of population within the study area is Leighlinbridge, which is located around 3km south of the proposed development at its nearest point. The nearest settlement to the proposed development is Nurney, an elevated village located around 2.5km east of the proposed development at its nearest point. The other centre of population within the study area is Ballinabrannagh, a village located some 3km north west of the proposed development. Aside from this, the area is largely rural, with some linear clusters of dwellings and scattered farmsteads located throughout the study area. For additional information, refer to Chapter 7, Population and Human Health, in Volume 2 of this EIAR.

16.5.4 Transport Routes

Within the study area, the primary transport route is the M9 motorway (Dublin-Waterford), which is situated around 400m north of the proposed development at its nearest point. The M9 meanders in a general north east by south west direction within the study area. There are several regional roads, within the study area, including the R448 (Carlow to Kilkenny), which is located directly adjacent to the proposed development to the west and along which the proposed gas pipeline travels, and the R705, located south of the proposed development. The study area also encompasses a dense web of interconnecting local roads, the nearest of which, the L3045 passes directly south of the proposed development. In addition to the R448 regional road, the proposed Gas Pipeline travels along the L3043, L3041, L3039, and L3038 local roads. The National Railway line travels through the study area in a north to south direction.

16.5.5 Tourism, Heritage, and Public Amenities

The River Barrow is one of the principal amenity features within the study area and is associated with the Barrow Way National Waymarked Trail, a long-distance walking trail which follows the original towpath of the river corridor. The trail is over 114km long and passes through several picturesque settlements and a number of notable heritage features, including Milford Mill, a notable heritage feature within the study area. A local woodland walking trail in Clogrennane Woods is also located in the north western portion of the study area along elevated terrain. Much of the recreational amenity within the study area is associated with local amenity such as local sports facilities.



16.6 Visual Baseline Environment

16.6.1 Analysis of ZTV (Zone of Theoretic Visibility) Mapping

Only those parts of the receiving environment that potentially afford views of the proposed development are of concern to this section of the assessment. A computer-generated Zone of Theoretical Visibility (ZTV) map has been prepared to illustrate where the proposed development is potentially visible from, focusing on the above-ground elements of the proposed development. The ZTV map is based solely on terrain data (bare ground visibility), and ignores features such as trees, hedges or buildings, which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the proposed development will definitely not be visible, due to terrain screening within the 5km study area.

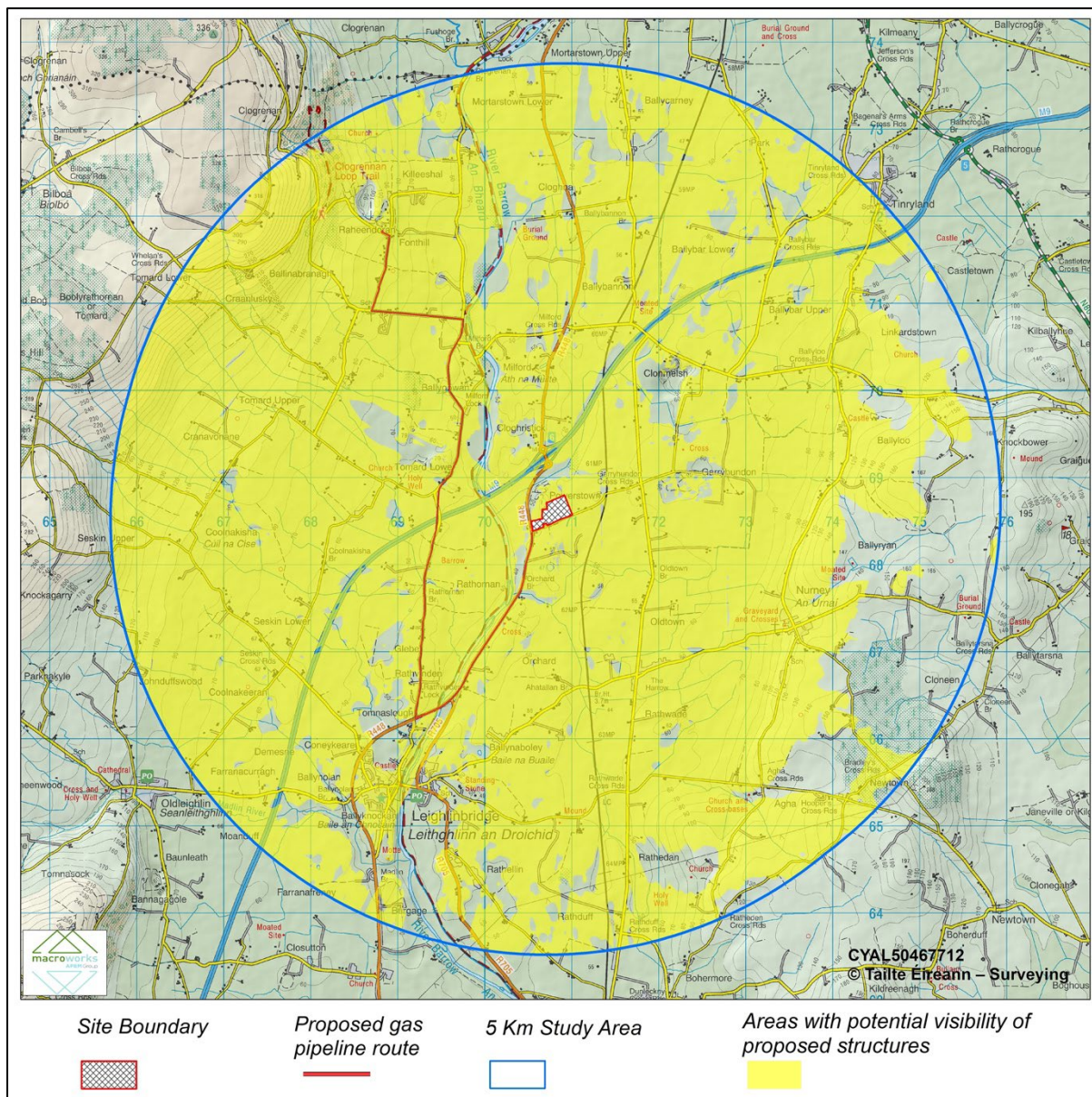


Figure 16-8: Standard (bare-ground) ZTV map (Refer to Appendix 16.3 A for larger scale version)



The following key points are illustrated by the 'bare-ground' ZTV map' (Figure 16-8 refers):

- The comprehensive ZTV coverage indicates a potential for visibility throughout much of the study area, with only localised areas where local topography acts to restrict views.
- The raised nature of the landform within the outer eastern extents of the study area precludes views from this outer eastern extent.
- Comprehensive ZTV coverage indicates potential for visibility from the settlements of Nurney and Ballinabrannagh, but the nature of the topography results in limited potential for visibility within, and to the south of, Leighlinbridge.
- Comprehensive ZTV coverage indicates potential for visibility from designated Scenic Routes 5 and 9, but the ZTV indicates limited potential visibility from designated Scenic Views 27 and 29.

The location of the proposed development site along the broad, flat river valley, together with the elevated landform to the east and west, contributes to the extensive ZTV coverage throughout the study area. The most important point to make in respect of this 'bare-ground' ZTV map is that it is theoretical. The proposed development will be considerably screened by surrounding and intervening vegetation and numerous buildings, walls and embankments scattered throughout the study area, resulting in a much lesser degree of actual visibility.

16.6.2 Identification of Viewshed Reference Points as a Basis for Assessment

Viewshed Reference Points (VPs) are the locations used to study the visual impacts of a proposed development in detail. It is not warranted to include each and every location that provides a view of a development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the proposed development. Instead, the selected viewpoints are intended to reflect a range of different receptor types, distances and angles. The visual impact of a proposed development is assessed by Macro Works using up to 6 no. categories of receptor type as listed below:

- Key Views (from features of national or international importance) (KV)
- Designated Scenic Routes and Views (SR/SV)
- Local Community views (LCV)
- Centres of Population (CP)
- Major Routes (MR)
- Amenity and heritage features (AH)

VPs might be relevant to more than one category, and this makes them even more valid for inclusion in the assessment. The receptors that are intended to be represented by a particular VP are listed at the beginning of each viewpoint appraisal. The selected VPs are set out in Appendix 16.1 in Volume 3 of this EIAR and the locations of each VP are shown in Figure 16-9.



Table 16-8: Outline description of Selected Viewshed Reference Points

VP No.	Location	Representative of	Direction of view
VP1	R448 regional road, Powerstown townland	LCV / MR	NE
VP2	L3045 local road, Powerstown townland	LCV	W
VP3	R448 regional road, Cloghristick townland	LCV / MR	SE
VP4	The Barrow Way, Tomard Upper townland	LCV / AH	NE
VP5	R448 regional road at the M9 overpass, Cloghristick townland	LCV / MR	S
VP6	L3045 local road at the National Rail bridge, Powerstown townland	LCV / MR	SW
VP7	L3044 local road, Garryhundon townland	LCV	W
VP8	L3038 local road, Rathornan townland	LCV	E
VP9	Along L1003 local road at Milford Mill, Cloghristick townland	LCV / AH	SE
VP10	L3046 local road, Nurney village	LCV / CP	NW
VP11	L7132 local road, Ballinabrannagh village	LCV / CP	SE
VP12	Scenic route 5 'Ballyryan' along the L3052 local road, Ballyryan townland	SR / LCV	W
VP13	Scenic view 29 'Leighlinbridge', located along the R705 regional road at Leighlinbridge town	SR / LCV / CP / MR	NE
VP14	L7416 local road, Newtown townland	LCV	NW
VP15	Scenic route 9 'Tomard lower' along the L3041 local road, Ballinabrannagh townland	SR / LCV	SE





The main influences on the future landscape and visual environment are considered to pertain to the impacts of climate change and the character of vegetation in the landscape. Climate change together with the natural ongoing maturation of vegetation, is likely to influence vegetation cover, whether as a result of biological pests and pathogens, or rainfall patterns, albeit the lack of certainty means that identifying likely changes is problematic. Vegetation management is also likely to influence the character of the landscape, such as the cutting and growth cycles of the hedgerow network.

Changes to agricultural uses of land throughout the landscape may occur over time, subject to a variety of external factors. All change in this regard is likely to be localised in its influence and would be consistent with this type of landscape change across Ireland, rather than being specific to this locality.

Other development pressures are difficult to accurately predict, but like many similar landscape contexts, it is very likely that the landscape will be subject to ongoing development pressure and that the landscape will incrementally change as a result of it. Accurately predicting this change is challenging and subject to a variety of external factors, but is inherently controlled through the planning process. The landscape context may become further influenced by other developments connected to the agricultural industry given the existing agrarian context and scale of existing agricultural practices. The landscape context may also become further influence by quarrying and associated extractive industries. Across Ireland, agricultural landscapes of the type and scale such as those within the study area may also be influenced by development pressure for renewable energy projects, in particular solar energy development.

The proposed development site itself would likely be infilled in line with existing granted planning permission (refer to Chapter 1 for details of planning history). This would comprise changes to the landform as well as planting, the effects of which would be highly localised and largely screened by existing vegetation.

In this instance, it is considered that the receiving landscape and visual baseline would remain in similar condition as it is currently, though with potential additional built development throughout the wider landscape of the study area, as described above.

16.7.1.2 *'Do Nothing' Effects*

The '*do-nothing*' impact refers to the non-implementation of the project. The primary effect of this would be that the impacts and effects identified would not directly occur, and the existing development would continue to operate under its current planning permission and invoke its latest planning consent to complete quarrying operations to exhaust the sand and gravel reserves and to restore the quarry to agricultural land. Perimeter vegetation around this area would continue to mature, and the wider landscape context would likely continue to be managed for agriculture. The proposed gas pipeline route, which is contained along existing roads, would likely be managed as roadside verge. The existing vegetation contained within these verges would continue to change over time.

16.7.2 Potential Significant Effects

16.7.2.1 *Assessment of Receptor Sensitivity – Landscape*

Landscape value and sensitivity are considered in relation to a number of factors highlighted in GLVIA3 (IEMA, 2013), which are set out below and discussed relative to the proposed development site and the wider study area.



The project is located within a robust rural landscape that comprises a broad range of land uses and landscape types. The immediate context of the proposed development consists of brownfield and industrial sites as well as areas of arable land. Both the central and wider study area primarily comprise parcels of pastoral and arable land, while the eastern and western fringes of the study area encompass areas of locally elevated terrain, comprising low rolling hills and ridges. These more elevated areas provide some sense of scenic amenity in this landscape context, as they afford views across the wider, flat parts of Carlow's central plain. This central plain is largely influenced by the valley of the River Barrow, which meanders through the entire study area in a broadly north to south direction.

In terms of land use, this is a relatively typical rural area that is heavily influenced by agricultural activity. Whilst this generates a pleasant pastoral aesthetic within some parts of the surrounding landscape, it is highly modified, encompassing numerous anthropogenic land uses and features, with the settlements of Leighlinbridge, Nurney, and Ballinabrannagh being particularly notable. Brownfield sites, such as the closed Powerstown landfill and Kilcarrig and Clonmelsh Quarries, utility land use such as the Powerstown Civic Amenity Site, and linear transport infrastructure such as the M9 motorway corridor and National Railway Line, have a notable influence on the character and perceptual characteristics of the immediate study area. The proposed development site itself comprises a working sand and gravel quarry that has been partially restored through backfilling, and as such forms part of this modified landscape setting.

In terms of landscape designations, the project is situated across two Landscape Types (LTs). The proposed development is primarily located, and the proposed gas pipeline is entirely located, within the 'Broad River Valley' LT, which is classified with a landscape sensitivity of '4-Increasing'. The eastern extent of the proposed development is situated in the 'Farmed Lowlands' LT, which is classified with a '2-Decreasing' to '3-Moderate' landscape sensitivity. The higher sensitivity of the 'Broad River Valley' LT is likely to be due to the meandering river valley context, and its contribution to elevated sweeping panoramic views over the valley from elevated locations in the surrounding landscape. This is exemplified by the designated scenic views and routes identified in the CCDP (Carlow County Council, 2022) located throughout the study area, which are primarily located within elevated areas to the west and east, overlooking the river valley, as well as along the River Barrow itself. As noted however, this scenic value is influenced by working rural land uses and existing utilitarian land uses, such as quarries and major route corridors, and within more enclosed river valley locations by successional layers of vegetation that provide a degree of containment.

Overall, landscape values are generally associated with productivity and rural amenity rather than a sense of rarity or naturalism. Whilst there are some locally susceptible parts of the central study area, such as the River Barrow corridor and upland areas to the east and west, these are typically well-contained or are offset from the immediate context of the proposed development. It is considered that the landscape of the project site and study area is relatively typical and not highly rare, instead combining numerous rural and anthropogenic land uses such as agriculture, extraction, waste management, and major transport routes.

On balance of these factors and in accordance with the criteria outlined, the landscape sensitivity in relation to the site and immediate locality is deemed to be **Medium-Low**, with an underlying **Medium** sensitivity associated with locations along the River Barrow, and elevated locations east and west, attributed to the scenic value these areas of landscape hold.



16.7.2.2 *Magnitude of Landscape Effects - Construction Stage Proposed Development*

During the construction phase, there will be a far higher intensity of activity at the proposed development site than during the operational phase. This will consist of heavy vehicle movement to and from the proposed development site as well as construction machinery within the site. Impacts will be generated as a result of the following construction activities:

- Heavy Goods Vehicles (HGVs) transporting materials to and from the site.
- Movement of heavy earth-moving machinery on-site.
- Large lifting plant/machinery involved in the construction of the larger built elements.
- Temporary storage of excavated materials and construction materials on-site.
- Gradual emergence of the proposed development, and associated works.
- Security hoarding, site welfare compounds, parking areas, and temporary site lighting.
- Areas of soil stripping to facilitate the incoming structures and associated infrastructure.

Construction equipment, machinery, and partially completed structures will become characteristic elements during this phase, potentially visible from a broader area than ground-level activities. These are typical activities for a development of this type and scale and will represent a noticeable increase in activity levels compared to the baseline for this rural site.

Although the construction phase will likely have an adverse impact on the landscape character, there are a limited number of visual receptors in close proximity to the proposed development site for whom this impact would be noticeable. Construction phase impacts on the landscape are also 'temporary', and likely to last for a period of 24 months.

The most notable physical effects generated by the proposed development relate to excavation within the proposed development site. The construction project necessitates modifications to much of the ground of the site. The affected land cover is primarily grassland; however, the proposed development site is a quarry, and as such, much of the ground within the site has been previously disturbed. Trees and hedgerows to be retained will be protected in accordance with British Standard BS5837: 2012 Trees in Relation to Design, Demolition and Construction, (British Standards, 2012).

For the reasons outlined above, as well as the scale of the proposed development, the magnitude of landscape impacts during the construction stage is deemed to be **Medium** within the immediate surrounds of the proposed development, however, this quickly reduces to a range of **Medium-Low** to **Low** in the wider surrounds of the study area where visibility of construction activity is likely to be partial, if not entirely precluded by successional layers of vegetation. With distance, the influence of this activity would also become increasingly negligible and difficult to discern, and would influence landscape character in a minimal way in the context of wider anthropogenic land use influences.

In combination with the **Medium and Medium-Low** landscape sensitivity, the overall significance is deemed to be no greater than **Moderate-Slight** within the immediate surrounds of the proposed development, reducing to **Slight** to **Slight-Imperceptible** within the wider study area. The quality of the construction stage effects will be **Adverse**.

Potential construction stage landscape effects arising from the proposed development are considered **Not Significant**.



16.7.2.3 *Magnitude of Landscape Effects – Construction Stage - Gas Pipeline*

While there will be some temporary construction stage works associated with soil stripping, trenching, and pipeline installation that will generate impacts to landscape character, these impacts are temporary and readily mitigated, and will occur primarily in relation to the immediate road corridor and roadside verge. The increased activity associated with these activities, as well as the temporary storage of excavated material along the pipeline corridor may be noticeable within the immediate context of each working section of the corridor, albeit seen in the context of an already busy road network.

For the reasons outlined above, the magnitude of landscape impacts during the construction stage is deemed to be **Low** within the immediate surrounds of the pipeline corridor; quickly reducing to **Low-Negligible** and **Negligible** in the wider surrounds of the study area where these activities would have limited influence on landscape character.

In combination with the with the **Medium and Medium-Low** landscape sensitivity, the overall significance is deemed to be **Slight** within the immediate surrounds of the proposed gas pipeline corridor; reducing to **Slight-Imperceptible** to **Imperceptible** within the wider study area where construction activities will be barely discernible. The quality of the construction stage effects will be **Adverse**.

Potential construction stage landscape effects arising from the proposed Gas Pipeline are considered **Not Significant**.

16.7.2.4 *Magnitude of Landscape Effects - Operational Stage – Proposed Development*

With regard to the landscape character of the proposed development and surrounding study area, it presents as a relatively typical modified pastoral landscape, that, while pleasant, is a working landscape influenced by existing land uses. In terms of function, there is a variety of anthropogenic land uses such including brownfield sites, extractive landscapes, industrial sites, and linear infrastructure. Although the proposed development is a built development of a scale and extent that is not typical of the area, it will not notably undermine or detract from the underlying productive rural character of the landscape. In terms of scale, the broad scale of the landscape within the study area, and the scale of the land parcels and land-use, will moderate the perceived scale of the proposed development, with successive layers of vegetation helping to assimilate it into the landscape.

The influence of the proposed development on landscape character will be most notable within the immediate locality, where the scale, form and extent of the built structures have the potential to be noticeable, and influence a change to the character of the landscape. However, the perceived change is set within the context of a modified landscape setting, adjacent to a civic amenity site and closed landfill, and at an immediate site level within a partially restored working quarry. In this regard, the influence of the proposed development on this modified landscape will be modest, and with distance, the comparative influence notably reduces.

On balance of the reasons outlined above, the magnitude of landscape impact is deemed to be **Medium** at an immediate site level, and **Medium-low** in relation to the landscape of the wider study area.

With reference to the significance matrix (refer to Section 16.3 above), the **Medium-Low** landscape sensitivity, coupled with a **Medium** magnitude of landscape impact is considered to result in an overall significance of **Moderate-slight** within its immediate locality (<500m). In relation to the wider study area, the **Medium** landscape sensitivity, coupled with a **Medium-low** magnitude of landscape impact, will generate an overall significance of **Slight**, reducing to **Slight-Imperceptible** beyond 2km and with increasing distance. The quality of effect is deemed **Adverse**.



Potential operational stage landscape effects arising from the proposed development are considered **Not Significant**.

16.7.2.5 *Magnitude of Landscape Effects - Operational Stage Gas Pipeline*

Once the construction phase is complete, any disturbed road surface and/or areas of grass will be reinstated along the proposed gas pipeline corridor. Thus, there will be little visual evidence of the pipeline corridor. Operational stage visual impacts mainly relate to any sections of minorly altered vegetation, and to the maintenance works for the pipeline corridor, which will be infrequent and localised in nature.

On balance of the reasons outlined above, the magnitude of landscape impact is deemed to be **Negligible**.

With reference to the significance matrix (refer to Section 16.3 above), the **Medium and Medium-Low** landscape sensitivity, coupled with a **Negligible** magnitude of landscape impact is considered to result in an overall significance of **Imperceptible**. The quality of effect is deemed **Neutral**.

Potential operational stage landscape effects arising from the proposed Gas Pipeline are considered **Not Significant**.

16.7.2.6 *Assessment of Receptor Sensitivity – Visual*

The study area generally presents as a typical rural landscape, and views of the working agricultural landscape are generally pleasant in terms of its rolling pastoral aesthetic and 'green', settled working character. The network of hedgerows and vegetation throughout it contributes to some sense of naturalness and, combined with its undulating topography, generates a sense of containment in many locations. However, whilst a pleasant pastoral aesthetic is noted throughout some parts of the study area, as noted above, the surrounding local and wider landscape is also influenced by an array of anthropogenic features. The sensitivity of visual receptors tends to range between **Medium** and **Medium-Low**.

It is recognised that some receptors within the study area have a comparatively heightened sensitivity. In elevated locations, scenic value and visual sensitivity is heightened as a result of the broad open views available across the wider agricultural landscape. In other less elevated locations along the River Barrow corridor, visual sensitivity is heightened as a result of the natural qualities of the river corridor and the strong sense of containment imparted by successional layers of vegetation along the valley. The scenic value in these contexts is reflected by Scenic Route and View designations, and the presence of recreational routes, albeit in all instances views are strongly informed by a longstanding sense of human intervention in the landscape, and by a variety of working and highly anthropogenic land uses such as major route corridors, quarries and other brownfield sites, and settlements. The sensitivity of visual receptors in these contexts is considered on balance to be **Medium**.

Key differentials in terms of visual receptor sensitivity relate to the occupation of the visual receptor and whether views of the surrounding landscape are an inherent part of the experience. Static residential receptors are considered generally more susceptible to changes in views over those where views are experienced transiently by those travelling through the landscape, particularly on major transport routes where road infrastructure and traffic volume draw from visual amenity. Likewise, receptors located in closer proximity to the site are considered more susceptible to changes in views over those where views are experienced at a distance.

On the basis of the site-specific factors outlined above, and in accordance with the general visual receptor sensitivity considerations contained in the methodology in Section 16.3, visual receptor sensitivity judgements are provided for each representative viewpoint in Section 16.7.2.9.



16.7.2.7 *Magnitude of Visual Effects - Construction Stage Proposed Development*

During construction, the main visual impacts will arise from frequent heavy vehicle movements and worker vehicles travelling to and from the site and using the site entrance. In addition, there will be construction machinery, including large lifting plant/machinery, on site, which may rise above intervening vegetation and buildings. There will also be stockpiles of stripped topsoil and construction materials awaiting use. However, aside from the site's immediate vicinity, a large part of this temporary activity within the site will remain screened and partially screened from view by the surrounding mature vegetation and existing site topography. Furthermore, construction-related activity is 'short-term' and will cease once the development becomes fully operational.

Thus, the construction stage is not likely to result in a magnitude of visual impact of greater than **High-medium** and **Medium** in the site's immediate surroundings, quickly reducing to a range of **Medium-Low** to **Low** within the wider Study area where visibility of construction stage activities will be limited and in many instances, entirely screened.

Coupled with the **Medium** and **Medium-low** visual receptor sensitivities in the immediate surrounding of the proposed development, the construction stage visual effects in the immediate vicinity of the site will be no greater than **Moderate** in the immediate locality, reducing beyond 500m to **Slight**, and beyond 1km to **Slight-Imperceptible**. The quality of these effects is deemed to be **Adverse**.

Potential construction stage visual effects as a result of the proposed development are considered **Not Significant**.

16.7.2.8 *Magnitude of Visual Effects - Construction Stage Gas Pipeline*

Construction related activity and its effect on visual amenity along the proposed gas pipeline corridor will be localised. The primary impact will be as a result of increased vehicle activity, the movement of machinery, and temporary storage of excavated materials and construction materials throughout the pipeline corridor. This will be most noticeable within the immediate context of each working section of the corridor, and seen generally in the context of an existing busy highway. Aside from this immediate context, this temporary activity will be substantively screened, and with distance become difficult to discern in the context of wider views. Furthermore, construction-related activity is 'short-term' and will cease once the development becomes fully operational.

Construction stage impacts are likely to result in a magnitude of visual impact no greater than **Medium** in the immediate surroundings, quickly reducing to **Low** within the wider study area.

Coupled with the **Medium** to **Medium-Low** visual receptor sensitivities in the immediate surrounds of the proposed gas pipeline corridor, the construction stage visual effects are deemed to be **Moderate-Slight**, reducing to **Slight-Imperceptible** and **Imperceptible** within a short distance. The quality of these effects is deemed to be **Adverse**.

Potential construction stage visual effects as a result of the proposed Gas Pipeline are considered **Not Significant**.



16.7.2.9 *Magnitude of Visual Effects - Operational Stage*

The assessment of visual impacts at each of the selected viewpoints is aided by photomontages of the proposed development. Photomontages are a 'photo-real' depiction of the scheme within the view utilising a rendered three-dimensional model of the development, which has been geo-referenced to allow accurate placement and scale. The photomontages are in Appendix 16.1 in Volume 3 of this EIAR. For each viewpoint, the following images have been produced:

1. existing view
2. outline view (yellow outline showing the extent of the proposed development including all associated overground works overlaid on the photograph)
3. montage view with mitigation in a stage of early establishment
4. montage view with established mitigation. The assessment of the visual impacts of the proposed development following the establishment of mitigation is detailed in Section 16.9.2.



Table 16-9: Assessment of Visual effects (Pre-Mitigation)

VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
VP1	R448 regional road, Powerstown townland: This view is representative of those experienced transiently and obliquely along the R448 regional road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. Views towards the site are towards an elevated area of the closed landfill at Powerstown, bordered by a dense section of hedgerow, at the intersection of the R448 regional road and the L3054 local road. A residential structure and associated farmstead structures are visible across the local road to the south, bounded by mature trees and sections of hedgerow to the north and south, and a low wall to the west. Dense, mature hedgerows are visible along the local road, which is largely screened by intervening topography and vegetation. Longer range views are generally precluded by intervening vegetation. Several powerlines are visible throughout the landscape. Views over this working, rural landscape are not particularly notable.	Medium-Low	Due to intervening topography and vegetation along the boundary of the proposed development site, views of the proposed development, from this location at a distance of c. 20m to the west, would be precluded. From some areas along the regional road and within the wider landscape, there may be glimpse views available of the tips of some structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. For the reasons outlined above, the magnitude of visual change is deemed to be Negligible and of a Neutral quality.	Imperceptible Neutral Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
VP2	L3045 local road, Powerstown townland: This view is representative of those experienced at the entrance to the Powerstown Civic Amenity Site and those experienced transiently and obliquely along the L3045 local road. Views towards the site are over a relatively flat, grassed area of Civic Amenity Site property, bounded by wire fencing along the entrance to the east and a section of low hedgerow to the west. In the mid-ground, an area of agricultural land is visible to the south, bounded by hedgerows along the local road, and a continuous area of dense vegetation is visible to the west. Upland areas are partially visible in the distance. Views over this working, rural landscape are not particularly notable.	Medium-Low	The above-ground structures within the proposed development site would be largely visible within the working landscape context from this location at a distance of c. 50m to the east, with some intervening vegetation providing a small degree of screening. From this proximity, the proposed development would occupy a moderate spatial extent of the overall view, albeit set behind boundary fencing. The proposed development would have a degree of prominence within the view due to its scale and extent; however, this prominence would be somewhat moderated by intervening vegetation. The structures of the proposed development being inset into the topography of the site would assist in the integration of the development into the landscape and the view, as the structures would appear to rise within, rather than above, the surrounding landscape context. While the proposed development, as a series of large, industrial, built structures, would contribute to an increase in the intensity and scale of built development within a local landscape context that is otherwise characterised by low levels of built development, it will be viewed in the context of the existing Civic Amenity Site and busy road network that define this area. This is a robust, working landscape setting that is influenced by various anthropogenic land uses. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Medium and of an Adverse quality.	Moderate Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
VP3	R448 regional road, Cloghrystick townland: This view is representative of those experienced transiently and obliquely along the R448 regional road and, to varying degrees (subject to intervening vegetation), along the M9. Views towards the site are over an undulating area of the closed landfill at Powerstown, bordered by a dense section of hedgerow, woodland, and a row of trees along the regional road. An industrial structure is visible along the regional road to the south. In the mid-ground, areas of arable land are visible, largely flat to the north east and elevated to the south east, bounded by sections of hedgerow. Longer range views are generally precluded by intervening vegetation. Light standards and powerlines are visible throughout the landscape. Views over this working, rural landscape are not particularly notable.	Medium-Low	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 260m to the north west would generally be precluded. However, the upper portions of some of the digestion tanks and a vertical structure within the site would be partially visible, rising from within the landform, though they would be largely screened by intervening vegetation. In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the regional road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	Slight-Imperceptible Adverse Short-term
VP4	The Barrow Way, Tomard Upper townland: This view is representative of those experienced obliquely along the Barrow Way National Waymarked walking trail and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape.	Medium	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 350m to the west would generally be precluded. However, the upper portions of some of the digestion tanks and a vertical structure within the site would be partially visible, rising behind the intervening landform, though they would be largely screened by both the landform and intervening vegetation within both the foreground and background.	Slight-Imperceptible Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Views towards the site are over the River Barrow, bordered by dense riparian vegetation. In the mid-ground, glimpse views of a sloping agricultural area bounded by dense hedgerows are available. A residential structure is partially visible in the background, surrounded by dense, mature vegetation. Longer range views are generally precluded by intervening vegetation. While pleasant, views over this rural, semi-riparian landscape are not particularly notable.		In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the Barrow Way and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the Proposed Development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	
VP5	R448 regional road at the M9 overpass, Cloghrick townland: This view is representative of those experienced transiently along the R448 regional road at the M9 overpass, and, to varying degrees (subject to intervening vegetation), those experienced transiently and obliquely along the M9 and by residents scattered throughout the landscape. Views towards the site are over the overpass and the M9 below, bounded by sloping areas of dense, roadside vegetation. A roundabout is partially visible in the mid-ground, the island planted with coniferous trees. In the background, an elevated slope is partially visible in to the south east, largely screened by intervening vegetation, while rows of mature trees are partially visible to the south west.	Medium-Low	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 540m to the north would generally be precluded. However, the upper portions of some of the digestion tanks and a vertical structure within the site would be partially visible, rising behind the intervening landform, though they would be largely screened by both the landform and intervening vegetation. In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the regional road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity, particularly within this landscape that is largely influenced by road infrastructure.	Slight Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Distant, glimpse views of uplands and densely vegetated agricultural areas are available to the west. Light standards are visible throughout the landscape. While there are pleasant aspects, views over this working, rural landscape are largely influenced by infrastructure and are not particularly notable.		On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	
VP6	L3045 local road at the National Rail bridge, Powerstown townland: This view is representative of those experienced transiently along the L3045 local road, transiently and obliquely from the National Rail line (subject to intervening vegetation and topography) and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. Views towards the site are over the local road, bounded by low walls along the bridge and sections of hedgerow beyond the bridge to the west. To the north, the National Rail line is visible, bounded by sections of hedgerow and scrub, as well as associated electrical infrastructure. In the mid-ground, glimpse views of sloping areas of pasture are available, bounded by mature hedgerows and the local road to the south, and by dense areas of scrub to the north. Extents of mature hedgerows and woodland are partially visible in the background, while distant, glimpse views of agricultural uplands are also available.	Medium-Low	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 470m to the west would generally be precluded. However, the upper portions of some of the digestion tanks and a vertical structure within the site would be partially visible, rising from within the landscape, though they would be largely screened by intervening vegetation. In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the local road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low-Negligible and of an Adverse quality.	Imperceptible Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	While there are pleasant aspects, views over this working, rural landscape are not particularly notable.			
VP7	L3044 local road, Garryhundon townland: This view is representative of those experienced transiently and obliquely along the L3044 local road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. Views towards the site are over the local road, bounded to the west by a dense hedge. Glimpse views of a farmstead structure and flat agricultural area are available, largely screened by the hedge. A grouping of mature trees is visible to the north. Longer-range views are generally precluded by intervening vegetation, though glimpse views of upland areas to the west are available. A powerline is visible along the local road. Views over this working, rural landscape are not particularly notable.	Medium-Low	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 860m to the east would generally be precluded. However, the upper portions of one of the vertical structures within the site would be partially visible, rising from within the landform, though it would be largely screened by intervening vegetation. In the context of the view over this working landscape, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the regional road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low-Negligible and of an Adverse quality.	Imperceptible Adverse Short-term
VP8	L3038 local road, Rathornan townland: This view is representative of those experienced transiently and obliquely along the L3038 local road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape.	Medium-Low	The above-ground structures within the Proposed Development site would be partially visible within the agricultural landscape context from this location at a distance of c. 1.2km to the west. In this location, most structures would be largely screened by intervening topography and some intervening vegetation.	Slight Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Views towards the site are over a largely flat area of pasture, bounded by a grassed ditch and the local road to the west and a row of mature trees to the south. The entrance gate to a private road is also visible further south, bordered by another row of mature trees. In the mid-ground, a residential structure and property, bounded by a hedge and individual trees, is visible to the north, while an area of arable land is visible to the west, bounded by a low hedge and mature trees. In the background, glimpse views of elevated areas of arable land, densely vegetated by a network of mature trees and hedgerows, are available, largely screened by intervening vegetation. Distant, glimpse views of densely vegetated upland areas in the east are also available. A powerline is visible along the local road. While there are pleasant aspects, views over this working, rural landscape are not particularly notable.		From this orientation, the proposed development would occupy a minor spatial extent of the overall view. The proposed development would have a perceived prominence within the view due to its scale; however, this prominence would be somewhat moderated by intervening topography, as the structures of the Proposed Development appear integrated within their context. The colour tone of the proposed development would also help to integrate it into landscape and the view, as the structures would appear to blend into the surrounding landform. While the proposed development, as a series of broad, built structures, would contribute to an increase in the intensity and scale of built development within this largely rural view, this is a robust, working landscape setting that is able to accommodate the proposed development in terms of scale and function. In this regard, while noticeable, the Proposed Development is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	
VP9	Along L1003 local road at Milford Mill, Cloghrick townland: This view is representative of those experienced transiently and obliquely along the L1003 local road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape.	Medium	Due to intervening topography and vegetation, views of the proposed development, from this location at a distance of c. 1.9m to the north, would be precluded. The proposed development would likely be fully screened throughout the vicinity of this viewpoint due to the density of vegetation along the River Barrow. For the reasons outlined above, the magnitude of visual change is deemed to be Negligible and of a Neutral quality.	Imperceptible Neutral Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Views towards the site are over the River Barrow, bounded by dense, mature riparian vegetation. Longer-range views to the south are generally precluded by this vegetation, while views to the east and west are over dense areas of vegetation that border the local road. This is a scenic, riparian landscape adjacent to a building with historical value; however, only close-range views are available to the south.			
VP10	L3046 local road, Nurney village: This view is representative of those experienced transiently and obliquely along the L3046 local road, near Scenic View 27, and those that would be experienced by residents to varying degrees (subject to intervening vegetation) in Nurney village and scattered throughout the landscape. This is a broad, elevated view. Views towards the site are over sloping areas of pasture, bounded by hedges and intersected by the local road. In the mid-ground, views are over further sloping areas of pasture and associated network of hedges, hedgerows, and individual trees. In the background, wide expanses of agricultural land interspersed with linear vegetation are visible, partially screened by intervening vegetation. Distant, sweeping views over agricultural upland areas are available to the west. Residential and farmstead structures are visible throughout the view.	Medium	The proposed development would be largely visible within the working landscape context from this location at a distance of c. 2.7km to the south east. In this location, some structures would be partially screened by intervening vegetation. From this orientation, the proposed development would occupy a minor spatial extent of the overall view and present in a condensed layout. The proposed development would have a perceived prominence within the view due to its scale and extent; however, this prominence would be largely moderated by distance and by intervening vegetation. The colour tone of the proposed development would help to integrate it into landscape and the view, as the structures would appear to blend into the surrounding vegetation.	Slight Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Views over this typical, rural landscape are considered to be somewhat scenic due to their range and extent, as well as the nearby scenic designation.		While the proposed development, as a series of broad, built structures, would contribute to an increase in the intensity and scale of built development within an area that is otherwise characterised by low levels of large-scale built development, it will be viewed in the context of the robust, working landscape setting that is already influenced by agricultural-scale built development. It would appear at the scale of the land parcel in which it is situated and at a similar scale to the enclosing vegetation; therefore, the surrounding productive, rural landscape would be able to accommodate the proposed development in terms of scale, extent, and function. In this regard, while noticeable, the proposed development is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Medium-low and of an Adverse quality.	
VP11	L7132 local road, Ballinabrannagh village: This view is representative of those experienced transiently and obliquely along the L7132 local road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) in Ballinabrannagh village and scattered throughout the landscape. Views towards the site are over a largely flat area of arable land, bounded by a low berm and sections of hedgerow along the local road, while to the west, the local road is bounded by a hedgerow.	Medium-Low	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 2.8km to the north west would generally be precluded. However, the upper portions of some of the buildings and vertical structures within the site would be partially visible, rising behind the intervening landform, though they would be largely screened by both the landform and intervening vegetation. In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. The proposed development would be well-accommodated within the scale of the surrounding working landscape.	Slight-Imperceptible Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	A series of farmstead structures are visible in the mid-ground, with an area of mature woodland visible further south and an area of pasture visible further east. Areas of mature vegetation are visible in the background, while glimpse views of upland areas to the east are available in the distance. Views over this working, rural landscape are not particularly notable.		From some areas along the local road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	
VP12	Scenic Route 5 'Ballyryan' along the L3052 local road, Ballyryan townland: This view is representative of those experienced transiently and obliquely along the L3052 local road, which comprises Scenic Route 5, and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. This is a broad, elevated view. Views towards the site are over a wide, sloping extent of arable land, bounded to the south by an area of mature woodland. Residential buildings and associated properties are visible to the south, bounded by low hedgerows, while farmstead structures and associated properties are visible to the north, bounded by a section of mature hedgerow. An expanse of arable land is visible in the mid-ground, interspersed with sections of vegetation.	Medium	The proposed development would be partially visible within the working landscape context from this location at a distance of c. 3.3km to the east. In this location, all structures would be at least partially screened by intervening vegetation. From this orientation, the proposed development would occupy a minor spatial extent of the overall view and present in a condensed layout. The proposed development may have a perceived prominence within the view due to its scale; however, this prominence would be largely moderated by distance and by intervening vegetation. While the proposed development, as a series of broad, built structures, would contribute to an increase in the intensity and scale of built development within an area that is otherwise characterised by low levels of large-scale built development, it will be viewed in the context of the robust, working landscape setting. It would also be largely screened by intervening and enclosing vegetation.	Slight Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Agricultural areas and an associated network of vegetation are visible in the background, while glimpse views of upland areas to the west are available in the distance. Views over this typical rural landscape are scenic due to their range and extent.		The colour tone of the structures of the proposed development would assist in the integration of the development into the landscape and the view, as the structures would appear to blend into the vegetation within the view. Therefore, while potentially noticeable, the proposed development is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	
VP13	Scenic View 29 'Leighlinbridge', located along the R705 regional road at Leighlinbridge town: This view is representative of those experienced transiently and obliquely along the R705 regional road, at Scenic View 29, and those that would be experienced by residents to varying degrees (subject to intervening vegetation) within Leighlinbridge town and scattered throughout the landscape. Views towards the site are over a densely vegetated island within the River Barrow. To the east and west, structures within Leighlinbridge town are visible, along open and vegetated areas along the riverbanks. In the mid-ground, sloping areas of pasture, bounded by mature hedgerows and woodland, are visible to the east, while a riverside park is visible to the west, both partially screened by intervening vegetation.	Medium	Due to intervening vegetation and topography, views of the proposed development from this location at a distance of c. 3.3m to the south west would generally be precluded. However, the upper portions of some of the structures would be partially visible, rising behind the intervening landform, though they would be largely screened by intervening vegetation. In the context of the view, it is not considered that this partial visibility would generate a notable influence on the view, nor notably detract from any sense of visual amenity. From some areas along the regional road and within the wider landscape, there may be glimpse views available of the upper portions of other structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low-Negligible and of an Adverse quality.	Slight-Imperceptible Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
	Longer-range views are generally precluded by intervening vegetation, though glimpse views of distant upland areas are available to the west. There are scenic qualities to views over this semi-urban and riparian landscape.			
VP14	L7416 local road, Newtown townland: This view is representative of those experienced transiently along the L7416 local road and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. Views towards the site are over the local road bounded by hedgerows and mature trees. A largely flat pasture is visible to the south west, bounded by mature hedgerows. Views to the north west are largely precluded by intervening vegetation; however, glimpse views of elevated agricultural areas, and an associated network of hedgerows and woodland, are available. In the distance, glimpse views of upland areas to the west are available. Views over this working, rural landscape are not particularly notable.	Medium-Low	Due to intervening topography and vegetation, views of the proposed development, from this location at a distance of c. 3.7km to the south east, would be precluded. From some areas along the local road and within the wider landscape, there may be glimpse views available of the tips of some structures within the proposed development site. However, this is unlikely to notably detract from any sense of visual amenity. For the reasons outlined above, the magnitude of visual change is deemed to be Negligible and of a Neutral quality.	Imperceptible Neutral Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
VP15	Scenic Route 9 'Tomard lower' along the L3041 local road, Ballinabrannagh townland: This view is representative of those experienced transiently and obliquely along the L3041 local road, which comprises Scenic Route 9, and those that would be experienced by residents to varying degrees (subject to intervening vegetation) scattered throughout the landscape. This is a broad, elevated view. Views towards the site are over a sloping pasture bounded by a wall and fence to the west, a cluster of mature trees to the north, and a hedge and individual trees to the south and east. A residential building is visible to the south west. A sloping area of arable land is visible in the mid-ground, bounded by mature hedgerows and hedges. Sweeping views over the wider agricultural landscape, with the associated network of hedgerows, woodland, and scattered residential structures, are available in the background. In the distance, views over the upland area to the east are available. Views over this typical rural landscape are scenic due to their range and extent.	Medium	The proposed development would be largely visible within the working landscape context from this location at a distance of c. 4.2km to the north west. In this location, some structures would be partially screened by intervening vegetation. From this orientation, the proposed development would occupy a minor spatial extent of the overall view and present in a condensed layout. The proposed development would have a perceived prominence within the view due to its scale and extent; however, this prominence would be largely moderated by distance. The colour tone of the proposed development would help to integrate it into landscape and the view, as the structures would somewhat appear to blend into the surrounding vegetation. While the proposed development, as a series of broad, built structures, would contribute to an increase in the intensity and scale of built development within an area of the landscape that is otherwise characterised by low levels of large-scale built development, it will be viewed in the context of the robust, working landscape setting that is already influenced by large-scale residential development. While it would appear at the scale of the land parcel in which it is situated, the perceived prominence of the proposed development is influenced by its location within a slightly elevated landform. However, the surrounding productive, rural landscape would be able to accommodate the proposed development in terms of scale, extent, and function.	Slight Adverse Short-term



VP No.	Existing View	VP Sensitivity	Description and Magnitude of Visual Effect (Pre-Mitigation)	Significance/ Quality/ Duration of Effect
			In this regard, while noticeable, the proposed development is unlikely to notably detract from a sense of visual amenity within this broad, expansive view. On balance of the reasons outlined above, the magnitude of visual change is deemed to be Low and of an Adverse quality.	



16.7.2.9.1 Proposed Development

The potential effects identified in relation to each of the VP locations were in no instance greater than of Moderate significance, these relating to proximate views experienced on the R448 where the site and proposed development is clearly visible. From all other viewpoints, effects were of Slight or Slight-Imperceptible significance. As such, the potential operational stage visual effects arising from the presence of the proposed development are considered **Not Significant**.

16.7.2.9.2 Proposed Gas Pipeline

Once the construction phase is complete, any disturbed road surface and/or areas of grass will be reinstated along the proposed gas pipeline corridor. Thus, there will be little visual evidence of the pipeline corridor. Operational stage visual impacts mainly relate to any sections of minorly altered vegetation, and to the maintenance works for the pipeline corridor, which will be infrequent and localised in nature.

On balance of the reasons outlined above, the magnitude of landscape impact is deemed to be **Negligible**.

With reference to the significance matrix, the **Medium and Medium-Low** Visual sensitivity, coupled with a **Negligible** magnitude of visual impact is considered to result in an overall significance of **Imperceptible**. The quality of effect is deemed **Neutral**.

Potential operational stage visual effects arising from the proposed Gas Pipeline are considered **Not Significant**.

16.7.3 Major Accidents and Natural Disasters

This LVIA assesses the landscape and visual effects of the proposed development under normal operating conditions. While major accidents or disasters (such as fires, explosions, or significant spills) could potentially result in changes to landscape character and visual amenity, such events are of low probability and are therefore not likely. Effects arising from such incidents are addressed under separate chapters of this EIAR and within standalone risk and safety assessments. Accordingly, this LVIA focuses on reasonably foreseeable and likely effects in line with professional guidance and best practice within the discipline.

16.7.4 Decommissioning Phase Impacts

The decommissioning phase will see a comparable nature of effects to the construction phase, primarily as a result of the removal of all plant and equipment and the potential dismantling of the buildings, concrete hardstanding, weighbridge, drainage systems, and boundary treatment landscaping and fencing. There may be minor disturbance to roadside vegetation that has grown during the operational phase, and temporary stockpiling of material, although these aspects would be temporary and readily reinstated.

As with the construction phase, the decommissioning phase is not considered to generate significant landscape and visual effects.

16.7.5 Cumulative Impacts

Within a cumulative assessment, the baseline against which landscape and visual effects are assessed is extended to consider other relevant schemes that are not currently present in the landscape but that are subject to a valid planning application (or have been permitted) as being operational and present in baseline views. Cumulative effects, therefore, represent any increased effects that may be generated by the development in a scenario where other relevant schemes in the locality are operational.



In accordance with GLVIA3 (IEMA, 2013), schemes that are at feasibility and pre-planning are not generally considered to be appropriate in the context of a cumulative assessment due to a lack of certainty that they will come forward and because of an absence of detail that enables any meaningful judgements to be made. This is highlighted within 'Technical Guidance Note LITGN-2024-01: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3)', which states that "The cumulative LVIA should focus on the assessment of the project under consideration in the context of other submitted planning applications (potentially considering different combinations or scenarios where relevant) with scoping stage schemes only considered where they are likely to be submitted before or at a similar time to the project under consideration, and interact with the project in a potentially significant way, provided that the scoping project(s) is/are well defined and sufficient information is available for the effects to be reasonably understood." (The Landscape Institute, 2024).

The landscape within which the development is proposed is modified and has been subject to continual change and evolution. A list of cumulative projects has been compiled as part of the EIAR for the proposed development and this has been reviewed in the context of LVIA. Relevant projects are those of a comparative scale and nature, and a proportionate focus has been made away from small/domestic scale development which would not generate notable change within a cumulative baseline environment. Likewise, a proportionate focus has been made on projects which fall within the study area, as these are more likely to notably alter the cumulative baseline of the landscape and visual environment in the near surrounds of the site, and have the potential to generate a combined influence on landscape character and visual amenity, as a result of physical proximity and intervisibility.

The nearest permitted non-domestic development is approximately 1.6km to the south east of the proposed development and relates to the construction of a dairy washings tank, straw bale shed, and associated site works (planning ref. 2560187). There are no material cumulative effects arising in relation to this typical and modest scale rural development.

There are also three permitted solar energy developments within the 5km study area. These are Ballyloo Solar Farm, located c. 1.8km east (planning ref. 2460043, ACP ref. PL01.322347); Park Solar Farm, located c. 3.4km north east (planning ref. 2460205); and Ballybannon Solar Farm, located c. 2.4km north (planning ref. 2560137). While the proposed solar farms are large-scale built developments that contribute to the intensification of anthropogenic structures within the landscape, given their low profile nature, the presence of successional belts of vegetation, and their relative distance from each other, it is unlikely that there would be any notable cumulative effects in relation to these developments.

During the operational phase of both these permitted developments and that of the project, these developments would result in an intensification of built development within the area. This would result in notable cumulative impacts on the physical landscape within this rural area. However, given the differing scales and types of developments, the perceived intensification of industrial and built development as a direct result of the project will be limited in nature. In terms of visual impacts, due to the terrain and network of hedgerows throughout the study area, it is unlikely there will be notable combined visibility between the project and these developments. The exception to this is within the more elevated locations to the east and west that overlook Carlow's central plain and the River Barrow corridor. Within these locations, it may be possible to view these developments and the project both in combination and in succession. However, due to their distance from these from these developments and the project, and the existing visual complexity of the central plain, it is not considered that this cumulative visual impact will be significant.

As such, cumulative effects, from either a landscape or a visual perspective, are considered **Not Significant**.



16.7.6 Summary of Potential Impacts During the Construction Phase

The summary of likely landscape and visual effects during the construction phase pre-mitigation are listed in Table 16-10 and Table 16-11.

Table 16-10: Summary of likely landscape effects during the construction phase pre-mitigation

Activity/Source of Impact	Potential Impact	Description of Effects (Pre Mitigation) – Immediate Surrounds (0-500m)	Description of Effects (Pre Mitigation) – Wider study area (500m – 5km)
Proposed Development Change to the physical landscape Perceptual changes to landscape character	Excavation and construction – Modifications to much of the landscape within the site.	Moderate-slight	Slight to Slight-Imperceptible
Proposed Gas Pipeline Change to the physical landscape Perceptual changes to landscape character	Construction activity - Notable increase in activity levels compared to the baseline.	Slight	Slight-Imperceptible to Imperceptible

Table 16-11: Summary of likely visual effects during the construction phase pre- mitigation

Activity/Source of Impact	Potential Impact	Description of Effects (Pre Mitigation) – Immediate Surrounds (0-500m)	Description of Effects (Pre Mitigation) – Wider study area (500m – 5km)
Proposed Development Change to views and visual amenity	Changes in the content and character of views as a result of the construction activity - change or loss of existing elements of the landscape and/or introduction of new elements	No greater than Moderate	No greater than Slight to Slight-Imperceptible
Proposed Gas Pipeline Change to views and visual amenity		Moderate-Slight	Slight-Imperceptible to Imperceptible

16.7.7 Summary of Potential Impacts During the Operational Phase

The summary of likely landscape and visual effects during the operational phase pre-mitigation are listed in Table 16-12 to Table 16-14.



Table 16-12: Summary of likely landscape effects during the operational phase pre-mitigation

Activity/Source of Impact	Potential Impact	Description of Effects (Pre Mitigation) – Immediate Surrounds (0-500m)	Description of Effects (Pre Mitigation) – Wider study area (500m – 5km)
Proposed Development Change to the physical landscape Perceptual changes to landscape character	Changes to landform to accommodate the project. Changes to landscape character due to the form and extent of the built structures and associated infrastructure.	Moderate-slight	Slight to Slight-Imperceptible
Proposed Gas Pipeline Change to the physical landscape Perceptual changes to landscape character	There are unlikely to be any operational phase impacts.	Imperceptible	Imperceptible

Table 16-13: Summary of likely visual effects during the operational phase pre-mitigation

VP no.	Location	VP Sensitivity	Magnitude of Visual Effect	Significance / Quality / Duration of effect
VP1	R448 regional road, Powerstown townland	Medium-Low	Negligible	Imperceptible / Neutral / Short-term
VP2	L3045 local road, Powerstown townland	Medium-Low	Medium	Moderate / Adverse / Short-term
VP3	R448 regional road, Cloghrystick townland	Medium-Low	Low	Slight-imperceptible/ Adverse / Short-term
VP4	The Barrow Way, Tomard Upper townland	Medium	Low	Slight-imperceptible / Adverse / Short-term
VP5	R448 regional road at the M9 overpass, Cloghrystick townland	Medium-Low	Low	Slight / Adverse / Short-term
VP6	L3045 local road at the National Rail bridge, Powerstown townland	Medium-Low	Low - Negligible	Imperceptible / Adverse / Short-term
VP7	L3044 local road, Garryhundon townland	Medium-Low	Low - Negligible	Imperceptible / Adverse / Short-term
VP8	L3038 local road, Rathornan townland	Medium-Low	Low	Slight / Adverse / Short-term
VP9	Along L1003 local road at Milford Mill, Cloghrystick townland	Medium	Negligible	Imperceptible / Neutral / Short-term



VP no.	Location	VP Sensitivity	Magnitude of Visual Effect	Significance / Quality / Duration of effect
VP10	L3046 local road, Nurney village	Medium	Medium-low	Slight / Adverse / Short-term
VP11	L7132 local road, Ballinabrannagh village	Medium-Low	Low	Slight-imperceptible/ Adverse / Short-term
VP12	Scenic Route 5 'Ballyryan' along the L3052 local road, Ballyryan townland	Medium	Low	Slight / Adverse / Short-term
VP13	Scenic View 29 'Leighlinbridge', located along the R705 regional road at Leighlinbridge town	Medium	Low - Negligible	Slight-imperceptible/ Adverse / Short-term
VP14	L7416 local road, Newtown townland	Medium-Low	Negligible	Imperceptible / Neutral / Short-term
VP15	Scenic Route 9 'Tomard lower' along the L3041 local road, Ballinabrannagh townland	Medium	Low	Slight / Adverse / Short-term

Table 16-14: Summary of likely visual effects during the operational phase pre-mitigation

Activity/Source of Impact	Potential Impact	Description of Effects (Pre Mitigation) – Immediate Surrounds (0-500m)	Description of Effects (Pre Mitigation) – Wider study area (500m – 5km)
Proposed Development Change to views and visual amenity	Changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements	No greater than Moderate (refer to VP1-15)	No greater than Slight to Slight-Imperceptible (refer to VP1-15)
Proposed Gas Pipeline Change to views and visual amenity		Imperceptible	Imperceptible

16.8 Mitigation Measures

16.8.1 Mitigation by Avoidance

The main mitigation by avoidance measure employed in this instance is the siting of the project in a partially contained and robust rural area that avails of a notable degree of screening from successional layers of vegetation in the landscape. Existing vegetated boundaries around the site form part of this vegetated context and will aid visual screening helping to moderate the prominence of the built form on the site. It is also noted that the proposed development site is a former quarry, and at a lower elevation to the surrounding landscape, which will act to moderate the perceived height and visual prominence of the development proposal.



16.8.2 Embedded Mitigation by Design

A key mitigation measure embedded within the design of the proposed development is the colour scheme of the proposed structures. The proposed development is located within an agricultural and reasonably well vegetated landscape and will generally be seen against this backdrop from higher elevations, or as part of a vegetated tree line from lower elevations. With the primary objective of minimising the visual impact of the built structures by allowing these structures to be as unobtrusive as possible against their backdrop, the proposed colour scheme references colours found in the surrounding local landscape, including greens and recessive greys.

The Landscape Plan has incorporated the requirements of the Carlow County Development Plan (Section 16.4.1.1) and NPWS (Section 16.3.7).

16.8.3 Construction Phase Mitigation – General Recommendations

16.8.3.1 *Construction and Environmental Management Plan (CEMP)*

All construction activities should follow best practice methods to reduce environmental impacts upon the environment, as outlined in a Construction and Environmental Management Plan (CEMP) which will manage the environmental commitments of the project through the construction phase, and will be continued through to the commissioning, operation and final decommissioning phases. It is noted that a CEMP Coordinator with appropriate experience should be appointed for the duration of the construction phase so that the CEMP is effectively implemented. An outline CEMP is included as Appendix 3.1 in Volume 3 of this EIAR.

16.8.3.2 *Site Management Procedures*

The construction phase mitigation recommendations relate to the implementation of appropriate site management procedures such as the erection of a perimeter hoarding, control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, etc. Visual impact during the construction phase can be mitigated somewhat through appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish. To reduce the potential Adverse impacts during the construction phase, good site management and housekeeping practices should be adhered to.

16.8.3.3 *Tree Protection*

Existing trees and hedgerows to be retained are particularly sensitive to construction phase activities if proper protection measures are not adhered to. With regard to the protection of the retained trees on site during proposed construction works, these should be undertaken with reference to BS5837: Trees in relation Design, Demolition and Construction – Recommendations (British Standards, 2012).



16.8.4 Operational Phase Mitigation - Landscape Mitigation

16.8.4.1 *Design Objectives*

Full details of the landscape mitigation proposals are included in the supporting Landscape Mitigation Plan in Appendix 16.2 of Volume 3 of this EIAR. The principal design objectives of the landscape mitigation are to:

- Assimilate the proposed development into the landscape and minimise adverse visual effects through landscape treatments that minimise views of proposed structures for visual receptors in the surrounding landscape.
- Enhance landscape character and the quality of existing views through the reinforcement of existing characteristic landscape features.
- Enhance the biodiversity value of the site through diversification of existing vegetation present within and around the boundaries of the site.
- Provide planting of suitable maturity to accelerate visual softening during early operational years and to support the long-term establishment of a robust vegetative framework.

While some existing vegetation along the site boundaries must be removed to facilitate the proposed development, these boundaries are proposed to be replanted/bolstered wherever feasible with new hedgerow planting to re-establish and enhance their screening, landscape, and ecological functions. The only vegetation to be removed will be to facilitate sightlines at the gate, or to facilitate the installation of the gate along the L3045 or installation of the proposed gas pipeline or drainage pipes. Only the removal of individual plants is anticipated, rather than any land clearance.

16.8.4.2 *Hedgerows*

Most of the existing hedgerows and other vegetation along the boundaries of the site is proposed to be retained and bolstered with under-planting and inter-planting of whip transplants (i.e. Hedgerow Type 1 – refer to Figure 16-10 below) in order to ensure dense and consistent screening of the site in perpetuity, and to improve the overall structure of this existing vegetation. This will be undertaken where required to thicken and fill gaps in the existing hedgerow network prior to the construction phase, thus allowing for any growth in the period between a grant of planning permission and construction of the development. Advanced nursery stock in the form of 8-10cm girth trees will be used to fill any noticeable gaps and plant species will be selected to complement the existing broadleaf hedgerow species mix around the site and will be native and local species. Where not already exceeded by existing vegetation, it is intended to manage hedgerows up to 3-4m in height. This height will be achieved by a combination of allowing lower sections of existing hedgerows to mature, filling obvious gaps with advanced nursery stock and providing an additional line of whip planting to selected hedgerows that require densification. Refer to the Landscape Mitigation Plan (Appendix 16.2) for details.

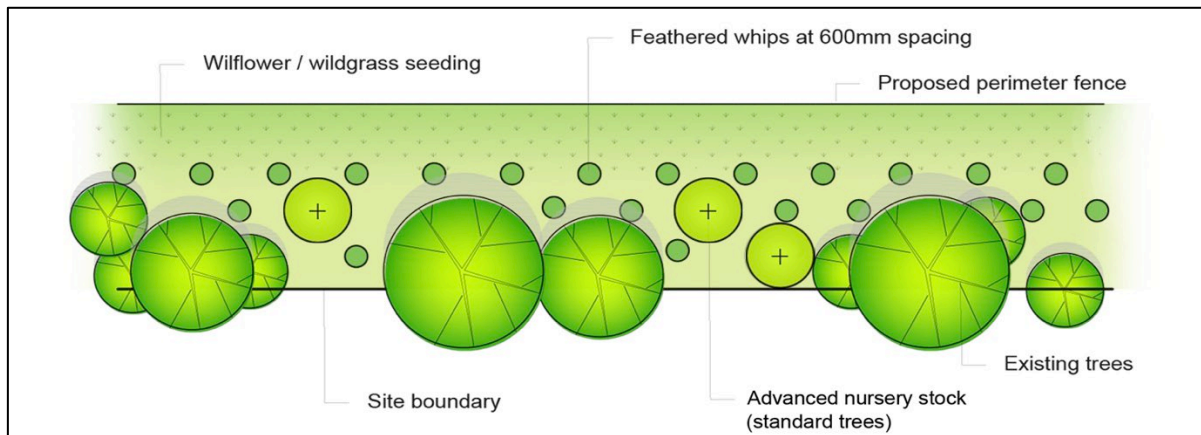


Figure 16-10: Hedgerow Type 1: indicative boundary planting detail showing the approach to inter-planting and under-planting of existing hedgerows (where consolidation is needed).

It is also proposed to plant new 'Type 2' hedgerows (Figure 16-11 refers), with whips and a high proportion of advance nursery stock trees (native and local species) (c.3m planted height), along the boundaries of the site where the existing hedgerow is required to be removed to accommodate the proposed development. The design will include for species that flower at different times of the year. This is proposed in order to further screen the proposed development (for details, refer to Landscape Mitigation Plan). All of this planting will be allowed to mature up to a maintained height of 3-4m to aid in screening and softening the effect of the proposed development from receptors and surrounding local and regional roads.

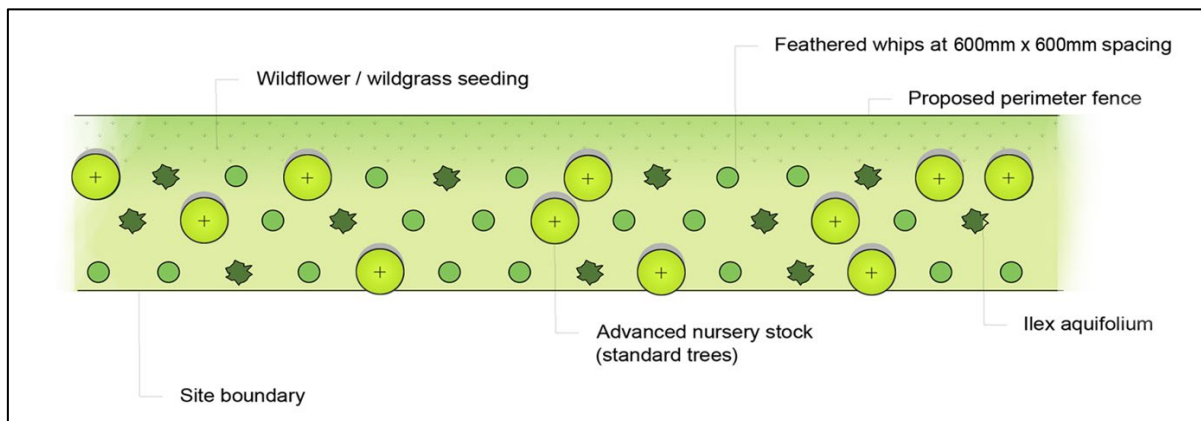


Figure 16-11: Indicative boundary planting detail showing the introduction of new boundary hedgerow - Type 2

16.8.4.3 Pipeline Corridor – Landscape Mitigation Recommendations

Once the construction stage works are complete, the road surface and/or areas of grass surrounding the pipeline corridor should be fully reinstated, with appropriate verge seeding employed to reinstate grass areas disturbed through installation of the pipeline.

16.8.5 Decommissioning Phase Mitigation

Decommissioning phase mitigation would be similar to construction phase mitigation. This would include following best practice methods for all decommissioning activities, implementing appropriate site management procedures, and establishing protection measures for existing trees and hedgerows to be retained.



16.8.6 Monitoring

16.8.6.1 *Construction Phase*

Landscape tender drawings and specifications will be produced to ensure that the landscape work is implemented in accordance with best practice. This document will include tree work procedures, soil handling, planting and maintenance. The contract works will be supervised by a suitably qualified landscape architect.

The planting works will be undertaken as soon as practicable in conjunction with the main civil engineering and building work, but latest by the next available planting season after project completion.

All tree protection requirements will be installed on commencement of the development and removed on a phased basis as required, as stages of the development are completed.

16.8.6.2 *Operational Phase*

Monitoring works will comprise of weed control, replacement planting, and formative maintenance works (pruning etc). All landscape works will typically be managed during an establishment phase for the initial three years from planting. All planting will be monitored on an ongoing basis to ensure successful establishment and ongoing vigour.

16.9 **Residual Impacts**

The design and layout of the proposed development have been driven by a variety of factors. Mitigation, where this concerns the moderation of landscape and visual effects, relates primarily to the siting of the development within a quarry, the preservation of existing vegetated boundaries, and the colour scheme employed in relation to the built components, all of which have been embedded into the scheme being assessed.

Best practice in general terms requires that the level of potential effects be assessed, mitigation proposals identified, and the 'residual' effect (with mitigation in place) then re-assessed to demonstrate the effectiveness of the mitigation proposed. In this regard, it is noted that planting proposed as mitigation will provide a degree of screening and visual relief from proximate locations and will enhance the framework of vegetation around the site, which will have beneficial influence on landscape character in the long term.

Planting will be integrated in a relatively immature form, typical of any comparable landscape scheme, and will take time to establish and mature. Whilst the residual effects in relation to landscape character and views experienced from locations in the wider landscape will be consistent with those described pre-mitigation, due either to a lack of visibility of the mitigation planting, or a reduced influence at distance, residual effects are considered at Year 7, when it is anticipated that planting will have achieved a level of maturity, and been brought under management at their eventual heights, albeit recognising that planting will continue to mature and thicken.

16.9.1 Residual Impacts on Landscape

16.9.1.1 *Proposed Development*

The proposed landscape mitigation, in conjunction with the embedded mitigation of the design, will help to integrate the proposed development into the pattern of the landscape, but will not notably alter the effects reported pre-mitigation.



The residual significance is considered to remain **Moderate-slight** within its immediate locality (<500m), and **Slight**, reducing to **Slight-Imperceptible** with increasing distance. Whilst the maturation of planting will deliver beneficial influence on the existing vegetation, the quality of effect is deemed to remain **Adverse**.

16.9.1.2 Proposed Gas Pipeline Route

The residual significance is considered to remain **Negligible**.

16.9.2 Residual Impacts on Visual Environment

Table 16-15 shows a list of predicted residual visual effects following seven years of planting mitigation establishment.



Table 16-15: Assessment of Residual (Post-Mitigation) Visual Effects following 7 years of mitigation establishment

VP No.	VP Sensitivity	Significance / Quality / Duration of Pre-Mitigation Visual Effect	Description and Magnitude of Residual (Post-Mitigation) Visual Effect	Significance / Quality / Duration of Residual Visual Effect
VP1	Medium-Low	Imperceptible / Neutral / Short-term	The view would be as described in Section 16.7.2.9, with the addition of the proposed hedgerow along the western boundary of the Proposed Development site reaching a stage of greater maturity. This would help to integrate the boundaries of the site with the existing surrounding vegetation; however, as the Proposed Development would not be visible from this location, the magnitude of visual change would remain Negligible and of a Neutral quality.	Imperceptible / Neutral / Long-term
VP2	Medium-Low	Moderate / Adverse / Short-term	The view would be as described in Section 16.7.2.9, with the addition of the bolstered hedgerow along the eastern boundary of the Proposed Development site reaching a stage of greater maturity. This would have a mitigating effect on the visible structures of the Proposed Development, which would be further screened. For the reasons outlined above, the magnitude of visual change is deemed to be Medium-low and of an Adverse quality.	Moderate-slight / Adverse / Long-term
VP3	Medium-Low	Slight-Imperceptible / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight-Imperceptible / Adverse / Long-term
VP4	Medium	Slight-Imperceptible / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight-Imperceptible / Adverse / Long-term
VP5	Medium-Low	Slight / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight / Adverse / Long-term
VP6	Medium-Low	Imperceptible / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low-Negligible and of an Adverse quality.	Imperceptible / Adverse / Long-term



VP No.	VP Sensitivity	Significance / Quality / Duration of Pre-Mitigation Visual Effect	Description and Magnitude of Residual (Post-Mitigation) Visual Effect	Significance / Quality / Duration of Residual Visual Effect
VP7	Medium-Low	Imperceptible / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low-Negligible and of an Adverse quality.	Imperceptible / Adverse / Long-term
VP8	Medium-Low	Slight / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight / Adverse / Long-term
VP9	Medium	Imperceptible / Neutral / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Negligible and of a Neutral quality.	Imperceptible / Neutral / Long-term
VP10	Medium	Slight / Adverse / Short-term	The view would be as described in Section 16.7.2.9, with the addition of the bolstered and proposed hedgerows along the southern boundary of the Proposed Development site reaching a stage of greater maturity. This would have a mitigating effect on the visible structures of the Proposed Development, which would be further screened. However, the visual prominence of these structures would remain primarily as described in Section 16.7.2.9. For the reasons outlined above, the magnitude of visual change is deemed to remain Medium-low and of an Adverse quality.	Slight / Adverse / Long-term
VP11	Medium-Low	Slight - Imperceptible / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight - Imperceptible / Adverse / Long-term
VP12	Medium	Slight / Adverse / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Low and of an Adverse quality.	Slight / Adverse / Long-term



VP No.	VP Sensitivity	Significance / Quality / Duration of Pre-Mitigation Visual Effect	Description and Magnitude of Residual (Post-Mitigation) Visual Effect	Significance / Quality / Duration of Residual Visual Effect
VP13	Medium	Slight - Imperceptible / Adverse / Short-term	The view would be as described in Section 16.7.2.9, with the addition of the bolstered and proposed hedgerows along the southern and western boundaries of the Proposed Development site reaching a stage of greater maturity. This would have a mitigating effect on the visible structures of the Proposed Development, which would be further screened. However, the visual prominence of these structures would remain primarily as described in Section 16.7.2.9. For the reasons outlined above, the magnitude of visual change is deemed to remain Low-Negligible and of an Adverse quality.	Slight - Imperceptible / Adverse / Long-term
VP14	Medium-Low	Imperceptible / Neutral / Short-term	The view would remain as described in Section 16.7.2.9, therefore the deemed magnitude of visual change would remain Negligible and of a Neutral quality.	Imperceptible / Neutral / Long-term
VP15	Medium	Slight / Adverse / Short-term	The view would be as described in Section 16.7.2.9, with the addition of the bolstered and proposed hedgerows along the boundaries of the Proposed Development site reaching a stage of greater maturity. This would have a mitigating effect on the visible structures of the Proposed Development, which would be further screened. However, the visual prominence of these structures would remain primarily as described in Section 16.7.2.9. For the reasons outlined above, the magnitude of visual change is deemed to remain Low and of an Adverse quality.	Slight / Adverse / Long-term



16.9.3 Summary of Residual Impacts

16.9.3.1 Landscape

Table 16-16 summarises the identified likely residual landscape effects during the operational phase of the proposed development, post-mitigation.

Table 16-16: Summary of likely post-mitigation landscape effects

Activity/Source of Impact	Potential Impact	Description of Effects (Post Mitigation) – Immediate Surrounds (0-500m)	Description of Effects (Post Mitigation) – Wider study area (500m – 5km)
Proposed Development Change to the physical landscape Perceptual changes to landscape character	Residual long-term changes to landform to accommodate the project. Residual long-term changes to landscape character due to the form and extent of the built structures and associated infrastructure.	Moderate-slight	Slight to Slight-Imperceptible
Proposed Gas Pipeline Change to the physical landscape Perceptual changes to landscape character	There are unlikely to be any residual impacts.	Imperceptible	Imperceptible

16.9.3.2 Visual

Table 16-17 summarises the identified likely residual visual effects during the operational phase of the Proposed Development, post-mitigation.

Table 16-17: Summary of likely post-mitigation visual effects

VP no.	Location	VP Sensitivity	Magnitude of Residual Visual Effect	Significance / Quality / Duration of Residual Visual Effect
VP1	R448 regional road, Powerstown townland	Medium-Low	Negligible	Imperceptible / Neutral / Long-term
VP2	L3045 local road, Powerstown townland	Medium-Low	Medium-low	Moderate-Slight / Adverse / Long-term
VP3	R448 regional road, Cloghrick townland	Medium-Low	Low	Slight-Imperceptible / Adverse / Long-term
VP4	The Barrow Way, Tomard Upper townland	Medium	Low	Slight-Imperceptible / Adverse / Long-term



VP no.	Location	VP Sensitivity	Magnitude of Residual Visual Effect	Significance / Quality / Duration of Residual Visual Effect
VP5	R448 regional road at the M9 overpass, Cloghrick townland	Medium-Low	Low	Slight / Adverse / Long-term
VP6	L3045 local road at the National Rail bridge, Powerstown townland	Medium-Low	Low - Negligible	Imperceptible / Adverse / Long-term
VP7	L3044 local road, Garryhundon townland	Medium-Low	Low - Negligible	Imperceptible / Adverse / Long-term
VP8	L3038 local road, Rathornan townland	Medium-Low	Low	Slight / Adverse / Long-term
VP9	Along L1003 local road at Milford Mill, Cloghrick townland	Medium	Negligible	Imperceptible / Neutral / Long-term
VP10	L3046 local road, Nurney village	Medium	Medium-low	Slight / Adverse / Long-term
VP11	L7132 local road, Ballinabrannagh village	Medium-Low	Low	Slight-imperceptible/ Adverse / Long-term
VP12	Scenic Route 5 'Ballyryan' along the L3052 local road, Ballyryan townland	Medium	Low	Slight / Adverse / Long-term
VP13	Scenic View 29 'Leighlinbridge', located along the R705 regional road at Leighlinbridge town	Medium	Low - Negligible	Slight-imperceptible/ Adverse / Long-term
VP14	L7416 local road, Newtown townland	Medium-Low	Negligible	Imperceptible / Neutral / Long-term
VP15	Scenic Route 9 'Tomard lower' along the L3041 local road, Ballinabrannagh townland	Medium	Low	Slight / Adverse / Long-term

16.10 Conclusions

16.10.1 Landscape

In terms of impacts on landscape character, the proposed development represents the introduction of industrial-scale structures within a largely rural and agricultural landscape. Landscape values of the project Site and much of the study area are generally associated with rural and agricultural characteristics, with the exception of the more distinctive river corridor. While much of the study area is a relatively typical, modified, working landscape influenced by a variety of existing land uses such as agriculture and scattered built development/settlement, there is also a concentration of industrial, infrastructural, and extractive land uses throughout the study area, in particular within the immediate context of the proposed development.



Although the project is a built development of a scale and extent that is not typical of the immediate context, it will not notably detract from the productive rural character of the landscape, as the proposed development will be constructed within the highly modified context of the quarry site and the pipeline corridor will be constructed along existing roadways. In terms of scale, the overall scale of the land parcels and land-use patterns within this landscape help to contextualise the scale of the development, and together with landscape planting proposals assimilate it into the landscape. Although the project has potential to influence the surrounding character, this influence will be modest due to its design and siting, and with distance, the comparative influence notably reduces.

Overall, the proposed development is considered to have **Moderate-Slight** residual impacts on the receiving landscape, however this reduces substantially beyond the immediate locality. The pipeline corridor is considered to have **Imperceptible** residual impacts on the receiving landscape.

Residual landscape effects are considered **Not Significant**.

16.10.2 Visual

In terms of impacts on visual receptors, the residual significance of visual effect ranged between **Moderate-Slight** and **Imperceptible**. The most notable visual effects will occur in areas within the immediate vicinity to the east where its scale and form would have an inevitable influence on views, and from elevated areas further to the east and west where it would be seen as part of a broad agricultural landscape setting. Beyond these two differing contexts, there will be limited visibility of the development. To the north and south in particular, there will be substantial screening provided by a combination of topography and vegetation.

Overall, the residual visual effect of the proposed development within the immediate landscape is deemed to be **Moderate-Slight** to the immediate east, and **Slight** to the west, north, and south. The residual visual effect of the project within much of the wider landscape is deemed to be **Slight to Imperceptible**.

Residual visual effects are considered **Not Significant**.

16.10.3 Statement of Significance

Based on the landscape, visual and cumulative assessment contained herein, residual effects arising from the proposed development are considered **Not Significant**.



16.11 References

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