11 Landscape and Visual

11.1 Introduction

This Landscape and Visual Impact Assessment (LVIA) has been prepared to accompany a Section 37L application for the restoration of a disused quarry at Ballykelly, Monasterevin, Co. Kildare, through the importation of clean soil and stone (the 'Proposed Project'). There is no intention to undertake further quarrying works.

The Application Site (also referred to as 'Site') includes a disused quarry void and associated historical working areas. It also includes a private access road that connects the disused quarry to the public road network, and agricultural lands to the east that road where it is proposed to locate the temporary facilities required to manage the importation of clean soil and stone required for the Proposed Project.

All lands within the Application Site are within the ownership of the Applicant, Bison Quarries Ltd (BQL).

This EIAR is submitted in support of an application under Section 37L of the Planning and Development Act 2000, as amended.

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.

This LVIA was prepared by Zeba Haseeb and Richard Barker. Zeba Haseeb, B.S., M.S. in Environmental Science, is an LVIA consultant with Macro Works. Zeba has contributed to numerous projects, and worked on feasibility studies, constraints assessments, and the preparation of LVIA chapters for a range of developments. Richard Barker, MLA, PgDip Forestry, BA Environmental, MILI. has over 20 years' experience in LVIA and has worked on the Landscape and Visual Assessment for a vast range of developments throughout Ireland, including wind and solar energy, infrastructure, quarry developments, flood relief, residential and recreation projects.

11.1.1 Geographical and Temporal Scope

The geographical study area for the assessment covers lands within the EIA boundary with a study area extending to 5 km from the EIA boundary (see Figure 11-1). This strikes a balance between potential significant effects that may occur (most potential within 2 km) and the need

to examine a number of sensitive receptors such as settlements, amenity areas and scenic designations within the wider landscape context.

Figure 11-1 – EIA Boundary, 37L Planning Application Boundary, and Study Area

The temporal scope of this assessment covers the full restoration / infill phase, which is predicted to be 13 years.

Detailed description of the Proposed project phasing is presented in Section 2.7. of Chapter 2 (Project Description).

11.1.2 Technical Scope

Production of this LVIA involved:

- A desktop study to establish an appropriate study area, relevant landscape and visual designations in the Kildare County Development Plan 2023-2029. The desktop study also identifies other sensitive landscape and visual receptors;
- Fieldwork to establish the landscape character of the receiving environment and to confirm and refine the set of viewpoints to be used for the EIA visual assessment stage;
- Assessment of the significance of the landscape impact of the development as a function of landscape sensitivity weighed against the magnitude of the landscape impact; and

- Assessment of the significance of the visual impact of the development as a function of visual receptor sensitivity weighed against the magnitude of the visual impact. This aspect of the assessment is supported by photomontages prepared in respect of the selected viewpoints.

For more detailed information on the Landscape and Visual Impact Assessment Criteria, as well as assessment methodology used in this appraisal, please see Section 10.3.

11.1.3 Project Description Summary

The Proposed Project consists of the restoration of lands through the import of approximately 720,000 tonnes clean soil and stone as by-product (non-waste) from development sites to infill a disused historical quarry and raise ground levels to tie in with ground levels of surrounding land.

Restoration of the lands will be to agricultural grassland, an artificial waterbody, and a hedgerow habitat with the lands returned to their pre-extraction agricultural use.

The proposed duration of infilling is 10 years depending on market conditions for the anticipated acceptance of clean soil and stone, and a further 3 years for the completion of final restoration activities.

The Application Site is located in the townland of Coolsickin or Quinsborough, Co Kildare. The Application Site is accessed by a privately-owned access road connecting to a local road (L7049).

The following temporary facilities will be installed and maintained during the life of the Proposed Project:

- office and fully serviced welfare facilities;
- weighbridge and associated portacabin;
- closed-system wheel wash;
- 6 no. parking bays;
- 2 no. waste inspection bays and 1 no. bunded waste quarantine area;
- hardstanding area (vehicle movement and storage); and,
- surface water drainage infrastructure from hard standing and discharge to ground, including 2 no. interceptors and 2 no. soakaways.
- security features, including security gates and fencing.
- Power supply. It is intended that approval will be sought for a connection to the ESB Network for the office and fully serviced welfare facilities. Diesel generators will be used to power mobile lighting, if required.

The Proposed Project site entrance and private access road will be upgraded and realigned. These will be retained following to completion of the Proposed Project.

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

11.2 Legislative and Policy Context

11.2.1 Legislation

The role of landscape and protection of its character through establishing planning policies and designations as part of the decision making at national through to county council level is governed by the Planning and Development Act 2000 (as amended).

The Planning and Development Act has applied the same meaning to landscape as in Article 1 of the European Landscape Convention (ELC) 2000, ratified by Ireland in 2004, which states Landscape as being an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. The Irish Government has produced the National Landscape Strategy 2014-2025 to implement the ELC which aims to implement six core objectives through decision making including recognising landscape in law, national landscape character assessment, landscape policies, increased landscape awareness, education and public participation.

The general EIA legislation and guidance documents are listed in Chapter 1 (Introduction, Scope and Methodology) of this EIAR.

11.2.2 Relevant Policies and Plans

This section sets out a review of landscape related planning policy of the County Development Plan (CDP) of Kildare County Council (KCC) in which the site sits wholly, and neighbouring Laois County Council (LCC) and Offaly County Council (OCC), as both local authorities fall within the extent of the study area. It includes:

- KCC CDP 2023-2029 (Host County),
- Laois CDP 2021-2027 (Approximately 640m west of the site), and
- Offaly CDP 2021-2027 (Approximately 2.8km north of the site).

11.2.2.1 Kildare County Development Plan 2023-2029

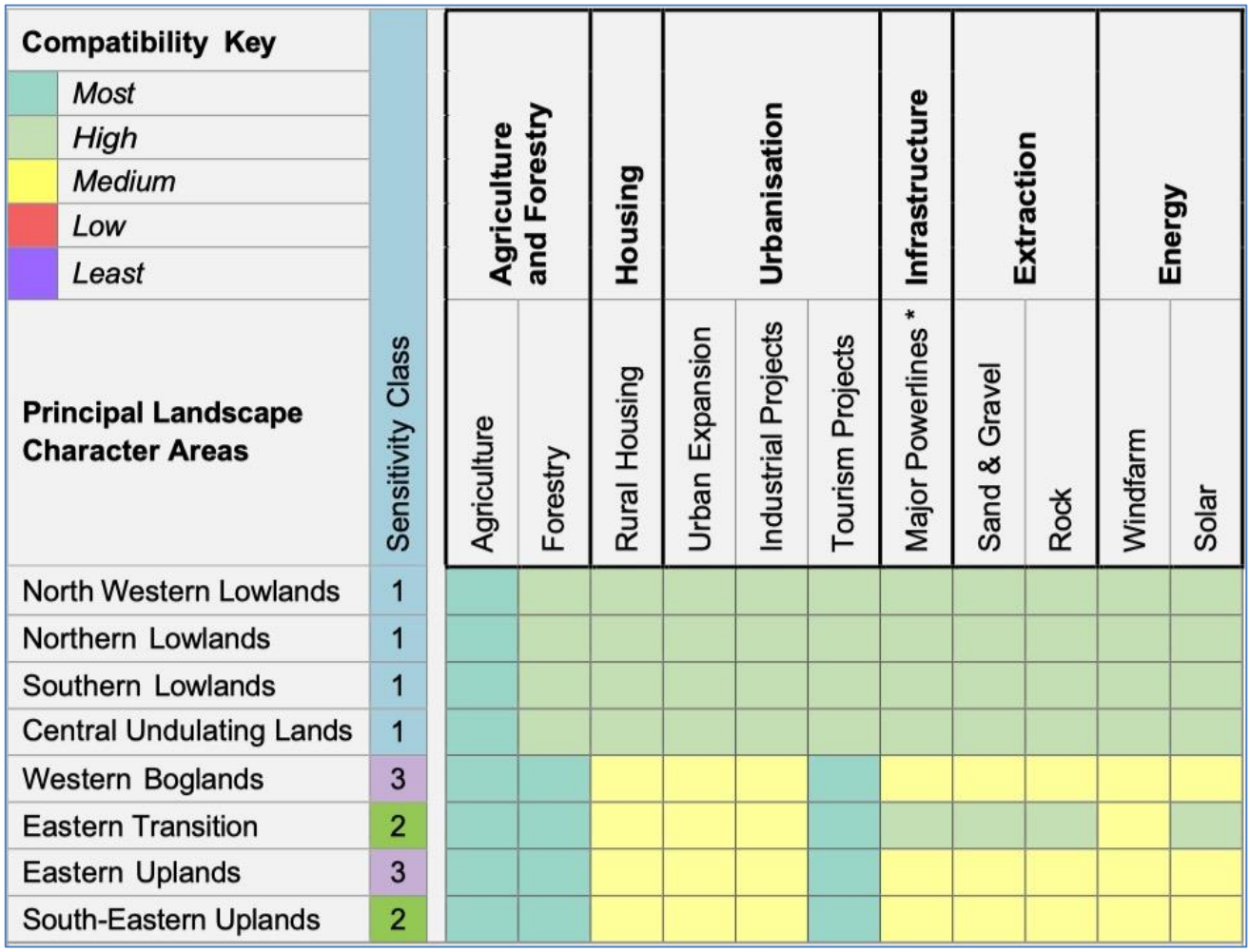
According to the 2004 Landscape Character Assessment (LCA) of County Kildare, which is integrated within the current CDP, the site is located within the “Southern Lowlands” Landscape Character Area, which is designated with a “Class 1- Low Sensitivity” rating (the lowest of five, ranging from ‘Low Sensitivity’ to ‘Unique Sensitivity’). The characteristics of Class 1 sensitivity are described in Table 13.2 of the CDP as:

‘Areas with the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area.’

The CDP further elaborates on landscape sensitivity:

‘Landscape sensitivity is a measure of the ability of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and values. It is determined using the following factors: slope, ridgeline, water bodies, land use and prior development.’

Table 13.3 of the CDP (see Figure 11-2) details the likely compatibility of different land-uses with the designated LCAs. As per this table, the Southern Lowlands demonstrates the highest compatibility with "agriculture, forestry and tourism projects," and also a "High" compatibility with all other land-uses. This also includes extraction (i.e., sand and gravel), albeit the Proposed Project relates to infill of such development and therefore only has an association with sand and gravel extraction.



Compatibility Key		Agriculture and Forestry		Housing	Urbanisation			Infrastructure	Extraction		Energy	
Most												
High												
Medium												
Low												
Least												
Principal Landscape Character Areas	Sensitivity Class	Agriculture	Forestry	Rural Housing	Urban Expansion	Industrial Projects	Tourism Projects	Major Powerlines *	Sand & Gravel	Rock	Windfarm	Solar
North Western Lowlands	1											
Northern Lowlands	1											
Southern Lowlands	1											
Central Undulating Lands	1											
Western Boglands	3											
Eastern Transition	2											
Eastern Uplands	3											
South-Eastern Uplands	2											

Figure 11-2 - Excerpt of Table 13.3 from the KCC CDP 2023-2029, showing "likely compatibility between a range of land-uses and Principle Landscape Areas."

In terms of land use compatibility, Table 13.4 (see Figure 10-3) of the KCC CDP 2023-2029 states the *"Likely compatibility between a range of land-uses and proximity to Principal Landscape Sensitivity Factors," and specifies the "Proximity within 300m of Principal Landscape Sensitivity Factors."*

The Site is located within close proximity to the Grand Canal. In relation to sand and gravel extraction, it is **"Compatible only in exceptional circumstances"** (i.e. '1' rating) if within 300m of a canal." However, in this instance, the Proposed Project relates to the infill of a sand and gravel quarry and this compatibility score is not deemed to be applicable.

	Agriculture and Forestry		Housing	Urbanisation			infrastructure	Extraction		Energy	
5 - Likely to be very compatible in most circumstances. 4 - Likely to be compatible with reasonable care. 3 - Likely to be compatible with great care. 2 - Compatible only in certain circumstances. 1 - Compatible only in exceptional circumstances. 0 - Very unlikely to be compatible.											
Proximity within 300m of Principal Landscape Sensitivity Factors.	Agriculture	Forestry	Rural Housing	Urban Expansion	Industrial Projects	Tourism Projects	Major Powerlines	Sand and Gravel	Rock	Windfarm	Solar
Major Rivers and Water bodies	5	5	2	2	2	3	2	1	0	1	0
Canals	5	5	2	2	2	3	2	1	0	1	1
Ridgelines	5	5	1	1	1	1	1	0	0	2	0
Green Urban Areas	4	5	2	0	0	4	3	3	3	2	2
Broad-Leaved Forestry	3	5	2	2	2	4	3	2	3	1	2
Mixed Forestry	3	5	2	2	2	4	3	2	3	1	2
Natural Grasslands	5	2	2	1	1	4	2	1	1	2	2
Moors and Heathlands	2	2	1	0	0	1	2	1	0	2	1
Agricultural Land with Natural Vegetation	5	5	2	2	2	3	3	3	3	4	2
Peat Bogs	0	0	0	0	0	3	2	0	0	2	1
Scenic View	5	5	2	1	1	5	1	3	0	0	2
Scenic Route	5	5	2	1	1	5	1	3	0	0	2

Figure 11-3 - Excerpt of Table 13.4 from the KCC CDP 2023-2029

The Landscape Sensitivity Map from the KCC CDP 2023-2029 is presented in Figure 10-4 .

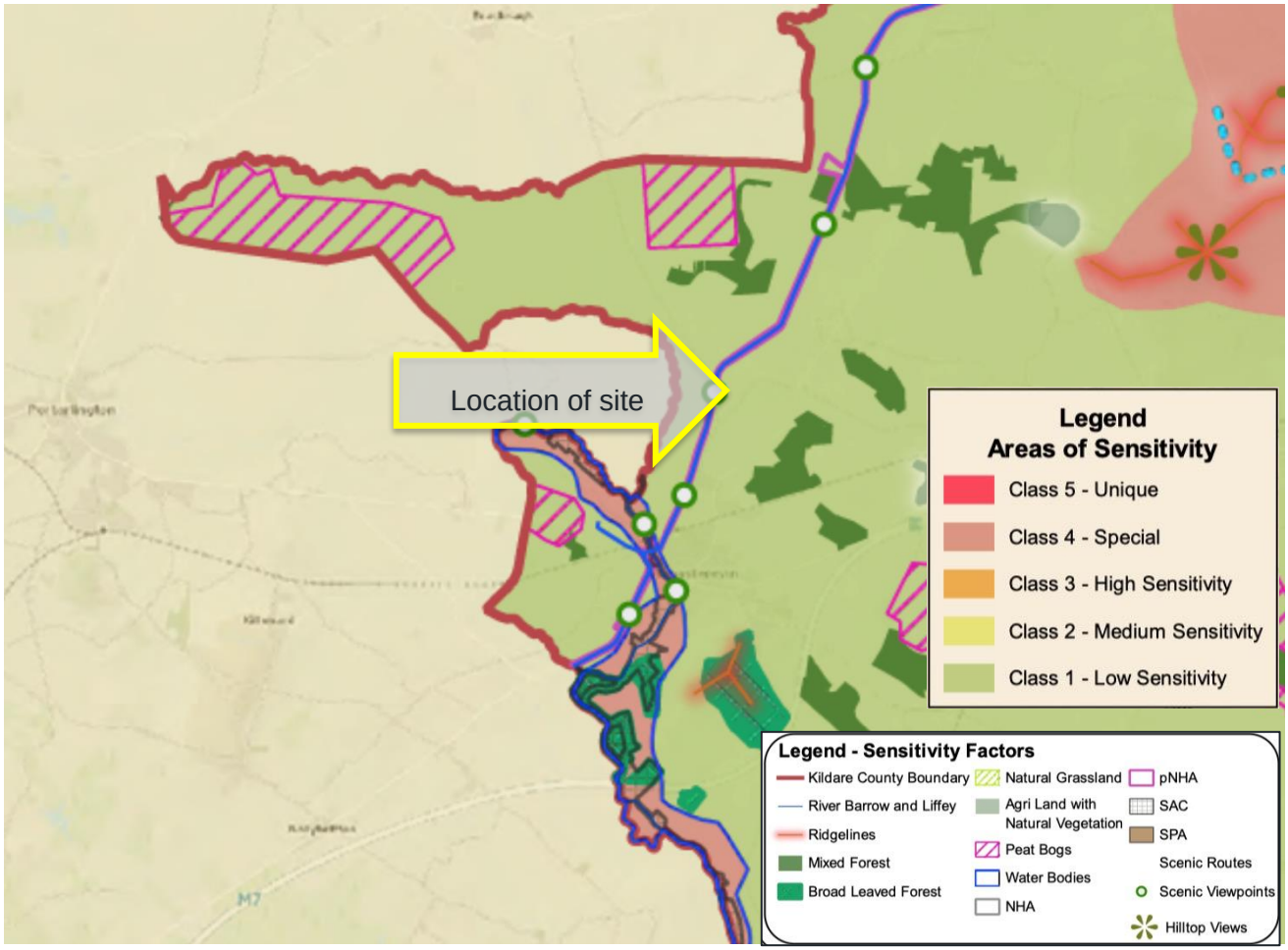


Figure 11-4 - Low-resolution excerpt from Map 13.2 of the KCC CDP 2023-2029 Landscape Sensitivity Map.

Areas of High Amenity

The Site is located within the vicinity of the Grand Canal Corridor. Section 13.4 of the KCC CDP 2023-2029 states:

"In addition to Landscape Character Areas and the sensitivity of these areas to development, there are certain special landscape areas within the county, some of which overlap with sensitive landscapes. For the purposes of this Plan these areas have been defined as Areas of High Amenity. They are classified because of their outstanding natural beauty and/or unique interest value and are generally sensitive to the impacts of development."

The Grand Canal Corridor Area of High Amenity is described in the KCC CDP 2023-2029as: *"The Grand Canal and the Royal Canal are extensive water corridors that flow through the county. The Grand Canal flows in an east to south-west direction and divides at Sallins into the Naas and Corbally Branch and is further divided in three branches at*

Robertstown: the Milltown Feeder, the Barrow Line and the continuation of the Grand Canal into neighbouring County Offaly.

The canal corridors and their adjacent lands have been landscaped and enhanced along the sections where the canals flow through urban areas and with the development of Greenways and Blueways. Canal locks are distinctive features of these water corridors. The smooth terrain, generally gentle landform and low canal bank grassland that characterise the canal corridors allow vistas over long distances without disruption, where the canal flows in a straight-line direction. Consequently, development can have a disproportionate visual impact along the water corridor, and it can prove difficult for the existing topography to visually absorb development. The occurrence of natural vegetation, coniferous and mixed plantations adjacent to the water corridors can have shielding and absorbing qualities in landscape terms, by providing natural visual barriers. Canal corridors are potentially vulnerable linear landscape features, as they are often highly distinctive in the context of the general landscape. In some cases, landscape sensitivities may be localised or site-specific."

Policies and Objectives – Landscape

Objectives/policy relating to landscape sensitivity are outlined within the Kildare County Development Plan Landscape Recreation Amenity in subsection 13.3.2. Those deemed relevant to the proposed application are included below:

LR P1: Protect and enhance the county's landscape, by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the existing local landscape.

LR 01: Ensure that consideration of landscape sensitivity is an important factor in determining development uses. In areas of high landscape sensitivity, the design, type and the choice of location of the Proposed Project in the landscape will be critical considerations.

LR 02: Require a Landscape/Visual Impact Assessment to accompany proposals that are likely to significantly affect:

- Landscape Sensitivity Factors;
- A Class 4 or 5 Sensitivity Landscape (i.e. within 500m of the boundary);
- A route or view identified in Map V1 - 13.3 (i.e. within 500m of the site boundary).
- All Wind Farm development applications irrespective of location, shall be required to be accompanied by a detailed Landscape/Visual Impact Assessment including a series of photomontages at locations to be agreed with the Planning Authority, including from scenic routes and views identified in Chapter 13 therein.

LR 04: Ensure that local landscape features, including historic features and buildings, hedgerows, shelter belts and stone walls, are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area.

LR 010 - Recognise that the lowlands and the transitional area are made up of a variety of working landscapes, which are critical resources for sustaining the economic and social well-being of the county and include areas of significant landscape and ecological value, which

are worthy of protection. Such landscapes include the internationally recognised landscape of Punchestown and its environs.

LR O26 - Contribute towards the protection of waterbodies and watercourses, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains, from inappropriate development. This will include buffers free of development in riverine and wetland areas, as per chapter 12.

Scenic Routes and Viewpoints

Map 13.3 of Chapter 13 (Landscape, Recreation and Amenity) of the KCC CDP 2023-2029 identifies Scenic Routes and Viewpoints within the county. The following designated scenic views are located within the study area and are therefore relevant to this Assessment:

Scenic Views to and from Bridges on the Grand Canal:

- GC 1 - (Macartney's Bridge): Located in Coolsickin or Quinsborough, approximately 120m to the southwest of the Site.
- GC 25 - (Wilson's Bridge): Located in Kiltaghan North, approximately 4.3 km northeast of the Site.
- GC 26 - (Ummeras Bridge): Located in Ummeras More, approximately 2.1 km northeast of the Site.
- GC 28 - (High Bridge): Located in Old Grange, approximately 2 km southwest of the Site.
- GC 35 - (Clogheen Bridge): Located in Monasterevin, approximately 3.8 km southwest of the Site.

Scenic Views of the River Barrow from Bridges, Adjacent Lands, and Roads:

- RB 6 - (Pass Bridge): Located in Passlands, approximately 2.1 km southwest of the Site.
- RB 8 - (Baylough Bridge): Located in Monasterevin (R424), approximately 2.7 km southwest of the Site.
- RB 10 - (Monasterevin Bridge): Located in Monasterevin (R445), approximately 2.8 km southwest of the Site.

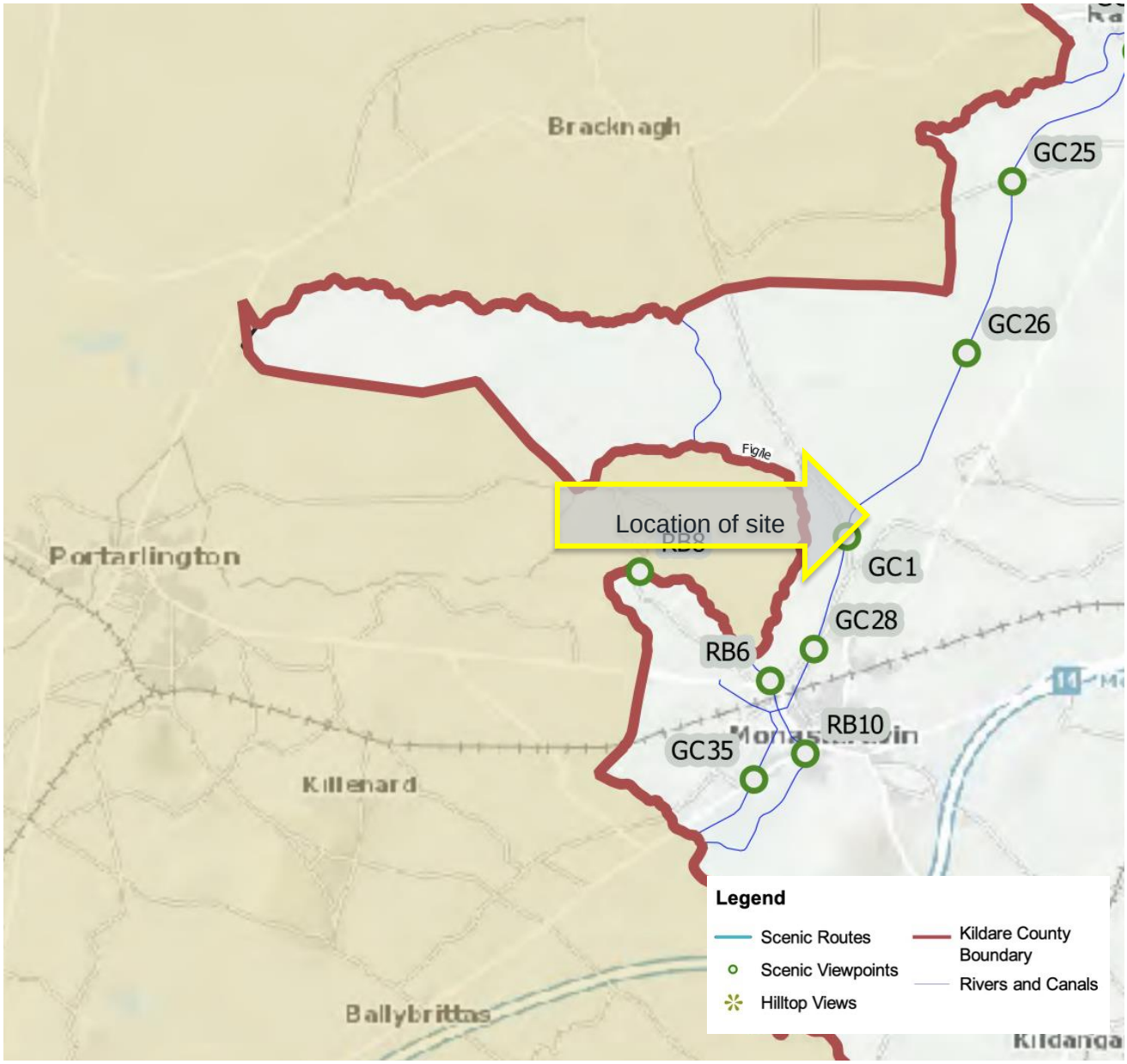


Figure 11-5 - low-resolution extract of map of designated scenic routes and viewpoints.

11.2.2.2 Laois County Development Plan 2021-2027

The LCC CDP 2021-2027 is addressed in this section, for the Landscape designation and any protected views or scenic routes that may be of relevance to the Proposed Project. Whilst the Proposed Project is contained entirely within County Kildare, County Laois is located 640 m west of the Proposed Project and therefore poses the potential for landscape and visual impacts.

The relevant LCT is the 'Lowland Agricultural Areas' located, 640m west of the site. This LCT is designated a 'Low' landscape sensitivity rating which is described within the CDP as;

"Areas With the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area."

Chapter 11 of the current Laois CDP 2021-2027 lists 23 designated scenic views and prospects. However, a review indicates that none of these are situated within the study area.

11.2.2.3 Offaly County Development Plan 2021-2027

The current OCC CDP 2021-2027 has been reviewed for relevant protected views or scenic routes, given the Site's proximity to the county border (2.8 km north). As the Proposed Project is entirely within County Kildare, OCC's landscape designations are not considered relevant and therefore, are not assessed further.

Chapter 4 of the Offaly CDP lists 19 designated Key Scenic Views and Prospects, and 2 Key Amenity Routes. However, none are located within the study area.

11.2.3 Relevant Guidance

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

- Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2022); and,
- Landscape Institute and the Institute of Environmental Management and Assessment publication entitled Guidelines for Landscape and Visual Impact Assessment (2013).

11.3 Assessment Methodology and Significance Criteria

This document uses methodology as prescribed in the previously mentioned GLVIA3, which follows the European Landscape Convention (ELC) 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, GLVIA-2013 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".

11.3.1 Landscape Impact Assessment Criteria

11.3.1.1 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, 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 Sensitivity is classified using the following criteria set out in Table 11-1.

Table 11-1 - 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 recognizable 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 realize a higher landscape value.

11.3.1.2 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 Project 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 11-2 outlines criteria used to inform this judgement.

Table 11-2 - Magnitude of Change – Landscape

Criteria	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.

11.3.2 Visual Impact Assessment Criteria

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

- Direct impacts of the Proposed Project upon views through intrusion or obstruction;
- The reaction of viewers who may be affected, e.g. residents, walkers, road users; and
- 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 Project. 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 below are used to guide these judgements.

11.3.2.1 Sensitivity of Visual Receptors

As with landscape sensitivity, the sensitivity of a visual receptor is categorised as Very High, High, Medium, Low, and Negligible. Unlike landscape sensitivity however, the sensitivity of visual receptors has an anthropocentric (human) basis. It considers factors such as the perceived quality and values associated with the view, the landscape context of the viewer, the likely activity the viewer is engaged in and whether this heightens their awareness of the surrounding environment.

A list of the factors considered by the assessor in estimating the level of sensitivity for a particular visual receptor is outlined below to establish visual receptor sensitivity at each viewpoint location.

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

Values attached to 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 Developments 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 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.

11.3.2.2 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 Project. 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 11-3.

Table 11-3 - Magnitude of Change – Visual

Criteria	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.

11.3.3 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.

The significance category judgement is arrived at using the Significance Matrix at Table 11-4 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 (Landscape institute, 10th June 2013)).

Indicative criteria descriptions used in relation to the significance of effect category are presented at Table 11-5.

Table 11-4 - 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 11-5 - 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	The view is entirely altered, obscured or affected.

	intensive change over a more limited area.	
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 localized 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 localized 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.
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 to account for nuance.

Effects assessed as ‘Substantial’ or greater (shaded cells in Table 10-4) are considered to be the most notable in landscape and visual terms, and may be regarded as ‘Significant’, albeit it is important to note that this is not a reflection on their acceptability in planning terms.

11.3.4 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.

11.3.5 Timescale of Effects

In accordance with EPA (2022) guidance, impacts / effects are also categorised in terms of their timescale as follows;

- Temporary – Effects lasting one year or less
- Short Term – Effects lasting one to seven years
- Medium Term – Effects lasting seven to fifteen years
- Long Term – Effects lasting fifteen to sixty years
- Permanent – Effects lasting over sixty years

11.4 Baseline Conditions

Landscape character is described in terms of ‘landform and drainage’, ‘vegetation land use’, ‘centres of population and houses’, ‘transport routes’ and ‘recreation and public amenities’ in the following sections.

11.4.1 Landform and Drainage

The north-eastern portion of the Site contains a disused quarry void space with collected waters, while the rest of the site comprises disused quarry working areas along with the agricultural area which is represented as a narrow band in the south of the Site.

Drainage in the north of the Site is north towards the canal and there is a drainage ditch between the towpath and the site. Drainage in the south of the Application Site is broadly to the south / south-west

Figure 11-6 – View towards Application Site from the Grand Canal Tow Path.

In the wider study area, the terrain is generally flat to gently undulating, typical of the Irish Midlands, spanning across three counties. Lower-lying terrain is characteristic to the north, south, and west of the site, with a gradual rise to the northeast towards Red Hill (194 m AOD), located just outside the study area. Bordering the site to the north-northwest, the River Barrow Way (Grand Canal) follows the natural contour of the land, with the terrain sloping downward towards it. Areas of exploited peatland are present within the wider study area, with a notable patch towards the north of the site.

11.4.2 Vegetation and Land Use

The study area is predominantly agricultural, characterised by pastoral farmland interspersed with tillage. Fields are typically medium to large in scale and enclosed by mature hedgerows and lines of trees. Areas of cutaway peatland are also present, often associated with marginal farmland, reverting scrubland, and forestry plantations along their fringes.

Beyond agriculture and cutaway peat, the landscape includes small settlements and villages, along with some existing quarrying activities and scattered blocks of forestry.

A proportion of urban land cover is also present across the study area, with the town of Monasterevin, the largest urban area within the study area, located approximately 2.7 km to the south. This introduces residential and commercial built elements into the broader visual context. In the northern portion of the study area, a commercially exploited bog represents a distinct, open landscape feature. Transportation infrastructure is represented by the M7 motorway, the most prominent route within the study area, situated approximately 2.7 km southeast of the site.

Figure 11-7 – Typical lowland agriculture within the Study Area

11.4.3 Centres of Population and Houses

While the study area is predominantly rural in character, the town of Monasterevin, a modest population centre, is the primary settlement and is located approximately 2.7 km to the south of the Site. The remainder of the study area is characterised by a dispersed rural population, with dwellings typically occurring as small linear clusters along local roads, at crossroad settlements, and as isolated farmsteads.

The nearest dwelling to the Site is located immediately adjacent to its southwestern boundary. Additionally, several other dwellings are situated within a 500 m radius of the Site, primarily along the local road network.

11.4.4 Transport Routes

The study area is traversed by several key transport routes. The most notable is the M7 motorway, located approximately 2.7 km to the southeast of the Site. In closer proximity is the R414 regional road, situated approximately 750 m to the east. The R445 regional road, located approximately 4.1 km to the east.

The study area also includes the rail network, which diverges at Cherryville, just outside the study boundary. The Dublin to Limerick Junction line is situated approximately 1.7 km to the east-southwest. Further east, approximately 4.9 km away, is the Dublin to Kilkenny line.

The area also features a dense network of interconnecting local roads, some of which passes near the site. The Grand Canal (Barrow Line) bisect the study area in a southwest–northeast direction.

11.4.5 Recreation and Public Amenities

The Barrow Way (The Grand Canal) is the most notable attraction in the study area, situated along the north-western boundary of the site. Other amenity areas within the study area include Moore Abbey Woods, approximately 3.6 km south of the site, and the Monasterevin Aqueduct, located about 2.6 km southwest.

Apart from the various services available in Monasterevin (including bars, schools, church), there do not appear to be any other significant public amenities or facilities within the study area.

11.5 Do Nothing Scenario

In the do-nothing scenario it is anticipated that there would no changes to the baseline conditions in the Application Site.

11.6 Selection of Sensitive Visual Receptors

The selection of visual receptors is based on the process outlined in the methodology section and relies on representation of a range of receptors types, distance and viewing angles for a robust assessment. More sensitive visual receptors include those involved in recreation, or at amenity areas where there is a focus on a scenic landscape, or residents with views of scenic quality. Less sensitive receptors would include those driving at higher speeds or those engaged in activities where there is not a focus on the landscape and where the views are not considered of high quality.

A total of seven viewpoints selected for LVIA. The selected viewpoints are listed in Table 11-6 and mapped in Figure 11-8 below. The potential impact of the Proposed Project upon these receptors is assessed in the visual assessment section.

Table 11-6 - Selected Viewpoints for Visual Impact Assessment

VRP No.	Location	Direction of view towards Site
VP1	Barrow Way (The Grand Canal) adjacent to the western-northwestern boundary of the site	West/Northwest
VP2	R414 at Ballykelly (approximately 800 m east)	East
VP3	Local road at Coolsickin (approximately 240 m southeast)	Southeast
VP4	Local road at Coolsickin (approximately 260 m east)	East
VP5	L1002 at Coolsickin (approximately 270 m west)	West
VP6	McCartney's Lock Bridge - L1002 at Coolsickin (approximately 100 m southwest)	Southwest

VP7	R414 at Old grange (approximately 1.2 km south)	South

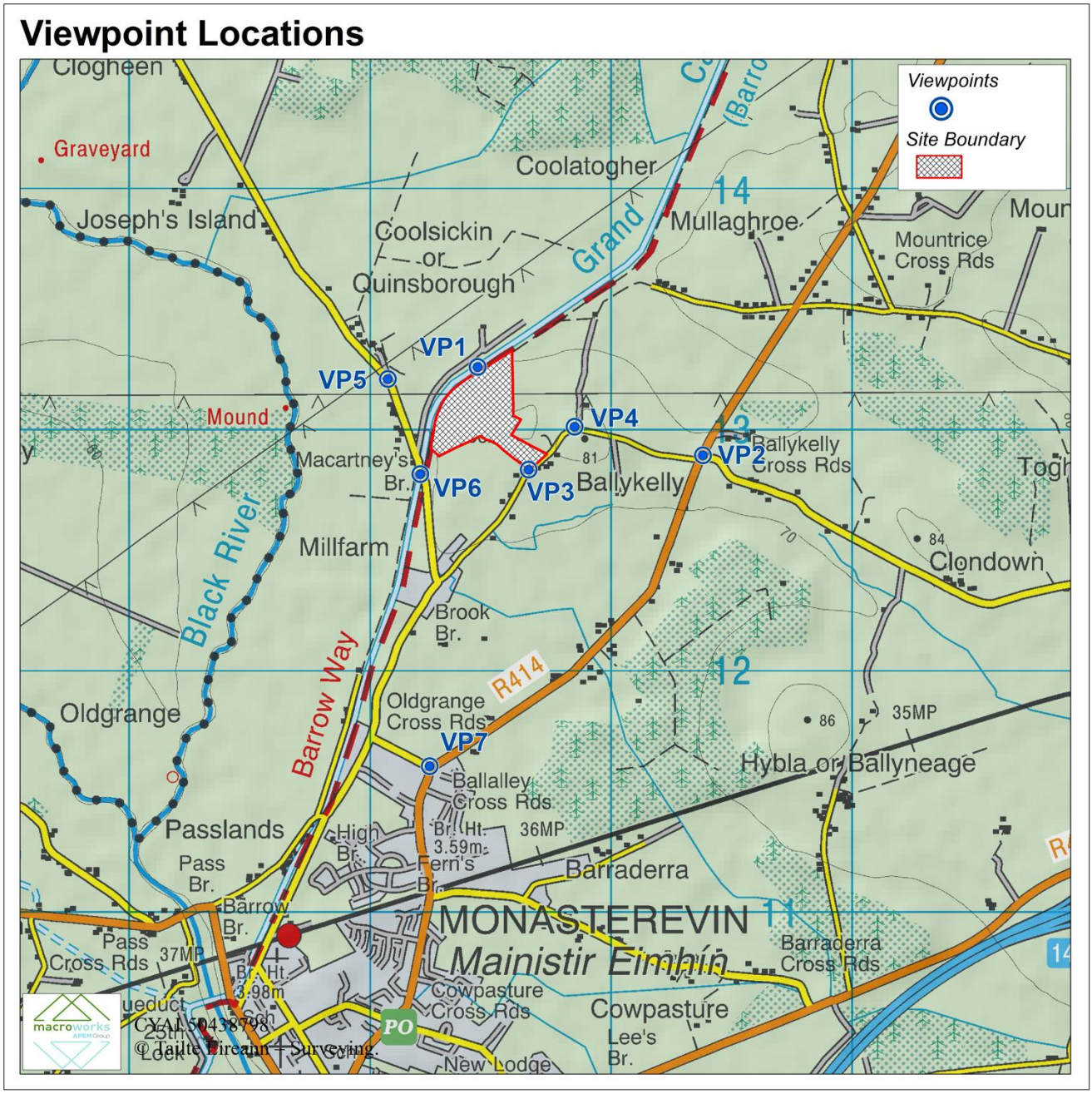


Figure 11-8 - Selected Viewpoint Locations

11.7 Characteristics of the Development

The Proposed Project is the restoration of a 2.3 ha disused quarry void and adjacent lands through a phased infilling operation utilising approximately 720,000 tonnes of clean soils and stones. This infilling will progressively alter the existing excavated topography, including the infilling of a water-filled void in the north-eastern section, to create a final

landform that is contoured to integrate with the surrounding, gently undulating agricultural landscape (elevations ranging from 71-80m AOD in the vicinity). The Site will transition from an open quarry void to a more unified agricultural land pattern, consistent with the dominant land use of the "Southern Lowlands" Landscape Character Area.

A notable characteristic of the operational phase will be the movement of heavy goods vehicles transporting fill material to the Site, estimated at approximately 20 loads per day (average) over a 'worst case' scenario of 10 years. Similarly, the presence and movement of plant and vehicles within the quarry will be a noticeable activity during the proposed working hours (see Chapter 2 of the EIAR for details).

11.8 Potential Effects

11.8.1 Landscape Effects

11.8.1.1 Landscape Sensitivity

The landscape sensitivity of the study area is variable, and indicates a naturally evolving sensitivity over time. While predominantly rural, the wider area exhibits human intervention through agriculture, infrastructure, and existing quarrying. The southern part of the study area is influenced by Monasterevin, while the majority retains a predominantly rural character.

The KCC CDP 2023-2029 classifies the site within the Lowlands Area, specifically the Southern Lowlands Landscape Unit, designated as having low landscape sensitivity, implying a general capacity to accommodate development, and potentially a greater ability to assimilate changes associated with a restoration of the quarry aimed at improving land quality and agricultural use.

While the wider study area includes recreational amenities like the Grand Canal (Barrow Way), a designated Area of High Amenity, valued for its linear recreational opportunities and heritage, the quarry site itself is largely enclosed and its existing landscape character is already influenced by a disused quarry and adjacent quarrying operations.

At a local scale, elements of moderate landscape value included field boundaries and hedgerows within and adjacent to the Site. However, as the quarry restoration works are confined to a specific area and situated next to another quarry, the sensitivity of these features is considered Medium-Low, especially considering the restorative nature of the proposal aims to ultimately integrate and potentially enhance these features over time.

In addition, the Site is set within an area that retains certain characteristics that will assist in absorbing and integrating the proposed quarry restoration into the prevailing landscape character surrounding the Site.

As a result, the sensitivity of Landscape receptors within the study area typically ranges between High-Medium and Medium-Low. High-Medium sensitivity is generally associated with designated scenic prospects identified in the KCC CDP 2023-2029 and views from the Grand Canal. Medium-Low sensitivity applies to other, more typical views within the working rural landscape.

11.8.1.2 Landscape Impacts

The 8–10 year quarry restoration will reshape the 6.05 ha site by infilling the void with 720,000 tonnes of clean soil and stone to create a landform integrating with the "Southern Lowlands". This will involve a notable change from the existing excavated form. The proposed final ground levels will tie in with surrounding lands at levels predicated to be similar to those that would have been present prior to extraction having taken place within the Application Site.

A key long-term positive impact will be the planting of native tree and shrub species within and around the restored area, contributing to ecological recovery and visual integration with the surrounding agricultural landscape, potentially enhancing existing field boundaries. The final agricultural land use aligns with the area's character.

Landscape impacts during the operational phase include the visual presence of heavy vehicles (importing and spreading fill) and temporary site facilities. The magnitude of these medium-term impacts is similar to the original quarrying activity but in reverse. Thus, the magnitude of landscape impact is considered to be **Medium-low** with a **Negative** quality.

Upon completion, the establishment and maturation of the native planting will lead to a permanent **Medium-low** magnitude of impact of a **Positive** quality, as the site becomes a more integrated and ecologically valuable part of the landscape.

The significance of landscape effects is **Moderate-slight / Medium-term / Negative**, transitioning to **Moderate-slight / Permanent / Positive**.

11.8.2 Visual Effects

This LVIA includes an assessment of visual effects that is based on seven representative viewpoints. The photography for the viewpoints was captured in February 2025 to assess the visual impact (Appendix 11A).

11.8.2.1 Visual Receptor Sensitivity

The study area presents a typical rural landscape, though some receptors within it exhibit slightly heightened sensitivity due to elevated terrain that affords expansive views across the wider working landscape. Despite this, the study area does not have a sense of rarity or distinctiveness in terms of the visual context.

The principal source of visual amenity within the study area related to the Grand Canal, and its immediate environs, and views to and from the canal bridges. The portion of the canal and associated ancillary structures that are contained within the study area are representative of an historical legacy of industrial and transport activity across the country which was connected by the canal network. Beyond the canal corridor, the remainder of the study area is not particularly rare in either a regional or local sense as it comprised of typical productive and extractive land uses.

Views of the agricultural landscape are generally pleasant, characterised by undulating pastoral fields, hedgerows, and vegetation that create a sense of natural containment. However, the landscape is also influenced by anthropogenic elements such as major

transport routes, urban settlements, and commercial developments. As a result, visual receptor sensitivity typically ranges between **High-medium** and **Medium-low**, with the **High-medium** sensitivity applying to designated scenic prospects in the KCC CDP 2023-2029 and views from the Grand Canal in general.

11.8.2.2 Visual Impact Assessment at Selected Representative Viewpoints

An assessment of visual effects is contained in Table 11-7 below.

Table 11-7 - Comparative Visual Impact Assessment across Substitute consent period

VRP No.	Visual Receptor Context	Visual Receptor Sensitivity	Visual Change from Proposed Project	Significance of Visual effect
VP1	Barrow Way (The Grand Canal) adjacent to the western-northwestern boundary of the Site. This view represent The Barrow Way users, local community, and road users. The view at the Grand Canal towpath, presents a predominantly flat to gently undulating rural landscape. The foreground features rough grassland, low scrub vegetation and hedgerow bordering the canal walkway. Views beyond the immediate foreground are largely screened by a dense hedgerow and areas of slightly raised ground.	High-medium	The infill development works will be visible from here and will present in a similar manner to the original quarrying works in terms of temporary stockpiling and the movement of workers and machinery. Once the quarry restoration is completed, the infilling activity will be visible above and through the existing hedgerow. The most notable alteration will be the raised landform within the former quarry area, which will be visible above and through gaps in the vegetation, introducing a new, comparatively smooth grassed surface akin to surrounding fields within the scene. Given these factors, the magnitude of visual impact is deemed **Low**, and the quality of the effect is deemed **Positive**.	<u>Operational phase</u> Moderate-slight /Negative/ Medium term <u>Post infill development</u> Moderate-slight /Positive/ Permanent

VP2	R414 at Ballykelly (approximately 800 m east) This view represent the local community and regional road users. The view features the regional road, beyond which lies a broad agricultural field that slopes gently upwards. The field is bordered by well-established roadside hedgerows and punctuated by occasional mature trees. In the background, an elevated ridge is visible, with mature forestry further to the southwest of the view, which effectively blocks any views beyond.	Medium-Low	There will be no visibility of the infill works or restored quarry from here due to intervening vegetation and terrain. Consequently, the magnitude of visual impact is deemed **Negligible**.	Imperceptible/Neutral/Permanent

VP3	Local road at Coolsickin (approximately 240 m east-southeast). This view represent the local community, quarry workers, and road users. The view features a sloping earth track extending into the view, running through the agricultural field and flanked by vegetation. To the left, a white building with a garage is visible, bordered by a dense hedgerow. To the right, a green metal fence runs halfway along the track. In the middle ground, raised stockpiles are visible, which block any views beyond.	Medium-Low	The proposed restoration of the quarry will not be visible from this viewpoint due to the screening from the intervening vegetation and the sloping, elevated terrain. While the site access will undergo upgrades, consistent with standard access track improvements in rural areas, these are unlikely to bring any notable change in the visuals of this view. Consequently, the magnitude of visual impact is deemed **Negligible**.	Imperceptible/Neutral/ Permanent
VP4	Local road at Coolsickin (approximately 260 m east). This view represents the local community, and road users. The view features	Medium-Low	The infill development works will be visible from here and will present in a similar manner to the original quarrying works in terms of temporary stockpiling and the movement of workers and machinery.	<u>Operational phase</u> Slight /Negative/ Medium term <u>Post infill development</u> Slight /Positive/ Permanent

	a gated entrance characterised by a dense and overgrown hedgerow that partially obscures the view beyond. Through the gate, the ground is rough with visible mounds of stockpiles and a mix of sparse vegetation and bare earth. The background is largely obscured by the rising terrain.		The restored view depicts a noticeable change within the area visible through the gate where the raised stockpiles have been removed and the ground level has become more even and covered with vegetation. The removal of the stockpiles and the levelling of the ground within the site creates a noticeably tidier and more visually uniform and appealing view. Hence, the magnitude of visual impacts is deemed as **Low**, and the quality of effect is deemed **Positive**.	
VP5	L1002 at Coolsickin (approximately 270m west). This view represents the local community and local road users. The view features the L1002 road in the foreground, bounded by a hedgerow. A number of dwellings are situated at the back of the view. The hedgerow largely blocks views beyond, with only fleeting glimpses afforded through breaks in its cover.	Medium-low	There will be no visibility of the restored quarry from here due to intervening vegetation. Consequently, the magnitude of visual impact is deemed **Negligible**.	Imperceptible/Neutral/ Permanent

VP6	McCartney's Lock Bridge - L1002 at Coolsickin (approximately 102m southwest). This view represents the KCC CDP 2023-2029 Scenic view, local community, and bridge users from the bridge. The view features the Royal Canal in the middle ground, with roads on both sides of the canal. The road to the east leads to the Royal Canal walkway, bounded by agricultural fields. A number of houses are present in the vicinity of the view.	Medium-Low	There will be no visibility of the restored quarry from here due to intervening vegetation. Consequently, the magnitude of visual impact is deemed **Negligible**.	Imperceptible/Neutral/ Permanent
VP7	R414 at Old grange (approximately 1.2 km south). This view represents the local community and regional road users. The view from the field gateway features a broad, relatively flat, agricultural field enclosed by hedgerows. In the far	Medium-Low	There will be no visibility of the restored quarry from here due to intervening vegetation. Consequently, the magnitude of visual impact is deemed **Negligible**.	Imperceptible/Neutral/ Permanent

	middle ground to background, a few dwellings are partially visible through gaps in the trees, while mature trees and vegetation block any views beyond.			

11.9 Mitigation Measures

Given the context and nature of the proposed quarry restoration, and the positive quality of residual landscape and visual effects even without additional measures, specific mitigation is not considered necessary. The very act of restoring the currently filled void and the quarry itself will inherently bring the Site's landform closer to the surrounding ground levels and topography.

Furthermore, the proposed restoration will serve to soften the appearance of the former quarry, facilitate a return towards a more naturalised agricultural environment consistent with the surrounding landscape character.

11.10 Residual Effects

In this instance there are no specific mitigation measures relating to landscape and visual effects deemed to be required, so residual landscape effects and visual effects will be the same as assessed in Section 10.7.

11.11 Cumulative Effects

Whilst there are other sand and gravel quarries contained within the Study Area as well as other forms of development, these form part of the baseline landscape and visual context against which the Landscape and Visual Assessment has been made in Section 10.7. Furthermore, given the Positive and Neutral quality of effects that have been assessed for this infill project, it is not considered that there can be any significant and negative Landscape and Visual cumulative effects arising from it.

11.12 No Change Scenario

In the event of no change to the current baseline scenario, the existing sand and gravel pit would likely remain as an exploited void in the landscape. Although there may be some natural vegetation regeneration, it would remain as a perceptual scar on the landscape with a sense of dereliction. Therefore, the No Change scenario will result in the continuation of negative, but not significant, Landscape and Visual Effects.

11.13 Monitoring

In this instance there are no specific mitigation measures relating to landscape and visual effects proposed, so on-going monitoring is not required.

11.14 Difficulties Encountered

No particular difficulties were encountered in the course of undertaking this landscape and visual impact assessment.

11.15 References

Kildare County Council (2022) Kildare County Development Plan 2022-2028

Laois County Council (2021) Laois County Development Plan 2021-2027

Offaly County Council (2021) Offaly County Development Plan 2021-2027

Environmental Protection Agency (EPA) (2022). Guidelines on the Information to be Contained in Environmental Impact Reports (EIAR). Environmental Protection Agency, Wexford. https://www.epa.ie/publications/monitoring--assessment/assessment/guidelines-on-theinformation-to-be-contained-in-environmental-impact-assessment-reports-eiar.php

Landscape Institute and the Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd edition, London: Routledge.

Landscape Institute (2024) GLVIA3 – Statements of clarification, London: Landscape Institute.

Landscape Institute (2019) Visualisation of development, London: Landscape Institute.

Appendix 11A

Photomontages

Public

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LVIA PHOTOMONTAGES

Ballykelly Quarry

This book contains imagery for the viewpoints chosen for the LVIA study

May 2025

VIEWPOINT INDEX

VP1a: Barrow Way (The Grand Canal) adjacent to the western boundary of the site (a + b)
90˚ Baseline Photography
90˚ Photomontage
90˚ Baseline Photography
90˚ Photomontage

VP2: R414 at Ballykelly
90˚ Baseline Photography

VP3: Local road at Coolsickin (approximately 230m east-southeast)
90˚ Baseline Photography

VP4: Local road at Coolsickin (approximately 260m east)
90˚ Baseline Photography
90˚ Photomontage

VP5: L1002 at Coolsickin
90˚ Baseline Photography

VP6: McCartney's Lock Bridge - L1002 at Coolsickin
90˚ Baseline Photography

VP7: R414 at Old grange
90˚ Baseline Photography

MACRO WORKS METHOD STATEMENT - Verified View Photomontage Production

Introduction

There is no industry-standard definition of what constitutes a ‘verified photomontage’, and it has been applied in two different ways, namely in terms of image size/scaling, and the accuracy of the camera location. Both are essentially concerned with the ability to audit the accuracy of the visual material.

The Landscape Institute Technical Guidance Note 06/19 – Visual representation of development proposals (TGN 06/19) states that:

“Visualisations should provide the viewer with a fair representation of what would be likely to be seen if the proposed development is implemented and should portray the proposal in scale with its surroundings. In the context of landscape/townscape and visual impact assessment, it is crucial that visualisations are objective and sufficiently accurate for the task in hand. In short, visualisation should be fit for purpose.”

Macro Works has produced the Verified View Montages (VVM) included in this document in accordance with TGN 06/19, guidance which is broadly consistent with Scottish Natural Heritage (now NatureScot) ‘Visual Representation of Wind Farms’ 2017. This guidance advocates a proportionate approach and appropriate levels of accuracy to the production of visual material.

In the context that the visual material is to accompany a planning application, Macro Works has followed a highly accurate and verifiable process to accurately communicate the scale, appearance, context, form, and extent of development, and ensure that the visual material is accurate, objective, and unbiased. The VVM are considered consistent with Type 4 in the guidance.

The photography was captured during good weather conditions with high levels of visibility. Photography has been taken to a very high standard in accordance with the guidance, and locational information is captured with a high degree of accuracy with regard to location and elevation.

The locations of the visualisations have been identified through the Landscape/Townscape and Visual Impact Assessment (LVIA or TVIA) process, and produced from 3D model information received from project architects/engineers.

This methodology has been prepared by Macro Works to explain the production of the VVM, ensuring the process is transparent and auditable.

Photography and GPS/GNSS Data

At the agreed locations, high-quality photography is captured in RAW format using either a Canon 5D Mark II or Canon 6D Mark II Full Frame Sensor camera. A Manfrotto tripod and panoramic head and leveller are used to ensure the photography is taken level and at consistent angles to ensure consistent overlapping.

Viewpoint locations are captured by inhouse trained personnel using a survey-grade GNSS unit and made compatible with the GIS referenced drawings of the proposed development. Where deemed necessary, the camera location is paint-marked and photographed and subsequently surveyed by a qualified topographical surveyor. In these circumstances, surveyors are given the photograph locations, together with marked-up photography that shows elements in the view (parapet heights, kerbing, lamp posts, etc.) that are to be surveyed as control points for model alignment within the panorama.

TGN 06/19 advocates the use of a 50mm prime lens as the industry standard, and this is the default approach adopted. In urban contexts, where a 50mm lens cannot fully capture the proposed development, the guidance accepts the use of alternative fixed-length prime lenses (Appendix 11, P.28). This approach is adopted dependent on the proximity of the development.

Following the site visit, RAW images are processed via Adobe Lightroom and panoramas are stitched and generated using the recommended industry standard software, PTGui Pro.

Post Production and Formatting

Post-production, the rendered image is taken into Adobe Photoshop where it is ‘masked’ into the existing captured panorama. This essentially involves ensuring that anything in the foreground of the proposals is brought in front of the rendered image.

Adjustments are made as required to ensure that the lighting, reflections, and material characteristics of each render are accurate to the time and date of the photography and that the images meet GDPR standards (via blurring faces and car registrations, etc.).

Proposed mitigation is added where indicated via a Landscape Mitigation Plan.

Each VVM is subject to a thorough review and approval process which includes discussions with project engineers and architects to ensure it accurately reflects the architectural proposals.

3D Modelling and VVM Creation

The proposed development is accurately modelled into a 3D environment in GIS mapping software and 3DS Max 2023 using a combination of data sources (REVIT files, AutoCAD drawings, DTM/DSM data etc.) received from the project architects and engineers.

Virtual 3D cameras are positioned according to the survey coordinates, and the focal length is set to match the captured photography.

For rural projects, the visualisation preparation methodology recommended in the Scottish Natural Heritage 2017 ‘Visual Representation of Wind Farms’ is strictly followed. This involves the creation of 360° wirelines using GIS software, which perfectly match the generated panoramas and 3DS Max renders for each viewpoint. This allows for the development to be accurately placed within the captured photography.

For urban projects, camera matching or photographic alignment is a method by which a combination of data is used to produce an accurate camera match for each view. Virtual 3D cameras are positioned and the captured photography is then placed into the background of the 3DS Max Viewpoint. The surveyed information is then matched to the existing buildings in the photography.

Where appropriate, colour palettes and material references provided by the wider design team are applied to the model to provide a real-world representation. To ensure a high degree of accuracy, renders of the development are generated from 3DS Max 2023 with identical image characteristics to that of the baseline photography, including reference to the date and time of capture.

Image Presentation

The objective of Type 4 visualisation is to present a printed image which gives a realistic impression of scale and detail.

VVMs are presented in accordance with the TGN 06/19 guidance, and final views are formatted into a booklet using Adobe InDesign, with all accompanying information relating to the photography, modelling, topography, post-production and viewpoints included.

For each viewpoint location, a 90° Horizontal Field of View (HFoV) cylindrical baseline photograph is provided to allow a 96% enlargement contextual reference. Image enlargement of 150% is recommended in the guidance (where feasible) to allow for binocular image scaling when printed, which results in an image with a 53.5° HFoV. Where this is not feasible because of proximity, or infrastructure occupying a wide field of view well beyond 53.5° that would necessitate splitting the view across multiple images, 90° HFoV cylindrical images are presented to avoid confusion for the viewer. A bounding box illustrates the extent of a 53.5° image where this is the case.

This document contains a site location map with VVM locations plotted, and all reference information, including photography, modelling, topographic, post-production, formatting, viewpoint and viewing instructions.

Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1a Barrow Way (The Grand Canal) adjacent to the western boundary of the site

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663183.762
Northing (ITM):	7116344445
Direction of View:	107 ˚
Distance to Site:	1.3 km
Elevation:	67.915 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:37
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1a Barrow Way (The Grand Canal) adjacent to the western boundary of the site

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663183.762
Northing (ITM):	7116344445
Direction of View:	107 ˚
Distance to Site:	1.3 km
Elevation:	67.915 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:37
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1b Barrow Way (The Grand Canal) adjacent to the western boundary of the site

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663183.762
Northing (ITM):	7116344.4445
Direction of View:	185 ˚
Distance to Site:	1.3 km
Elevation:	67.915 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:37
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP1b Barrow Way (The Grand Canal) adjacent to the western boundary of the site

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663183.762
Northing (ITM):	7116344445
Direction of View:	185 ˚
Distance to Site:	1.3 km
Elevation:	67.915 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:37
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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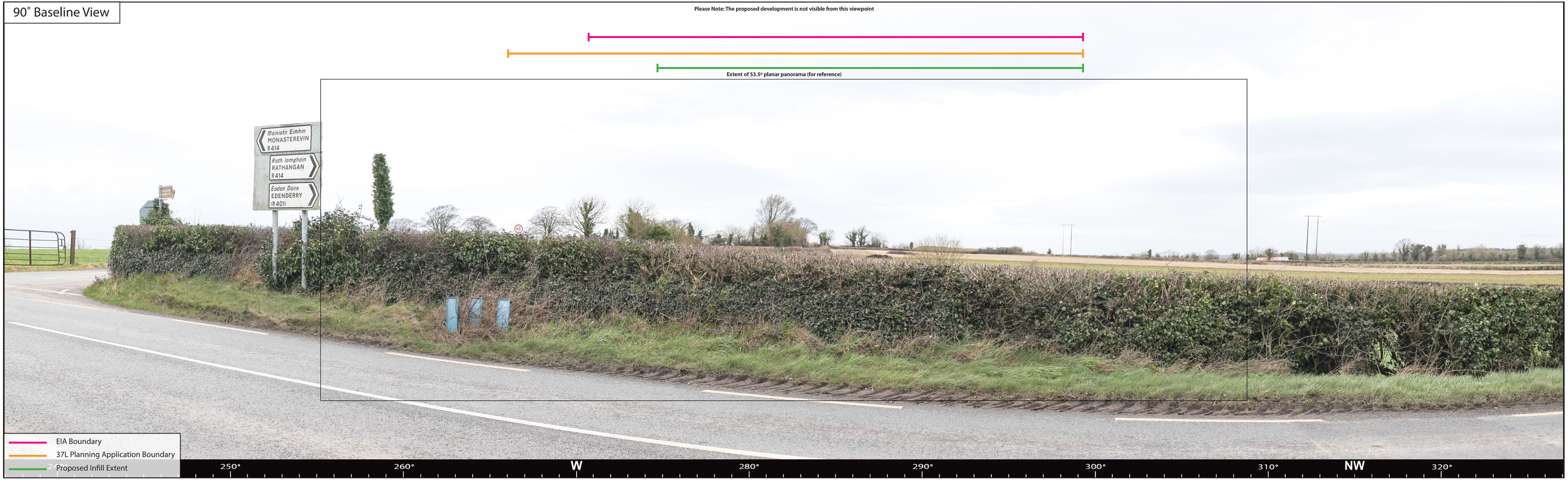
90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)



Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP2 R414 at Ballykelly

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	664318.4038
Northing (ITM):	712923.7538
Direction of View:	182 ˚
Distance to Site:	0.8 km
Elevation:	78.4053 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:48
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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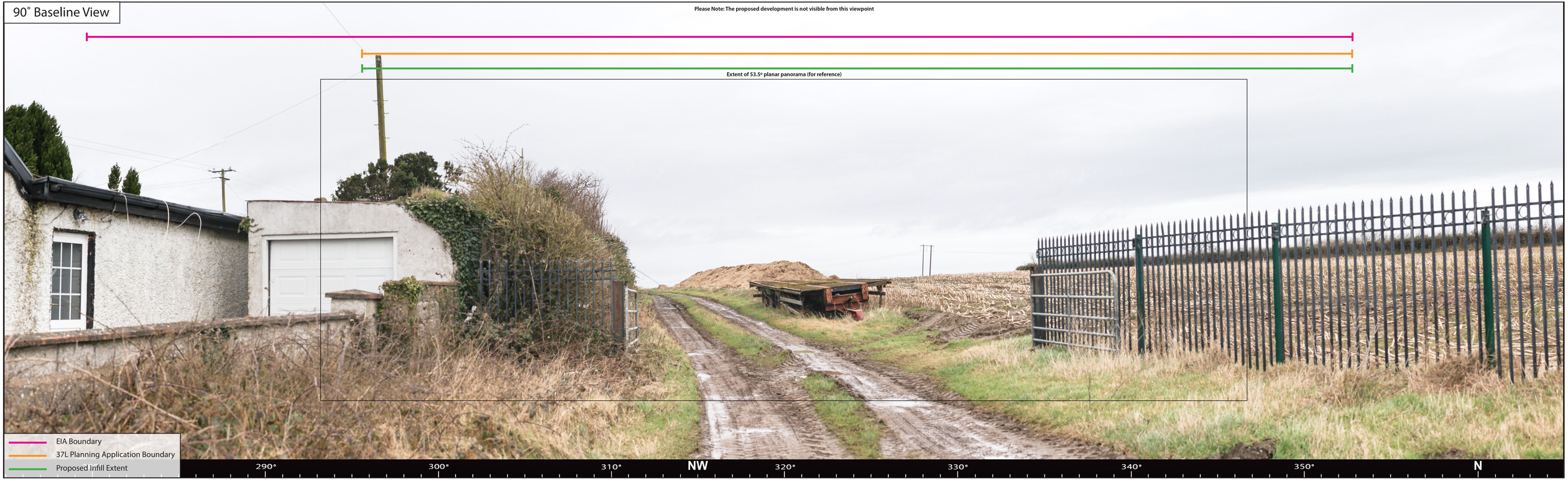
90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)



Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP3 Local road at Coolsickin (approximately 230m east-southeast)

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663784.9224
Northing (ITM):	713042.6196
Direction of View:	320 ˚
Distance to Site:	0.3 km
Elevation:	83.3561 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 13:52
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP4 Local road at Coolsickin (approximately 260m east)

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663144.4114
Northing (ITM):	712845.4454
Direction of View:	277 °
Distance to Site:	0.1 km
Elevation:	69.6675 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 14:00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP4 Local road at Coolsickin (approximately 260m east)

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663144.4114
Northing (ITM):	712845.4454
Direction of View:	277 ˚
Distance to Site:	0.1 km
Elevation:	69.6675 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 14:00
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)

EIA Boundary

37L Planning Application Boundary

Proposed Infill Extent

Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP5 L1002 at Coolsickin

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663382.5168
Northing (ITM):	713290.2526
Direction of View:	113 ˚
Distance to Site:	0.0 km
Elevation:	71.6846 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 14:08
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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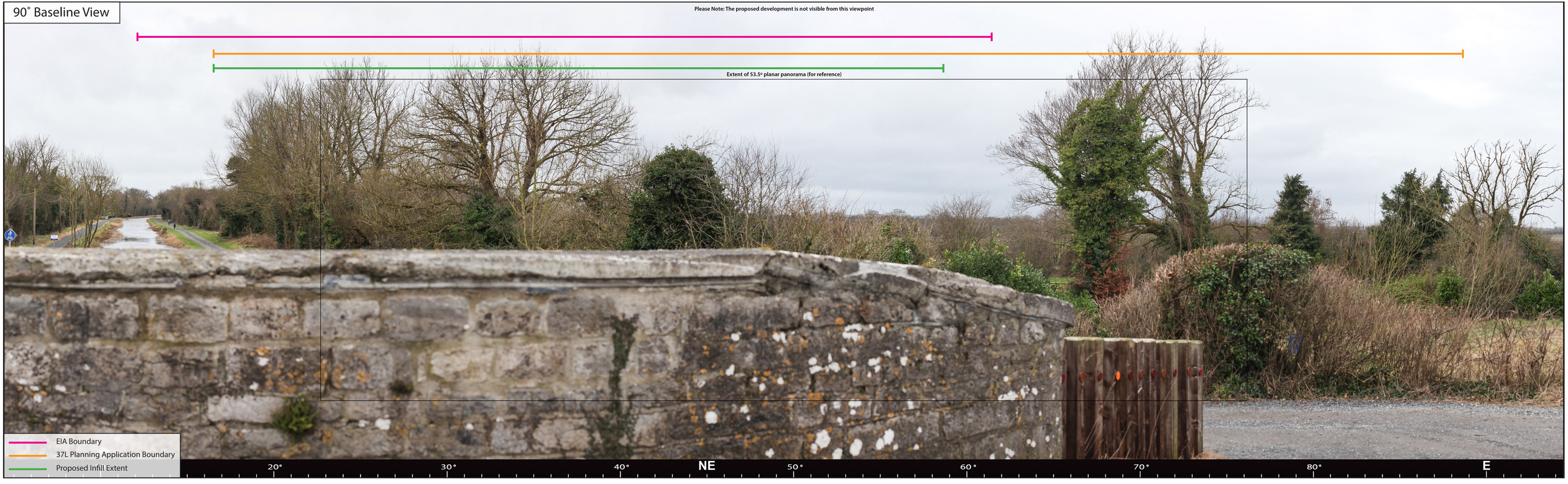
90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)



Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP6 McCartney's Lock Bridge - L1002 at Coolsickin

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663009.7957
Northing (ITM):	713240.3404
Direction of View:	49 ˚
Distance to Site:	0.2 km
Elevation:	69.7743 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 14:24
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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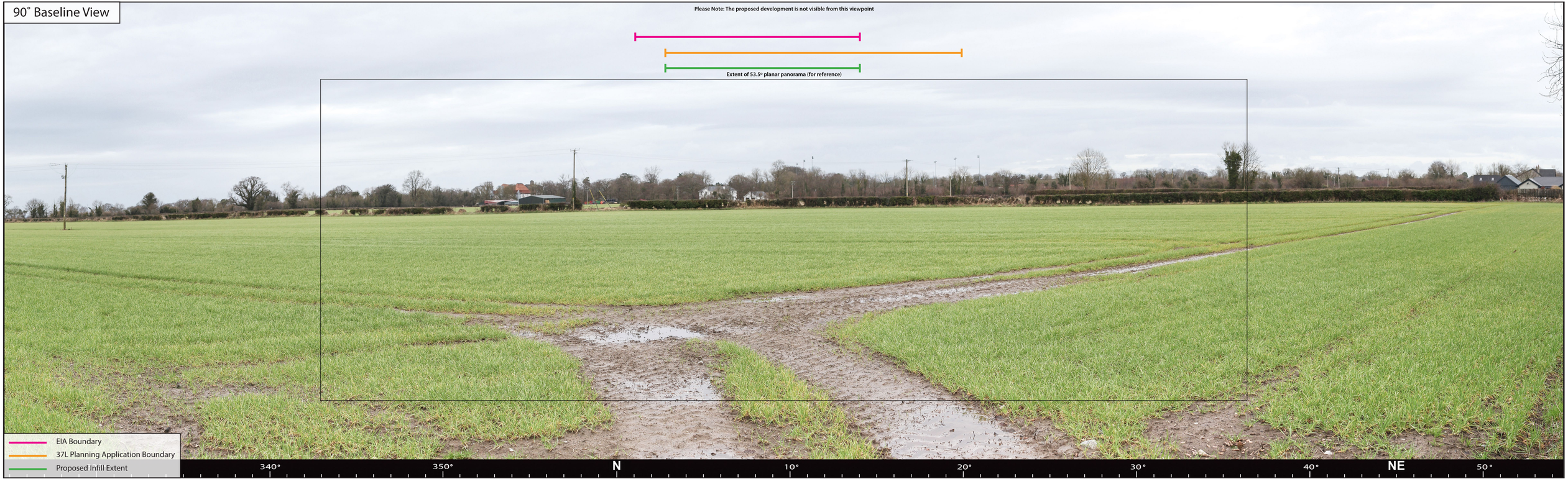
90˚ Baseline View

Please Note: The proposed development is not visible from this viewpoint

Extent of 53.5° planar panorama (for reference)



Ballykelly Quarry - Landscape and Visual Impact Assessment

Viewpoint Ref: VP7 R414 at Old grange

Visualisation Type 4 - This 90˚cylindrical projection panorama has been captured, prepared and presented in accordance with the guidance set out in the Landscape Institute Technical Guidance Note 06/19 for Type 4 Visualisations and the Scottish Natural Heritage 2017 guidance 'Visual Representation of Wind Farms'. This image has been presented in a 90˚ cylindrical format to aid visual comprehension of linear infrastructure occupying a wide FoV, which avoids splitting the view across numerous multiple images.

Easting (ITM):	663594.6448
Northing (ITM):	712864.0898
Direction of View:	10 ˚
Distance to Site:	0.2 km
Elevation:	78.7869 m

Horizontal Field of View:	90˚ (cylindrical projection)
Principal Distance:	522 mm
Paper size:	841 x 297 mm
Correct printed image size:	820 x 251 mm
Enlargement Factor:	96%

Date and Time:	19/02/2025 14:31
Camera:	Canon 5D Mark II Digital SLR
Lens:	Canon Fixed 50mm Full Frame Sensor
Panoramic Head:	Manfrotto Pano Head/Leveller
Camera Height:	1.7m (AGL)

Photography Software:	Adobe Lightroom
Panorama Stitching Software:	PTGui Pro
Post-Production Software:	Adobe Photoshop
Formatting Software:	Adobe Illustrator/InDesign

Modelling Software:	3DS Max 2023
Rendering Software:	Mental Ray/Corona
GNSS Unit:	Trimble Catalyst (GNSS)
Topographical Data:	LiDAR/OSI Terrain Data
GPS Ref:	Georeferenced/Surveyed DWGS

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