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Introduction

Background

13.1 This chapter of the EIAR assesses the landscape and visual effects arising from the proposed bio-renewables production facility at the existing Roadstone Killough quarry development in Gaile townland, Holycross, Co. Tipperary. The proposed facility is located approximately 3.5 km and 6.5 km south of Holycross and Thurles respectively.

13.2 The 6.3 ha planning application area, hereafter referred to as the 'application area' or 'the site', comprises a 4 ha area in the southwest corner of the existing permitted quarry, where the production facility will be located, hereafter referred to as the 'facility area'. The application area further comprises the existing quarry entrance and access road, which will be utilised to access the production facility.

13.3 The near rectangular facility area is currently occupied by processed aggregate stockpiles which will be relocated prior to any development works associated with the proposed bio-renewables facility being carried out. The facility will consist of a series of buildings and tanks ranging in height from 3.2 m to 16 m (above ground level). There will also be two stacks, each 17.5 m in height (above ground level), one at the eastern end of the facility and one east of the centre of the facility. All buildings will be finished in a grey colour (goosewing), similar to most existing buildings present within the wider quarry development.

13.4 To the south and west, i.e. the outer boundaries of the existing quarry development, the facility area is bordered by existing screening berms. The southern berm is topped with dense screen planting which is currently at a height of ca. 5m. Similar screen planting was carried out in recent years on the berm along the western boundary. The plants on this berm are currently at a height of 1-2 m and have not yet grown to form a dense screen but are expected to do so in the next 3-5 years. To the north and east the facility area is adjoined by areas which are and will continue to be used for works associated with the quarry development.

13.5 Very little existing vegetation, including 6 semi-mature trees and ca. 50 self-seeded young willow bushes scattered around the site will have to be removed to facilitate the development. Considering this, as well as the existing substantial screening surrounding the facility area and the quarry development in general, all of which will be retained, no further landscape proposal are considered necessary as part of the proposed development.

13.6 This chapter should be read in conjunction with the following figures, which have been prepared to inform the EIAR chapter:

- **Figure 13-1:** Landscape Baseline and Viewpoint Locations
- **Figure 13-2:** Zone of Theoretical Visibility (ZTV) Map
- **Figure 13-3:** Viewpoint/Photomontage A
- **Figure 13-4:** Viewpoint/Photomontage B
- **Figure 13-5:** Viewpoint/Photomontage C
- **Figure 13-5:** Viewpoints D & E
- **Figure 13-5:** Viewpoints F & G

Scope of Work / EIA Scoping

13.7 The EPA guidelines in relation to the preparation of an EIAR (May 2022) suggest the following typical headings that may be included in respect of the prescribed environmental factor 'The Landscape':

- Landscape Appearance and Character;
- Landscape Context;
- Views & Prospects; and
- Historical Landscapes.

13.8 These headings are incorporated in the below assessment, as appropriate. However, in the absence of more detailed Irish guidance, the assessment contained within this chapter is based on the Third Edition of the Guidelines for Landscape and Visual Impact Assessment issued by the Landscape Institute and Institute of Environmental Management and Assessment (hereinafter referred to as 'GLVIA3'). These guidelines are widely accepted as best practice for Landscape and Visual Assessment (LVIA) in Ireland.

13.9 GLVIA3 emphasises that landscape and visual effects are related but independent issues; landscape effects are changes in the landscape, its character and quality; while visual effects relate to the appearance of these changes and the resulting effect on visual amenity.

13.10 The assessment of overall landscape and visual effects and their significance is defined in terms of the relationship between the sensitivity of the landscape/visual receptors and the magnitude of the change.

13.11 As GLVIA3 (paragraph 2.23) states, professional judgement is an important part of the LVIA process: whilst there may be some scope for objective measurement of landscape and visual changes, much of the assessment must rely on qualitative judgements. It is critical that these judgements are based upon a clear and transparent method so that the reasoning can be followed and examined by others.

13.12 GLVIA3 sets out a framework for making judgements about the level of effects that may result from change or development. It describes a step by step approach in which: judgements about the value and susceptibility of the receptor are combined into a judgement about sensitivity; judgements about the size/scale of the effect, its geographical extent and its duration and reversibility are combined into a judgement about the magnitude of the effect; and finally, the judgements about sensitivity of the receptor and the magnitude of the effect are combined to judge the level of the effect. If the assessment forms part of an EIA, a threshold may then be identified to show which effects are considered to be significant and which are not.

13.13 GLVIA3 is not prescriptive about exactly how the various judgments required in this framework should be made. This is a matter for individual practitioners to decide and explain. In this document it has been assessed that Major or Major/Moderate levels of effect are significant.

13.14 The full LVIA methodology is described in **Appendix 13-A**. Please note that much of the terminology used in assessing the landscape and visual effects is in accordance with the above-mentioned EPA Guidelines. However, the terminology used in this LVIA to describe the level of effects (= "significance of effects" in the EPA Guidelines) differs slightly from said EPA Guidelines, based on examples provided in GLVIA3.

Technical Standards

13.15 Photography and visual representations are based on the principles set out in the Landscape Institute – Technical Guidance Note 06/19 – Visual Representation of

Development Proposals. There is no Irish standard/guidance, and in our experience, it is typically considered sufficient to provide two annotated viewpoint photography (Type 1 photography in Technical Guidance Note 06/19) on one A3-sized sheet, using a range of horizontal angles of view (i.e. 75˚-105˚) to illustrate the full extent of the development within each photograph presented, as well as the context within which the site is located.

13.16 The Landscape Institute – Technical Guidance Note 02/21 – Assessing landscape value outside national designations was taken account of in the preparation of the assessment methodology, as provided in **Appendix 13-A** at the end of this chapter.

13.17 The recently published Landscape Institute – Technical Guidance Note LITGN-2024-01 – Notes and Clarifications on aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3) was also taken into account in the preparation of the assessment methodology provided.

Consultations / Consultees

13.18 A pre-planning consultation meeting was held between officials of Tipperary County Council and the Applicant on the 20th November 2023 (ref. **PP10095**). Further to that a pre-planning consultation document was issued to statutory consultees and a public consultation meeting was held on 25th June 2024.

13.19 During the public consultation a number of queries regarding the height of the proposed plant, in particular compared with the existing plant within the quarry development were raised. No other points specifically relating to landscape and visual issues were raised as part of any of the consultation responses.

13.20 The height of the proposed plant is set out in the planning drawings, which cover each of the proposed buildings/structures individually. In order to further address the concerns regarding the visibility of the plant with reference to the existing plant at Killough Quarry, three photomontages were produced. These photomontages are included as part of this EIAR chapter, refer to **Figures 13-3**, **13-4** & **13-5**.

13.21 Following a review of published development plans and the site survey, it was considered that there was no requirement for a separate formal consultation to be carried out regarding the landscape and visual effects of the proposed development.

Contributors / Author(s)

13.22 The LVIA including site work and completion of drawings was carried out by Anne Merkle, a Principal Landscape Architect with SLR Consulting Ireland. Anne graduated from the Nürtingen-Geislingen University (Germany) in Landscape Architecture (Dipl.-Ing. (FH)), in 2002. She has 20+ years' experience working for landscape consultancies in Ireland, specialising in Landscape and Visual Impact Assessments for a wide range of projects, including quarries, waste recovery facilities, wind farms, powerlines and mixed developments. In 2017, Anne completed an MSc in Biodiversity and Land Use Planning at NUI Galway. She is a full member of the Irish Landscape Institute (MILI) since 2005.

13.23 Anne further holds a Technician's Certificate in Arboriculture and is a Technician Member of the Arboricultural Association.

Sources of Information

13.24 The assessment is based upon a desk top assessment of relevant plans, guidance and landscape character assessments, as well as a thorough site assessment carried out in April 2024. The desktop study and field work were informed by:

- Tipperary County Development Plan 2022-2028

- digital and paper (Ordnance Survey Ireland) mapping at different scales; and
- information available on the internet (such as satellite images and information on recreational facilities and nature conservation sites)

Study Area

13.25 A study area of 1 km surrounding the application area and extending up to 3 km to the northwest, west, southwest, south and southeast was identified during the desktop study, based on the Zone of Theoretical Visibility Map (refer to **Figure 13-2**). While the ZTV indicates further areas of visibility beyond this area, the level of visibility is very low and considering the local agricultural landscape with many screening hedgerows, a larger study area is not considered necessary.

Field Survey

13.26 A detailed field survey was carried out on 1st November 2024, in overcast conditions, but with good visibility. Photographs were taken during the field surveys, using a Nikon D610 digital SLR full frame camera, with a fixed 50mm lens, mounted on a tripod with a panoramic head. The individual photos were taken in portrait format.

13.27 In accordance with GLVIA3, the field survey and viewpoint photography concentrated on publicly accessible areas, such as the road and public footpath networks, residential and outdoor recreational areas.

Limitations / Difficulties Encountered

13.28 No difficulties were encountered during the desktop study, field survey or in the preparation of this report.

Significant Risks

13.29 There are no known significant risks to human health or environmental effects, which may occur in relation to this landscape and visual impact assessment.

Regulatory Background

13.30 The following paragraphs set out the regulatory background with regard to LVIA in Ireland and the site-specific planning background relevant to the proposed development.

Legislation

13.31 In 2002, Ireland ratified the European Landscape Convention, which promotes the protection, management and planning of landscapes. The National Landscape Strategy for Ireland 2015-2025 was published “to ensure compliance with the European Landscape Convention and establish principles for protecting and enhancing the landscape while positively managing its change”.

13.32 Article 1a of the European Landscape Convention defines landscape as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”. This definition has been included in the Planning and Development (Amendment) Act 2010, along with the requirement that objectives relating to landscape shall be included in development plans.

13.33 There is no Irish legislation specifically governing the preparation of landscape and visual impact assessments.

Planning Policy and Development Control

13.34 The Tipperary County Development Plan (TCDP) 2022-2028 is the statutory plan detailing the development objectives/policies of the authority, covering the application area.

13.35 Those objectives / policies, with relevance to this assessment, are listed below. The location/extent of relevant designations is shown on **Figure 13-1**, at the end of this chapter.

Landscape

13.36 Section 11.7 'Landscape' of the current TCDP states that *"Tipperary is well known for its dramatic and diverse landscapes, ranging from the rich 'Golden Vale' to the dramatic Galtee Mountains and to the scenic Lough Derg Lakelands. Landscape Character Assessment (LCA) has been prepared to describe, map and classify landscapes and support an understanding of their value and importance, and their capacity for change. The LCA establishes a basis for the protection, management and planning of landscapes having regard to those features that give Tipperary its unique 'sense of place'."*

13.37 **Policy 11-16**, contained in section 11.9 (Planning Policy) of the current TCDP states that *"It is the policy of the Council to: Facilitate new development which integrates and respects the character, sensitivity and value of the landscape in accordance with the designations of the Landscape Character Assessment, and the schedule of Views and Scenic Routes (or any review thereof). Developments which would have a significant adverse material impact on visual amenities will not be supported."*

13.38 The *Landscape Character Assessment of Tipperary 2016* is contained in Appendix 3 of the current TCDP. Relevant content regarding Landscape Character Areas (LCA), sensitivity and values associated with the study area is provided as part of the Landscape Baseline description further on in this EIAR chapter.

13.39 The Scenic Routes and Views are described under a separate heading below.

Primary and Secondary Amenity Areas

13.40 A number of Primary and Secondary Amenity Areas are designated in the TCDP. Section 11.7.1 of the TCDP states that these *"are particularly notable by virtue of their scenic and visual quality and offer significant opportunities for tourism development and rural recreational activities. The Council will seek to ensure that a balance is achieved between the protection of sensitive landscapes and the appropriate socio-economic development of these areas. In this respect, development proposals will be required to demonstrate that they integrate and respect the visual quality of the amenity area."*

13.41 **Policy 11-17** contained in section 11.9 (Planning Policy) of the TCDP states that *"It is the policy of the Council to ensure the protection of the visual amenity, landscape quality and character of designated 'Primary' and 'Secondary' Amenity Areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. …"*.

13.42 The Primary or Secondary Amenity Areas are illustrated on Figure 11.1 of the current TCDP. None of these areas are located within or in proximity to the study area and this designation will therefore not be addressed further, as part of the assessment.

Scenic Routes and Views

13.43 Section 11.7.2 states *"The Council has designated a series of scenic views and routes in the county, which include views of key heritage sites, and inter-county scenic tourism routes. In assessing new development, consideration will be given to ensuring that views are not obstructed or significantly altered, and the visual impact of the new development be*

minimised by careful design and siting. Views and routes are outlined in the LCA, Volume 3 and illustrated in Figure 11.1"

13.44 None of the scenic viewpoints or scenic routes illustrated on Figure 11.1 of the current TCDP are located within the study area or directed towards the application area and this designation will therefore not be addressed further, as part of the assessment.

Receiving Environment

Landscape Baseline

Existing Relevant Landscape Character Assessment

13.45 The *Landscape Character Assessment of Tipperary 2016* divides the landscapes of Co. Tipperary into four Architypes and further into seven Landscape Character Types (LCT) and 23 Landscape Character Areas (LCA). Killough Hill and therefore the application area is fully located within the River Suir Central Plain LCA (LCA 4), which forms part of 'The Plains' Architype and the Lowland Pasture & Arable Landscape Type (LT A1)

13.46 The nearest other LCAs are the Thurles Hinterland (LCA 2), approximately 3km to the north (also LT A1) and the Littleton Raised Bog (LCA 8), which is located to the east of the R639, approximately 3km east of the application site. LCA 8 is associated with the Peatlands and Wet Mixed Farmland Landscape Type (LT A2). Due to their location to the north and east of the application site, i.e. areas with no or very limited visibility of the proposed development (refer to Figure 13-2), these two LCAs will not be discussed any further.

LCA 4 River Suir Central Plain

13.47 Appendix I of the Tipperary Landscape Character Assessment 2016 (Consolidated Landscape Character Areas of Tipperary) contains a detailed description of LCA 4 under several headings, including the following relevant sections.

13.48 **Extent:** *"… The LCA is characterised by fertile agricultural lands used for both arable and pastoral farming and its rolling topography. … The Suir Central Plain is also characterised by the prominence of settlement and infrastructure inter-dispersed throughout the county. … Outside the main settlements, small towns and villages are connected by the extensive road network of the LCA. The M8 Motorway forms a distinct feature that transects the area in a north to south direction."*

13.49 **Landscape Characteristics:**

- *"Wide rolling vistas with large fertile fields, surrounded by dense hedgerows. Agriculture is intensive, and the equine industry is especially noticeable. Biodiversity in the landscape is less conspicuous then in some of the other county LCAs, and very little natural landscape or habitats remain."*
- *"… A pattern of one-off housing occurs along local roads in many areas especially the urban hinterlands of the larger towns."*
- *"The existence of views towards the Galtee Mountains, the Commeraghs, the Knockmealdowns and Slievenamon. Views towards one or more of these ranges can be found almost anywhere in the LCA."*

13.50 **Distinctive Features:**

- *"… Rich and established arable and pastoral agriculture with focus on dairying and open field of tillage crops.*

- *It is notable that the landscape has been heavily influenced by man's activities i.e. the network of field enclosures and the transport and settlement network. …"*

13.51 **Principles for Management:** *"The River Suir Central Plain is an actively worked and highly productive environment and new development would sit comfortably in the landscape and not interfere with or eliminate its character and values subject to appropriate siting and design. Outside of the settlements the land is intensively farmed and highly productive in line with its reputation as the 'Golden Vale' of the county. Notwithstanding this, the visual aspect of the landscape is remarkable especially in the south of the county where views towards the Knockmealdown and Commeragh Mountains are breath-taking in places and form distinctive visual units. Elsewhere the landscape is more robust is its capacity to absorb development due to the rolling nature of the topography. …"*

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

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

Landscape of the Site and its Context

13.54 GLVIA3 recommends that a landscape character assessment should be carried out as part of the baseline study (paragraph 5.4). This should consider:

- The elements that make up the landscape (e.g., physical, land cover and the influence of human activity);
- Aesthetic and perceptual aspects (e.g., scale, complexity, openness, tranquillity or wildness); and
- The overall character of the area.

Landscape Elements

13.55 Killough Hill lies within the otherwise flat / gently sloping plain stretching several kilometres to the east and west of the River Suir. The land immediately surrounding Killough Hill lies at levels of between 110 and 120 m above ordnance datum (AOD). Over a distance of 3.5 km to the west of the hill the land falls very gently towards the River Suir to levels just under 80 m AOD. The shape of Killough Hill has been modified by the quarry activities, leaving it with an elongated, almost flat ridge. At its highest point it reaches a height of 216 m AOD. This is ca. 100 m above the surrounding flat agricultural land. Also considering that there are no other noticeable highpoints within a 6km radius it is a focal point within the study area.

13.56 The existing quarry development at Killough Hill covers approximately the southern three quarters of the hill. The application area in turn covers an area in the southwest corner of the main quarry area, as well as the existing quarry access road and entrance. The facility area currently lies at levels ranging from 138 m to 143 m AOD. The access road slopes from 143m AOD at the eastern end of the facility area down to 123 m AOD at the site entrance. The majority of the application site is hard standing, with the facility area currently

used for stockpiling. There is a small group of semi-mature trees attached to a store building and several self-seeded willow bushes scattered around the facility area, as well as some patches of grass, but no larger areas of vegetation.

13.57 The north-western, northern and eastern slopes of Killough Hill are fairly steep, covering a height difference of between 50-80m over a distance of less than 200m. These steep slopes are covered by conifer and mixed woodland. The south-eastern and southern slopes of the hill are slightly less steep and are covered in fields under pasture as well as some woodland scrub areas. The southwestern slopes are even less steep, with the ridge extending beyond the site boundaries.

13.58 The flat landscape surrounding Killough Hill is almost exclusively made up from agricultural land (mostly pasture interspersed with some arable fields). The fields, which are usually enclosed by hedgerows, some of which lined with trees and the remainder kept short, range from small to large size. This corresponds with the descriptions for the River Suir Central Plain LCA (LCA 4).

13.59 Residential development within the study area is restricted to one-off housing along a network of local roads. The closest larger settlement is the village of Holycross, approximately 3.5km to the northwest. Thurles town is located 6.5km to the northwest and Cashel 10km to the south.

13.60 The main transport route within the area is the M8 motorway, approximately 2.5km to the southeast of the site. There are also a number of regional routes around the edges of the study area (i.e. R659 & R660, east and south of Holycross respectively; and the R639, the former N8, just east of the M8).

13.61 As set out for the River Suir Central Plain LCA (LCA 4), the landscape within the study area reflects high levels of human intervention. This is mainly in the form of agriculture and emphasised by the many straight hedgerows marking field boundaries. On a smaller scale, human influences are visible in the form of roads, buildings and wooden electricity poles. On the whole, while this is an attractive rural landscape, with intermittent views towards Killough Hill, there are few locations from where no man-made structures are visible.

Aesthetic and Perceptual Aspects

13.62 The scale of the landscape is quite large, due to the flat topography and often large field sizes. This is locally reduced where hedgerows containing trees adjoin the local roads creating enclosure. As mentioned above, Killough Hill forms a focal point in this flat open landscape.

13.63 This landscape dominated by pasture fields, bound by hedgerows, with some small patches of woodland and conifer plantation results in colours and textures that are generally simple and repetitive, but with no regular pattern. The colour palette is dominated by multiple shades of green.

13.64 While the study area has an overall natural appearance, there is little sense of wildness or remoteness, due to the many signs of human activity, such as improved grassland, electricity poles, roads and residential properties. As the local roads are not very frequently used, there are periods of tranquillity in this area.

Overall Character

13.65 The site assessment supports the inclusion of the site and its immediate context in the River Suir Central Plain LCA (LCA 4), as set out in the Landscape Character Assessment of Tipperary 2016.

Protected Nature Conservation Sites

13.66 The National Parks and Wildlife Service (NPWS) website was reviewed for protected nature conservation sites in proximity to the application area, as these provide an indication of the natural heritage value placed on the local landscape. One proposed Natural Heritage Area (pNHA) is located within the study area and one Special Area of Conservation (SAC) immediately west of it (refer to **Figure 13-1** for the location and extent of these sites):

- Killough Hill pNHA (Site code 000959) – 0 m to the north (bounds the application area)
- Lower River Suir SAC (Site code 002137) – 3.2 km to the west

Visual Baseline

Zone of Theoretical Visibility (ZTV)

13.67 The visibility of the application area was initially assessed by a desktop study of OSI Discovery Maps (1:50,000) and available aerial photography. This was followed by 3D computer modelling and calculation of the zone of theoretical visibility (ZTV), using LSS (McCarthy Taylor) software, in accordance with the methodology provided in **Appendix 13-B** at the end of this chapter.

13.68 The ZTV, which illustrates the subtended vertical angle of visibility, was calculated for the tallest proposed structures within the application area, including the Bio Conversion Building, the Biorest Tanks, the gas storage balloon and the stack associated with the linear generator). It should be noted that the ZTV mapping is based mostly on a bare terrain; that is, the computer model does not include built structures or vegetation. This is with the exception of some of the existing dense vegetation along the site boundaries, which was included in the calculation. As a result, the extent of visibility, which is illustrated, is regarded as a near worst-case scenario, and would be greatly reduced if buildings and vegetation, such as the many existing hedgerows in the wider landscape, were included in the model.

13.69 In SLR's experience, views from within areas with a visibility of a subtended vertical angle of up to 0.4 degrees tend to be screened by hedgerows and other vegetation (if present) and/or built structures in an urban environment. These areas are coloured in shades of grey on the ZTV mapping, in order to differentiate them from the areas with a higher probability of visibility, which are marked in shades of yellow, orange and red.

13.70 The resulting ZTV is depicted on **Figure 13-2**. It indicates that a higher probability of visibility of the proposed development would be from locations within 1 km to the south and west of the application area (i.e. the areas of theoretical visibility in yellow, orange and red).

13.71 The ZTV further depicts that large areas to the northwest, west, south and southeast experience a low probability of visibility, as indicated by the shades of grey. As mentioned above, views from within these areas are likely to be largely screened by existing intervening vegetation, as is present throughout the agricultural landscape within the study area, in the form of hedgerows.

13.72 Also, it should be noted that much of the theoretical visibility areas, including most of the areas with a higher probability of visibility, cover agricultural land, which are not publicly accessible. While parts of the site may be visible from this land, only few and infrequent visual receptors are present in those areas (e.g. the owners of the land) and these are therefore not assessed in detail.

13.73 The ZTV further illustrates that the elevated land associated with Killough Hill, to the north and east of the application area, screens all views of the proposed development from the flat agricultural land beyond the hill in these directions.

Outdoor Recreational Facilities within the Study Area

13.74 There are no outdoor recreational facilities of note within the study area.

Actual Visibility

13.75 The actual visibility of the application area was assessed during the field survey, concentrating on publicly accessible locations, including the outdoor recreational facilities identified, as appropriate. This survey confirmed that existing roadside and intervening vegetation blocks views towards the site from many locations within the study area, which are indicated as having theoretical visibility on the ZTV mapping. This includes the short stretch of the local road, west of the entrance to Killough Quarry, which is indicated on the ZTV as an area with a higher probability of visibility. However, a roadside wall and a line of trees set back from the road almost fully screen views towards the facility area from this section of road.

13.76 It was established that the actual visibility of (parts of) the application area is restricted to:

- intermittent views along the local roads within 2 km to the northwest, west and southwest of the site, including adjoining residential properties;
- a short section of the local road, ca. 1 km east of the entrance to Killough Quarry, including adjoining residential properties;
- intermittent views along the R660 between 2.5-3 km west of the site, including adjoining residential properties; and
- intermittent views along the local roads within 2-3 km south of the site, including adjoining residential properties.

13.77 Viewpoint photography was taken during the field survey from several locations throughout the study area. Seven of these were selected to represent the range of available views.

13.78 The location of the seven viewpoints is illustrated on **Figures 13-1** & **13-2**. For each of the viewpoints, annotated panoramic images showing the existing view are provided (refer to **Viewpoints A-G** on **Figures 13-3** to **13-7**). The panoramas are made up from 4-6 individual photographic frames, which were merged together using Adobe Photoshop software. It should be noted that photography is a tool to assist in the visualisation process and cannot be expected to replicate the actual view that would be attained on the ground.

13.79 For three of the viewpoints photomontages (PM) were prepared, illustrating the visibility of the proposed development, i.e. how much of the proposed structures will become visible above the existing boundary screening berms and vegetation (refer to **Viewpoints / Photomontages A-C** and the Photomontage Methodology in **Appendix 13-C**).

13.80 **Viewpoints A-C** represent intermittent views from the local roads within 2 km to the northwest, west and southwest of the site, as well as in the region of 50 residential properties. The extent of visibility changes throughout the year, depending on whether trees are in leaf or not and whether roadside hedgerows were recently cut. In the available views flat to gently sloping agricultural grassland is visible in the foreground and mid ground of views, with Killough Hill visible in the background along a slightly elevated skyline. Some elements associated with the existing quarry can be seen behind / above the screening berms and vegetation surrounding the quarry development. This included the tops of the existing limestone plant and asphalt plant, as well as small sections of the existing quarry faces / exposed rock. The further north the viewing location, the less of the existing plant and more of the woodland/plantations on the western slopes of Killough Hill are visible (refer to **Viewpoint A**). The further south, a few more elements of the existing plant become visible (refer to **Viewpoints B** & **C**). The existing berm along the western boundary of the

facility area is visible in all views, with the southern berm and associated dense screen planting more visible in views from a more southern direction.

13.81 **Viewpoint D** represents views from a short section of the local road to the east of the quarry entrance, as well as from ca. 5 properties in the vicinity of this road. In the available views the gentle southern slopes of Killough Hill, covered in pasture land, are visible in the foreground and mid ground. The dense blocks of screening vegetation and areas of woodland scrub along the southern boundary and access road of the existing quarry development are visible in the background along the skyline. The top of the existing limestone plant can be seen above the screening vegetation, while the remainder of the quarry development is fully screened.

13.82 **Viewpoint E-F** represent intermittent views from the R660 between 2.5-3 km west of the site, as well as in the region of 40 residential properties. As with **Viewpoints A-C** the extent of visibility changes throughout the year, depending on whether trees are in leaf or not and whether roadside hedgerows were recently cut. The available views are also very similar to **Viewpoint A-C**, although from a slightly greater distance. Flat to gently sloping agricultural grassland is visible in the foreground and mid ground of views, with Killough Hill visible in the background along a slightly elevated skyline. Some elements associated with the existing quarry can be seen behind / above the screening berms and vegetation surrounding the quarry development. This included the tops of the existing limestone plant and asphalt plant, as well as small sections of the existing quarry faces / exposed rock. Again, the further north the viewing location, the less of the existing plant and more of the woodland/plantations on the western slopes of Killough are visible (refer to **Viewpoint F**). The further south, a few more elements of the existing plant become visible (refer to **Viewpoints E**).

13.83 **Viewpoint G** represent intermittent views from the local roads within 2-3 km to the south of the site, as well as ca. 5 properties. Views from this area are much more restricted, due to the presence of many tree-lined hedgerows. Where views open up, mostly through gaps in the roadside vegetation, flat agricultural land is visible in the foreground with Killough Hill visible in the background. Some elements associated with the existing quarry development can be glimpsed amongst the vegetation surrounding Killough Hill, such as the limestone plant and a section of the quarry face / exposed rock. The screening berm and associated dense vegetation along the southern boundary of the facility area can also be made out in these views.

Sensitive Receptors

Landscape Receptors

13.84 The proposed bio-renewables facility will be located within the boundaries of the existing permitted Killough Quarry development, on an existing hard standing area, where very little existing vegetation is present. Therefore, no characteristic landscape elements would be affected by the proposed site. Indeed, all of the existing vegetation along the site boundaries, which contributes to the wooded character of the hill's slopes, will be retained.

13.85 While Killough Hill represents a focal point in the local landscape, its overall appearance will not be changed, due to the proposed development, which will be seen in the context of the existing plant present within the quarry. Similarly, the colours/textures typically present within the study area will not be affected, due to the location of the development within the existing quarry area.

13.86 Further to that, no distinctive or highly sensitive aesthetic / perceptual aspects were identified in the immediate vicinity of the application area, such as remoteness or wildness. While there is an element of tranquillity, this is not considered to be significantly affected by the proposed development, which will not be major source of noise.

13.87 There are no specific landscape designations present within the study area, which would bestow an increased landscape value on the local area and the River Suir Central Plain LCA (LCA 4) was assessed as being of low sensitivity in the Landscape Character Assessment of Tipperary. Also considering the association of the proposed bio-renewables plant within the existing quarry development, significant effects on the local landscape character are unlikely.

13.88 For all the reasons set out above, no sensitive landscape receptors were identified, to be brought forward to the assessment of landscape effects.

Visual Receptors

13.89 The visual receptors, potentially affected by the proposed development and therefore considered as part of the assessment of visual effects, are:

- **Residents**:
  - In the region of 50 residential properties adjoining the local roads within 2 km to the northwest, west and southwest of the site (represented by **Viewpoints / Photomontages A-C** on **Figures 13-3, 13-4** & **13-5**);
  - Circa five residential properties along the local road, ca. 1 km east of the entrance to Killough Quarry (represented by **Viewpoint D** on **Figures 13-6**);
  - In the region of 40 residential properties adjoining the R660 between 2.5-3 km west of the site (represented by **Viewpoints E-F** on **Figures 13-6** & **13-7**); and
  - Circa five residential properties along the local roads within 2-3 km south of the site (represented by **Viewpoint G** on **Figures 13-7**).
- **Vehicle users**:
  - Road users with intermittent views along the local roads within 2 km to the northwest, west and southwest of the site (represented by **Viewpoints / Photomontages A-C** on **Figures 13-3, 13-4** & **13-5**);
  - Road users along a ca. 300 m section of the local road, ca. 1 km east of the entrance to Killough Quarry (represented by **Viewpoint D** on **Figures 13-6**);
  - Road users with intermittent views along the R660 between 2.5-3 km west of the site (represented by **Viewpoints E-F** on **Figures 13-6** & **13-7**); and
  - Road users with occasional views along the local roads within 2-3 km south of the site (represented by **Viewpoint G** on **Figures 13-7**).

Impact Assessment

13.90 This section sets out the effects that the proposed development would have on the visual receptors identified in the previous section, during the construction stage of the bio-renewables plant, which is expected to take 18 months, as well as during the operational stage of the permanent facility. It is based on the detailed project description and layout drawings contained in Chapter 2 of this EIAR.

13.91 Please note that since no sensitive landscape receptors were identified and assessment of landscape effects will not be carried out.

Aspects of the Development which Have the Potential to Cause Visual Effects

Construction Stage

13.92 The construction stage of the proposed development will last for up to 18 months. The following elements, associated with the construction of the proposed development, are those which are most likely to result in visual effects:

- The emerging upper sections of the proposed buildings/structures above the boundary berms and vegetation, in particular the Bio Conversion Building and the Biorest Tanks.
- The visibility above the boundary berms and vegetation of a crane within the construction area, including potential temporary intermittent lighting on the crane, during the winter months during the hours of darkness, within the permitted construction hours.
- HGVs and LVs associated with the operational development visible along the local road in the vicinity of the site entrance (66 trips per day; 60 LVs and 6 HGVs).

Operational Stage

13.93 The operational stage of the proposed development will be permanent. The following elements, associated with the operational development, are those which are most likely to result in visual effects:

- The visibility of the proposed buildings/structures above the boundary berms and vegetation, in particular the Bio Conversion Building and the Biorest Tanks.
- HGVs associated with the operational development visible along the local road in the vicinity of the site entrance (76 trips per day), as well as 40 LV trips associated with staff.

13.94 Please note that any outdoor lighting associated with the operational development will be present on the building facades facing the centre of the facility, i.e. away from the outer side boundaries, will be located at a level below the height of the boundary berms and directed downward. Any visual impact on receptors outside the application area due to night-time lighting is therefore highly unlikely.

Construction Stage Visual Effects

13.95 The existing views towards the application area will actively change during the construction period, with the buildings emerging above the boundary screening berms and vegetation and construction crane being visible within the site for some time. However, much of the construction activities will take place at a lower level and will therefore be screened by the boundary screening berms. Also considering the short construction timeframe, overall, the visual effects during the construction stage are judged to be less than those assessed for the permanent operational phase (see below) for each of the visual receptors. The detailed assessment of operational visual effects is therefore considered sufficient, as the level of effects identified represent the greatest likely visual effects associated with the proposed development.

Operational Stage Visual Effects

Visual Receptor Sensitivity

13.96 The value placed on each of the types of visual receptors identified above is described in **Table 13-1** below. Also, the susceptibility to change of each of the receptor types (as per

the LVIA Methodology in **Appendix 13-A**) is described and a judgement of the overall sensitivity made.

Table 13-1: Sensitivity of Visual Receptors

Visual Receptors	Value	Susceptibility	Overall Sensitivity
Residents			
All residential receptors identified.	LOW (No specific designated or locally promoted views)	HIGH (Susceptible to changes in views, particularly from gardens and living rooms)	**MEDIUM**
Vehicle Users			
All vehicle users identified.	LOW (No specific designated or locally promoted views)	LOW (Unlikely to be focused on views)	**LOW**

Magnitude of Visual Change

13.97 **Table 13-2** describes the size & scale, geographical extent and duration/reversibility of the visual effects for each visual receptor, all of which contribute to the assessment of the magnitude of these effects.

Table 13-2: Magnitude of Visual Change

Visual Receptors	Factors	Magnitude of Change
Residents & Road Users		
Ca. 50 properties and local roads within 2 km west of the site (**Viewpoints / Photomontages A-C**)	Size & Scale: **SMALL** Geographical Extent: **MEDIUM** Duration / Reversibility: **PERMANENT** **Notes:** Photomontages A-C illustrate that the Bio Conversion Building and in the views from more southern locations the Biorest Tanks will become visible above the western screening berm. The Bio Conversion Building will be flat and elongated and run parallel with the western boundary berm. This flat appearance is continued by the Biorest Tanks along the southern boundary, which are a fraction taller. The generally flat / elongated outline of the facility will be in harmony with the appearance of the western screening berm and Killough Hill. While clearly noticeable, the buildings will affect a small vertical and narrow horizontal field of view. The proposed goosewing grey colour of all buildings will ensure that they are not visually prominent and don't contrast the existing plant within the quarry development. It should also be noted that the young screen planting on the western berm is expected to form a dense screen in the next 3-5 years, similar to the planting on the southern berm. As the planting increases in height it will reduce the visibility of the facility. Overall, the composition of the views will be partially altered. The views would be experienced by the residents of a medium number of properties and intermittently from a medium part of the local roads. The changes will be permanent.	**MEDIUM**

Visual Receptors	Factors	Magnitude of Change
Ca. 5 properties and short section of local road within 1 km to the east (**Viewpoint D**)	Size & Scale: **NEGLIGIBLE** Geographical Extent: **SMALL** Duration / Reversibility: **PERMANENT** **Notes:** The ZTV indicates that the extent of visibility of the proposed facility from this area will be minimal. It is expected that the stack associated with linear generator at the eastern end of the facility area may become visible amongst the screening vegetation visible at the centre of views from this area. However, this will be barely perceptible, considering its narrow outline. While there will be additional HGVs visible along this road, these will be spread out during the day and are not considered to increase the visual effects caused by the facility. Overall, the composition of the views will be barely altered. The views would be experienced by the residents of a small number of properties and intermittently from a section of the local road. The changes will be permanent.	**SLIGHT**
Ca. 40 properties and R660 within 2.5-3 km west of the site (**Viewpoints E-F**)	Size & Scale: **SMALL / NEGLIGIBLE** Geographical Extent: **MEDIUM** Duration / Reversibility: **PERMANENT** **Notes:** The changes to the views from this area will be similar to those illustrated by Photomontages A-C, although at a slightly greater distance and therefore affecting a smaller field of view, becoming difficult to perceive, even more so when the planting on the western screening berm matures. Overall, the composition of the views will be barely altered. The views would be experienced by the residents of a medium number of properties and intermittently from a medium part of the R660. The changes will be permanent.	**MEDIUM / SLIGHT**
Ca. 5 properties along local roads within 2-3 km to the south (**Viewpoint G**)	Size & Scale: **NEGLIGIBLE** Geographical Extent: **SMALL** Duration / Reversibility: **PERMANENT** **Notes:** The ZTV indicates that the extent of visibility of the proposed facility from this area will be minimal. It is expected that small sections of the Bio Conversion Building and Biorest Tanks will become visible above the screening berms and vegetation along the western / southern boundary of the site. However, this will be barely perceptible, at this distance Overall, the composition of the views will be barely altered. The views would be experienced by the residents of a small number of properties and occasionally along some short sections of the local roads within this area. The changes will be permanent.	**SLIGHT**

Assessment of Visual Effects and Significance

13.98 An assessment of the visual effects during the operational phase, based on the sensitivity of each of the visual receptors combined with the magnitude of change experienced by each of them, are provided in **Table 13-3** below. The assessment also includes a judgment of the nature of the effect (i.e. negative / positive / neutral).

Table 13-3: Assessment of Visual Effects

Visual Receptor	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Residents				
Ca. 50 properties within 2 km west of the site (**Viewpoints / Photomontages A-C**)	MEDIUM	MEDIUM	**MODERATE**	Negative
Ca. 5 properties within 1 km to the east (**Viewpoint D**)	MEDIUM	SLIGHT	**MODERATE / MINOR**	Negative
Ca. 40 properties within 2.5-3 km west of the site (**Viewpoints E-F**)	MEDIUM	MEDIUM / SLIGHT	**MODERATE**	Negative
Ca. 5 properties within 2-3 km to the south (**Viewpoint G**)	MEDIUM	SLIGHT	**MODERATE / MINOR**	Negative
Vehicle Users				
Local roads within 2 km west of the site (**Viewpoints / Photomontages A-C**)	LOW	MEDIUM	**MODERATE / MINOR**	Negative
Short section of local road within 1 km to the east (**Viewpoint D**)	LOW	SLIGHT	**MINOR**	Negative
R660 within 2.5-3 km west of the site (**Viewpoints E-F**)	LOW	MEDIUM / SLIGHT	**MINOR**	
Local roads within 2-3 km to the south (**Viewpoint G**)	LOW	SLIGHT	**MINOR**	Negative

13.99 None of these visual effects are assessed to be significant.

Direct/Indirect Effects

13.100 All landscape and visual effects described above are direct effects. The proposed development is not considered to have indirect effects in landscape and visual terms, i.e. the proposed development is unlikely to cause consequential changes to the surrounding landscape character areas or to existing views of the landscape surrounding the application area.

Compliance with relevant Planning Policies

Landscape

13.101 The Landscape Character Assessment and schedule of Views and Scenic Routes were taken into account, as part of the assessment of landscape and visual effects. The assessment concluded that there are no sensitive landscape receptors that would be

significantly affected by the proposed development and that there will be no significant visual effects on the visual receptors identified.

13.102 In view of the above, the development is considered to be in compliance with **Policy 11-16** of the current TCDP.

Unplanned Events (i.e. Accidents)

13.103 It is highly unlikely that any unplanned events within the application area would result in significant landscape or visual impact.

Cumulative / Synergistic Impacts

13.104 Considering the low predicted landscape and visual effects, owing to the proposed development, the likelihood for significant cumulative impacts with other development is low. No existing / permitted developments, or developments currently in the planning system were identified, that would have the potential for such cumulative landscape or visual impacts.

13.105 Killough Solar is a proposed solar farm which is currently at consultation stage directly north of Killough Hill. It has an estimated capacity to deliver approximately 100MW of solar power comprised of low-density PV panels covering 100 hectares, c. 40% of the Killough Castle 247 hectare land holding. While the solar farm is a large development, the solar arrays will be contained within a number of existing fields with their perimeter hedgerows retained, which will result in limited impact on the overall landscape character. Considering that no landscape impacts were identified for the proposed bio-renewables facility, the likelihood for cumulative landscape effects is very low, which would not be significant. Due to the location of the proposed solar farm to the north of Killough Hill, intervisibility with the proposed bio-renewables facility would be very limited, i.e. the proposed solar farm is almost entirely located within an area from where the proposed bio-renewables plant will not be visible (refer to **Figure 13-2**). Therefore, the likelihood for cumulative visual effects is very low, which would not be significant.

Transboundary Impacts

13.106 The proposed application area is not located in the vicinity of a national boundary. Therefore, transboundary landscape or visual impacts would not arise.

Interaction with Other Impacts

13.107 There are no anticipated interactions with other environmental effects.

'Do-nothing Scenario'

13.108 If the proposed development is not carried out, the application area will continue to be used for quarry related purposed under the existing planning permission, resulting in no changes to the landscape or visual effects.

Mitigation Measures

Construction Stage

13.109 The proposed development will result in limited landscape and visual effects during the construction stage, owing partly to the short-term construction stage. Due to the height of the individual buildings it is not feasible to screen all the works and therefore no landscape

/ visual mitigation measures are considered necessary during the construction stage associated with the proposed development

Operational Stage

13.110 No significant landscape or visual effects were identified during the operational stage of the development. Large parts of this development will be screened by the existing boundary berms and vegetation, even more so, when the recently carried out planting on top of the western boundary berm matures. Apart from this planting, which is already in place, no further landscape or visual mitigation measures are considered feasible / necessary during the operational stage of the proposed development.

Residual Impact Assessment

Construction Stage

13.111 As no additional landscape or visual mitigation measures are proposed during the construction stage, the residual levels of the landscape and visual effects would be the same, as per the assessment above, i.e. lower than those during the operational stage, all of which were judged as not significant.

Operational Stage

13.112 As no additional landscape or visual mitigation measures are proposed during the operational stage of the proposed development, the residual levels of the landscape and visual effects would be as per the assessment above.

13.113 In summary, the assessment found that there are no sensitive landscape receptors likely to be significantly affected by the proposed development. The predicted visual effects on residential receptors and road users within 3km to the northwest, west, southwest and south of the site will range from moderate to minor.

Monitoring

13.114 There are no monitoring requirements, arising from this landscape and visual assessment.

References

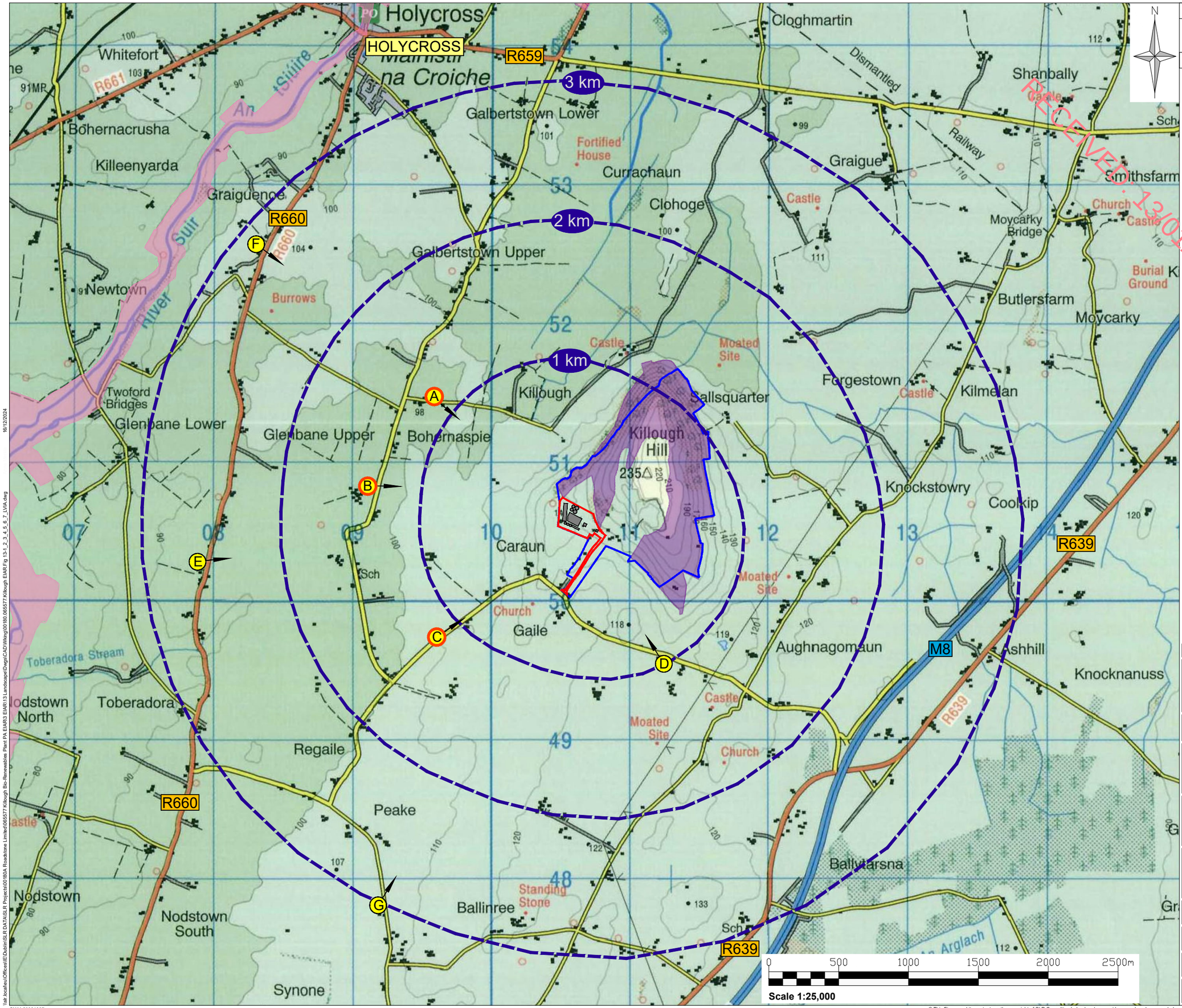
Environmental Protection Agency (May 2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports, EPA Ireland

The Landscape Institute with the Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition, Routledge

The Landscape Institute (2019) Technical Guidance Note 06/19: Visual Representation of Development Proposals, Landscape Institute

The Landscape Institute (2021) Technical Guidance Note 02/21: Assessing landscape value outside national designations, Landscape Institute

Figures



Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Landscape Designations:

- Special Areas of Conservation (SACs)
- Proposed Natural Heritage Areas (pNHAs)

Rev	Amendments	Date	By	Chk	Auth

SLR Consulting Ireland
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www.slrconsulting.com

Client: Roadstone Ltd.

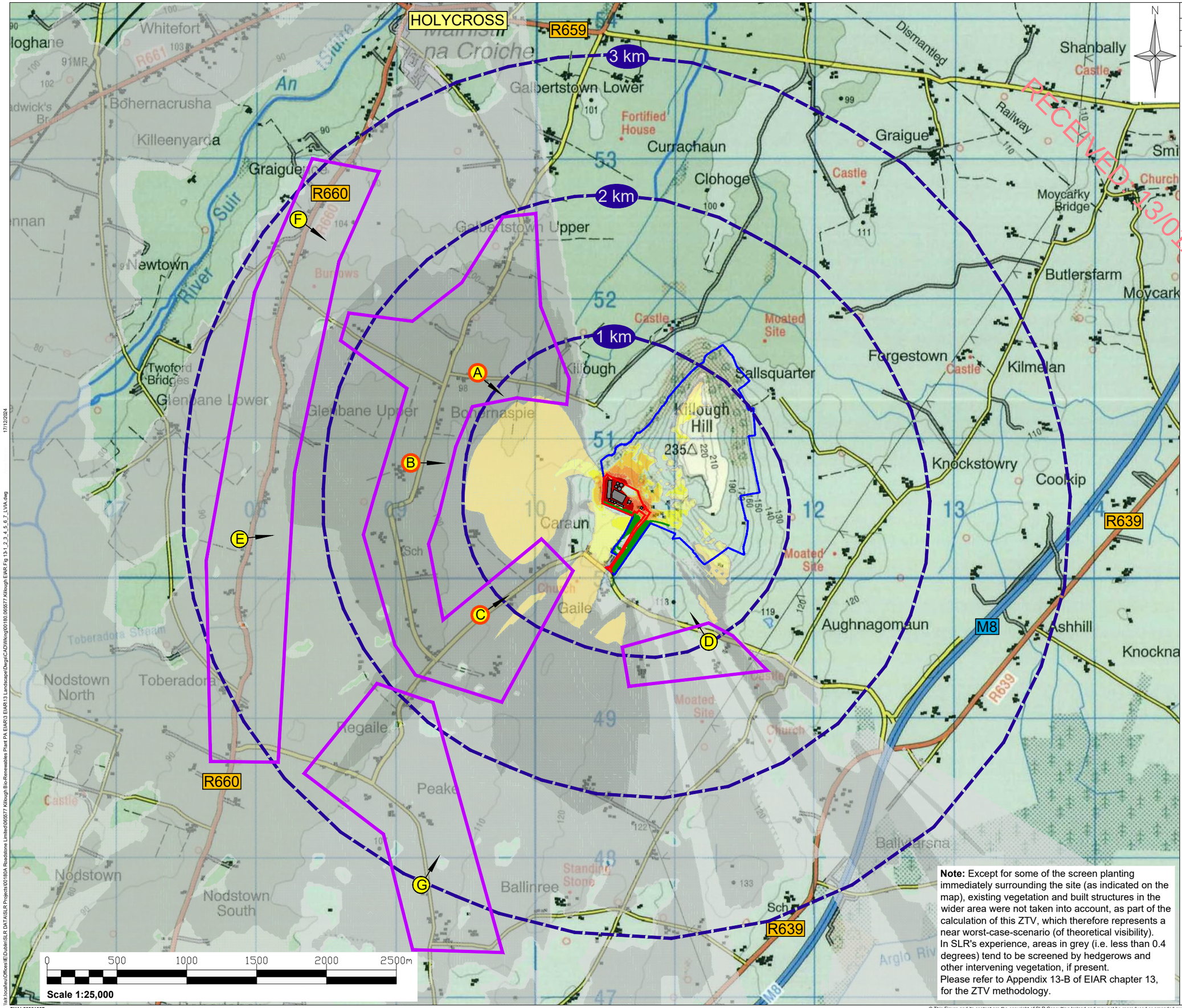
Project: Bio-Renewables Production Facility at Killough Quarry, Holycross, Co. Tipperary

Figure Title: Landscape Baseline & Viewpoint Locations

Scale	SLR Project No.
1:25,000 @ A3	501.065577.00001

Designed	Drawn	Checked	Authorised
SH	SH	AM	AM
Date 11/24	Date 11/24	Date 11/24	Date 11/24

Figure Number: **Figure 13-1** Rev.



Note: Except for some of the screen planting immediately surrounding the site (as indicated on the map), existing vegetation and built structures in the wider area were not taken into account, as part of the calculation of this ZTV, which therefore represents a near worst-case-scenario (of theoretical visibility). In SLR's experience, areas in grey (i.e. less than 0.4 degrees) tend to be screened by hedgerows and other intervening vegetation, if present. Please refer to Appendix 13-B of EIAR chapter 13, for the ZTV methodology.

Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)
- Areas / sections of road with similar (intermittent) visibility of the proposed development to that of the sample viewpoint(s) contained within the areas
- Proposed Buildings with tallest points ranging from 8.6m to 17.5m above ground level

Visual barriers

- Existing dense screening vegetation, within the applicant's land interest area, ranging from 3m to 10m, included in the ZTV calculation

Vertical subtended angles visible

- Subtended vertical angle greater than **25.6** degrees
- Subtended vertical angle **12.8** to **25.6** degrees
- Subtended vertical angle **6.4** to **12.8** degrees
- Subtended vertical angle **3.2** to **6.4** degrees
- Subtended vertical angle **1.6** to **3.2** degrees
- Subtended vertical angle **0.8** to **1.6** degrees
- Subtended vertical angle **0.4** to **0.8** degrees
- Subtended vertical angle **0.2** to **0.4** degrees
- Subtended vertical angle **0.1** to **0.2** degrees
- Subtended vertical angle less than **0.1** degrees
- No theoretical visibility

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Figure Title: Zone of Theoretical Visibility (ZTV)

Scale	SLR Project No.
1:25,000 @ A3	501.065577.00001

Designed	Drawn	Checked	Authorised
SH	SH	AM	AM
Date 11/24	Date 11/24	Date 11/24	Date 11/24

Figure Number: **Figure 13-2** Rev.

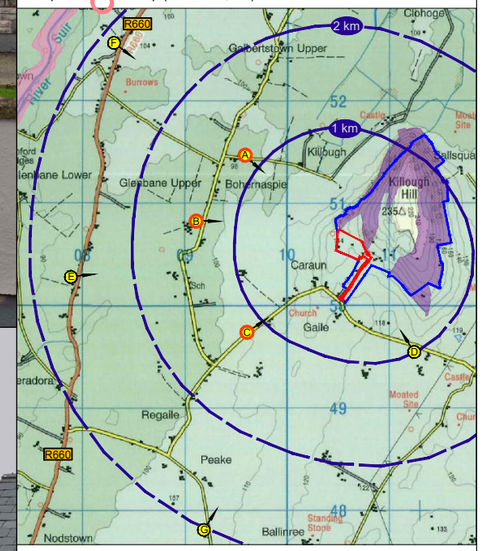
Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Viewpoint Location Map (scale 1:60,000)



VIEWPOINT & PHOTOMONTAGE A: Local Road (Cul de sac) in the townland of Killough, ca. 1.1 km northwest of the proposed development

Grid Coordinates (ITM): **609601:651478** Approximate Elevation: **95m AOD** Distance from planning application boundary: **1,100m** Direction of View: **Southeast** Date/time of photograph: **01/11/2024 @ 13:45**

Description: The westernmost building associated with the proposed development, i.e. the Bio Conversion Building, will become visible above the existing screening berm along the western boundary of the site. The remainder of the proposed buildings will be screened. Screen planting was carried out on top of the berm in recent years and already provides some additional screening. This will increase steadily, as the planting matures. There are several residential properties in the local area with similar views.

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Project: Bio-Renewables Production Facility at Killough Quarry, Holycross, Co. Tipperary

Figure Title: Viewpoint/Photomontage A

Scale		SLR Project No.			
NTS	@ A3	501.065577.00001			
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Date	Date	Date	Date		
11/24	11/24	11/24	11/24		

Figure Number: **Figure 13-3** Rev.

16/12/2024

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CYAL50381397

Existing View

Top of existing asphalt plant

Existing limestone plant

Screening berm and recent planting along western boundary of application area

Photomontage

The top half of the Bio Conversion Building and the three Biorest Tanks will become visible above the screening berm (but will be screened further, as the planting matures)

VIEWPOINT & PHOTOMONTAGE B: Local Road, in the townland of Glenbane Upper, ca. 1.3 km west of the proposed development

Grid Coordinates (ITM): **609130:650859** Approximate Elevation: **95m AOD** Distance from planning application boundary: **1,300m** Direction of View: **East** Date/time of photograph: **01/11/2024 @ 13:20**

Description: The proposed Bio Conversion Building and Biorest Tanks, will become visible above the existing screening berm along the western boundary of the site. The remainder of the proposed buildings will be screened by these structures. The existing recent planting on top of the berm provides some additional screening. This will increase steadily, as the planting matures. There are several residential properties in the local area with similar views.

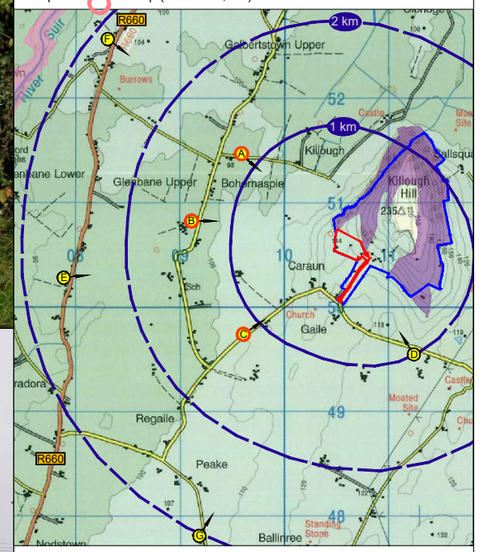
Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Viewpoint Location Map (scale 1:60,000)



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Client: Roadstone Ltd.

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Figure Title: Viewpoint/Photomontage B

Scale		SLR Project No.
NTS	@ A3	501.065577.00001

Designed	Drawn	Checked	Authorised
SH	SH	AM	AM
Date 11/24	Date 11/24	Date 11/24	Date 11/24

Figure Number: **Figure 13-4** Rev.

Existing View

Top of existing asphalt plant

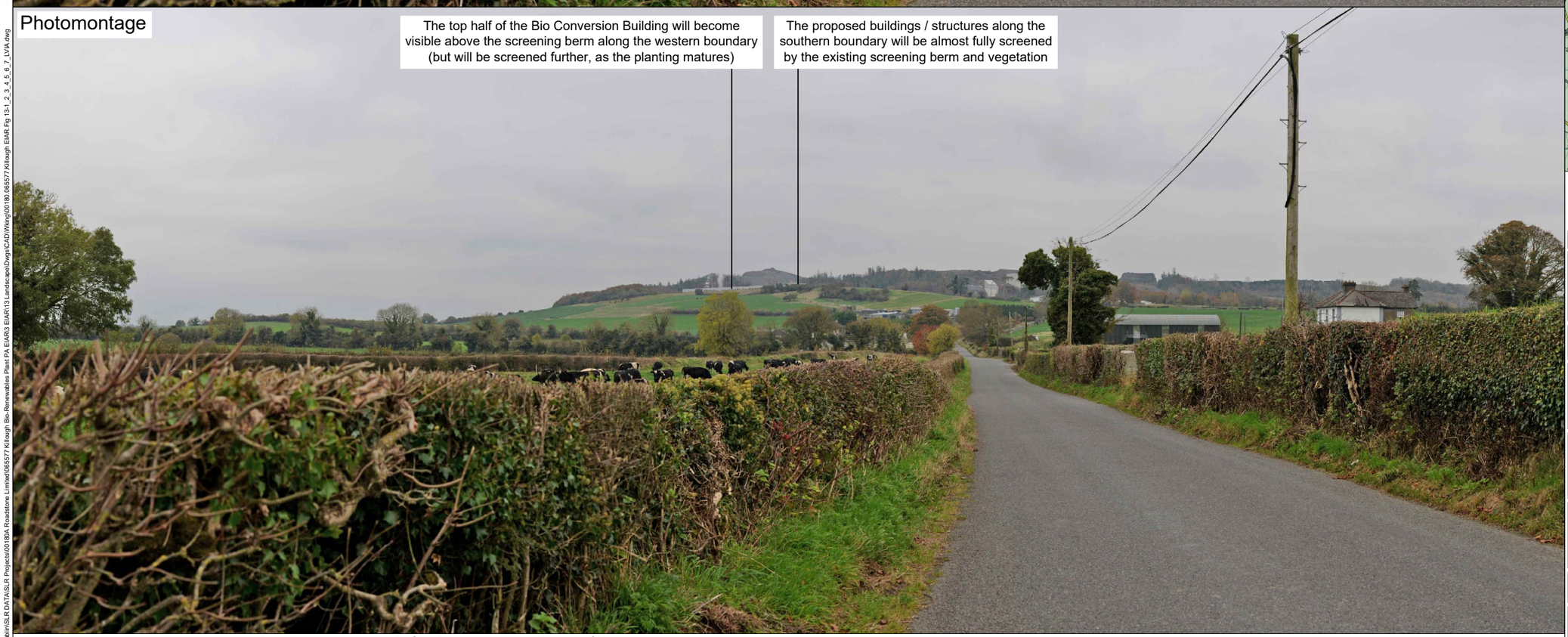
Screening berms and screen planting along the western and southern boundary of application area

Existing limestone plant

Photomontage

The top half of the Bio Conversion Building will become visible above the screening berm along the western boundary (but will be screened further, as the planting matures)

The proposed buildings / structures along the southern boundary will be almost fully screened by the existing screening berm and vegetation



VIEWPOINT & PHOTOMONTAGE C: Local road, in the townland of Gaile, ca. 900m southwest of the existing quarry entrance

Grid Coordinates (ITM): **609613:649810** Approximate Elevation: **100m AOD** Distance from planning application boundary: **900m** Direction of View: **Northeast** Date/time of photograph: **01/11/2024 @ 11:55**

Description: The Bio Conversion Building will become visible above the existing screening berm along the western site boundary. The remainder of the proposed buildings will be screened by this building and/or the existing screening berm and vegetation along the southern site boundary. The screening provided by the recent planting on top of the western berm will increase steadily, as the planting matures. There are several residential properties in the local area with similar views.

Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Viewpoint Location Map (scale 1:60,000)

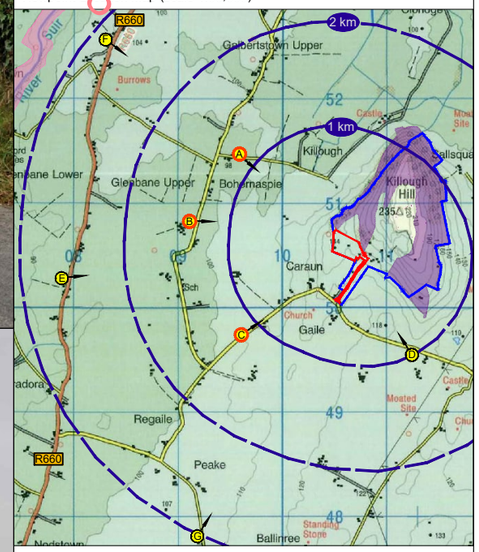


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Figure Title: Viewpoint/Photomontage C

Scale	SLR Project No.
NTS @ A3	501.065577.00001

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Date	Date	Date	Date
11/24	11/24	11/24	11/24

Figure Number: **Figure 13-5** Rev.

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16/12/2024

VIEWPOINT D: Local road, in the townland of Gaile, ca. 800m east of the existing quarry entrance

Grid Coordinates (ITM): **611160:649664** Approximate Elevation: **125m AOD** Distance from planning application boundary: **800m** Direction of View: **Northwest** Date/time of photograph: **01/11/2024 @ 13:00**

Description: The site of the proposed development is fully screened by intervening topography and vegetation in the above view and from locations to the southeast and east of Killough Hill in general. As indicated by the ZTV mapping (refer to Figure 13-2) there is a theoretical possibility of a small section of the proposed development becoming visible in views from the local area. This visibility is likely to be associated with one of the proposed stacks, the very top of which may become visible above some of the vegetation. however, this will be barely noticeable, as it will take up a very small portion of the overall view.

VIEWPOINT E: R660 - Regional road, in the townland of Glenbane Upper, ca. 2.5km west of the proposed development

Grid Coordinates (ITM): **607910:650326** Approximate Elevation: **95m AOD** Distance from planning application boundary: **2,5540m** Direction of View: **East** Date/time of photograph: **01/11/2024 @ 14:05**

Description: Some of the proposed buildings will become visible above the screening berms and vegetation along the western and southern site boundaries. The extent of visibility will be similar to what is illustrated by Viewpoint / Photomontage B (refer to Figure 13-4), albeit from a greater distance and therefore taking up a smaller portion of the overall view. Similar views are intermittently available along the R660 to the west of the site, in locations where the roadside vegetation is kept low (refer to Viewpoint F on Figure 13-7). There are also many residential properties along this road with similar views, where not prevented by vegetation on the property boundaries.

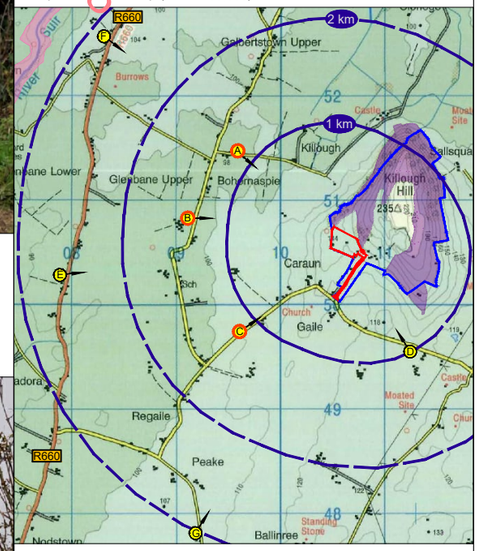
Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Viewpoint Location Map (scale 1:60,000)



Rev	Amendments	Date	By	Chk	Auth

SLR Consulting Ireland
7 Dundrum Business Park,
Windy Arbour,
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www.slrconsulting.com

Client: Roadstone Ltd.

Project: Bio-Renewables Production Facility at Killough Quarry, Holycross, Co. Tipperary

Figure Title: Viewpoints D & E

Scale	SLR Project No.
NTS @ A3	501.065577.00001

Designed	Drawn	Checked	Authorised
SH	SH	AM	AM
Date: 11/24	Date: 11/24	Date: 11/24	Date: 11/24

Figure Number: **Figure 13-6** Rev.

CYAL50381397

16/12/2024

\\slr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\00180A Roadstone Limited\065577 Killough Bio-Renewables Plant PA EIAR\3 EIAR\13 Landscape\Dwgs\CAD\Wking\00180_065577 Killough EIAR Fig 13-1_2_3_4_5_6_7_LVIA.dwg

VIEWPOINT F: R660 - Regional Road, in the townland of xx, ca. 2.8 km northwest of the proposed development

Grid Coordinates (ITM): **608304:652552** Approximate Elevation: **100m AOD** Distance from planning application boundary: **2,800m** Direction of View: **Southeast** Date/time of photograph: **01/11/2024 @ 14:15**

Description: Some of the proposed buildings will become visible above the screening berm and vegetation along the western site boundary. The extent of visibility will be similar to what is illustrated by Viewpoint / Photomontage A (refer to Figure 13-3), albeit from a greater distance and therefore taking up a smaller portion of the overall view. Similar views are intermittently available along the R660 to the west of the site, in locations where the roadside vegetation is kept low (refer to Viewpoint E on Figure 13-6). There are also many residential properties along this road with similar views, where not prevented by vegetation on the property boundaries. Views from locations further north soon become fully screened by intervening topography and vegetation.

VIEWPOINT G: Local road, in the townland of Peake, ca. 2.5 km southwest of the proposed development

Grid Coordinates (ITM): **609174:647908** Approximate Elevation: **105m AOD** Distance from planning application boundary: **2,550m** Direction of View: **Northeast** Date/time of photograph: **01/11/2024 @ 10:40**

Description: Parts of the proposed buildings will become visible above the screening berms and vegetation along the western and southern site boundaries. However, at this distance, they changes will take up a very small portion of the overall view. Views from locations beyond ca. 1 km south of the site are generally restricted by intervening vegetation. In particular along the local roads, as illustrated by the hedgerow visible in the left half of the above photograph. Similar views, including views from residential properties are only available through gaps in the nearby vegetation, such as the above.

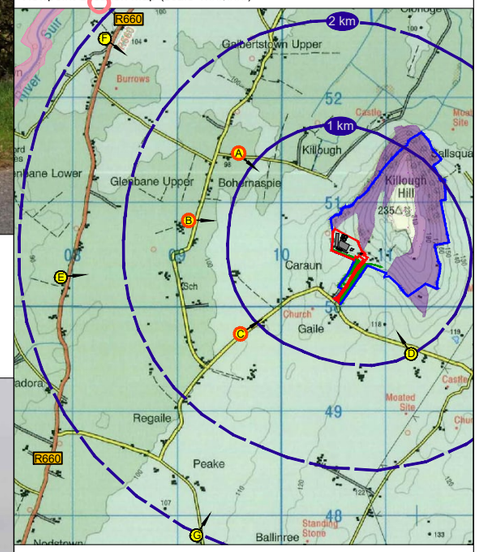
Notes:

1. Extract from 1:50,000 O.S. discovery map no. 66

Legend:

- Applicants Land Interest Area (c. 108.3 hectares)
- Planning Application Area (c. 6.3 hectares)
- Viewpoint Locations
- Photomontage Locations
- Approximate distance from Application Area (excluding access road)

Viewpoint Location Map (scale 1:60,000)



Rev	Amendments	Date	By	Chk	Auth

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Client: Roadstone Ltd.

Project: Bio-Renewables Production Facility at Killough Quarry, Holycross, Co. Tipperary

Figure Title: Viewpoints F & G

Scale	SLR Project No.
NTS @ A3	501.065577.00001

Designed	Drawn	Checked	Authorised
SH	SH	AM	AM
Date 11/24	Date 11/24	Date 11/24	Date 11/24

Figure Number: **Figure 13-7** Rev.

Appendices

Appendix 13-A Criteria and Definitions used in Assessing Landscape and Visual Effects

Introduction

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify the effects of development on *"landscape as an environmental resource in its own right and on people's views and visual amenity"* (GLVIA3, paragraph 1.1). GLVIA3[1] (paragraph 2.22) states that these two elements, although inter-related, should be assessed separately. GLVIA3 is the main source of guidance on LVIA.

Landscape is a definable set of characteristics resulting from the interaction of natural, physical and human factors: it is a resource in its own right. Its assessment is distinct from visual assessment, which considers effects on the views and visual amenity of different groups of people at particular locations. Clear separation of these two topics is recommended in GLVIA3.

"*Notes and Clarifications on aspects of GLVIA3*" (Landscape Institute Technical Guidance Note 2024/01, published August 2024) makes it clear at section 2.0 that Townscape and Seascape assessments should follow the same process as LVIA, and therefore also follow the guidance in GLVIA3.

As GLVIA3 (paragraph 2.23) states, professional judgement is an important part of the LVIA process: whilst there is scope for objective measurement of landscape and visual changes, much of the assessment must rely on qualitative judgements. It is critical that these judgements are based upon a clear and transparent method so that the reasoning can be followed and examined by others.

Impacts can be defined as the action being taken, whereas effects are the changes result from that action. This method of assessment assesses landscape and visual effects.

Landscape and visual effects can be positive, negative or neutral in nature. Positive effects are those which enhance and/or reinforce the characteristics which are valued. Negative effects are those which remove and/or undermine the characteristics which are valued. Neutral effects are changes which are consistent with the characteristics of the landscape or view. LI TGN 2024/01 notes at section 3(7) that the assessment of the level of effect and the nature of effect should be independent of each other.

Landscape and visual effects can result directly from the development itself (direct effects), or may be indirect changes (which are not a direct result of the development but occur as a result of a more

[1] Landscape Institute and Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Impact Assessment' (Third Edition, April 2013)

complex pathway, such as changes to drainage patterns or perceptual changes further from the proposed development).

Landscape and visual effects can also be cumulative, which are the additional changes caused by a proposed development in conjunction with other developments, particularly those which are recently consented or which have been applied for.

In LVIAs which form part of an EIA, it is necessary for identify significant and non-significant effects. In non-EIA LVIAs, also known as appraisals, the same principles and process as LVIA may be applied but, in so doing, it is not required to establish whether the effects arising are or are not significant given that the exercise is not being undertaken for EIA purposes (see GLVIA3 statement of clarification 1/13 10-06-13, Landscape Institute).

Landscape Effects

Landscape, as defined in the European Landscape Convention, is defined as "*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). Landscape does not apply only to special or designated places, nor is it limited to countryside.

GLVIA3 (paragraph 5.34) recommends that the effect of the development on landscape receptors is assessed. Landscape receptors are the components of the landscape that are likely to be affected by the proposed development, and can include individual elements (such as hedges or buildings), aesthetic and perceptual characteristics (for example sense of naturalness, tranquillity or openness), or, at a larger scale, the character of a defined character area or landscape type. Designated areas (such as National Parks or Areas of Outstanding Natural Beauty (AONBs)) are also landscape receptors.

This assessment is being undertaken because the proposed development has the potential to remove or add elements to the landscape, to alter aesthetic or perceptual aspects, and to add or remove characteristics and thus potentially change overall character.

Judging landscape effects requires a methodical assessment of the sensitivity of the landscape receptors to the proposed development and the magnitude of effect which would be experienced by each receptor.

Landscape Sensitivity

Sensitivity of landscape receptors is assessed by combining an assessment of the susceptibility of landscape receptors to the type of change which is proposed with the value attached to the landscape. (GLVIA3, paragraph 5.39).

Value Attached to Landscape Receptors

Landscape receptors may be valued at community, local, national or international level. Existing landscape designations provide the starting point for this assessment, as set out in **Table 13A-1** below.

The table sets out the interpretation of landscape designations in terms of the value attached to different landscape receptors. As GLVIA3 (paragraph 5.24) notes, at the local scale of an LVIA study area it may be found that the landscape value of a specific area may be different to that suggested by the formal designation.

Table 13A-1: Interpretation of Landscape Designations

Designation	Description	Value
World Heritage Sites, candidate World Heritage Site	Unique sites, features or areas identified as being of international importance according to UNESCO criteria. Consideration should be given to their settings especially where these contribute to the attributes of outstanding universal value for which such an area of landscape is valued.	International
National Parks	Areas of landscape identified as being of national importance for their natural beauty (and in the case of National Parks the opportunities they offer for outdoor recreation). Consideration should be given to their settings[2] especially where these contribute to the special qualities for which the landscape is valued.	National
Local Landscape Designations (such as Areas of Outstanding Natural Beauty or Areas of High Amenity) included in local planning documents.	Areas of landscape identified as having importance at the local authority level.	Local Authority
Undesignated landscapes of community value	Landscapes which do not have any formal designation but which are assessed as having value to local communities, perhaps on the basis of demonstrable physical attributes which elevate it above ordinary countryside.	Local Authority / Community
Landscapes of low value	Landscapes in poor condition or fundamentally altered by presence of intrusive man-made structures. Landscapes with no demonstrable physical attributes which elevate it above ordinary countryside.	Low

Where landscapes are not designated and where no other local authority guidance on value is available, an assessment is made by reference to criteria in the **Table 13A-2** below. This is based on Table 1 of Landscape Institute Technical Guidance Note 2/21. These factors are not fixed and should be reviewed on a case-by-case basis. When assessing landscape value of a site it is important to consider not only the site itself but also its context.

Landscapes may be judged to be of local authority or community value on the basis of one or more of these factors. There may also be occasional circumstances where an undesignated landscape may be judged to be of national value, for example where it has a clear connection with a nationally designated landscape, or is otherwise considered to be of equivalent value to a national designation. Similarly, on occasions there may be areas within designated landscapes that do not meet the designation criteria, or demonstrate the key characteristics/special qualities in a way that is consistent with the rest of the designated area.

[2] LI TGN 2024/01 states at section 5(13) that the setting of protected landscapes is "*generally created in policy and is not a designation (or a receptor) in its own right (unlike the settings of heritage assets). The extent of the setting of a designated landscape for LVIA purposes is not geographically defined and will vary with the nature of the development proposed. In LVIA, the question would remain whether the changes in the setting (i.e the landscape nearby but outside the designated area) would affect the designated landscape in terms of effects on its special qualities and, if so, to what degree*".

An overall assessment is made for each landscape receptor, based on an overview of the above criteria, to determine its value - whether for example it is comparable to a local authority landscape designation or similar, or whether it is of value to local people and communities. For example, an intact landscape in good condition, where scenic quality, tranquillity, and/or conservation interests make a particular contribution to the landscape, or where there are important cultural or historical associations, might be of equivalent value to a local landscape designation. Conversely, a degraded landscape in poor condition, with no particular scenic qualities or natural or cultural heritage interest is likely to be considered of limited landscape value.

Table 13A-2: Factors Considered in Assessing the Value of Non-Designated Landscapes

Factor	Criteria
Natural Heritage	Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest. Presence of wildlife and habitats that contribute to the sense of place. Landscape which contains valued natural capital assets that contribute to ecosystem services.
Cultural Heritage	Landscape with clear evidence of archaeological, historical or cultural interest. Landscape which contributes to the significance of heritage assets. Landscape which offers a dimension of time depth.
Landscape Condition	Landscape which is in a good physical state both with regard to individual elements and overall landscape structure. Absence of detracting/incongruous features.
Associations	Landscape which is connected with notable people, events and the arts.
Distinctiveness	Landscape that has a strong sense of identity or place. Presence of distinctive features that are characteristic of a place, or presence of rare/unusual features that confer a strong sense of place. Includes landscape that makes an important contribution to the character or identity of a settlement.
Recreational	Landscape offering recreational opportunities where experience of landscape is important. Includes open access areas, common land and rights of way where appreciation of the landscape is an important element of the experience. Landscape that forms part of a view that that is important to the enjoyment of a recreational activity.
Perceptual (Scenic)	Landscape that appeals to the senses, primarily the visual sense. Distinctive features, or distinctive combinations of features. Strong aesthetic qualities. Visual diversity or contrasts. Memorable/distinctive views or landmarks, or landscape that contributes to these.
Perceptual (Wildness and Tranquillity)	Landscape with a strong perceptual value notably remoteness, wildness, tranquillity and/or dark skies.
Functional	Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape. Natural hydrological systems, important parts of the green infrastructure network, pollinator rich habitats. Landscapes that have strong physical or functional links with an adjacent national landscape designation or are important to the appreciation of the designated landscape and its special qualities.

Susceptibility of Landscape Receptors to Change

As set out in GLVIA3, susceptibility refers to the ability of the landscape receptor to *"accommodate the proposed development without undue adverse consequences for the baseline situation and/or the achievement of landscape planning policies and strategies"*. Judgement of susceptibility is particular to the specific characteristics of the proposed development and the ability of a particular landscape or feature to accommodate the type of change proposed, and makes reference to the criteria set out in **Table 13A-3** below. Aspects of the character of the landscape that may be affected by a particular type of development include landform, skylines, land cover, enclosure, human influences including settlement pattern and aesthetic and perceptual aspects such as the scale of the landscape, its form, line, texture, pattern and grain, complexity, and its sense of movement, remoteness, wildness or tranquillity.

For example, an urban landscape which contains a number of industrial buildings may have a low susceptibility to buildings of a similar scale and character. Conversely a rural landscape containing only remote farmsteads is likely to have a high susceptibility to large scale built development.

Table 13A-3: Landscape Receptor Susceptibility to Change

Susceptibility	Criteria
High	The landscape receptor is highly susceptible to the proposed development because the key characteristics of the landscape have no or very limited ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.
Medium	The landscape receptor is moderately susceptible to the proposed development because the relevant characteristics of the landscape have some ability to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.
Low	The landscape receptor has low susceptibility to the proposed development because the relevant characteristics of the landscape are generally able to accommodate it without transformational adverse effects, taking account of the existing character and quality of the landscape.

Defining Sensitivity

As has been noted above, the sensitivity of landscape receptors is defined in terms of the relationship between value and susceptibility to change as indicated in Figure 13A-1 below. This summarises the general nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Professional judgement is applied on a case by case basis in determining sensitivity of individual receptors with the diagram only serving as a guide.

Table 13A-4 below summarises the nature of the relationship but it is not formulaic and only indicates general categories of sensitivity. Judgements are made about each landscape receptor, with the table serving as a guide.

Where, taking into account the component judgements about the value and susceptibility of the landscape receptor, sensitivity is judged to lie between levels, an intermediate assessment of high/medium or medium/low is adopted. In a few limited cases a category of less than low (very low) may be used where the landscape is of low value and susceptibility is particularly low.

Figure 13A-1: Example Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors

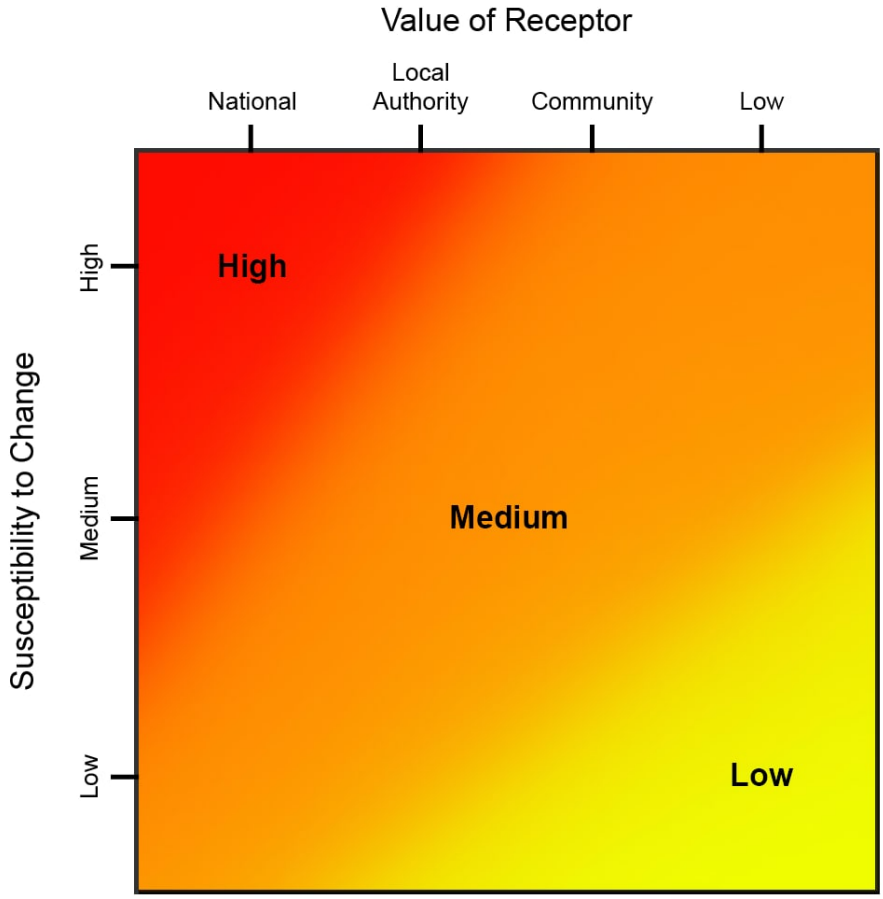


Table 13A-4: Example Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors

Susceptibility	Criteria
High	The landscape receptor is of international or national value and is considered to have high susceptibility to the effects of the proposed development. OR The landscape receptor is of national value and is considered to have medium susceptibility to the effects of the proposed development.
Medium	The landscape receptor is of international or national value and is considered to have low susceptibility to the effects of the proposed development. OR The landscape receptor is of local authority value and is considered to have high susceptibility to the effects of the proposed development. OR The landscape receptor is of local authority value and is considered to have medium susceptibility to the effects of the proposed development. OR The landscape receptor is of community value and is considered to have high susceptibility to the effects of the proposed development.
Low	The landscape receptor is of local authority value and is considered to have low susceptibility to the effects of the proposed development. OR The landscape receptor is of community value and is considered to have medium susceptibility to the effects of the proposed development. OR The landscape receptor is of community value and is considered to have low susceptibility to the effects of the proposed development.

Magnitude of Landscape Change

The magnitude of landscape change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change. LI TGN 2024/01 states at section 3(3) that "*it is likely that size/scale of effect will be the most important factor, with geographical extent and duration/reversibility considered as 'modifiers'*".

Size and Scale of Change

The size and/or scale of change in the landscape takes into consideration the following factors:

- the extent/proportion of landscape elements lost or added; and/or
- the degree to which aesthetic/perceptual aspects are altered; and
- whether this is likely to change the key characteristics of the landscape.

The criteria used to assess the size and scale of landscape change are based upon the amount of change that will occur as a result of the proposed development, as described in **Table 13A-5** below.

Table 13A-5: Magnitude of Landscape Change: Size/Scale of Change

Category	Description
Large level of landscape change	There would be a large level of change in landscape character, and especially to the key characteristics if, for example, the proposed development: • becomes a dominant feature in the landscape, changing the balance of landscape characteristics; and/or • would dominate important visual connections with other landscape types, where this is a key characteristic of the area.
Medium level of landscape change	There would be a medium level of change in landscape character, and especially to the key characteristics if, for example: • the proposed development would be more prominent but would not change the overall balance or composition of the landscape; and/or • key visual connections to other landscape types may be interrupted intermittently by the proposed development, but these connections would not be dominated by them.
Small level of landscape change	There would be a small level of change in landscape character, and especially to the key characteristics if, for example: • there would be no introduction of new elements into the landscape and the proposed development would not significantly change the composition/balance of the landscape.
Negligible level of landscape change/ No change	There would be a negligible or no level of change in landscape character, and especially to the key characteristics if, for example, the proposed development would be a small element and/or would be a considerable distance from the receptor.

Geographical Extent of Change

The geographical extent of landscape change is assessed by determining the area over which the changes will influence the landscape, as set out in **Table 13A-6**. For example, this could be at the site level, in the immediate setting of the site, or over some or all of the landscape character types or areas affected.

Table 13A-6: Magnitude of Landscape Change: Geographical Extent

Category	Description
Large extent of landscape change	Affects a wider area, far from the site itself, or affects a large proportion of the landscape receptor.
Medium extent of landscape change	Landscape change extends beyond the site boundaries or affects a medium proportion of the landscape receptor.
Small extent of landscape change	Change affecting a localised area, often focused on the site itself, or affects a small proportion of the landscape receptor.
Negligible extent of landscape change	The change will affect only a negligible extent of the landscape receptor under consideration.

Duration and Reversibility of Change

The duration of the landscape change is categorised in **Table 13A-7** below, which considers whether the change will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

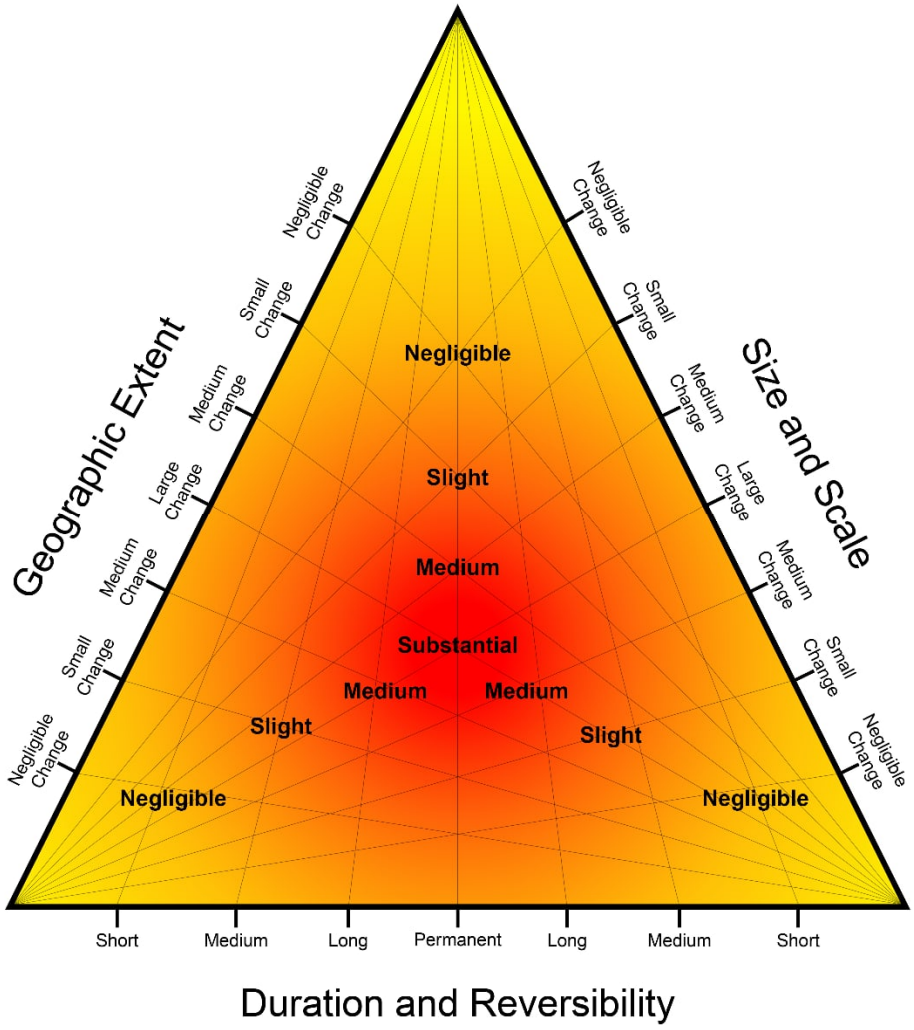
Table 13A-7: Magnitude of Landscape Change: Duration and Reversibility

Category	Description
Permanent/ Irreversible	Effects that will last for over 60 years and is deemed irreversible.
Long-term reversible	Effects that will last between 15 and 60 years and are theoretically reversible.
Medium-term reversible	Effects that will last between 7 and 15 years and are wholly or partially reversible.
Temporary/ Short-term reversible	Effects that will last from 0 to 7 years and is reversible likely to include construction effects.

Deciding on Overall Magnitude of Landscape Change

The relationships between the three factors that contribute to assessment of the magnitude of landscape effects are illustrated graphically, as a guide, in **Figure 13A-2** below. Various combinations are possible and the overall magnitude of each effect is determined using professional judgement rather than by formulaic application of the relationships in the diagram.

Figure 13A-2: Determining the Magnitude of Landscape Change

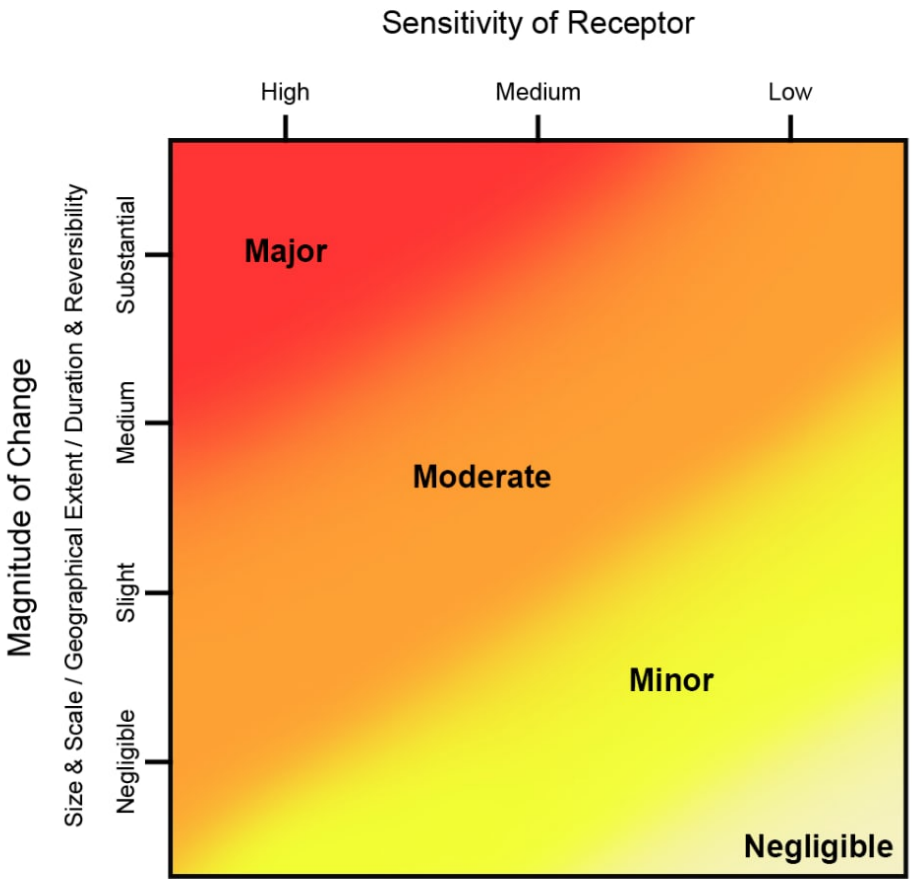


Assessment of Landscape Effects

The assessment of overall landscape effects is defined in terms of the relationship between the sensitivity of the landscape receptors and the magnitude of the change. The diagram below (**Figure 13A-3**) summarises the nature of the relationship but it is not formulaic. Judgements are made about each landscape effect using this diagram as a guide.

Major and Major/Moderate effects are regarded as important planning considerations in landscape and visual appraisals (or significant effects in landscape and visual impact assessments). Moderate effects are not generally considered to be important planning considerations/significant effects, although the assessor may conclude that some moderate effects could constitute significant effects in certain circumstances: for example, there may be a concentration of several moderate effects in one location, or a moderate effect may occur for a particularly sensitive receptor or be of a particularly high magnitude.

Figure 13A-3: Assessment of Landscape Effects



Visual Effects

Visual effects are the effects of change and development on the views available to people and their visual amenity. Visual receptors are the people whose views may be affected by the proposed development. They generally include users of walking trails or other recreational facilities or attractions; travellers who may pass through the study area because they are visiting, living or working there; residents living in the study area, either as individuals or, more often, as a community; and people at their place of work:

- Communities within settlements (i.e. towns and villages);
- Residents of individual properties and clusters of properties;
- People using nationally designated or regionally promoted footpaths and cycle routes;
- Visitors at publicly accessible sites including, for example, gardens and designed landscapes, historic sites, and other visitor attractions or outdoor recreational facilities where the landscape or seascape is an important part of the experience;
- Users of outdoor sport and recreation facilities;
- Visitors staying at caravan parks or camp sites;
- Road users on recognised scenic or promoted tourist routes;
- Users of other roads;
- Rail passengers;
- People at their place of work.

LI TGN 2024/01 states at section 6(1) that visual assessment should focus on the way that communities experience views from public locations. It notes that *"views from houses and individual properties are a matter of private amenity, noting that it is an established planning principle that there is no right to a view"*

Judging visual effects requires a methodical assessment of the sensitivity of the visual receptors to the proposed development and the magnitude of effect which would be experienced by each receptor.

Viewpoints are chosen, in discussion with the competent authority and other stakeholders and interested parties, for a variety of reasons but most commonly because they represent views experienced by relevant groups of people.

Visual Sensitivity

Sensitivity of visual receptors is assessed by combining an assessment of the susceptibility of visual receptors to the type of change which is proposed with the value attached to the views. (GLVIA3, paragraph 6.30).

Value Attached to Views

Different levels of value are attached to the views experienced by particular groups of people at particular viewpoints. Assessment of value takes account of a number of factors, including:

- Recognition of the view through some form of planning designation or by its association with particular heritage assets; and
- The popularity of the viewpoint, in part denoted by its appearance in guidebooks, literature or art, or on tourist maps, by information from stakeholders and by the

evidence of use including facilities provided for its enjoyment (seating, signage, parking places, etc.); and

- Other evidence of the value attached to views by people including consultation with local planning authorities, some of whom have carried out assessments of valued views, and professional assessment of the quality of views.

The assessment of the value of views is summarised in **Table 13A-8** below. These criteria are provided for guidance only.

Table 13A-8: Examples of Factors Considered in assessing the Value Attached to Views

Value	Description
High	Views from nationally (and in some cases internationally) known viewpoints, which: • have some form of planning designation; or • are associated with internationally or nationally designated landscapes or important heritage assets; or • are promoted in sources such as maps and tourist literature; or • are linked with important and popular visitor attractions where the view forms a recognised part of the visitor experience; or • have important cultural associations. Also, may include views judged by assessors to be of high value.
Medium	Views from viewpoints of some importance at regional or local levels, which: • have some form of local planning designation associated with locally designated landscapes or areas of equivalent landscape quality; or • are promoted in local sources; or • are linked with locally important and popular visitor attractions where the view forms a recognised part of the visitor experience; or • have important local cultural associations. Also, may include views judged by the assessors to be of medium value.
Low	Views from viewpoints which, although they may have value to local people: • have no formal planning status; or • are not associated with designated or otherwise high-quality landscapes; or • are not linked with popular visitor attractions; or • have no known cultural associations. Also, may include views judged by the assessors to be of low value.

Susceptibility of Visual Receptors to Change

The susceptibility of different types of people to changes in views is mainly a function of:

- The occupation or activity of the viewer at a given viewpoint; and
- The extent to which the viewer's attention or interest be focussed on a particular view and the visual amenity experienced at a given view.

As LI TGN 2024/01 states at section 6(2), "*visual susceptibility is not influenced by the development type, which would be assessed as part of the magnitude of effect*".

The susceptibility of different groups of viewers is assessed with reference to the guidance in **Table 13A-9** below. However, as noted in GLVIA3 *"this division is not black and white and, in reality, there will be a gradation in susceptibility to change"*. Therefore, the susceptibility of each group of people affected is considered for each project and assessments are included in the relevant text in the report.

Table 13A-9: Visual Receptor Susceptibility to Change

Susceptibility	Description
High	Residents; People engaged in outdoor recreation where their attention is likely to be focused on the landscape and on particular views; Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; Communities where views contribute to the landscape setting enjoyed by the residents.
Medium	Travellers on scenic routes where the attention of drivers and passengers is likely to be focused on the landscape and on particular views. People engaged in outdoor sport or recreation, which may involve appreciation of views e.g. users of golf courses.
Low	People engaged in outdoor sport or recreation, which does not involve appreciation of views; People at their place of work whose attention is focused on their work; where the setting is not important to quality of working life; Travellers, where the view is incidental to the journey.

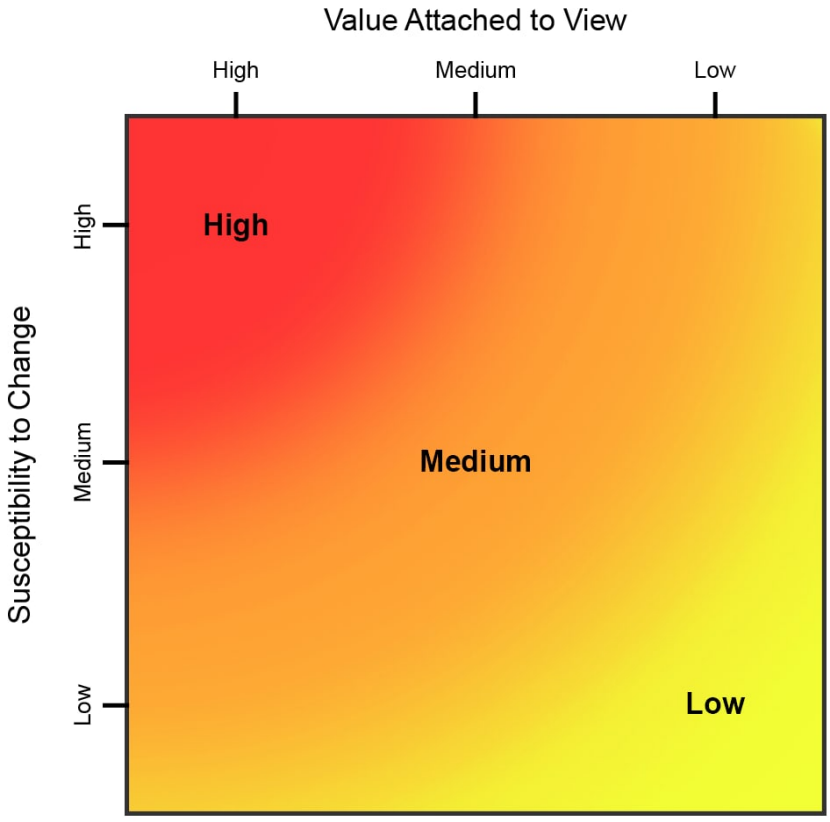
Defining Sensitivity

The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different receptors to the proposed change. **Figure 13A-4** below summarises the nature of the relationship; it is not formulaic and only indicates general categories of sensitivity. Judgements are made on merit about each visual receptor, with the table below only serving as a guide. **Table 13A-10** sets down the main categories that may occur but again it is not comprehensive and other combinations may occur.

Table 13A-10: Example Levels of Sensitivity defined by Value and Susceptibility of Visual Receptors

Sensitivity	Criteria
High	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of high value. OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of high value. OR The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the medium level.
Medium	The visual receptor group is highly susceptible to changes in views and visual amenity and relevant views are of value at the low level. OR The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the high level.
Low	The visual receptor group has a medium level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the medium level. OR The visual receptor group has a low level of susceptibility to changes in views and visual amenity and relevant views are of value at the low level.

Figure 13A-4: Levels of Sensitivity Defined by Value and Susceptibility of Visual Receptor Groups



Magnitude of Visual Change

The magnitude of visual change is established by assessing the size or scale of change, the geographical extent of the area influenced and the duration and potential reversibility of the change.

Size and Scale of Change

The criteria used to assess the size/scale of visual change are as follows:

- the scale of the change in the view with respect to the loss or addition of features in the view, changes in its composition, including the proportion of the view occupied by the proposed development and distance of view;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of factors such as form, scale and mass, line, height, colour and texture; and
- the nature of the view of the proposed development, for example whether views will be full, partial or glimpses or sequential views while passing through the landscape.

The above criteria are summarised in the **Table 13A-11** below:

Table 13A-11: Magnitude of Visual Change: Size/Scale of Change

Sensitivity	Criteria
Large visual change	The proposed development will cause a complete or large change in the view, resulting from the loss of important features in or the addition of important new ones, to the extent that this will substantially alter the composition of the view and the visual amenity it offers.
Medium visual change	The proposed development will cause a clearly noticeable change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will alter to a moderate degree the composition of the view and the visual amenity it offers. Views may be partial/intermittent.
Small visual change	The proposed development will cause a perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will partially alter the composition of the view and the visual amenity it offers. Views may be partial only.
Negligible visual change	The proposed development will cause a barely perceptible change in the view, resulting from the loss of features or the addition of new ones, to the extent that this will barely alter the composition of the view and the visual amenity it offers. Views may be glimpsed only.
No change	The proposed development will cause no change to the view.

Geographical Extent of Change

The geographical extent of the visual change identified at representative viewpoints is assessed by reference to a combination of the Zone of Theoretical Visibility (ZTV), where this has been prepared, and field work, and consideration of the criteria in **Table 13A-12** below. Representative viewpoints are used as 'sample' points to assess the typical change experienced by different groups of visual receptors at different distances and directions from the proposed development. The geographical extent of the visual change is judged for each group of receptors: for example, people using a particular route or public amenity, drawing on the viewpoint assessments, plus information about the distribution of that particular group of people in the Study Area.

LI TGN 2024/01 states at section 6(8) that geographic extent should primarily refer to the extent of the viewing area that is affected (for example the length of a footpath or the proportion of a community).

Thus, low levels of change identified at representative viewpoints may be extensive or limited in terms of the geographical area they are apparent from: for example, a view of the proposed development from elevated Access Land may be widely visible from much or all of the accessible area, or may be confined to a small proportion of the area. Similarly, a view from a public footpath may be visible from a single isolated viewpoint, or over a prolonged stretch of the route. Community views may be experienced from a small number of dwellings, or affect numerous residential properties.

Table 13A-12: Magnitude of Visual Change: Geographical Extent of Change

Category	Description
Large extent of visual change	The proposed development is seen by the group of receptors in many locations across the Study Area or from the majority of a linear route and/or by large numbers of viewers; or the effect on the specific view(s) is extensive.
Medium extent of visual change	The proposed development is seen by the group of receptors from a medium number of locations across the Study Area or from a medium part of a linear route and/or by a medium number of viewers; or the effect on the specific view is moderately extensive.
Small extent of visual change	The proposed development is seen by the group of receptors at a small number of locations across the Study Area or from only limited sections of a linear route and/or by a small number of viewers; or the effect on a specific view is small.
Negligible extent of visual change	The proposed development is either not visible in the Study Area or is seen by the receptor group at only one or two locations or from a very limited section of a linear route and/or by a very small number of viewers; or the effect on the specific view is barely discernible.

Duration and Reversibility

The duration of the visual change at viewpoints is categorised in **Table 13A-13** below, which considers whether views will be permanent and irreversible or temporary and reversible. The levels of duration are based on the EPA Guidelines on the information to be contained in EIA Reports (2022).

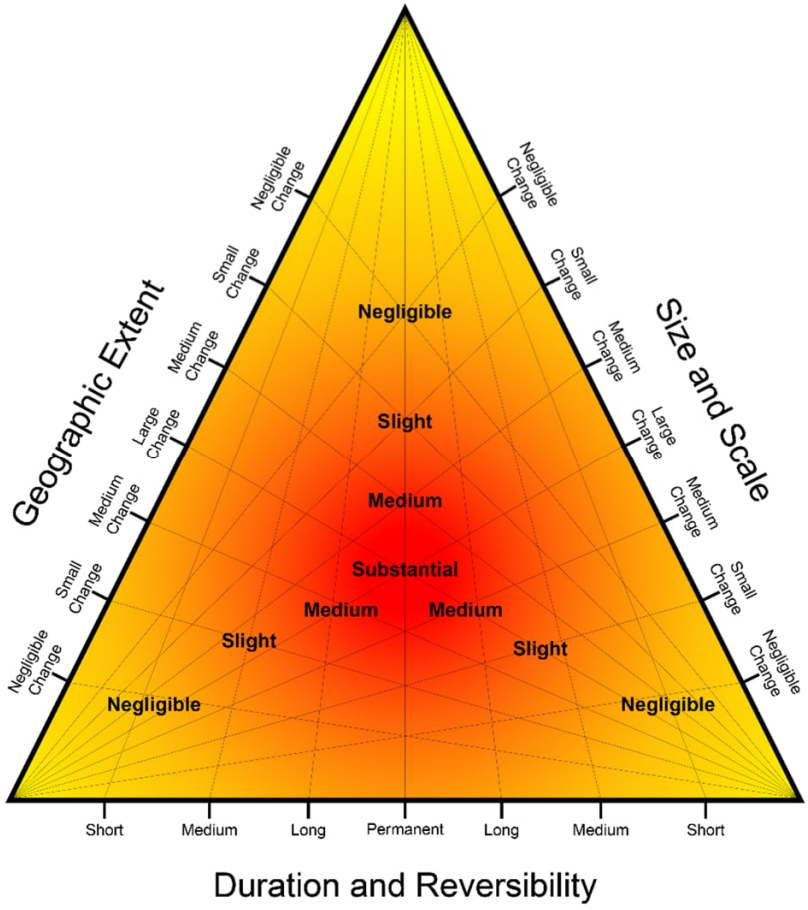
Table 13A-13: Magnitude of Visual Change: Duration and Reversibility

Category	Description
Permanent/ Irreversible	Effects that will last for over 60 years and is deemed irreversible.
Long-term reversible	Effects that will last between 15 and 60 years and are theoretically reversible.
Medium-term reversible	Effects that will last between 7 and 15 years and are wholly or partially reversible.
Temporary / Short-term reversible	Effects that will last from 0 to 7 years and is reversible - likely to include construction effects.

Deciding on Overall Magnitude of Visual Change

The relationships between the three factors that contribute to assessment of the magnitude of visual effects are illustrated graphically, as a guide, in **Figure 13A-5** below. Various combinations are possible and the overall magnitude of each effect is made using professional judgement rather than by formulaic application of the relationships in the diagram.

Figure 13A-5: Determining the Magnitude of Visual Change

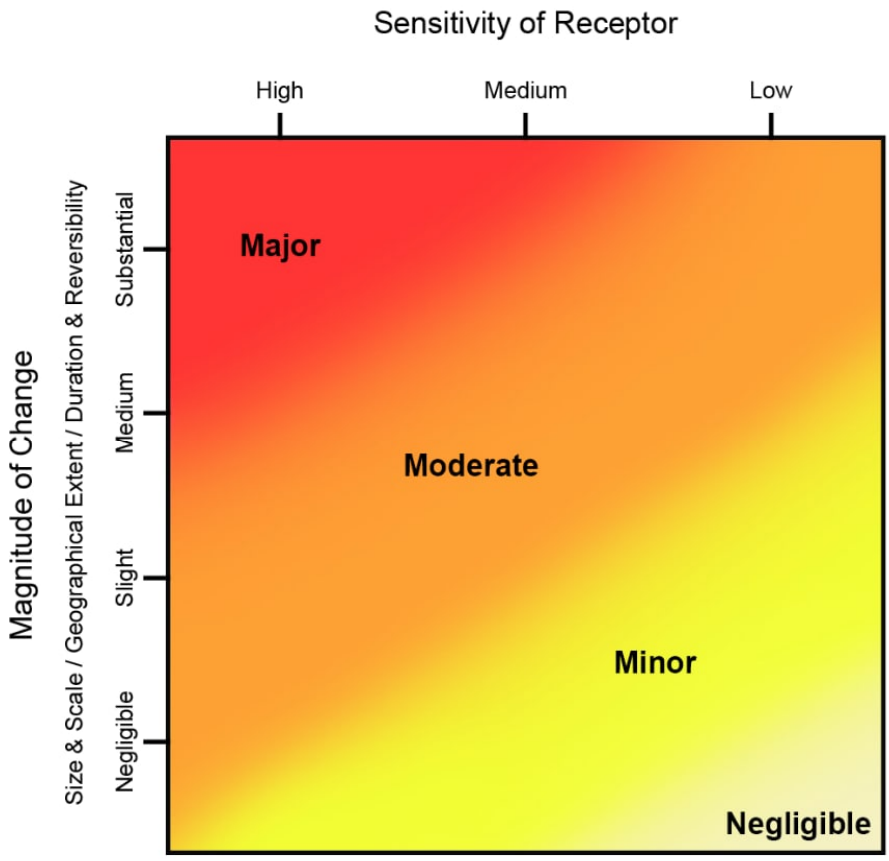


Assessment of Visual Effects and Significance

The assessment of visual effects is defined in terms of the relationship between the sensitivity of the visual receptors (value and susceptibility) and the magnitude of the change. The diagram below (**Figure 13A-6**) summarises the nature of the relationship but it is not formulaic and only indicates broad levels of effect. Judgements are made about each visual effect using this diagram as a guide.

Major and Major/Moderate effects are regarded as important planning considerations in landscape and visual appraisals (or significant effects in landscape and visual impact assessments). Moderate effects are not generally considered to be important planning considerations/significant effects, although the assessor may conclude that some moderate effects could constitute significant effects in certain circumstances: for example, there may be a concentration of several moderate effects in one location, or a moderate effect may occur for a particularly sensitive receptor or be of a particularly high magnitude.

Figure 13A-6: Assessment of Visual Effects and Overall Significance

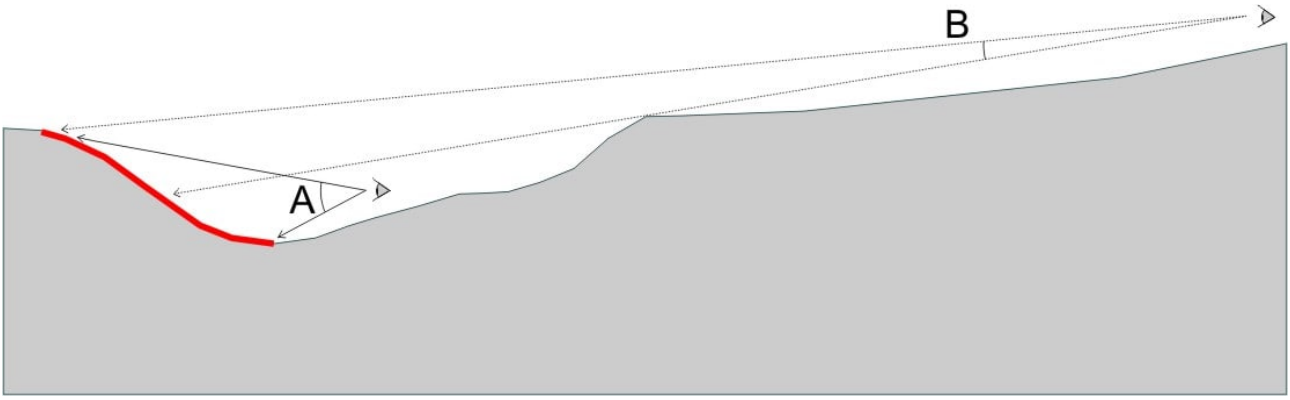


Appendix 13-B – Zone of Theoretical Visibility (ZTV) Methodology

A Zone of Theoretical Visibility (ZTV) Study was conducted for the proposed development (i.e. the tallest proposed structures, including the Bio Conversion Building, the Biorest Tanks, the gas storage balloon and the stack associated with the linear generator) to help identify areas sensitive to visual impacts. This study used the measurement of the vertical subtended angle for its methodology. This method is explained below and illustrated by Figure A, below.

When a Target Area (red) is observed from a Viewpoint (A or B) its apparent height can be measured in the form of degrees, to give a Subtended Vertical Angle.

Figure A:



The use of the Subtended Vertical Angle in formulating a ZTV has the benefit of automatically reducing values to reflect the distance from the Target Area, and partial screening by intervening landforms. Generally, the further the viewpoint is from the Target Area the smaller the Subtended Vertical Angle, reflecting the effect of distance on visual impacts.

Thus, in the example section above Viewpoint A experiences a higher subtended angle due to proximity to the red target area. Viewpoint B has a lower subtended angle due to greater distance from the target area and partial screening by intervening landform.

If the Subtended Vertical Angle is measured from a series of grid points for a particular Target Area, the resultant data can then be used to generate contours. Each contour level representing a certain vertical angle, and thus potential level of visibility.

The subtended vertical angle method of calculating ZTVs using LSS digital terrain modelling software has been proven by field investigation on numerous sites to be an accurate method of predicting areas of potential visibility for on-site investigation.

However, the computer generated ZTV study is undertaken using a mostly bare earth landform to give the worst case scenario. In reality any built structures (settlements, walls etc) or areas of vegetation (woodlands, scrub and hedgerows) will reduce the actual visibility of the target area. Some of the existing vegetation along the site boundaries was included in the calculation of the ZTV for the proposed development, reducing the projected theoretical visibility somewhat. However, vegetation in the wider landscape was not included and therefore, it is necessary to carry out fieldwork to validate the results of the ZTV.

Appendix 13-C – Viewpoint Photography & Photomontage Methodology

Introduction

An integral part of the assessment/appraisal process is often the recording of viewpoint photography and the preparation of visualisations, including photomontages. Such output is valuable in illustrating visual change for assessment purposes and in helping readers to understand the nature of that change.

It is essential that such output is prepared to be technically correct and an accurate representation of that which is illustrates.

The photography and visualisations are prepared with knowledge and understanding of the principles and guidance provided in a number of relevant documents, including:

- Landscape Institute (2011) Advice Note 01/11, Photography and Photomontage in Landscape and Visual Impact Assessment;
- Landscape Institute (2017): Technical Guidance Note 06/19: Visual Representation of Development Proposals;
- Scottish Natural Heritage (December 2014) Visual Representation of Wind Farms, Version 2.2; and
- The Highland Council (2017) Visualisation Standards for Wind Energy Developments.

Note that not all elements of the above documents are relevant to all developments and a pragmatic and proportionate approach has been taken to illustrate the Proposed Development effectively.

Viewpoints

The viewpoints are chosen to reflect a range of views towards the Proposed Development and the selection process is explained in the assessment/appraisal.

At each viewpoint baseline photography is recorded to allow the analysis of the effects that are predicted to occur as a result of the proposed development. Where appropriate, the assessment / appraisal involves the production of computer generated visualisations / photomontages for a number of viewpoints to illustrate views of the Proposed Development. The viewpoints form an important element of the visual assessment/appraisal and can also be used to inform judgements in relation to the potential effects on landscape/townscape receptors.

Viewpoint Photography

Photography is undertaken through the use of digital single lens reflex (dSLR) camera and a prime lens[3], with the camera and lens combination being comparable with a 35mm format camera and 50mm focal length lens combination. The camera is mounted on a tripod with a panoramic head in order to obtain a stable platform for single frame and panoramic views. A camera height of approximately 1.5m is used at each location, unless otherwise stated. The position of the tripod is recorded with a handheld GPS device. In addition to recording the location of the viewpoint, observations in regard to time of day, weather, cloud cover, and visibility are made.

[3] fixed focal length, as opposed to a zoom lens

Following completion of the fieldwork, the photography is reviewed and the clearest images selected for the production of panoramic images. In some cases, limited adjustments are made to the images through the use of Adobe Photoshop software in order to improve appearance of the photography e.g. adjustments to exposure and sharpness. The photography for each viewpoint comprises a panorama created by joining the images in Adobe Photoshop, using cylindrical projection.

Three Dimensional Modelling

A three-dimensional model has been prepared for the proposed development and the surrounding area using survey software. This links a model of the proposed development with digital terrain model data for the surrounding landform using Ordnance Survey grid co-ordinates.

Reference points are selected and positioned in the survey software. These reference points reflect clearly identifiable elements that are visible in the baseline photography. This use of reference points allows verification of the visualisations/photomontages and accurate scaling/positioning of the Proposed Development in relation to baseline components of the view.

Where fully rendered views of the proposed development are produced in 3D modelling software, virtual cameras are positioned in the correct position relative to the development to match the baseline viewpoint photography. The lighting of the view in the 3D model is selected based upon the date, time and weather conditions applicable to the photography. While every effort is undertaken to render the development to account for the prevailing lighting conditions, some adjustment of the rendering and/or photograph is sometimes required to create a suitably realistic impression of the development.

Visualisations

The visualisations/photomontages that form part of the assessment/appraisal are presented in a way that provides a predicted view of the Proposed Development relative to, and within, the surrounding context. The main objective of the visualisation/photomontage process is to assist the assessor in determining the change and resultant effect on the receptors at the viewpoint location.

In the case of photomontages, Adobe Photoshop is used to combine the image of the three-dimensional survey model with the baseline photography using the reference points present in both (as described in the three dimensional modelling step above). The modelled view of the proposed development is then integrated with the photography as a third layer, and matched to the reference points in the survey model and rendered view to accurately position and scale the Proposed Development within the view. The Proposed Development is also placed carefully in relation to foreground and background vegetation to ensure it is depicted in a realistic way.

The visualisations/photomontages are presented in at A3 size for ease of viewing. The visualisations should be used in the field at the viewpoint location to help appreciate the level of effect that is likely to result from the Proposed Development.