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Introduction

Background

- 13.1 This chapter of the EIAR assesses the landscape and visual effects arising from the continuance of use of all previously permitted development at Cam Quarry, Co. Roscommon, including the concrete batching / block making plant and workshop not constructed to date (P. Ref. 04/1479 and ABP PL20.215417). Cam Quarry is located immediately south of the R363 - regional road, c. 3.5 km west of Brideswell village, c. 4 km east of the Dysart village, and c. 12 km north-west of Athlone.
- 13.2 The planning application area, hereafter referred to as 'the application area' or 'the site', comprises the existing extraction area, stockpile storage areas, the access road and other site infrastructure, such as an office, weighbridge and wheelwash, which cover much of the northern half of the site. The site further comprises an existing overburden storage area covering less than a quarter of the southern half of the site. There are also large areas of grass and scrub vegetation, namely the remainder of the southern half of the site, a c. 100 m wide area parallel to the northern boundary of the site and further areas within the northern half of the site.
- 13.3 The proposed development includes the reduction of the previously permitted extraction area from 23.7 ha to 17.1 ha and the associated reduction of the overburden storage area required. The existing quarry is largely screened in views from the surrounding areas by topography and vegetation. To reduce the visibility of some elements within the site further (e.g. the proposed waste management system and a recently constructed bare screening berm), as well as compensate the loss of some scrub vegetation, additional screen planting is proposed in the vicinity of the northern and part of the western site boundaries.
- 13.4 As soon as all the material stripped from the extraction area is moved into the overburden storage area, it is proposed to cover this area with soil, and provide some tree planting pockets, to soften its appearance. On completion of all extraction works the whole application area will be restored to a beneficial natural habitat afteruse, including leaving the quarry void to naturally fill with water and removing / ripping all hardstanding areas and leaving them for natural regeneration. Further details on the proposed development, including the proposed Landscape and Restoration Plan (**Figure 2-5**) are contained in Chapter 2 of this EIAR.
- 13.5 This chapter should be read in conjunction with the following figures, which have been prepared to inform the EIAR chapter:
- **Figure 13-1:** Landscape Designations and Viewpoint Locations;
 - **Figure 13-2:** Zone of Theoretical Visibility (ZTV) Map;
 - **Figure 13-3:** Viewpoints A & B;
 - **Figure 13-4:** Viewpoints C & D; and
 - **Figure 13-5:** Viewpoints E & F.

Scope of Work / EIA Scoping

- 13.6 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.
- 13.7 These headings are incorporated in the subsequent 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.
- 13.8 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.
- 13.9 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.
- 13.10 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.
- 13.11 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.
- 13.12 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.
- 13.13 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

- 13.14 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) viewpoints on one A3-sized sheet, using a range of horizontal angles of view (i.e. 75°-105°) to illustrate the extent of the development within each photograph presented, as well as the context within which the site is located.

- 13.15 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.
- 13.16 The 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

- 13.17 A pre-planning consultation meeting was held between officials of Roscommon County Council and representatives of SLR Consulting Ireland and Roadstone Limited on the 16th June 2025. No specific points relating to landscape and visual issues were raised during this meeting.
- 13.18 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)

- 13.19 This LVIA 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.
- 13.20 Anne further holds a Technician's Certificate in Arboriculture and is a Technician Member of the Arboricultural Association.

Sources of Information

- 13.21 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 January 2025. The desktop study and field work were informed by:
- Roscommon County Development Plan (RCDP) 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

- 13.22 A study area of approximately 3km surrounding the application area was identified during the desktop study, based on the Zone of Theoretical Visibility Map (refer to **Figure 13-2**). While the ZTV indicates limited / no visibility beyond 1 km to the east and 2 km to the south-west of the site, the 3km study area is maintained for the purposes of providing landscape context.

Field Survey

- 13.23 A detailed field survey was carried out on 6th February 2025, 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.
- 13.24 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

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

Significant Risks

- 13.26 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

- 13.27 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

- 13.28 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”.
- 13.29 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.
- 13.30 There is no Irish legislation specifically governing the preparation of landscape and visual impact assessments.

Planning Policy and Development Control

- 13.31 The Roscommon County Development Plan (RCDP) 2022-2028 is the statutory plan detailing the development objectives/policies of the authority, covering the application area. Those objectives, 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.

Extractive Industries

- 13.32 Section 6.5 of the current RCDP, covering *Extractive Industries*, includes the following Policy Objectives with relevance to landscape and visual issues.
- 13.33 **Policy Objective ED 6.17:** “Facilitate the extraction of minerals and aggregates and associated processing where such activities do not have a significant negative impact on

the environment, landscape, public health, archaeology or residential amenities of neighbouring settlements and where such operations are in compliance with all national regulations and guidelines applicable to quarrying and mining activities.”

- 13.34 **Policy Objective ED 6.19:** *“Support adequate supplies of aggregate resources to meet the future growth needs of the county and the wider region where there is a proven need for a certain mineral/aggregate and to exercise appropriate control, while addressing key environmental, traffic and social impacts.”*
- 13.35 **Policy Objective ED 6.20:** *“Require appropriate restoration of quarried lands and encourage the reuse of worked out quarries for ecological and geological benefit and / or for recreational, educational and agricultural purposes.”*

Woodlands, Trees and Hedgerows

- 13.36 Section 10.7 of the current RCDP, covering *Woodlands, Trees and Hedgerows*, sets out the following Policy Objectives with relevance to this assessment.
- 13.37 **Policy Objective NH 10.13:** *“Encourage the retention of hedgerows and other distinctive boundary treatments in rural areas and prevent loss and fragmentation, where practically possible. Where removal of a hedgerow, stone wall or other distinctive boundary treatment is unavoidable, mitigation by provision of the same type of boundary will be required.”*
- 13.38 **Policy Objective NH 10.14:** *“Promote and encourage planting of native hedgerow species in new developments.”*
- 13.39 **Policy Objective NH 10.15:** *“Ensure that hedgerows that are required to be removed in the interests of traffic safety or where breaches to hedgerows occur in compliance with relevant legislation, are replaced by the applicant/developer with suitable native species to the satisfaction of the Council.”*

Landscape Character Assessment

- 13.40 Section 10.13 of the RCDP includes the following Policy Objectives with relevance to this assessment.
- 13.41 **Policy Objective NH 10.25:** *“Minimise visual impacts on areas categorised within the County Roscommon Landscape Character Assessment including “moderate value”, “high value”, “very high value” and with special emphasis on areas classified as “exceptional value” and where deemed necessary, require the use of Visual Impact Assessment where proposed development may have significant effect on such designated areas.”*
- 13.42 The Landscape Character Assessment of County Roscommon was prepared as part of the 2014 RCDP and was reviewed and updated as appropriate for the RCDP 2022-2028. This assessment divides the county into 36 Landscape Character Areas (LCA), each of which has been classified into one of four value classes. The application area is fully located within LCA 34 – Lough Funshinagh, Stone Wall Grasslands and Esker Ridges, which has been afforded moderate value.
- 13.43 **Policy Objective NH 10.26:** *“Protect important views and prospects in the rural landscape and visual linkage between established landmarks, landscape features and views in urban areas.”*
- 13.44 The Landscape Character Assessment which accompanies the current RCDP includes a map of the designated Scenic Routes and Scenic Views within the county. None of these are located within the study area or are directed at the application area.

Receiving Environment

Landscape Baseline

Existing Relevant Landscape Character Assessment

- 13.45 As mentioned previously, the Landscape Character Assessment of County Roscommon places the application area fully within LCA 34 – Lough Funshinagh, Stone Wall Grasslands and Esker Ridges, which is afforded moderate value. The assessment stated that *“Landscapes of Moderate Value, ..., tend to be less sensitive and are therefore more tolerant of change”*.
- 13.46 The border with the nearest other LCA, i.e. LCA 35 – Bridewell Esker Belt (moderate value), is located just over 2.5 km east of the application area, at its closest point. The border with LCA 12 – Athleague and Lower Suck Valley (high value), is located just over 2.7 km to the south-west. Due to their distance from the application area and limited potential for intervisibility (refer to **Figure 13-2**), neither LCA 35 nor LCA 12 are deemed to be affected by the proposed development and are therefore not considered further as part of this assessment.
- 13.47 The description of the key characteristics of LCA 34 includes the following of relevance to this assessment: *“This LCA is located south of the centre of County Roscommon and is one of the largest areas identified in the study. The landform rolls from north to south and is primarily dry grassland farmland. There is an area of low-lying dry grassland in the south where eskers run in a northeast to southwest direction and make a significant contribution towards the overall character and quality of the landscape. Lough Funshinagh is the main landscape feature in the northeast. Stone walls evolved as the system of enclosure throughout this area and in places the field sizes are particularly small contributing significantly to the landscape character and sense of place. There are no major settlements in this area. The area is served by the local road network. The overall image of this LCA is of a rolling stonewalled grassland landscape with a distinctive esker area to the south.”*
- 13.48 The description of the Forces of Change for LCA 34 states the following: *“The (sic) has been evidence of demand for single rural dwellings on the high ground overlooking Lough Funshinagh. The impact of built development is significant in some instances and undermines the visual quality of the landscape. Houses in the esker belt can sometimes also create an adverse landscape impact as they may require the full or partial removal of the gravelly ridges. Demand for quarried stone and gravel is likely to continue.”*

Landscape of the Site and its Context

- 13.49 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

- 13.50 The c. 66.3 ha application area is located immediately south of the R363, c. 3.5 km west of the small village of Brideswell. It covers an area in the shape of two approximate rectangles which adjoin each other over approximately half of the southern boundary of one and half

- of the northern boundary of the other rectangle. The southern part of the site is offset to the west.
- 13.51 The northern part of the site comprises the existing extraction area, stockpile storage areas, the access road and other site infrastructure, such as an office, weighbridge and wheelwash, as well as some areas of grassland with patches of scrub. The largest of the latter is an up to 100 m wide area parallel to the northern boundary, which provides a substantial buffer to the R363 and is separated from the remainder of the site by a screening berm. Part of this berm was recently constructed and is therefore not yet covered in vegetation.
- 13.52 An existing overburden storage area is located in the north-western corner of the southern part of the site. It covers less than a quarter of this half of the site and consists of mostly bare ground, although some recolonisation by grass and scrub species is taking place. The remainder of the southern part of the site is covered with scrub vegetation, interspersed with some pockets of grassland.
- 13.53 The site boundaries are largely marked by stone walls typical for the local area, with some large shrubs / small trees dotted along the walls and a band of scrub vegetation inside most of the western, southern and part of the eastern boundaries. There is no stone wall along the northern boundary, as the R363 was realigned inside the former field boundary, to improve the site access. The original wall is still present to the north of the R363. A hedge was planted to the south of the realigned road, which now marks the northern boundary of the site.
- 13.54 Levels along the site boundaries range from 84-90 m above ordnance datum (AOD) along the northern boundary of the site, to 110m AOD along the southern boundary of the northern part of the site and to 80-85 m AOD along the southern site boundary. Screening berms along parts of the western and eastern boundaries of the northern part of the site result in levels steeply rising immediately within these boundaries by 3-4 m along the western and up to 10 m along the eastern boundary. Within the site, there is a highpoint of 114m along the top of the southern quarry face and a low point of below 67 m AOD in the quarry sump. Generally, levels on the quarry floor range from 70m AOD to 85 m AOD. The topography of those sections of the site not disturbed by the quarry works is gently undulating with levels ranging from 85-95 m AOD.
- 13.55 The topography within the study area is largely flat throughout its northern half, with levels ranging from 65-80 m AOD. In the vicinity of the site and further west, south and east, the topography becomes gently undulating, with levels ranging from just below 60 m AOD to a high highpoint of 118 m AOD, c. 400 m east of the southern part of the site. The low points are located along the Ballyglass River, c. 2 km west, and Corkip Lough, c.2.5 km east of the site. In some locations levels change more rapidly, resulting in localised steep banks, more so towards the southern end of the study area, where esker ridges are present.
- 13.56 The landscape within the study area is dominated by improved agricultural grassland fields. These are interspersed with some fields that appear to be less intensively managed, particularly in the south-western part of the study area. This results in the presence of patches of scrub to varying degrees, ranging from scattered individual hawthorn and blackthorn bushes to densely covered areas dominated by gorse. The area within 2 km to the north-west of the site, contains a partially cut-over, partially scrub covered bog and the associated Cuilleenirwan Lough and Coolagarry Lough, as well as two small conifer plantations. Feacle Lough, a turlough, is located 1 km south-east of the site and parts of Ballynamona Bog and Corkip Lough are located just within the south-eastern boundary of the study area. The Ballyglass River, 1 km to the north-west of the site, at its closest point, is the only river within the study area. This is a small river which has been largely canalised and does not form a distinct feature in the landscape as there is not pronounced valley associated with it.

- 13.57 Field sizes range from small to large throughout the study area, with almost all boundaries marked by the locally typical stone walls. Most of these stone walls were constructed in straight lines, creating many near rectangular fields. Since the straight walls are also present in the more undulating parts of the study area, here the linear shapes of the fields are softened by the wavy toplines of the stone walls, following every undulation on the ground, resulting in some striking views. Individual hawthorn bushes are scattered along the mostly bare stone walls. There are however some areas where these bushes are more frequent, where lines of taller trees are present along the walls and / or the walls are overgrown with scrub, e.g. along the R363 to the north-west of the site, along the boundaries of scrub covered fields and increasingly in the southern part of the study area. Shelterbelts of tall trees or dense ornamental hedgerows are common in the vicinity of residential properties.
- 13.58 The R363 is the main transport route through the study area, passing immediately north of the site in an east-west direction. It meets the R362 at Ballymullhavill c. 6 km to the east, which continues for another 5.5 km towards the outskirts of Athlone. The R362 and R357 pass just outside the study area, to the north-east and south-west respectively. There is a network of local roads connecting the areas between these regional roads.
- 13.59 There is no formal settlement within the study area, with the small village of Brideswell just outside, to the east. There is however frequent one-off housing and ribbon development along all roads within the area.
- 13.60 Human activity has strongly influenced the land use throughout the study area, in the form of agriculture, which is further emphasised by the many dry stone walls marking field boundaries. Other human influences are visible in the form of roads, buildings and wooden electricity poles, as well as the section of cut-over bog and the existing quarry. On the whole, this is an attractive rural landscape, with some patches of 'natural vegetation', in the form of self-seeded scrub. However, there are few, if any, locations from where no man-made structures are visible.

Aesthetic and Perceptual Aspects

- 13.61 The scale of the landscape within the study area is mostly large, due to the many low boundary walls allowing views into the wider area. From slightly elevated locations, some of these views reach a very long distance, over the gently undulating agricultural landscape. There is however a notable absence of a distant focal feature, such as a distinctly shaped ridge or a mountain range, in views throughout the study area. In some locations, where taller vegetation or more steeply sloping ground are present in the vicinity of the viewpoint, the scale is locally reduced.
- 13.62 The dominance of pasture fields, interspersed with some areas of scrub and bog result 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, with some browns and greys from the scrub areas and stone walls, as well as the existing quarry.
- 13.63 While the landscape within the study area is rural and has an overall natural appearance, there is little sense of wildness or remoteness, due to the many signs of human activity (e.g. the improved grassland, stone walls, roads and residential properties). The R363 and nearby local roads bring occasional vehicular movement, but traffic volumes are generally low, allowing for periods of tranquillity.

Overall Character

- 13.64 The site assessment supports the inclusion of the site and its immediate context in LCA 34 - Lough Funshinagh, Stone Wall Grasslands and Esker Ridges, as set out in the

Roscommon Landscape Character Assessment, with the stone wall grasslands being the key characteristic within the study area.

Protected Nature Conservation Sites

- 13.65 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. There are two such areas within the study area, one proposed National Heritage Area (pNHA) and one Special Area of Conservation (SAC). They are:
- The Feacle Turlough pNHA (Site Code: 001634); just over 500m to the south-east of the site;
 - The Ballynamona Bog and Corkip Lough SAC (Site Code: 002339); just over 2 km to the east of the site.

Zone of Theoretical Visibility (ZTV)

- 13.66 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.
- 13.67 The ZTV, which illustrates the subtended vertical angle of visibility, was calculated for the proposed extraction and overburden storage areas. It should be noted that the ZTV mapping is based on a bare terrain; that is, the computer model does not include built structures or vegetation. As a result, the extent of visibility, which is illustrated, is regarded as a worst-case scenario, and would be greatly reduced if buildings and vegetation, such as the scrub areas and any trees present in the surrounding landscape, were included in the model.
- 13.68 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.
- 13.69 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).
- 13.70 While there are large areas of theoretical visibility within a 5 km to the north, west and south-east of the site (and beyond), these have a low probability of actual visibility, as indicated by the shades of grey. As mentioned above, views from within these areas are likely to be reduced further / eliminated by existing intervening vegetation.
- 13.71 Also, it should be noted that much of the theoretical visibility areas cover agricultural lands, 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.
- 13.72 The ZTV further illustrates that the slightly undulating topography surrounding the application area creates many pockets of very little or no visibility, even if there was no vegetation present in the local landscape, in particular beyond 1 km to the east and 2 km to the south-west of the site.

Outdoor Recreational Facilities within the Study Area

- 13.73 The study area was searched for existing outdoor recreational facilities, as these provide an indication of potential visual receptors within the area, in addition to local residents and road users. No formal walking routes or other outdoor recreational facilities within the study area were identified.
- 13.74 The Green Heartlands Cycle Route passes through Brideswell, c. 3.5 km east of the site, entering the village from the north along a local road and continuing eastwards along the R363. The ZTV indicates no visibility of the proposed development from the area surrounding Brideswell and the users of this cycle route will therefore not be considered further.

Actual Visibility

- 13.75 The actual visibility of the application area or rather the existing quarry development, from those areas indicated as having theoretical visibility on the ZTV mapping (refer to **Figure 13-2**), was assessed during the field survey. The field work concentrated on publicly accessible locations. It was confirmed that despite the relative lack of trees along field boundaries, the individual shrubs along stone walls, scattered scrub areas and tree lines combine in many views to reduce / eliminate visibility of the existing quarry development. This is particularly the case for the areas indicated as having a low potential for visibility on the ZTV mapping, i.e. the areas in grey.
- 13.76 It was established that the actual visibility of (parts of) the application area is restricted to:
- views of the northern site boundary and grassland / scrub immediately behind, as well as glimpses of the site entrance, the top of the southern quarry face and stockpiles from a c. 1,000 m long section of the R363, running along the northern boundary and extending a little further east, including adjoining residential properties;
 - partial and intermittent views of the overburden storage area, from a c. 1,200 m long section of the local road within 1 km to the south of the site, in the townland of Skeavally, including adjoining residential properties;
 - partial and intermittent views of the southern quarry face and overburden storage area, from a c. 750 m section of the local road in the townland of Cuilleenoolagh, approximately 1.2km west of the application area, including adjoining residential properties;
 - partial and intermittent views of the southern quarry face and stockpiles, from a c. 800m long section of the local road south and east of Ballintleva National School, including adjoining residential properties;
 - partial and intermittent views of the southern quarry face and glimpsed views of the stockpiles, from a c. 400m long section of local road 1 km north of the site, in the townlands of, including adjoining residential properties; and
 - partial and intermittent views of the southern quarry face and glimpsed views of the stockpiles, from a c. 2 km long section of the local roads in the townland of Cornalee and Coolagarry, between 1.4 - 2.6 km to the north-west of the application area, including adjoining residential properties.
- 13.77 Viewpoint photography was taken during the field survey from several locations throughout the study area. Six of these were selected to represent the range of available views.
- 13.78 The location of the six 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-F on Figures 13-3 to 13-5**). 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 **Viewpoint A** represents views from the R363 along the northern boundary of the application area, including views from three adjoining residential properties. The hedgerow along the northern site boundary is openly visible in all views. A section of the access road can be glimpsed at the site entrance. In some locations, such as Viewpoint A parts of the existing grassland, patches of scrub and the screening berm in the northern part of the site are visible above the boundary hedgerow, along the skyline. In all views, the main parts of the quarry development are screened, except for glimpses of the top of the southern quarry face and the stockpiles from the more eastern locations along the relevant stretch of road.
- 13.80 **Viewpoint B** represents intermittent views from the local road within 1 km to the south of the site, as well as c. seven residential properties is located. The available views are over slightly undulating grassland area, containing patches of scrub, towards a slightly elevated but indistinct ridge. The existing quarry faces and other elements in the northern part of the application area are screened by topography. Part of the overburden storage area is visible above screening vegetation along the skyline, but almost imperceptible, due to its narrowness.
- 13.81 **Viewpoint C** represents intermittent views from the local road within 1.2 km to the west of the site, as well as four adjoining properties. The available views are over two slightly undulating grassland fields, the distant ends of which form an indistinct ridge in an eastern direction, i.e. the left half of the view provided. A small section of the existing southern quarry face is visible above this ridge, as well as a narrow section of the overburden storage area, in a slightly more south-eastern viewing direction, i.e. towards the centre of the view. All other parts of the existing quarry development are screened by topography and vegetation. In views in a more southern direction, i.e. the right half of the view, a more distant ridge becomes visible.
- 13.82 **Viewpoint D** represents intermittent views from the local roads and five residential properties in the vicinity of Ballintleva National School. Where views open up, they are over flat agricultural grassland in the foreground, towards the ridge along which the application site is located. The upper section of the existing southern quarry face is visible below the ridge, partially screened by the stockpiles currently present in the north-western part of the application area. The top of the overburden storage area can also be identified in views but is almost imperceptible, due to its narrowness. All other parts of the existing quarry development are screened by topography and vegetation.
- 13.83 **Viewpoint E** represents intermittent views from the local road 1 km north of the site, as well as up to five adjoining residential properties. Where views open up, they are over flat agricultural grassland in the foreground, towards the ridge along which the application site is located. The upper section of the existing southern quarry face is visible as a narrow band below the ridge. The stockpiles currently present in the north-western part of the application area can be glimpsed behind some intervening trees, less so during the summer months, when these trees are in leaf. The remainder of the existing quarry development is fully screened. It should also be noted that since the views from this area towards the site are in a southern direction, the sun is always behind the quarry face, so that this is in the shade for the majority of time throughout the year (except for early mornings and late evenings during the summer months). This makes it difficult to discern any details within the application area.
- 13.84 **Viewpoint F** represents intermittent views from the local roads within 1.4 - 2.6 km to the north-west of the site, as well as up to twelve adjoining residential properties. Views are generally similar to Viewpoint E, although less open, due to additional intervening vegetation. They are over flat agricultural grassland in the foreground, towards the ridge

along which the application site is located. The top of the existing southern quarry face and the stockpiles currently present in the north-western part of the site are visible as narrow bands below the ridge and above the intervening vegetation. The remainder of the existing quarry development is fully screened. As with Viewpoint E, it should be noted that since the views from this are typically in a southern direction, the sun is always behind the quarry face, so that this is in the shade for the majority of time throughout the year (except for early mornings and late evenings during the summer months). This makes it difficult to discern any details within the application area.

- 13.85 Please note that the type of views towards the application area from the areas represented by Viewpoints E & F are broadly similar and these will therefore be assessed together.

Sensitive Receptors

Landscape Receptors

- 13.86 The landscape receptors potentially affected by the proposed development and therefore considered as part of the assessment of landscape effects, are:
- Individual elements:
 - Some areas of grassland and scrub within the application area.
 - Overall, Character:
 - The stone wall grassland character of the landscape within the study area (part of LCA 34).
- 13.87 No distinctive or highly sensitive aesthetic / perceptual aspects were identified in the immediate vicinity of the application area, such as remoteness, wildness or tranquillity. Also, the generally large scale of the landscape is unlikely to be affected, by the proposed development, as it is contained within an existing quarry site and constitutes the continuation of an existing development. For these reasons no aesthetic and perceptual aspects were identified as sensitive landscape receptors to be brought forward to the assessment of landscape effects

Visual Receptors

- 13.88 The visual receptors, potentially affected by the proposed development and therefore considered as part of the assessment of visual effects, are:
- Residents:
 - Three residential properties along the R363, along the northern boundary of the site (represented by **Viewpoint A** on **Figure 13-3**);
 - C. seven residential properties along the local road within 1 km to the south of the site (represented by **Viewpoint B** on **Figure 13-3**);
 - Four residential properties along the local road within 1.2 km to the west of the site (represented by **Viewpoint C** on **Figure 13-4**);
 - C. five residential properties in the vicinity of and the teacher / pupils of Ballintleva National School (represented by **Viewpoint D** on **Figure 13-4**); and
 - C. 17 residential properties along the local roads between 1-2.6 km to the north / north-west of the site (represented by **Viewpoints E & F** on **Figure 13-5**).
 - Vehicle users:

- along a c. 1,000 m section of the of the R363, along the northern boundary of the site (represented by **Viewpoint A** on **Figure 13-3**);
- intermittently along a c. 1,200 m section of the local road within 1 km to the south of the site (represented by **Viewpoint B** on **Figure 13-3**);
- intermittently along a c. 750 m section of the local road within 1.2 km to the west of the site (represented by **Viewpoint C** on **Figure 13-4**);
- intermittently along a total of c. 800 m made up from two sections of the local road in the vicinity of Ballintleva National School (represented by **Viewpoint D** on **Figure 13-4**); and
- intermittently along a total of c. 2,400 m made up from several sections of the local roads between 1-2.6 km to the north / north-west of the site (represented by **Viewpoints E & F** on **Figure 13-5**).

Impact Assessment

- 13.89 This section sets out the effects that the proposed development would have on both landscape and visual receptors (as identified in the previous section), during the operational stage of the proposed quarry development which includes the proposed restoration activities, as well as during the post-operational stage, when all extraction / restoration works are completed. Please note that this development does not have a construction stage, as it constitutes the continued operation of an existing quarry development.
- 13.90 The description of the potential effects is based on the detailed project description and layout drawings contained in Chapter 2 of this EIAR, in particular the proposed Landscape Plan and Restoration Plan and the Vegetation Removal Plan (**Figures 2-5 & 2-6**).

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

Construction & Operational Stage

- 13.91 The construction and operational stage of the proposed development, for the purpose of this assessment, is considered to include the extraction and final restoration works, i.e. a 25-year period, along with the concrete batching / block making plant and workshop not constructed yet. However, considering this is an extension to the period the existing development has already been worked, the overall operational period will be around 45 years. At the same time, it should be noted that all elements proposed, as part of the proposed development are currently permitted under P. Ref. 04/1479 and ABP PL20.215417 and were therefore deemed acceptable in landscape and visual terms. Indeed, the proposal now made reduces the extent of the extraction area and subsequently the overburden storage area, thereby slightly decreasing the magnitude of the associated landscape and visual effects.
- 13.92 The following elements of the proposed development, during this stage, are those which are most likely to result in landscape & visual effects:
- the continued visibility of the upper sections of the southern quarry face, which is the tallest face, and the only visible element associated with the existing quarry void;
 - the removal of grassland and scrub vegetation and stripping of soil and overburden from those parts of the site where extraction works have not yet commenced, as well as from the areas on which the proposed block yard, workshop and water management system will be located;

- the construction and presence of the block yard, workshop and water management system;
 - the planting and resulting visibility of several blocks of native trees and shrubs (total of c. 5,700 m²) along parts of the northern and western boundary, to augment the existing screening vegetation, on commencement of the development (refer to the **Figures 2-5 - Proposed Landscape and Restoration Plan**, in Chapter 2 of this EIAR).
 - the placement of any stripped overburden material into the storage area in the southern part of the site and associated slight increase to its current extent and height (by c. 5 m) and associated removal of some sections of scrub. Note: overall the overburden storage area will be much smaller in extent and a little lower than what is currently permitted, and a large area of scrub will be retained, which was previously proposed for removal.
 - the planting and resulting visibility of several blocks of native trees and shrubs (total of c. 9,300 m²) on the completed overburden storage area, which is to be capped with soil material, to soften its appearance and initiate the recolonisation process, as soon as all material is placed into this area (refer to the **Figures 2-5 - Proposed Landscape and Restoration Plan**, in Chapter 2 of this EIAR)
 - the changes to the landform within the reduced c. 17.1 ha extraction area, resulting in a final pit floor level of c. 40 m AOD. Note: the reduction of the extraction area results in the retention of a large area of scrub, which was previously proposed for removal.
 - the restoration of the site to a beneficial natural habitat land use, including the removal of all plant, machinery, stockpiles and structures from the site and the deep ripping of hard standing areas and leaving them for natural regeneration. The quarry void will be left to naturally refill with water (refer to the **Figures 2-5 - Proposed Landscape and Restoration Plan**, in Chapter 2 of this EIAR).
- 13.93 Some additional fixed downlights will be provided in the block yard and at the workshop, when these are constructed. Other than that, no additional lighting will be required, aside from what is already present within the site. All lighting would continue to be in use for wintertime operations only, when darkness has fallen, within the existing / proposed site operating hours of 07.00 hours until 20.00 hours Monday to Friday and until 14.00 hours on Saturdays. There are therefore periods where such lighting is required for up to 1 hour in the morning and up to 2.5 hours in the evening, during periods in winter. As most quarry activity is below surrounding ground level light pollution from site activity is considered to be minimal and not significant in landscape / visual terms.

Post-Operational Stage

- 13.94 The post-operational stage of the proposed development, for the purpose of this assessment, is considered to be the period when all extraction and restoration works are completed.
- 13.95 The following elements of the proposed development, at the post-operational stage, are those which are most likely to result in landscape & visual effects:
- The final landform of the quarry void, with its steep faces, the tallest of which will continue to be visible in some views; the appearance of this face will soften in time, as the rock weathers and grass and scrub species begin to colonise the quarry benches and crevasses in the rock faces;
 - The areas left for natural regeneration, which will take some time to be fully covered with vegetation but will eventually have a similar appearance to the scrub areas present in the surrounding landscape.

Construction & Operational Stage Landscape Effects

Landscape Sensitivity

- 13.96 In accordance with GLVIA3, the sensitivity of landscape receptors is determined by combining their value with their susceptibility to the type of development proposed.
- 13.97 In determining the value of landscapes, GLVIA3 recommends that the starting point should be to consider landscape-related designations. In this context it is important to note that no part of the application area or its immediate context is included within a statutory landscape designation.
- 13.98 GLVIA3 states that the value of undesignated sites should also be considered. Table 1 of Landscape Institute Technical Guidance Note 2/21 supersedes Box 5.1 of GLVIA3 and provides a helpful guide for assessing these sites. A full assessment against a list of factors set out in the Technical Guidance Note is included in **Table 13-1**, below.

Table 13-1: Evaluation of the Value of the Site and its Immediate Context

Factor	Assessment	Notes
Natural Heritage	COMMUNITY	The site itself is not designated for ecological reasons but contains and is surrounded by some areas of unimproved grassland and scrub, which are of some local habitat value. There are two conservation areas within the study area, the closest of which is located just over 500 m to the south-east.
Cultural Heritage	COMMUNITY	The former field system within the site and still present in the surrounding landscape is listed in the Sites and Monuments Record (SMR) (site code: RO048-097008-). This was investigated as part of the previous planning application within the site and has now been partially removed.
Landscape condition	COMMUNITY	The majority of the agricultural fields immediately surrounding the application area are intensively managed and therefore in a good condition with bound by linear dry-stone walls. There are some fields which appear less intensively managed and are therefore covered in varying levels of scrub (including parts of the application area). Due to their presence throughout the study area, these are not detracting / incongruous features.
Associations	LOW	No known associations with art, literature or events.
Distinctiveness	COMMUNITY	The local landscape has a strong sense of place, due to its distinctive stone wall field boundary system. This is still present along the outer boundaries of the site, but less so within the application area.
Recreational	LOW	The site or fields immediately surrounding it are not publicly accessible.
Perceptual (Scenic)	COMMUNITY	The striking stone wall field boundary system has strong aesthetic qualities; however, there are no memorable or distinctive views, due to its reoccurrence over a large, flat to slightly undulating area, with no distant focal features.
Perceptual (Wilderness and tranquillity)	LOW	The site and immediate surrounding area have no strong perceptual value, such as remoteness, wildness or tranquillity, due to the presence of roads, residential and farm buildings and other human influences (e.g. the farmed land and stone walls).

Factor	Assessment	Notes
Functional	COMMUNITY	The scrub areas within and surrounding the site have a function as part of the local green infrastructure network and as a carbon sink (on a local scale).

13.99 Using the factors set out in **Table 13-1**, it has been concluded that the site and its immediate context has some value at the community level, in particular regarding the natural heritage / biodiversity and scenic/distinctive contributions to the landscape. However, there are no aspects that would support the elevation of the value of the local landscape above the community level.

13.100 The susceptibility of each of the sensitive landscape receptors is assessed in **Table 13-2**. This is combined with the previously assessed value and a judgement of the overall sensitivity provided.

Table 13-2: Sensitivity of Landscape Receptors

Landscape Receptors	Value	Susceptibility	Overall Sensitivity
Individual Elements			
Areas of grassland and scrub	COMMUNITY	HIGH The susceptibility of the affected areas of scrub to the proposed works is high, as they would be removed.	MEDIUM
Overall Character			
Stone wall grassland landscape character (part of LCA 34)	COMMUNITY (LCA 34 is afforded moderate value, i.e. the lowest level in the Roscommon Landscape Character Assessment)	LOW (LCA 34 is described as 'more tolerant to change' in the Roscommon Landscape Character Assessment; also considering that the proposed development comprises the continuation of an existing development the susceptibility to this is considered low)/	LOW

Magnitude of Landscape Change

13.101 **Table 13-3** describes the size & scale, geographical extent and duration/reversibility of the landscape effects for each landscape receptor, all of which contribute to the assessment of the magnitude of these effects.

Table 13-3: Magnitude of Landscape Change

Visual Receptors	Factors	Magnitude of Change
Individual Elements		
Areas of grassland and scrub	Size & Scale: SMALL Geographical Extent: SMALL Duration / Reversibility: LONG-TERM – (THEORETICALLY) REVERSIBLE Notes: The proposed development would result in the loss of some areas of grassland and scrub within the application area, with a larger area of the same habitat being retained. It should	SLIGHT

Visual Receptors	Factors	Magnitude of Change
	also be noted that the area of vegetation to be removed has been reduced compared with what was previously permitted. Overall, there will be very limited change to the composition / balance of the local landscape. The change would influence the landscape at a local level, i.e. would be focused on the site. The overall operational period is up to 45 years. While some of the areas will not be available for planting in the future, due to the changes to the landform, the proposed planting of some blocks of native trees and shrubs in other locations of the site will compensate / reverse the loss of the vegetation, to some extent.	
Overall Character		
Stone wall grassland landscape character (part of LCA 34)	Size & Scale: SMALL Geographical Extent: SMALL Duration / Reversibility: LONG-TERM – REVERSIBLE Notes: Considering the proposed development constitutes the continuation of an existing permitted and long-established development, there will be no introduction of new elements into the landscape and there will be very limited change to the overall composition / balance of the landscape. The change would influence the landscape at a local level, i.e. would be focused on the site, which is a small section of this landscape character which comprises all of the study area. The overall operational period is up to 45 years. While the changes to the landform changes will remain, the restoration of the site to a natural habitat, at the end of the operational period, will result in a partial reversal of the effects.	SLIGHT

Assessment of Landscape Effects and Significance

13.102 An assessment of the landscape effects during the operational phase, based on the sensitivity of each of the landscape receptors combined with the magnitude of change experienced by each of them, is provided in **Table 13-4** below. The assessment also includes a judgment of the nature of the effect (i.e. negative/positive/neutral).

Table 13-4: Assessment of Landscape Effects

Landscape Receptor	Sensitivity	Magnitude	Landscape Effects	Nature of Effect
Individual Elements				
Areas of grassland and scrub	MEDIUM	SLIGHT	MODERATE/MINOR	Negative
Overall Character				
Stone wall grassland landscape character (part of LCA 34)	LOW	SLIGHT	MINOR	Negative

13.103 None of these landscape effects are assessed to be significant.

Post – Operational Stage Landscape Effects

- 13.104 At the post-operational stage, the quarry development will have been restored to natural habitat land-use, including some areas to be left for natural regeneration, which will take a little time to cover all of the area. Further to that it is likely that the grass and scrub species will colonise the quarry benches and in crevasses of the quarry face. Over time the will more and more merge with and become assimilated into the local landscape character, in particular the areas of scrub present in some of the local fields. As a result, the effects on all landscape receptors would reduce to **MINOR / NEGLIGIBLE** and would become neutral.

Construction & Operational Stage Visual Effects

Visual Receptor Sensitivity

- 13.105 The value placed on each of the types of visual receptors identified above is described in **Table 13-5** 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 13-5: 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

- 13.106 **Table 13-6** 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 13-6: Magnitude of Visual Change

Visual Receptors	Factors	Magnitude of Change
Residents		
3 properties along R363 to north of site (Viewpoint A)	Size & Scale: NEGLIGIBLE Geographical Extent: NEGLIGIBLE Duration / Reversibility: LONG-TERM Notes: The extraction void, including the southern quarry face, is fully screened and will remain screened for the duration of the development. Also, the stockpiles in the north-western corner of the site are fully screened. The only noticeable changes in views from two of the properties will be that the recently constructed section of screening berm will be covered with soil and grass seeded and the associated planting of small pockets of trees to further soften its	NEGLIGIBLE (note: the negligible scale and extent outweigh the long-term duration)

Visual Receptors	Factors	Magnitude of Change
	appearance and provide additional screening. Overall, the visible changes will be minimal, and the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the tree planting. The views will be experienced by the residents of a very limited number of properties. The construction of screening berms and planting works along the northern boundary have been intermittently visible since operations at Cam Quarry began and will continue to be visible for a few years of the proposed operational period (i.e. ca. 22 years overall), after which the visible part of the site could effectively be considered as restored to a natural habitat.	
C. 7 properties along local road within 1 km south (Viewpoint B)	Size & Scale: NEGLIGIBLE Geographical Extent: NEGLIGIBLE Duration / Reversibility: LONG-TERM Notes: The extraction void, including the southern quarry face, is fully screened and will remain screened for the duration of the development. Also, the stockpiles in the north-western corner of the site are fully screened. The only element associated with the development visible is the overburden storage area in the southern part of the site. This is currently visible as a narrow band above intervening vegetation. The only change visible will be a slight increase in height and width of this overburden area, which will continue to occupy a small proportion in the background of available views. As soon as all overburden is placed in this area, it will be covered with soil and planted with pockets of trees to soften its appearance and provide screening. Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the tree planting. The views will be experienced by the residents of a very limited number of properties. The placement of material in the overburden storage area has been intermittently visible since operations at Cam Quarry began and will continue to be visible during the first half of the proposed operational period (i.e. ca. 30 years overall), after which the visible part of the site could effectively be considered as restored to a natural habitat.	NEGLIGIBLE (note: the negligible scale and extent outweigh the long-term duration)
4 properties along local road within 1.2 km west (Viewpoint C)	Size & Scale: NEGLIGIBLE Geographical Extent: NEGLIGIBLE Duration / Reversibility: LONG-TERM Notes: The extraction void, except for a small section of the upper southern quarry face, is screened and will remain screened for the duration of the development. Also, the stockpiles in the north-western corner of the site are fully screened. The overburden storage area in the southern part of the site is visible as a narrow band above intervening vegetation. The only change visible will be a slight increase in height and width of this overburden area, which will continue to occupy a small proportion in the background of available views. As soon as all overburden is placed in this area, it will be covered with soil and planted with pockets of trees to soften its appearance and provide screening. Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the tree planting.	NEGLIGIBLE (note: the negligible scale and extent outweigh the long-term duration)

Visual Receptors	Factors	Magnitude of Change
	The views will be experienced by the residents of a very limited number of properties. The works on the upper southern quarry face and placement of material in the overburden storage area has been intermittently visible since operations at Cam Quarry began and some of these elements will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall), after which the visible part of the site could effectively be considered as restored to a natural habitat.	
C. 5 properties in vicinity of and teacher / pupils at Ballintleva National School (Viewpoint D)	Size & Scale: NEGLIGIBLE Geographical Extent: SMALL Duration / Reversibility: LONG-TERM Notes: The extraction void, except for a section of the upper southern quarry face, is screened and will remain screened for the duration of the development. The stockpiles in the north-western corner of the site are currently visible in front of the quarry face. The overburden storage area in the southern part of the site is barely perceptible above intervening vegetation. The main change visible will be the removal of the stockpiles, revealing a little more of the existing quarry face, which will however not change itself. Also, some of the pockets of trees to be planted along the western site boundary will become visible in time providing some screening. The changes to the overburden storage area will continue to be barely noticeable. Overall, the composition of the views will be barely altered, as all changes will take place within the currently visible parts of the quarry and the visual amenity will ultimately be improved with the tree planting. The views will be experienced by the residents of a very limited number of properties, as well as the teachers / pupils at the local school. The works on the upper southern quarry face and stockpiles have been visible since operations at Cam Quarry began and some of these elements will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall). While the quarry face will continue to be visible, the rock will weather and grass / scrub is likely to colonise fissures, thereby softening its appearance.	SLIGHT / NEGLIGIBLE
C. 17 properties along local roads within 2.6 km north-west (Viewpoint E & F)	Size & Scale: NEGLIGIBLE Geographical Extent: SMALL Duration / Reversibility: LONG-TERM Notes: The extraction void, except for a section of the upper southern quarry face, is screened and will remain screened for the duration of the development. The stockpiles in the north-western corner of the site are partially visible amongst / above vegetation. The overburden storage area in the southern part of the site is fully screened. The only change visible will be the removal of the stockpiles from the views, revealing a little more sky. Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the removal of the stockpiles. The views will be experienced by the residents of a limited number of properties. The works on the upper southern quarry face and stockpiles have been visible since operations at Cam Quarry began and some of	SLIGHT / NEGLIGIBLE

Visual Receptors	Factors	Magnitude of Change
	these elements will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall). While the quarry face will continue to be visible, the rock will weather and grass / scrub is likely to colonise fissures, thereby softening its appearance.	
Road users		
C. 1,000 m along R363 to north of site (Viewpoint A)	Size & Scale: NEGLIGIBLE Geographical Extent: SMALL Duration / Reversibility: LONG-TERM Notes: There are glimpsed views of the southern quarry face, screening berms along the northern and eastern site boundaries, site entrance / access road and stockpiles in the north-western corner of the site, as one travels along the relevant section of road. However, the extraction void is fully screened and will remain screened for the duration of the development. The only noticeable changes in some views will be the recently constructed section of screening berm being covered with soil and grass seeded and the associated planting of small pockets of trees, as well as the removal of the stockpiles. Overall, the visible changes will be minimal, and the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the tree planting and removal of stockpiles. Views will be glimpsed along a limited section of this regional road, which was not experienced as a very busy used road during the field survey. The construction of screening berms and planting works along the northern boundary, as well as works on the upper southern quarry face and stockpiles have been visible since operations at Cam Quarry began and some of these elements will continue to be visible for the duration of the proposed operational period (i.e. ca. 45 years overall).	SLIGHT / NEGLIGIBLE
C. 1,200 m along local road within 1 km south (Viewpoint B)	Size & Scale: NEGLIGIBLE Geographical Extent: NEGLIGIBLE Duration / Reversibility: LONG-TERM Notes: The changes to the views from this section of road will be similar to those described for the residential receptors nearby (refer to Viewpoint B). Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with tree planting. Views will be experienced intermittently along a limited section of this local road, which is infrequently used and by local residents only. The placement of material in the overburden storage area has been intermittently visible since operations at Cam Quarry began and will continue to be visible during the first half of the proposed operational period (i.e. ca. 30 years overall), after which the visible part of the site could effectively be considered as restored to a natural habitat.	NEGLIGIBLE (note: the negligible scale and extent outweigh the long-term duration)
C. 750 m along local road within 1.2 km west (Viewpoint C)	Size & Scale: NEGLIGIBLE Geographical Extent: NEGLIGIBLE Duration / Reversibility: LONG-TERM Notes: The changes to the views from this section of road will be similar to those described for the residential receptors nearby (refer	NEGLIGIBLE (note: the negligible scale and extent outweigh the

Visual Receptors	Factors	Magnitude of Change
	to Viewpoint C). Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with tree planting. Views will be experienced intermittently along a very limited section of this local road, which is infrequently used and largely by local residents only. The works on the upper southern quarry face and placement of material in the overburden storage area has been intermittently visible since operations at Cam Quarry began and will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall), after which the visible part of the site could effectively be considered as restored to a natural habitat.	long-term duration)
C. 800 m along local roads in the vicinity of Ballintleva National School (Viewpoint D)	Size & Scale: NEGLIGIBLE Geographical Extent: SMALL Duration / Reversibility: LONG-TERM Notes: The changes to the views from these sections of road will be similar to those described for the residential receptors nearby (refer to Viewpoint D). Overall, the composition of the views will be barely altered, as all changes will take place within the currently visible parts of the quarry and the visual amenity will ultimately be improved with tree planting. Views will be experienced intermittently along limited sections of these local roads, which is generally infrequently used by local residents, with some increase during drop-off and pick-up times at the local school. The works on the upper southern quarry face and stockpiles have been visible since operations at Cam Quarry began and will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall). While the quarry face will continue to be visible, the rock will weather and grass / scrub is likely to colonise fissures, thereby softening its appearance.	SLIGHT / NEGLIGIBLE
C. 2,400 m along local roads within 2.6 km north-west (Viewpoint E & F)	Size & Scale: NEGLIGIBLE Geographical Extent: SMALL Duration / Reversibility: LONG-TERM Notes: The changes to the views from these sections of road will be similar to those described for the residential receptors nearby (refer to Viewpoints E & F). Overall, the composition of the views will be barely altered, and the visual amenity will ultimately be improved with the removal of the stockpiles. Views will be experienced intermittently along a limited section of the relevant local roads, which are generally infrequently used and largely by local residents only. The works on the upper southern quarry face and stockpiles have been visible since operations at Cam Quarry began and will continue to be visible during the duration of the proposed operational period (i.e. ca. 45 years overall). While the quarry face will continue to be visible, the rock will weather and grass / scrub is likely to colonise fissures, thereby softening its appearance.	SLIGHT / NEGLIGIBLE

Assessment of Visual Effects and Significance

13.107 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 13-7: Assessment of Visual Effects

Visual Receptor	Sensitivity	Magnitude	Visual Effects	Nature of Effect
Residents				
3 properties along R363 to north of site (Viewpoint A)	MEDIUM	NEGLIGIBLE	MINOR	Negative
C. 7 properties along local road within 1 km south (Viewpoint B)	MEDIUM	NEGLIGIBLE	MINOR	Negative
4 properties along local road within 1.2 km west (Viewpoint C)	MEDIUM	NEGLIGIBLE	MINOR	Negative
C. 5 properties in vicinity of and teacher / pupils at Ballintleva National School (Viewpoint D)	MEDIUM	SLIGHT / NEGLIGIBLE	MINOR	Negative
C. 17 properties along local roads within 2.6 km north-west (Viewpoint E & F)	MEDIUM	SLIGHT / NEGLIGIBLE	MINOR	Negative
Vehicle Users				
C. 1,000 m along R363 to north of site (Viewpoint A)	LOW	SLIGHT / NEGLIGIBLE	MINOR / NEGLIGIBLE	Negative
C. 1,200 m along local road within 1 km south (Viewpoint B)	LOW	NEGLIGIBLE	NEGLIGIBLE	Negative
C. 750 m along local road within 1.2 km west (Viewpoint C)	LOW	NEGLIGIBLE	NEGLIGIBLE	Negative
C. 800 m along local roads in the vicinity of Ballintleva National School (Viewpoint D)	LOW	SLIGHT / NEGLIGIBLE	MINOR / NEGLIGIBLE	Negative
C. 2,400 m along local roads within 2.6 km north-west (Viewpoint E & F)	LOW	SLIGHT / NEGLIGIBLE	MINOR / NEGLIGIBLE	Negative

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

Post – Operational Stage Visual Effects

13.109 At the post-operational stage, the proposed additional planting along the northern and western site boundaries and on the overburden storage area in the southern part of the site will be fully established and partially screen the remaining visible elements, associated with

the quarry, such as the southern quarry face and the elevated form of the overburden storage area. The exposed rock of the southern face will continue to weather and grass and scrub in fissures will become more visible, both softening its appearance and help visually integrate it with the surrounding land / vegetation. The quarry void will remain screened in all views. As a result, the effects on all visual receptors will reduce to **MINOR/NEGLIGIBLE** and will eventually become neutral.

Direct/Indirect Effects

- 13.110 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

Extractive Industries

- 13.111 The above assessment has concluded that there will be no significant landscape or visual effects, with landscape effects assessed as moderate/minor or less and effects for all sensitive visual receptors, including local residents, minor or less. A landscape and restoration scheme is provided, which will result in the restoration of the quarried lands for ecological benefit.
- 13.112 In light of the above it is considered that the proposed development is in compliance with **Policy Objectives ED 6.17, ED 6.19 & ED 6.20** in landscape and visual terms.

Trees, Woodlands and Hedgerows

- 13.113 No sections of hedgerow or other distinctive boundary treatments, such as the locally typical stone walls, will require removal, as part of the proposed development. However, several small sections of scrub and individual shrubs will be removed, which will be compensated in the form of numerous pockets of native tree and shrub planting, along parts of the northern and western boundaries, as well as on the overburden storage area in the southern part of the site.
- 13.114 In light of the above it is considered that the proposed development is in compliance with **Policy Objectives NH 10.13, NH 10.14 & NH 10.15** in landscape and visual terms.

Landscape Character Assessment

- 13.115 The County Roscommon Landscape Character Assessment was taken into account, as part of the landscape baseline description, including its assessment of moderate value of LCA 34, within which the application area is located. Further to that none of the Scenic Routes or views listed in the current RCDP are located within the study area and no other important views or prospects / visual linkage between established landmarks or landscape features were identified, during the field survey. As mentioned previously, the above assessment has concluded that there will be no significant landscape or visual effects, with landscape effects assessed as moderate/minor or less and visual effects as minor or less.
- 13.116 In light of the above it is considered that the proposed development is in compliance with **Policy Objectives NH 10.25 & NH 10.26** in landscape and visual terms.

Unplanned Events (i.e. Accidents)

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

Cumulative / Synergistic Impacts

- 13.118 Seven Hills Wind Farm, a 17-turbine development was granted by An Bord Pleanála in November 2023 (ABP Ref. 313750-22) and is currently under judicial review. If this wind farm is constructed, ten of the proposed turbines will be located within 1.5 km to the east and 2.5 km to the west of the southern part of the application area, with the remainder of the turbines outside the study area, just over 3 km to the north-west. The two development types are very different to each other and therefore difficult to compare in landscape and visual terms. The continued use of an existing permitted quarry results in much lower landscape and visual effects (in this case moderate/minor or less landscape and minor or less visual effects), concentrated on a much smaller area. These effects have no influence on the landscape or visual changes resulting from the placing of very tall elements (i.e. the wind turbines), spread over and visible from a much larger area. It is therefore concluded that there will be no significant cumulative landscape or visual effects from the proposed development in combination with Seven Hills Wind Farm.
- 13.119 There are a number of existing mineral extraction sites in the wider landscape, all of which are visually separated from the site and there will therefore be no cumulative landscape or visual effects from these. Further to that, no other existing / permitted developments, or developments currently in the planning process were identified, that would have the potential for such cumulative landscape or visual impacts.

Transboundary Impacts

- 13.120 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

- 13.121 Some of the local residential receptors may experience a slightly elevated level of impact, due to an interaction of the visibility of elements associated with the quarry activities (e.g. the southern quarry face, stockpiles and/or the overburden storage area and the noise and dust associated with the activities within the site).

‘Do-nothing Scenario’

- 13.122 If the proposed development is not carried out, the quarry operations would cease when the current planning permission expires and the site would be restored in line with the restoration proposals previously permitted, which are similar to what is now proposed. The landscape or visual effects resulting from the restored site would be ultimately similar to what is now proposed but would be achieved at an earlier stage.

Mitigation Measures

Construction & Operational Stage

- 13.123 The existing quarry is, and the proposed development will continue to be largely screened in views from the surrounding area, by existing topography, as well as vegetation to some extent. The pockets of native tree and shrub planting along parts of the northern and western boundary, as well as on the overburden storage area, as soon as this is completed,

will contribute to the screening of the site and its integration into the local landscape. This will be further achieved by the final restoration of the site to a natural habitat. These elements comprise the main mitigating features integrated into the development design, ensuring that the landscape and visual effects are kept to a minimum. Considering no significant landscape or visual impacts were identified, no further mitigation measures are considered necessary during the operational stage of the proposed development.

Post – Operational Stage

- 13.124 While the landform will remain altered, the restored site will integrate into the surrounding landscape, in particular as the pockets of trees/shrubs continue to mature and the appearance of the southern quarry face is softened by the weathering of the rock and colonisation of fissures by grass and scrub species. No further mitigation measures are considered necessary for the post-operational stage of the proposed development.

Residual Impact Assessment

Construction & Operational Stage

- 13.125 As no additional mitigation measures are proposed during this stage, the residual levels of landscape and visual impact would be as per the assessment above. In summary, the assessment has found that the proposed development would have moderate/minor or minor landscape effects on the landscape receptors identified (i.e. levels of impact not considered to be significant), during the operational stage.
- 13.126 There would be no visual effects on views from the majority of locations within the study area the study area. Some residential receptors within 1 km to the south and west and 2.5km to the north-west will experience minor visual effects. The visual effects for road users within a similar area range from minor/negligible to negligible (i.e. all impacts not regarded as significant).

Post – Operational Stage

- 13.127 As no additional mitigation measures are proposed during the post-operational stage, the residual levels of landscape and visual impact would be as per the assessment above. In summary, following the completion of all extraction and restoration works the predicted landscape and visual effects would reduce to minor/negligible for all receptors identified.

Monitoring

- 13.128 Apart from the proposed 2-year aftercare period, as part of the Landscape and the Restoration Proposals (refer to **EIAR Figures 2-5 & 2-6**), to ensure the successful establishment of the native tree and shrub planting, 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

The Landscape Institute (2024) Technical Guidance Note LITGN-2024-01 Published August 2024: Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVLIA3)

Figures

Figure 13-1 Landscape Designations and Viewpoint Locations

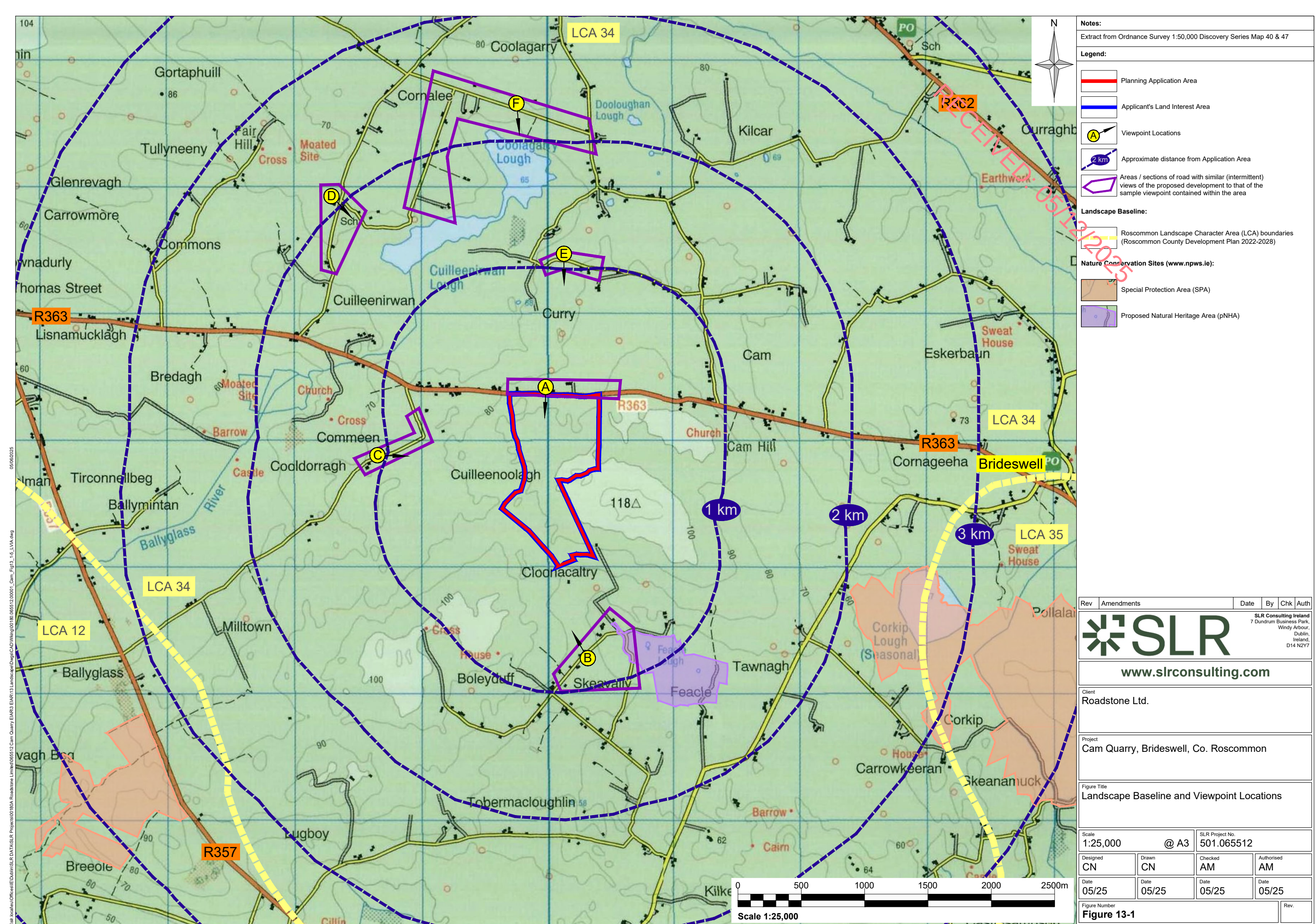
Figure 13-2 Zone of Theoretical Visibility (ZTV) Map

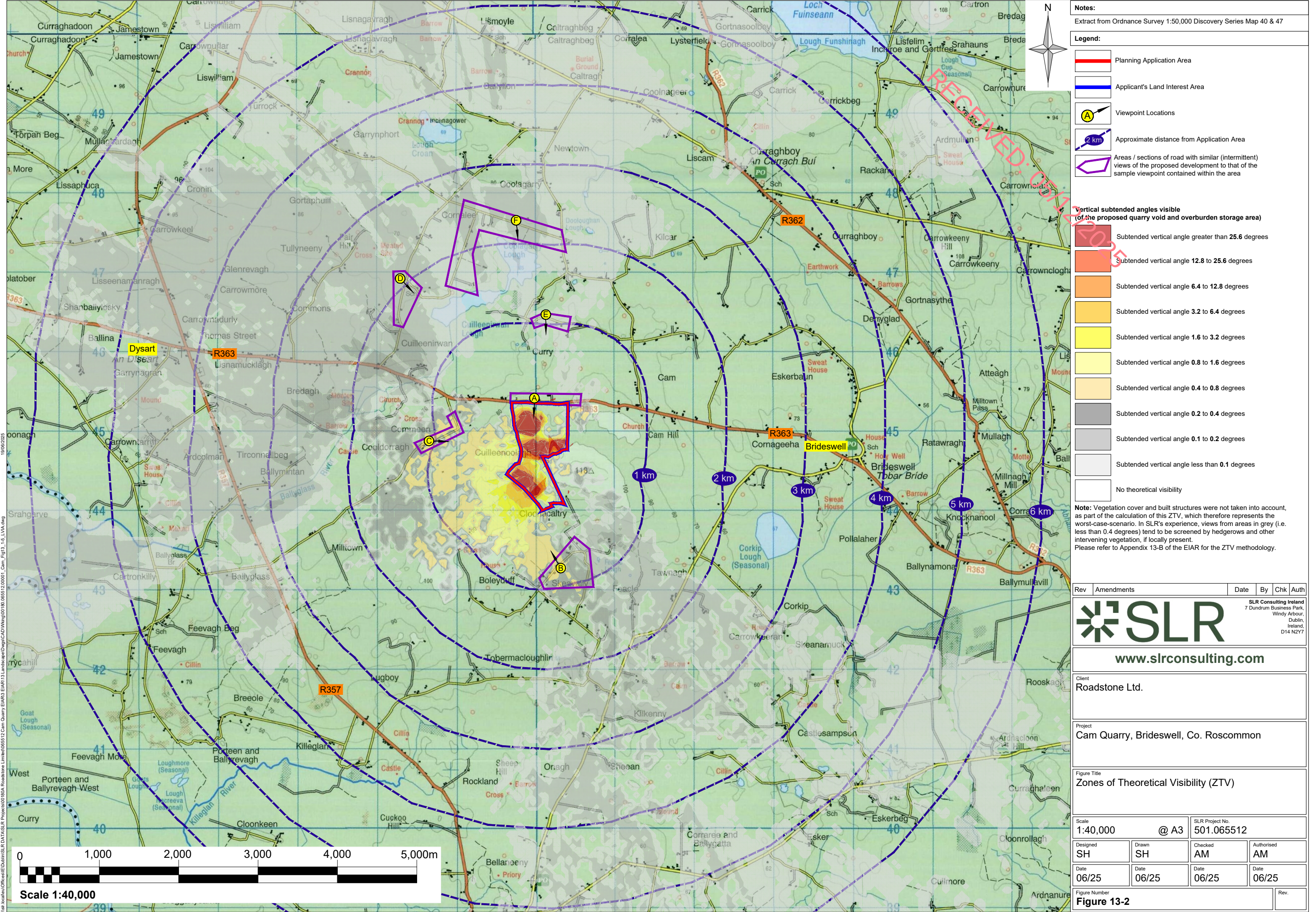
Figure 13-3 Viewpoints A & B

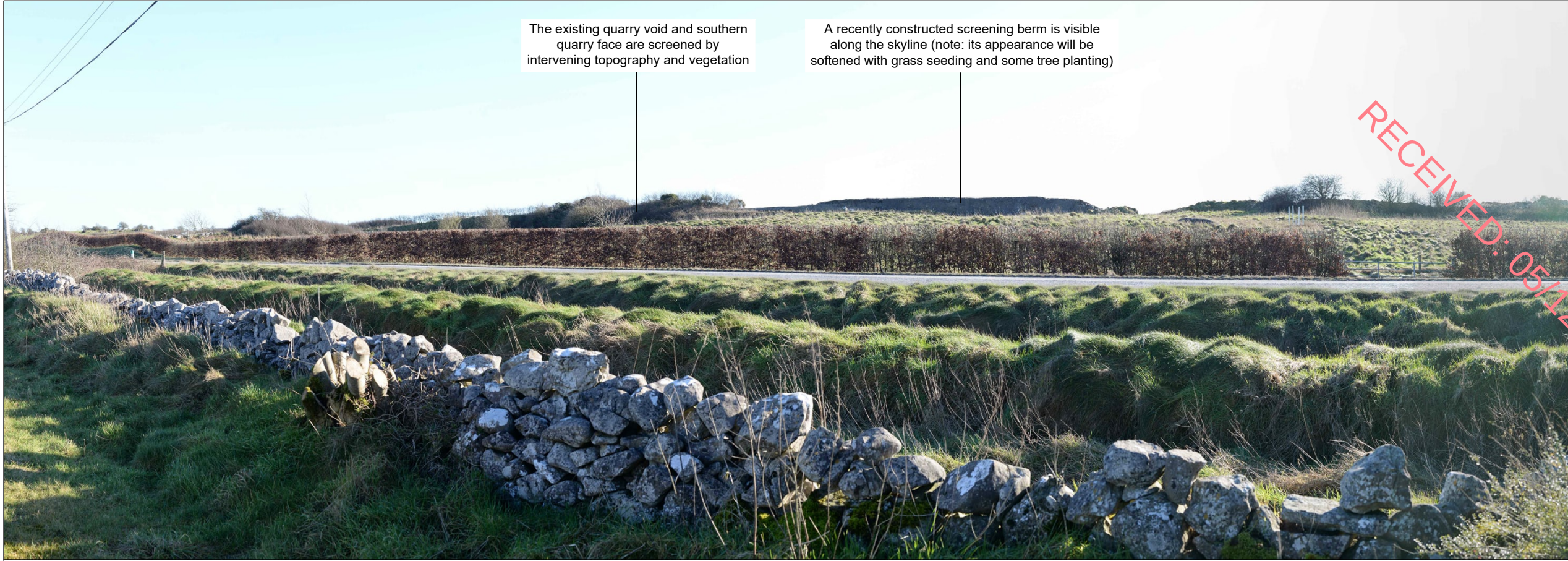
Figure 13-4 Viewpoints C & D

Figure 13-5 Viewpoints E & F

RECEIVED: 05/12/2025







Viewpoint A: Private road, just north of the R363, ca. 250m west of the existing quarry entrance

Grid Coordinates (ITM): **0589965:0745386** Approximate Elevation: **85m AOD** Distance from planning application boundary: **80m** Direction of View: **South** Date/time of photograph: **06/02/2025 @ 14:48**

Description: This viewpoint represents views from the R363 along the northern boundary of the site, as well as three adjoining residential properties. The existing hedgerow along the northern boundary of the quarry, as well as some internal screening berms and associated vegetation are visible. However, the existing quarry void and southern quarry face, as well as existing stockpiles in the northern part of the site are screened. This will not change, due to the proposed development. A section of screening berm that was recently constructed and currently consists of bare overburden material will be covered with soil and grass seeded. Also, some pockets of tree planting will be carried out. The wastewater management system will be located behind the boundary vegetation a little further west of this view and is likely to become partially visible above the boundary hedgerow. Proposed tree planting will provide additional screening of this. Views from further west and east along the R363 are fully screened.



Viewpoint B: Local Road in the townland of Cloonacaltry - C. 700m to the south of the application area.

Grid Coordinates (ITM): **0590277:0743362** Approximate Elevation: **75m AOD** Distance from planning application boundary: **700m** Direction of View: **North-west** Date/time of photograph: **06/02/2025 @ 10:43**

Description: The viewpoint represents views from the local roads within 1 km south of the site and c. seven adjoining residential properties. The top of the existing overburden storage area in the southern section of Cam Quarry is visible above intervening vegetation in views from this area. As only a narrow band is visible, this is almost imperceptible. The existing quarry void and associated quarry faces are fully screened by topography and vegetation and will remain so for the duration of the proposed development. The height of the overburden storage area will increase slightly, as the remainder of the proposed extraction area is stripped and the material moved into the storage area. As soon as this work is complete, the storage area will be covered with soil and some pockets of native tree planting will be carried out. Views from beyond 1.5 km south are screened by intervening vegetation, where not fully screened by topography.

Notes:
Extract from Ordnance Survey 1:50,000 Discovery Series Map 40 & 47

Legend:

Planning application area

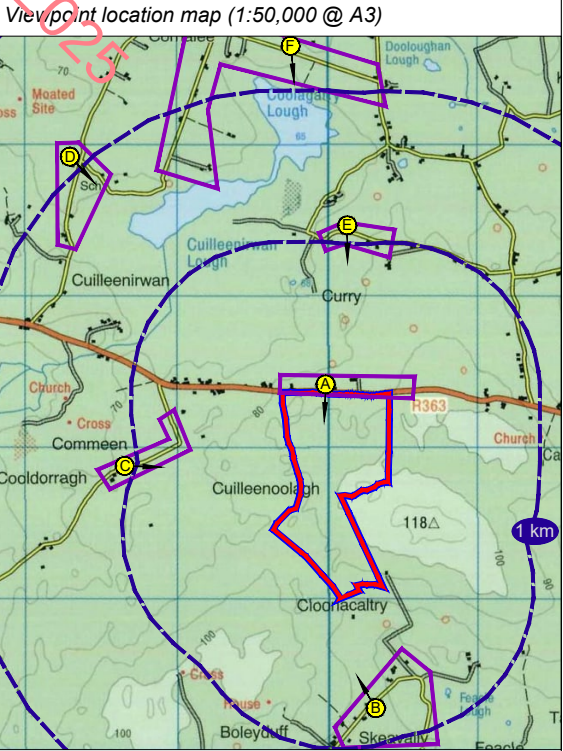
Applicant's Land Interest Area

A

Viewpoint location

2 km

Distance from application area boundary



Rev	Amendments	Date	By	Chk	Auth
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SLR Consulting Ireland
7 Dundrum Business Park,
Windy Arbour,
Dublin,
Ireland,
D14 N2Y7

www.slrconsulting.com

Client

Roadstone Ltd.

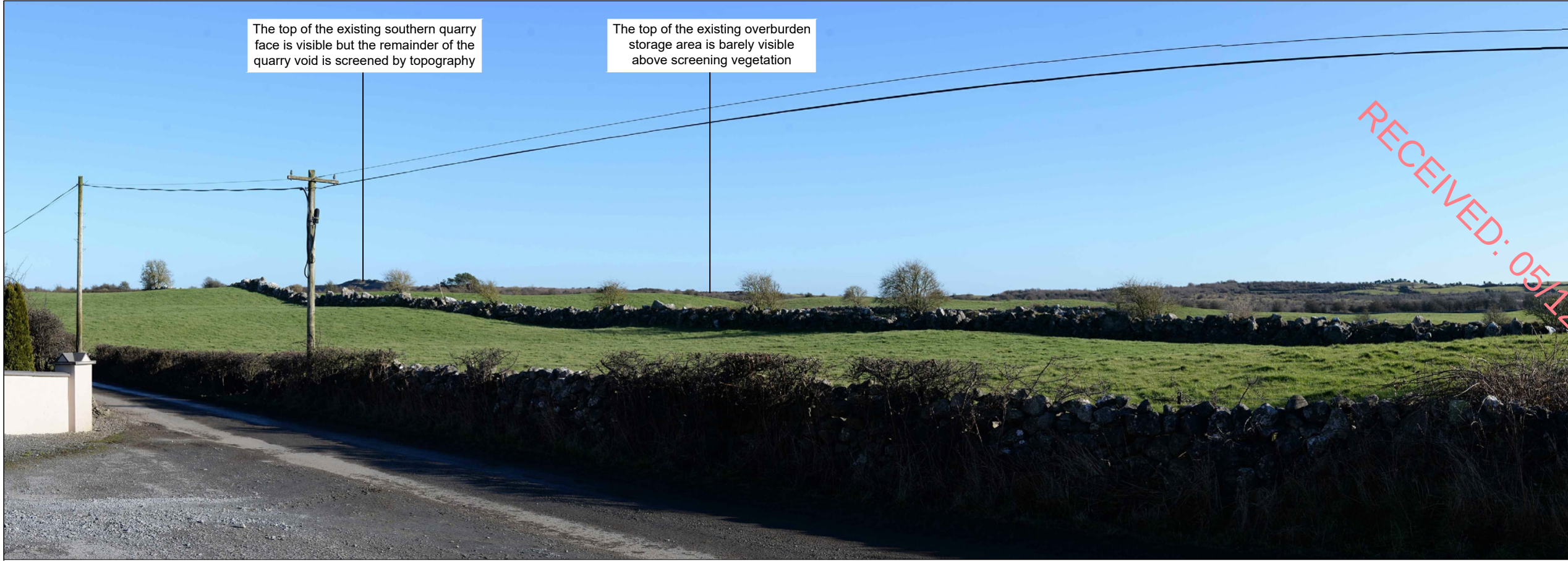
Project

Cam Quarry, Brideswell, Co. Roscommon

Figure Title

Viewpoints A & B

Scale NTS @ A3		SLR Project No. 501.065670	
Designed CN	Drawn CN	Checked AM	Authorised AM
Date 05/25	Date 05/25	Date 05/25	Date 05/25
Figure Number Figure 13-3			Rev.



The top of the existing southern quarry face is visible but the remainder of the quarry void is screened by topography

The top of the existing overburden storage area is barely visible above screening vegetation

Viewpoint C: Local Road in the townland of Cuilleenoolagh - C. 1km west of the application area

Grid Coordinates (ITM): **0588696:0744921** Approximate Elevation: **75m AOD** Distance from planning application boundary: **1,000m** Direction of View: **East** Date/time of photograph: **06/02/2025 @ 14:40**

Description: This viewpoint represents views from the local road within 1.2 km to the west of the site, as well as 4 adjoining residential properties. In views from this area a small section of the southern existing quarry face and the top of the existing overburden storage area are visible above screening vegetation and topography. However, the remainder of the existing quarry is screened and will remain screened for the duration of the proposed development. The height of the overburden storage area will increase slightly, as the remainder of the proposed extraction area is stripped and the material moved into the storage area. As soon as this work is complete, the storage area will be covered with soil and some pockets of native tree planting will be carried out. Views from beyond 1.2 km west are screened by intervening vegetation, where not fully screened by topography.



The stockpiles in the north-western part of the site and the top of the existing southern quarry face are visible, but the remainder of the quarry void is screened by topography

Viewpoint D: Local Road in the townland of Cuilleenirwan, just north of Ballintleva National School

Grid Coordinates (ITM): **0588317:0746909** Approximate Elevation: **75m AOD** Distance from planning application boundary: **2000m** Direction of View: **South-east** Date/time of photograph: **06/02/2025 @ 14:29**

Description: This viewpoint represents views form Ballintleva National School and five nearby residential properties, as well as the section of local road they are located along. The existing stockpiles in the north-western part of Cam Quarry, as well as the upper section of the southern quarry face and the top of the overburden storage area are visible through gaps in the roadside and intervening vegetation / structures, below the skyline. However, the remainder of the existing quarry development is screened by topography. The stockpiles will be removed as the extraction area expands into the area they are located in. This will reveal a little more of the southern face, while the extended quarry void will not become more visible. Considering the narrow band within which the site is visible and distance from it, the changes will be difficult to discern. Views from locations further north-west are screened by intervening vegetation, where not fully screened by topography.

Notes:

Extract from Ordnance Survey 1:50,000 Discovery Series Map 40 & 47

Legend:

Planning application area

Applicant's Land Interest Area

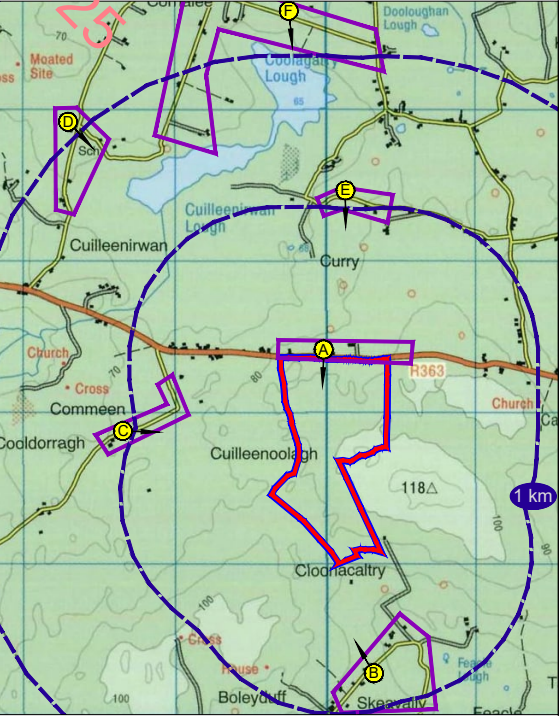
A

Viewpoint location

2 km

Distance from application area boundary

Viewpoint location map (1:50,000 @ A3)



Rev	Amendments	Date	By	Chk	Auth
SLR SLR Consulting Ireland 7 Dundrum Business Park, Windy Arbour, Dublin, Ireland, D14 N2Y7 www.slrconsulting.com					
Client Roadstone Ltd.					
Project Cam Quarry, Brideswell, Co. Roscommon					
Figure Title Viewpoints C & D					
Scale NTS @ A3		SLR Project No. 501.065512			
Designed CN	Drawn CN	Checked AM	Authorised AM		
Date 05/25	Date 05/25	Date 05/25	Date 05/25		
Figure Number Figure 13-4					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). GLVIA3¹ (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 Seascapes 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 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 LVIA which form part of an EIA, it is necessary to identify significant and non-significant effects. In non-EIA LVIA, 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

¹ Landscape Institute and Institute of Environmental Management and Assessment ‘Guidelines for Landscape and Visual Impact Assessment’ (Third Edition, April 2013)

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 the opportunities they offer for outdoor recreation. Consideration should be	National

	given to their settings ² especially where these contribute to the special qualities for which the landscape is valued.	
Local Landscape Designations (such as High Amenity Areas) 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.

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.

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*”.

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

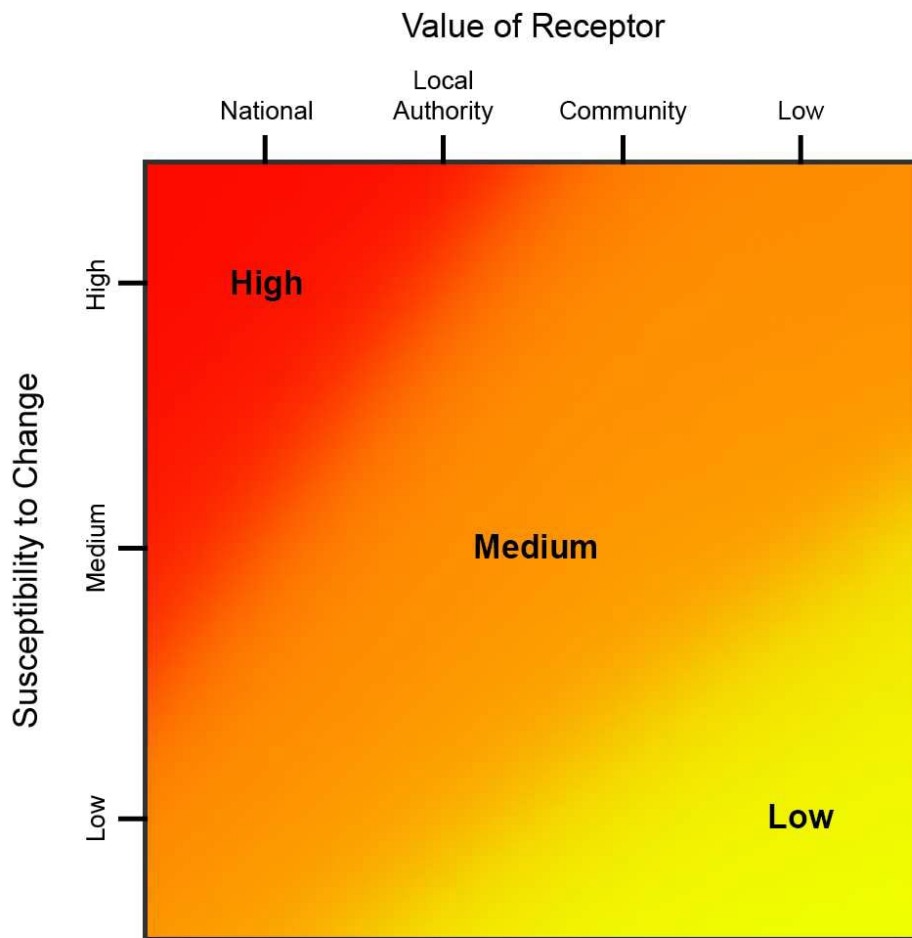


Table 13A-4: Example Levels of Sensitivity defined by Value and Susceptibility of Landscape Receptors

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.
Medium extent of landscape change	Landscape change extends beyond the site boundaries.
Small extent of landscape change	Change affecting a localised area, often focused on the site itself.
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).

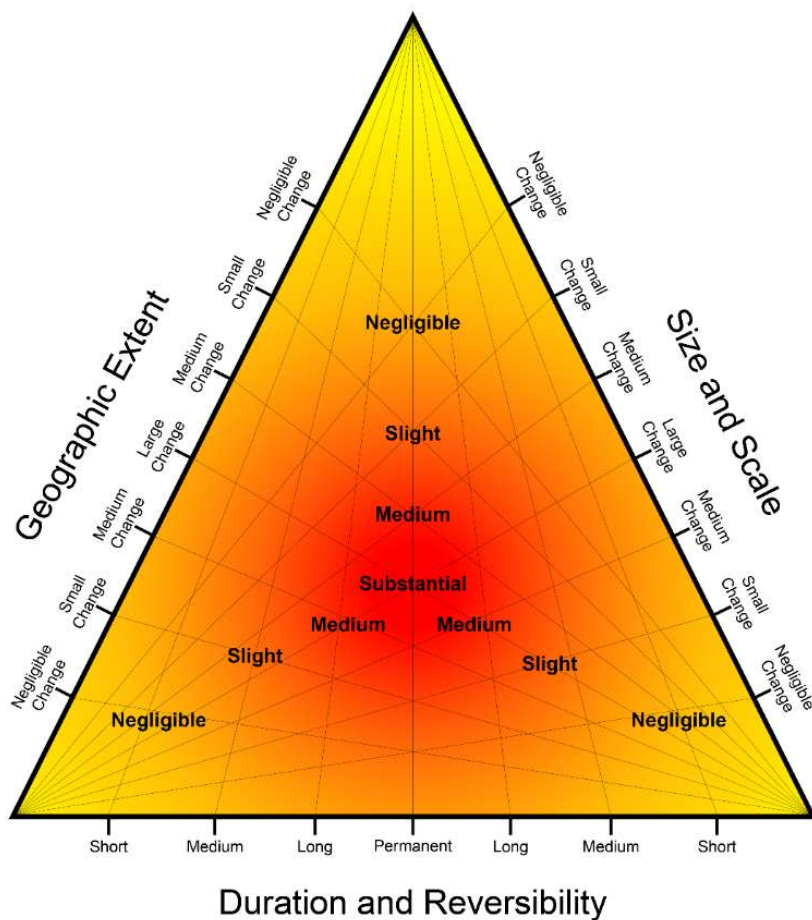
Table 13A-7: Magnitude of Landscape Change: Duration and Reversibility

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 - includes 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

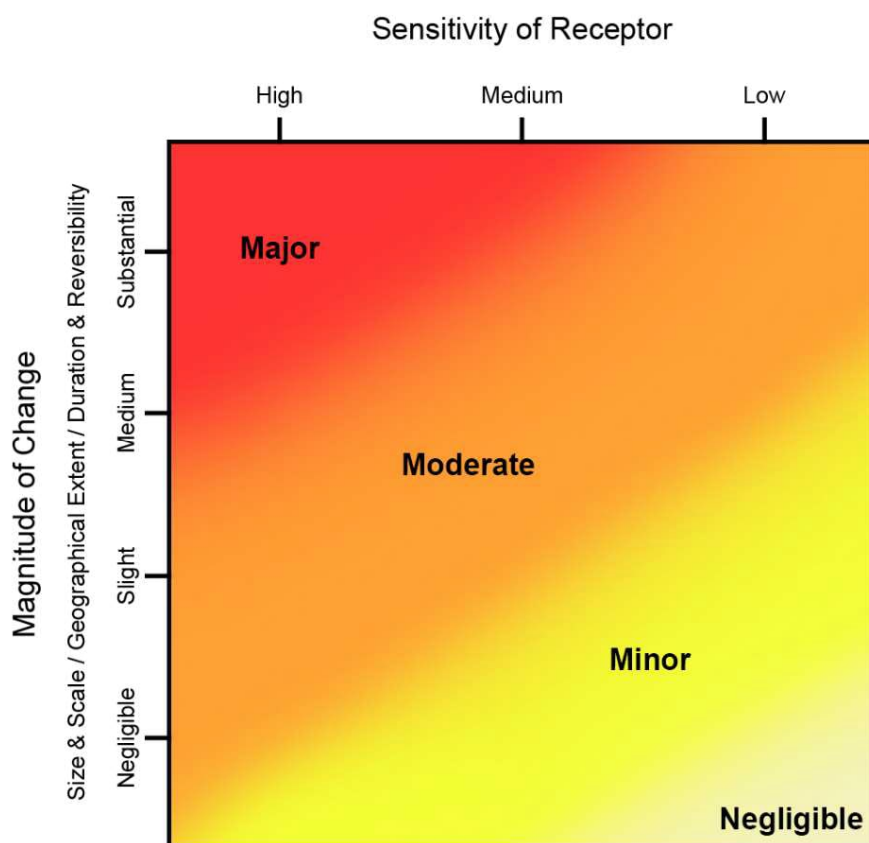


Assessment of Landscape Effects

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

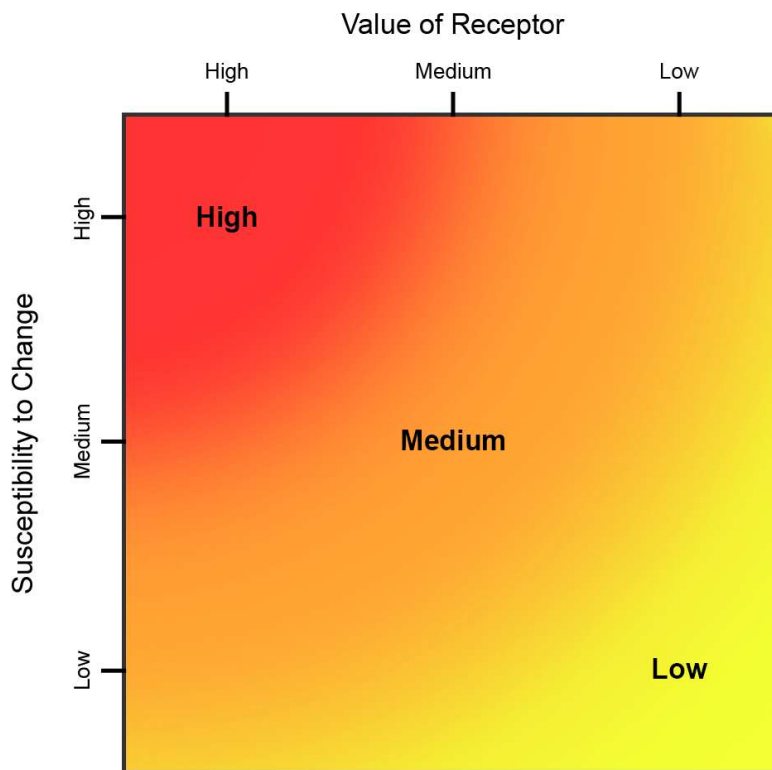
The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different receptors to the proposed change. **Figure 13A-4** below summarises the nature of the relationship; it is not formulaic and only indicates general categories 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.

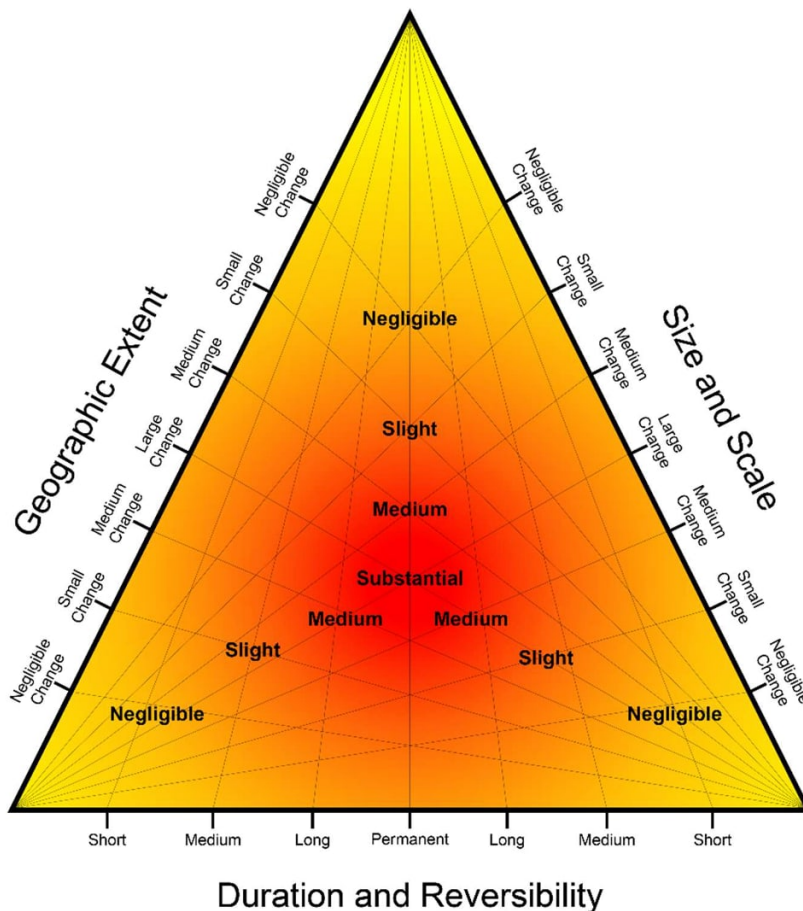
Temporary / Short-term reversible

Effects that will last from 0 to 7 years and is reversible - includes 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



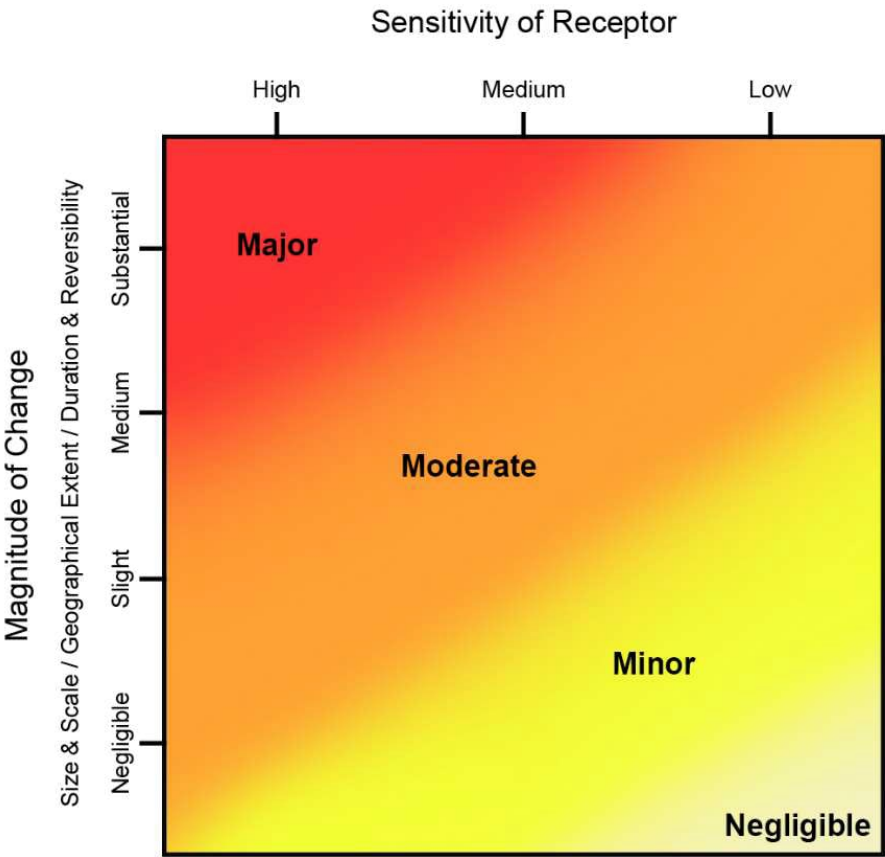
Assessment of Visual Effects and Significance

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

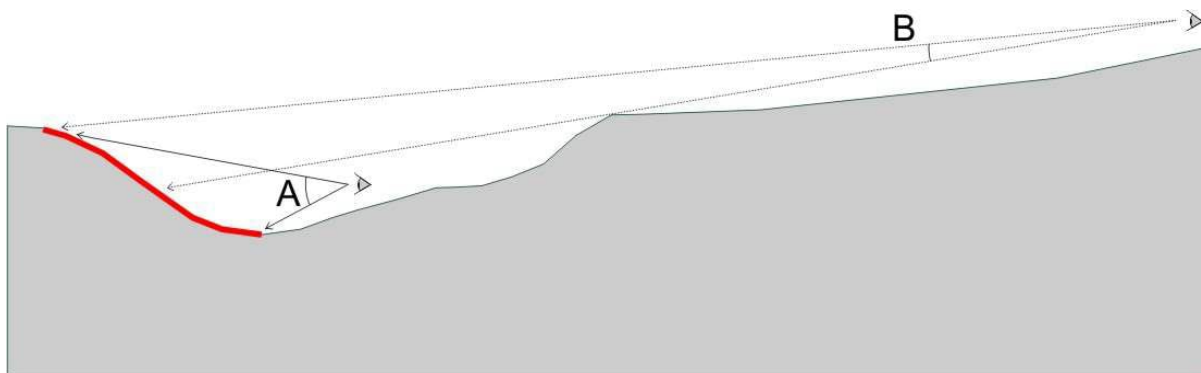


Appendix 13-B – Zone of Theoretical Visibility (ZTV) Methodology

A Zone of Theoretical Visibility (ZTV) Study was conducted for the proposed development (i.e. the proposed extraction area and the proposed overburden storage area) 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 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. Therefore, it is necessary to carry out fieldwork to validate the results of the ZTV.