Environmental Impact Assessment Report (EIAR)

Cunlaghfadda Green Energy Project, Co. Mayo

Chapter 13 – Landscape and Visual

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13. LANDSCAPE AND VISUAL

13.1 Introduction

This chapter comprises a Landscape and Visual Impact Assessment (LVIA). The LVIA assesses the likely significant effects of the proposed Cunlaghfadda Wind Farm (the Proposed Project) on landscape and visual amenity. The LVIA reported in this chapter was informed by desktop studies and receptor mapping, site visits, verified photomontages, and an impact assessment methodology which follows best practice guidance for LVIA. The LVIA also includes assessment of cumulative landscape and visual effects. This chapter is accompanied by one volume and five appendices:

- *EIAR Volume 2: Photomontage Booklet*, A1 Banner Photomontage Booklet including verified photomontage visualisations from 19 No. representative viewpoints;
- *Appendix 13-1: LVIA Methodology*, outlining the detailed methodology and guidance used for the assessments reported in this Chapter;
- *Appendix 13-2: LCA Assessment Tables*, assessment of effects on designated Landscape Character Areas (LCAs);
- *Appendix 13-3: Photomontage Visual Impact Assessment Tables*, a visual impact assessment of the 19 No. representative viewpoints presented in the *Photomontage Booklet*;
- *Appendix 13-4: A0 LVIA Baseline Map*, an A0 scale map showing all baseline landscape and visual receptors, ZTV mapping and viewpoints;

13.1.1 Statement of Authority

MKO has developed extensive expertise and experience over the last 15 years in the Landscape and Visual Impact Assessment of a range of projects, including multiple large scale wind energy developments.

This LVIA was written by Dija Mazonaite with guidance and direction from Jack Workman, and oversight from Michael Watson.

Dija Mazonaite is a Project Environmental Scientist - LVIA Specialist at MKO. Dija has a BSc (Hons) in Geography & Geosystems, PGCert in Marine Spatial Planning, and was recognised as a University Scholar at the University of Galway. Dija's primary role at MKO is producing and reviewing the LVIA chapter of EIA reports for large-scale infrastructure developments. Since joining MKO, Dija has conducted and project managed all aspects of LVIA for a broad range of commercial infrastructure developments including wind and solar energy projects, grid infrastructure, extraction industry and Strategic Housing Developments. Dija's key strengths include proficiency in GIS tools such as ArcGIS and QGIS, conducting landscape and visual impact assessments and capturing image data through drone surveys and photomontages. Dija is an affiliate member with the Landscape Institute and is an active participant of the Irish National Landscape Forum. Dija also regularly delivers guest lectures for students on the topic of LVIA at top third level institutions in Ireland.

Jack Workman MSc., TMLI. is the Landscape & Visual Project Director at MKO and is chartered as a Technician Member of the British Landscape Institute. Jack is an environmental scientist and an LVIA specialist with an academic background in the field of Environmental Science and Geography. Jack's primary role at MKO is scoping and writing LVIA for EIARs with over 5 years' experience managing all aspects of LVIA for a broad range of commercial infrastructure developments, including large-scale wind energy developments . Jack holds a BSc. in Psychology, and an MSc. in Coastal and Marine Environments (Physical Processes, Policy & Practice). Jack is an active participant in the National Landscape Forum, presenting in 2023 and 2024 on the topic of LVIA, he also regularly delivers guest lectures for students on the topic of LVIA at top third level institutions in Ireland including University

of Galway, Trinity College Dublin, University College Dublin and University College Cork. Jack holds a membership with the Chartered Institute of Water and Environmental Management and is also a member of the Landscape Research Group.

Michael Watson is the Environment Division Director in MKO, he has over 25 years' experience in the environmental sector. Following the completion of his master's degree in environmental resource management, Geography, from National University of Ireland, Maynooth he worked for the Geological Survey of Ireland and then a prominent private environmental consultancy prior to joining MKO in 2014. Michael's professional experience includes managing Environmental Impact Assessments and Landscape & Visual Impact Assessments on behalf of clients in the wind farm, waste management, commercial and industrial sectors nationally. Michael worked on the capture and development of photomontages as well as compiling the Landscape & Visual Impact Assessments for some of the first wind turbines being proposed in Ireland in the early 2000's and has been compiling and reviewing LVIA chapters for multiple wind farm projects each year since 2014. Michael is a key member of the MKO senior management team and as head of the Environment Division has responsibilities to mentor various grades of team members, foster a positive work environment and promote continuous professional development for employees. Michael also has a Bachelor of Arts Degree in Geography and Economics from NUI Maynooth, is a Member of IEMA, a Chartered Environmentalist (CEnv).

13.1.2 Proposed Project Description

A detailed description of the Proposed Project can be found in Chapter 4: 'Description of the Proposed Project' of this EIAR. Section 4.1 of Chapter 4 describes the Proposed Project and its component parts. The following references to the Proposed Project are used throughout this chapter, as per the definitions in Chapter 1.

- 'Where the '**Proposed Wind Farm**' is referred to, this refers to turbines and associated foundations and hardstanding areas, including access tracks, underground cabling, permanent meteorological mast, temporary construction compound, peat and spoil management, biodiversity enhancement, tree felling, site drainage, operational stage signage, turbine delivery route and junction accommodation works and all ancillary works and apparatus. The Proposed Wind Farm is described in detail in Chapter 4, Section 4.4.1 of this EIAR.
- Where the '**proposed turbines**' is referred to, this refers to the wind turbines described in detail in Chapter 4, Section 4.4.1.1 of this EIAR
- Where the '**Proposed Grid Connection**' is referred to, this refers to the proposed 110kV onsite substation, underground 110kV cabling and end masts connecting the proposed 110kV substation to the 110kV Castlebar to Cloon overhead line, access tracks and all ancillary works and apparatus. The Proposed Grid Connection Route is described in detail in Chapter 4, Section 4.4.2 of this EIAR.
- Where the '**Proposed Project**' is referred to, this encompasses the entirety of the project (Proposed Wind Farm and Proposed Grid Connection) for the purposes of this EIA in accordance with the EIA Directive. The Proposed Project is described in detail in Chapter 4 of this EIAR.
- Where '**the Site**' is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-2 of the EIAR and encompasses an area of approximately 165 hectares.

The Proposed Wind Farm comprises 7 no. wind turbines (tip height of 160m) and associated foundation and hardstand infrastructure, a meteorological mast (height 92m), site access tracks, and other associated temporary and ancillary infrastructure. The Proposed Grid Connection comprises an onsite 110kV loop in substation, underground electrical cabling between the substation and the 110kV Castlebar to Cloon overhead line and all associated infrastructure.

13.1.2.1 Essential Aspects of the Proposed Project from an LVIA Perspective

This LVIA follows 'The Guidelines for Landscape and Visual Impact Assessment Third Edition' (hereafter, GLVIA3) published by Landscape Institute (LI) & Institute of Environmental Management and Assessment (IEMA) (2013) as well as 'Notes and Clarifications on Aspects of GLVIA3: Landscape Institute Technical Guidance Note 2024-01' (hereafter, LI TGN 24-01) published by the Landscape Institute (LI) (2024). This guidance states that:

> *"It is important to make sure that the project description provides all the information needed to identify its effect on particular aspects of the environment. For LVIA, it is important to understand, from the project description, the essential aspects of the scheme that will potentially give rise to its effect on the landscape and visual amenity."*

For the Proposed Project assessed in this Chapter, it is deemed that the tall, vertical nature of the proposed turbines make them the most prominent element from a landscape and visual perspective, having the most potential to give rise to significant landscape and visual effects. In this regard, the proposed turbines are deemed to be the 'essential aspect' of the development which will give rise to effects on the landscape and visual amenity and therefore are the primary focus of the LVIA.

The proposed 92m meteorological mast is also a tall vertical structure; therefore, it is included in the photomontage booklet and is fully considered throughout this chapter. However, it will be less visible than any of the proposed turbines given its slender lattice form and moderately shorter height.

Other components of the Proposed Project, such as the proposed 110kV substation, and end masts, are not deemed to be as visually prominent as the proposed turbines, however, they do have the potential to give rise to localised landscape and visual effects. These elements are given full consideration and assessment throughout this chapter.

13.1.3 Mitigation by Best Practice Wind Farm Design

Through the iterative project design process, various best practice tools for assessing the landscape and visual impact of a proposed wind farm development were utilised to bring forward the optimum design for the Proposed Project with respect to landscape and visual factors. These tools include landscape modelling, Zone of Theoretical Visibility (ZTV) mapping and the preparation of photomontage visualisations.

The iterative design process was informed by the siting and design guidance for wind farms in specific landscape types as set out in the Wind Energy Development Guidelines for Planning Authorities (Department of the Environment, Heritage, and Local Government [DoEHLG], 2006), hereafter '**the Guidelines (DoEHLG, 2006)**', and with regard to the Draft Revised Wind Energy Development Guidelines (Department of Housing, Planning and Local Government [DoHPLG], 2019), hereafter the '**the Draft Guidelines (DoHPLG, 2019)**'.

Details of the various turbine layout iterations included as part of this design process are included in Chapter 3 Consideration of Reasonable Alternatives of this EIAR. Landscape and visual "mitigating" factors which were key to the site selection and design of the Proposed Project are established below, the factors are of key relevance to the LVIA.

The Proposed Wind Farm layout that is the subject of this LVIA, incorporates the following landscape and visual design considerations informed by relevant best practice guidance on wind farm siting and design and professional judgement with a particular focus on strategic site selection:

- **Appropriate Landscape Sensitivity in Local Planning Policy:** The Policy Area in which the proposed turbines are sited in (Policy Area 4) is identified as having the lowest sensitivity to wind farm development compared to the other Policy Areas in the County.
- **Favourable Wind Energy Zoning:** The proposed turbines are sited within an area 'Preferred' for wind energy infrastructure, within a landscape capable of effectively absorbing a wind energy development according to the '*Renewable Energy Strategy*' of County Mayo.
- **Compliance with Wind Energy Development Guidelines:**
    - **Set-Back Distances:** Siting of the proposed turbines exceeds the minimum 500m set-back distance in the Guidelines (DoEHLG, 2006) and also the 4-times-tip-height set-back distance explicitly set out for residential amenity prescribed by the Draft Guidelines (DoHPLG, 2019) .
    - **Coherent Turbine Layout:** The turbine layout has been designed to create a coherent arrangement of turbines, contiguous and connected to each other visually and with consistent spacing in line with the guidance for design and siting of wind farms within the 'Hilly and Flat Farmland' Landscape Type.
- **Set-back distance and no Significant impacts from Designated Scenic Routes and Views:** The Proposed Wind Farm has been strategically sited in a location with at a large set-back distance from designated scenic routes and views identified in local planning policy (closest scenic route located approximately 10km from the proposed turbines).
- **No Significant impacts on Designated Landscape Receptors:** The Proposed Wind Farm has been strategically sited in a location set-back from sensitive landscape receptors (Vulnerable Features – Skylines, Ridgelines and Shorelines) and will therefore not alter the physical fabric of these sensitive landscape receptors.
- **Sparsely Settled & Highly Modified Landscape:** The infrastructure of the Proposed Wind Farm has been strategically sited within a landscape characterised by common agricultural land, forestry and cutover peatland. It is therefore a sparsely settled, modified working landscape deemed to be of Low landscape value, and a site capable of effectively absorbing the Proposed Wind Farm.
- **Limited Visual Exposure of the Proposed Turbines in the Undulating Drumlin Landscape:**
    - The gentle rolling, elongated hills and valleys formed by the drumlin landscape within the LVIA Study Area create extensive areas of no visibility, restricting visibility of the proposed turbines from the wider landscape (beyond 5km).
    - At a macro scale, the landscape surrounding the site is relatively flat, characterised by mature boundary vegetation and localised landform undulations (drumlins). Consequently, as reported throughout this LVIA, the visual exposure of the proposed turbines is generally very limited from receptors beyond 5km from the proposed turbines, therefore limiting potential for any landscape and visual effects in vast areas and from large numbers of sensitive receptors.
- **Large Setback from Population Centres and Receptors:** Site selection and siting of proposed turbines ensures limited visibility and large setback distances from large population centres and designated landscape and visual receptors of high sensitivity.
- **Grid Connection:** The intended cabling connection to the national electricity grid is located underground, thereby reducing potential landscape and visual effects during the operational phase. The onsite 110kV substation and two end masts are the only above-ground components of the Proposed Grid Connection, and it is located within the Site. The 110kV substation is to be sited within an agricultural field.
    - **Mitigation Planting:** As detailed in Appendix 6-4 Biodiversity Management and Enhancement Plan; treeline/hedgerow planting and enhancement and woodland planting is proposed along the western and northern extents of the proposed onsite 110kV substation as part of the Proposed Project. This

planting will provide visual screening of the proposed 110kV substation from nearby residential receptors.

Scoping and Consultation

A scoping and consultation exercise was carried out by MKO in May 2023 and February 2026, as detailed in Section 2.7 of Chapter 2: Background of the Proposed Project of this EIAR. A copy of all responses can be found in Appendix 2-1. A pre-planning consultation meeting took place with Mayo County Council (MCC) in January 2024, and March 2026. Both meetings were attended by representatives of MCC, the Applicant and MKO. MKO presented an overview of the scope of the LVIA to be included in this chapter of the EIAR including ZTV mapping and photomontage locations and noted the key sensitive receptors which were to be assessed. MKO welcomed feedback on choice of viewpoints to be included in the EIAR from MCC at both meetings.,. No topics of note relating to LVIA were raised by MCC.

A pre-planning consultation meeting took place with An Coimisiún Pleanála (ACP) in relation to the Proposed Grid Connection in May 2024. No topics of note relating to LVIA were raised by ACP.

13.2 Brief Methodology and Assessment Criteria

This section briefly outlines the guidance and methodology used to undertake the LVIA of the Proposed Project; the full detailed description of the methodology is provided in *Appendix 13-1: LVIA Methodology*.

There are five main sections to this assessment:

- Visibility of the Proposed Project (e.g. ZTV mapping);
- Landscape Baseline;
- Visual Baseline;
- Cumulative Context with respect to other wind farm developments within the 20km LVIA Study Area;
- Likely Significant Landscape and Visual effects – summarising all landscape, visual and cumulative effects of the Proposed Project determined by this LVIA.

13.2.1 Guidelines

The legislation and general guidance on Environmental Impact Assessment is set out in Chapter 1 of this EIAR. The LVIA reported in this chapter was guided and informed by guidance documentation specifically pertaining to the Landscape and Visual Impact Assessment. Details of the guidance used to conduct this LVIA are outlined in Section 1.2 of the LVIA Methodology Appendix – *Appendix 13-1*.

13.2.2 Scope of the LVIA and Study Areas

The landscape and visual effects of the Proposed Project are assessed in this LVIA. However, the landscape baseline mapping, visual receptor mapping and viewpoint selection are based on wider study areas. Following best practice guidance, experience and professional judgement, two other study areas were defined for this LVIA:

- **'LVIA Study Area':** All of the landscape within **20km** from the proposed turbines for assessment of effects on landscape and visual receptors and is the search area for other wind energy developments included for cumulative assessment;
- **'LCA Study Area':** All of the landscape within **15km** from the proposed turbines for assessment of effects on designated Landscape Character Areas (LCAs).

The full justifications and rationales of the LVIA Study Area for assessment of effects on landscape and visual receptors and for the LCA Study Area for assessment of effects on designated LCAs are presented in detail in Section 1.6.6 of *Appendix 13-1: LVIA Methodology*. After defining the parameters for this LVIA, and on the basis of desk studies, survey work undertaken, professional judgement and experience of the assessment team, the following are scoped out of assessment in this LVIA:

- Effects on landscape and visual receptors with minimal or no theoretical visibility (as predicted by the ZTV mapping), and/or very distant visibility, and are therefore unlikely to be subject to significant effects;
- Effects on designated landscape receptors beyond 20km from the proposed turbines where it is judged that significant effects on key characteristics and/or special qualities are unlikely to occur;
- Effects on designated LCAs beyond 15km from the proposed turbines, where it is judged that significant effects on landscape character are unlikely to occur;
- Effects on visual receptors beyond 20km from the proposed turbines where it is judged that significant effects are unlikely to occur;
- Cumulative landscape and visual effects beyond 20km from the proposed turbines where it is judged that significant effects are unlikely to occur.
- Cumulative effects in combination with single turbines with a tip height lower than 50 metres beyond 3km from the proposed turbines, where it is judged that significant effects are unlikely to occur

13.2.3 Baseline Landscape and Visual Information

An initial desk study of baseline information was undertaken that has informed the LVIA, divided into 'Landscape Baseline' and 'Visual Baseline' components, as follows:

Landscape Baseline

- Policies and objectives contained in the relevant county development plan (County Mayo) pertaining to landscape and wind energy.
- Landscape designations in the LVIA Study Area (Designated Vulnerable Features; Scenic Routes and Views; Landscape Character Areas)
- Landscape characteristics of designated LCAs in the LCA Study Area
- Landscape character of the Site based on:
    - Site Surveys undertaken in 2023-2026
    - Characterisation of the proposed turbines as defined in relation to specific Landscape Character Types defined in the Guidelines (DoEHLG, 2006) and the Draft Guidelines (DoHPLG, 2019)

Visual Baseline

- Identification of visual receptors in the LVIA Study Area;
- Preliminary analysis of visibility of the Proposed Wind Farm from visual receptors using ZTV mapping and on-site visibility appraisals.
- Visibility in close proximity to the Proposed Wind Farm according to a Route Screening Analysis (RSA), a method developed by MKO to quantify visual screening relative to the proposed turbines.

13.2.4 Assessment of Potential Impacts

The LVIA process used in this Chapter is presented in *Appendix 13-1: LVIA Methodology* and includes clearly documented methods based on guidelines of the GLVIA3 (LI & IEMA, 2013) as follows.

First, this LVIA considers landscape and visual 'Sensitivity' balanced with the 'Magnitude of Change' to determine the likely significance of effects. Second, mitigating factors are then considered to arrive at 'Residual' landscape and visual effects. Third, residual landscape and visual effects are graded upon an 'impact assessment classification of significance' scale, as defined by the Environmental Protection Agency's (EPA) '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*' (EPA, 2022) ranging as follows: 'Imperceptible', 'Not Significant', 'Slight', 'Moderate', 'Significant', 'Very Significant' or 'Profound'.

Photomontages are used as an illustrative tool to assess potential impacts, whereby the potential landscape and visual effects arising as a result of the proposed turbines are assessed from viewpoint locations representative of prominent landscape and visual receptors located within the LVIA Study Area. Throughout this Chapter, 'theoretical visibility' is referred to, based on ZTV mapping (see below Section 13.3.1), and is assessed to compare 'theoretical' versus 'actual' visibility. The detailed methods used to produce ZTV maps and photomontages are included in *Appendix 13-1*.

13.2.5 LVIA Wind Energy Context

Given Ireland's renewable energy targets which have been set by the State for on-shore renewable wind energy development, wind turbines will form a new component in the working landscape for the coming decades. The focus for visual impact assessment of wind energy developments is therefore distance, arrangement, location and potential disruption to key scenic sensitivities rather than a commonly misconceived focus on whether turbines are visible or not from a particular vantage point. The outcome of the visual impact assessment, with regards to the EPA (2022) definition of significance, is calibrated in the overall context of LVIA of wind energy developments in Ireland and what is acceptable in the context of emerging baseline trends and the acceptability of wind turbines within views as a result of national policy.

Over time, wind turbines have, and will become, a more familiar and accepted component of the Irish landscape, particularly in working rural contexts. Accordingly, their presence may not carry the same level of perceived visual intrusion as less common or incongruous forms of development. In this context, the calibration of visual impact significance reflects both the policy-driven imperative for renewable energy development and the evolving visual baseline in parts of the Irish landscape. While the visibility of turbines remains an important consideration, it does not in itself equate to significant visual impact.

Key factors of focus in the overall impact assessment on visual receptors in relation to photomontages are:

- The scale of the proposed turbines relative to the landscape as a result of setback distance;
- The number of proposed turbines visible;
- Full or partial visibility of partial turbines e.g. are they partially screened by features;
- The horizontal extent of the proposed turbines in the field of view;
- Overall visual coherency with regards to form and arrangement and how the proposed turbines correspond to the landscape from a particular vantage point as per best practice siting and design guidance.

13.3 Visibility of the Proposed Project

13.3.1 ZTV Mapping: Theoretical Visibility of the Proposed turbines

ZTV mapping is an important step in the LVIA process, in that it clearly shows which areas of the LVIA Study Area will have theoretical visibility of the proposed turbines and which areas will have no theoretical visibility.

The ZTV mapping methodology is outlined in *Appendix 13-1*. This method was used to examine the theoretical visibility of the 7 No. proposed turbines from all landscape and visual receptors within the LVIA Study Area, using the half blade height of the wind turbines as points of reference. As noted in *Appendix 13-1*, actual visibility on the ground is significantly less than predicted by the ZTV mapping due to intervening factors such as on-site screening from natural and man-made features, atmospheric weather, and/or localised topography.

Generation of the ZTV utilises large scale topographical data (interpolation across 25m contour data) and does not account for topographical variation of smaller scale (e.g., < 10 metre). Therefore, in reality, small, localised undulating topographical landscapes are likely to inhibit further visibility of the proposed turbines that may not be represented in the ZTV map. Other features of the landscape such as vegetation and man-made elements are also likely to obscure the proposed turbines from view from many areas where the ZTV indicates there is full visibility. In this regard, the ZTV is a useful tool to indicate where there is definitely no visibility of the proposed turbines, therefore, receptors located in these areas can be scoped out from further assessment.

13.3.1.1 Half Blade ZTV of the Proposed Turbines

A Half Blade ZTV map is shown in Figure 13-1 below. The ZTV map is used within several mapping figures included in this chapter to enable assessment of theoretical visibility of the proposed turbines from landscape and visual receptors. Separate colour bands are used on each ZTV map to indicate the number of turbines of which the half blade will potentially be visible. The legend on each map shows the number of theoretically visible turbines for each corresponding colour, which are as follows:

- Orange: 1 - 3 turbines theoretically visible
- Teal: 4 - 5 turbines theoretically visible
- Navy: 6 - 7 turbines theoretically visible

Figure 13-2 (below) shows the landform features and elevation gradients existent within the landscape of the LVIA Study Area, the geography of these topographical characteristics define the distribution of theoretical visibility illustrated in Figure 13-1.

The proposed turbines are situated in the plains of County Mayo within a drumlin landscape, characterised by smooth, elongated hills formed by glacial activity. The majority of the LVIA Study Area is relatively low-lying, particularly to the south and west towards Lough Mask and Lough Carra. In reality, the visibility of the proposed turbines within this flat landscape interspersed with localised undulations will be far less than is indicated by the ZTV. Some notable topographical features exist within the wider LVIA Study Area, such as Cuillalea Hill and Treannagleragh to the north and the foothills of the Partry Mountains located to the far west. To the east of the proposed turbines, the landform rises to higher, more pronounced undulating landforms, which increase localised variations in topography.

As seen in Figure 13-1, a small section of County Galway and a very small section of County Roscommon are located to the south-east of the LVIA Study Area and have very limited theoretical

visibility. Given the distance from the proposed turbines, the limited extent of theoretical visibility, and the absence of highly sensitive landscape or visual receptors within this small area, it is unlikely that the proposed turbines will be visible or give rise to any Significant landscape or visual effects. As such, County Galway and County Roscommon have been scoped out from further assessment and are not considered further in this chapter.

The following discussion considers various topographical characteristics of the LVIA Study Area as they relate to the theoretical visibility as shown by the ZTV Map below.

Description of Theoretical Visibility within 5km of the Proposed turbines

As shown in the physical landscape features map (Figure 13-1) below, the proposed turbines are situated within a relatively low-lying landscape allowing for stretches of full theoretical visibility within 5km of the proposed turbines, excepting small pockets of no theoretical visibility from slight topographical undulations arising from the drumlin landscape.

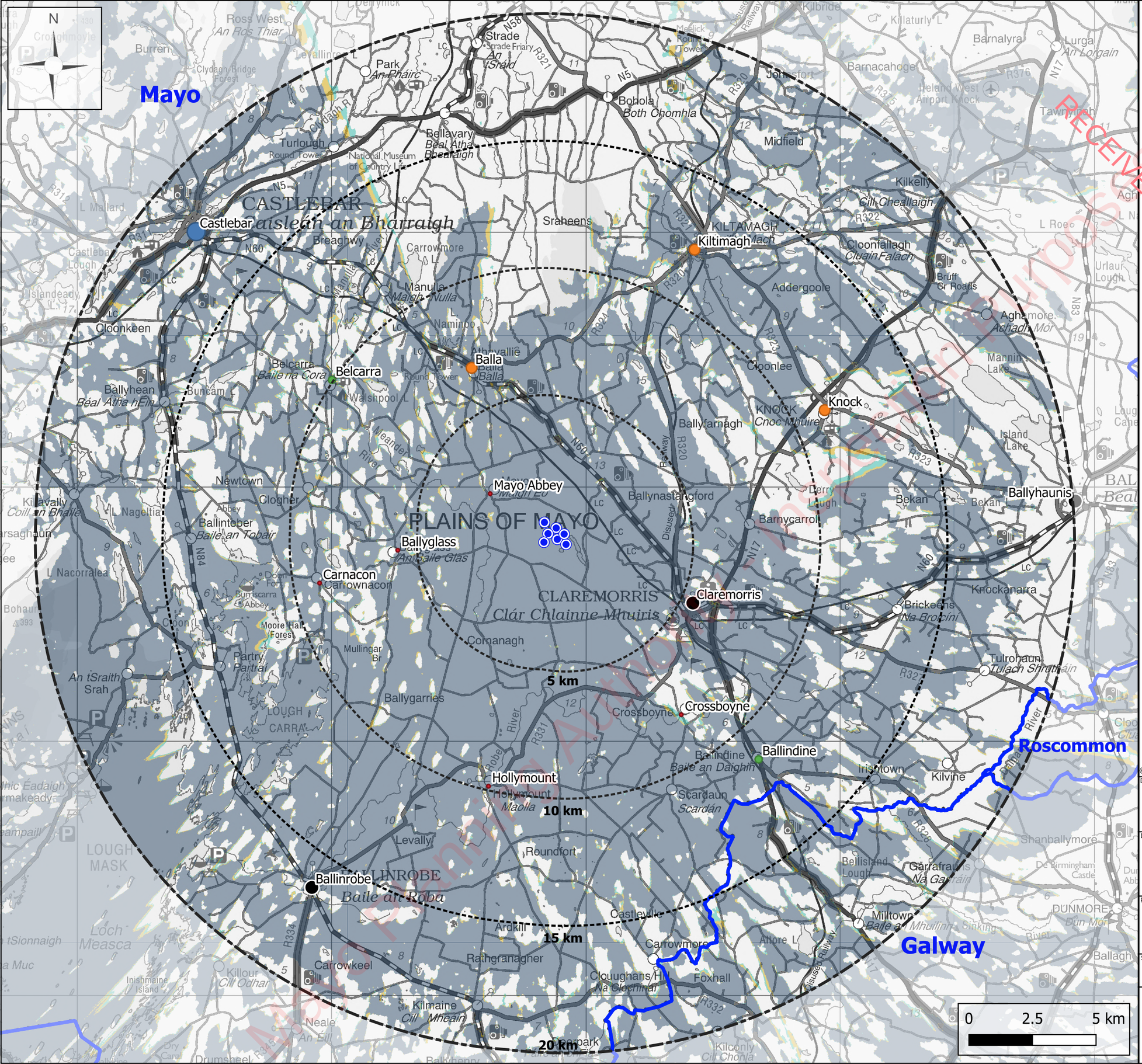
Description of Theoretical Visibility within the Wider Study Area

As shown in Figure 13-1 and Figure 13-2 below, the nature of the landscape is predominantly low-lying, characterised by gently rolling elongated hills and valleys, with more notable rises in elevation occurring to the east, north, and far west.

To the west and south, the flat, low-lying topography ranges from approximately 20m above ordnance datum (AOD) at its lowest point at Lough Mask and Lough Cara to approx. 300m AOD in the Partry Mountains. The relatively flat terrain allows for a vast spread of theoretical visibility with stretches of no theoretical visibility due to localised undulations. Approximately 20km west from the proposed turbines, the landform rises sharply to form the eastern extent of the Partry Mountains. The Partry Mountains have elevations above 300m and would result in extensive areas of no theoretical visibility beyond.

To the east and north, several small hills and undulations create areas of no theoretical visibility. Beyond 15km to the east, theoretical visibility becomes increasingly sparse due to the undulating landscape. To the north, the topography rises towards Cuillalea Hill. In this direction, visibility largely confined to the upper slopes and the summit, with minimal to no visibility beyond this landform across the surrounding landscape due to intervening topographical features.

In general, the ZTV indicates that the geographical distribution of theoretical visibility becomes limited beyond 10km of the proposed turbines, and is even more sparse beyond 15km of the proposed turbines, particularly to the north, east and south. The gentle peaks and undulations throughout the relatively flat landscape of the LVIA Study Area further restrict theoretical visibility of the proposed turbines from many locations within the LVIA Study Area.



Map Legend

- LVIA Study Area
- County Borders
- Proposed Turbines

Co. Mayo Key Settlements

- Strategic Growth Towns
- Self Sustaining Growth Towns
- Self Sustaining Towns
- Rural Settlements
- Rural Villages

Half-Blade Zone of Theoretical Visibility

- 1-2 Turbines Theoretically Visible
- 3-4 Turbines Theoretically Visible
- 5-7 Turbines Theoretically Visible

Drawing No.

Figure 13-1

Drawing Title

Zone of Theoretical Visibility Map

Project Title

Cunlaghfadda Green Energy Project

Scale	Project No.	Date	Drawn By	Checked By
1:140,820	220825	17.04.2026	GL	DM

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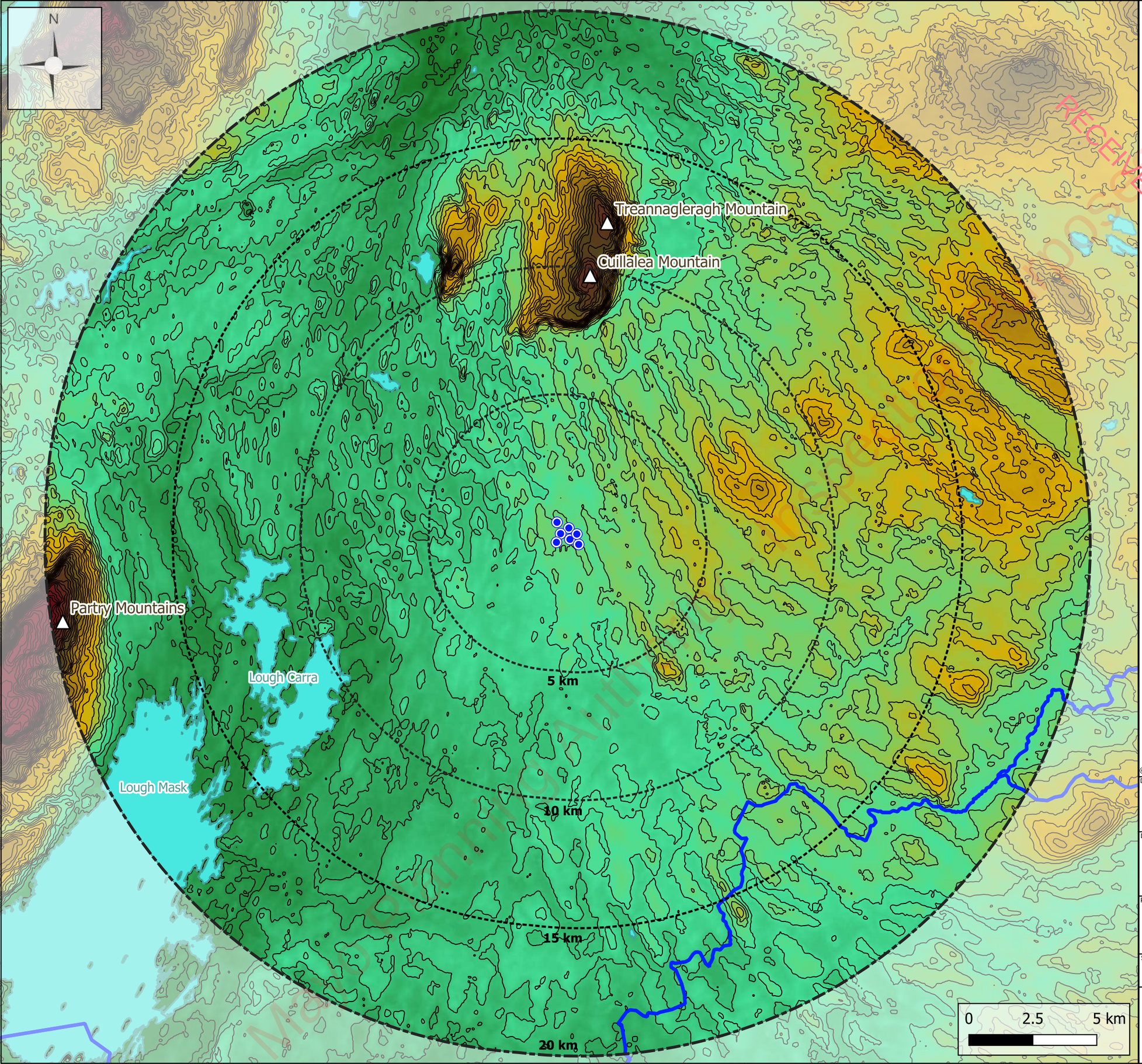

Map Legend

- LVIA Study Area
- County Borders
- Proposed Turbines
- 10m Contours
- Key Topographical Features
- Key Lakes

Elevation Above Ordanace Datum (m)

- 0
- 50
- 100
- 150
- 200
- 250
- 300

Drawing No.

Figure 13-2

Drawing Title

Physical Landscape Features

Project Title

Cunlaghfadda Green Energy Project

Scale	Project No.	Date	Drawn By	Checked By
1:140,000	220825	16.03.2026	GL	DM

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13.3.1.2 On-Site Appraisal of Actual Visibility During Field Surveys

As mentioned previously, the ZTV map is a useful tool to indicate areas where there will be no visibility of the proposed turbines. In practice, vast areas of the LVIA Study Area which have an indication of full theoretical visibility by the ZTV map (Figure 13-1) are likely to have no actual visibility of the proposed turbines due to other visual screening factors present within the landscape.

Multiple field surveys were conducted during 2023-2026 to determine the actual visibility from locations where the ZTV has indicated full theoretical visibility. These surveys determined that visual screening from localised undulations in topography, vegetation and man-made elements substantially reduce the likelihood of viewing turbines in vast areas of the LVIA Study Area.

In most instances, visual screening within the gently undulating and highly vegetated landscape beyond 5km from the proposed turbines did not permit open views in the direction of the proposed turbines. Visibility is only likely to occur in isolated, elevated vantage points where open, long-ranging landscape views in the direction of the proposed turbines were found. Representative photomontages were captured from elevated locations where open views towards the proposed turbines were found. Visual effects arising from such locations are assessed in Section 13.7 – *Likely Significant Landscape and Visual Effects*. The term 'visual screening' (discussed below) is used throughout this LVIA and is an important concept to understand with respect to the exceptionally flat landscape of the LVIA Study Area and how this relates to the reality of visibility on the ground in flat landscapes.

Disproportionate Visual Screening Effect

Any landscape feature that blocks a view and prevents a clear onward view has a 'visual screening effect,' whether it is a one-metre-tall wall, a two-metre-high roadside hedgerow, a five-metre-high building, or a 15-metre tree. As a full visual screen, such features only allow a person to see over them, thereby pushing the person's line of sight higher into the sky rather than along the level of the ground.

The impact of visual screening elements such as vegetation (forestry, road-side hedgerows, and trees) and buildings (particularly within cities, towns, and villages) on long range visibility are accentuated in flat lowland landscapes, this is called a disproportionate visual screening effect. The graphic in Figure 13-3 below best explains this 'disproportionate screening effect'. A ZTV may indicate full theoretical visibility of the proposed turbines from an open field or roadway. However, when a receptor is located at the same base elevation as a turbine, a feature such as a distant treeline has the capacity to greatly restrict or completely obscure visibility of the proposed turbine. Distance becomes a substantial factor determining visibility of proposed turbines as it is difficult to see beyond a few kilometres above visual screening within a flat landscape.

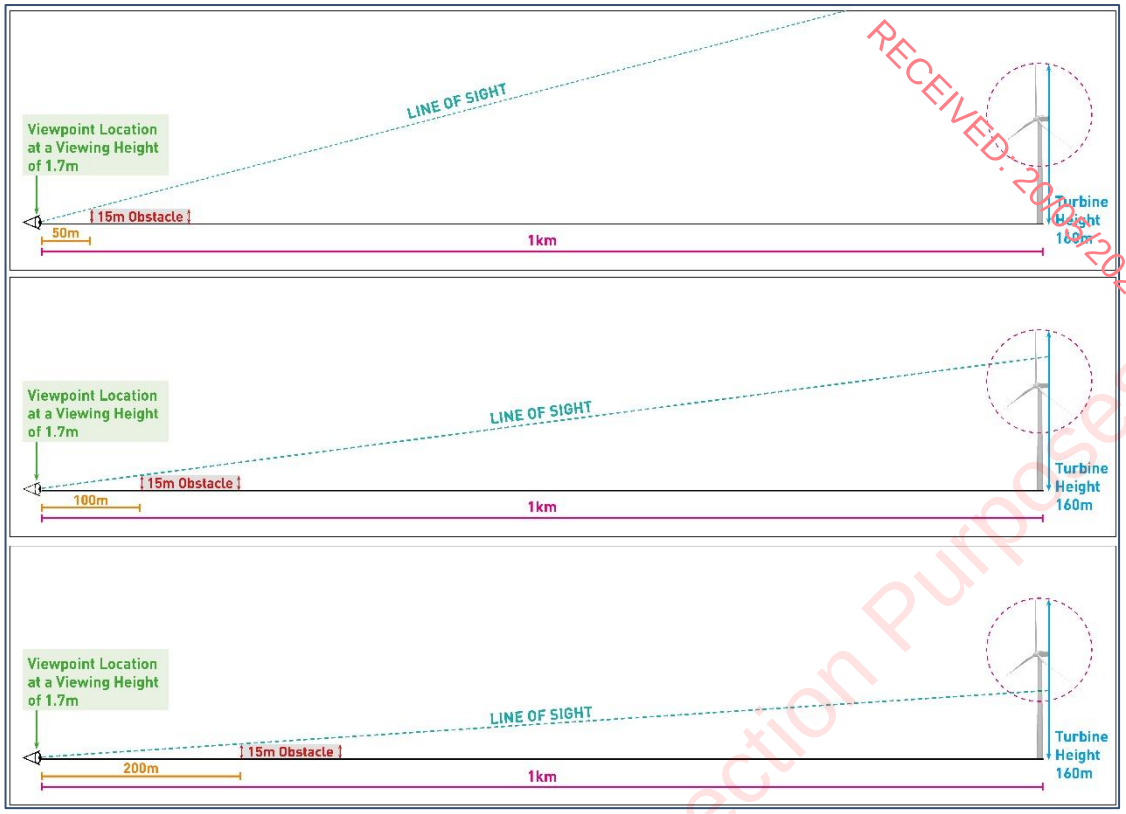


Figure 13-3 Disproportionate Visual Screening Effect

Figure 13-3 above illustrates the disproportionate screening effect that small features in the landscape can have on screening a proposed wind turbine from view. The figure shows a 160-metre-tall wind turbine located one kilometre from a viewing location. The illustration in Figure 13-3 is modelled proportionally to ensure measurement accuracy and scaled to fit this report. A 15-metre-tall obstacle, such as a treeline is used as the landscape feature giving rise to the visual screening effect. In the three examples shown, the 15-metre obstacle is shown at 50 metres, 100 metres and 200 metres from the viewing location, and the resultant line of sight is shown as a blue line running from the viewing location upwards over the top of the obstacle.

13.3.2 Visibility in Close Proximity: Route Screening Analysis (RSA)

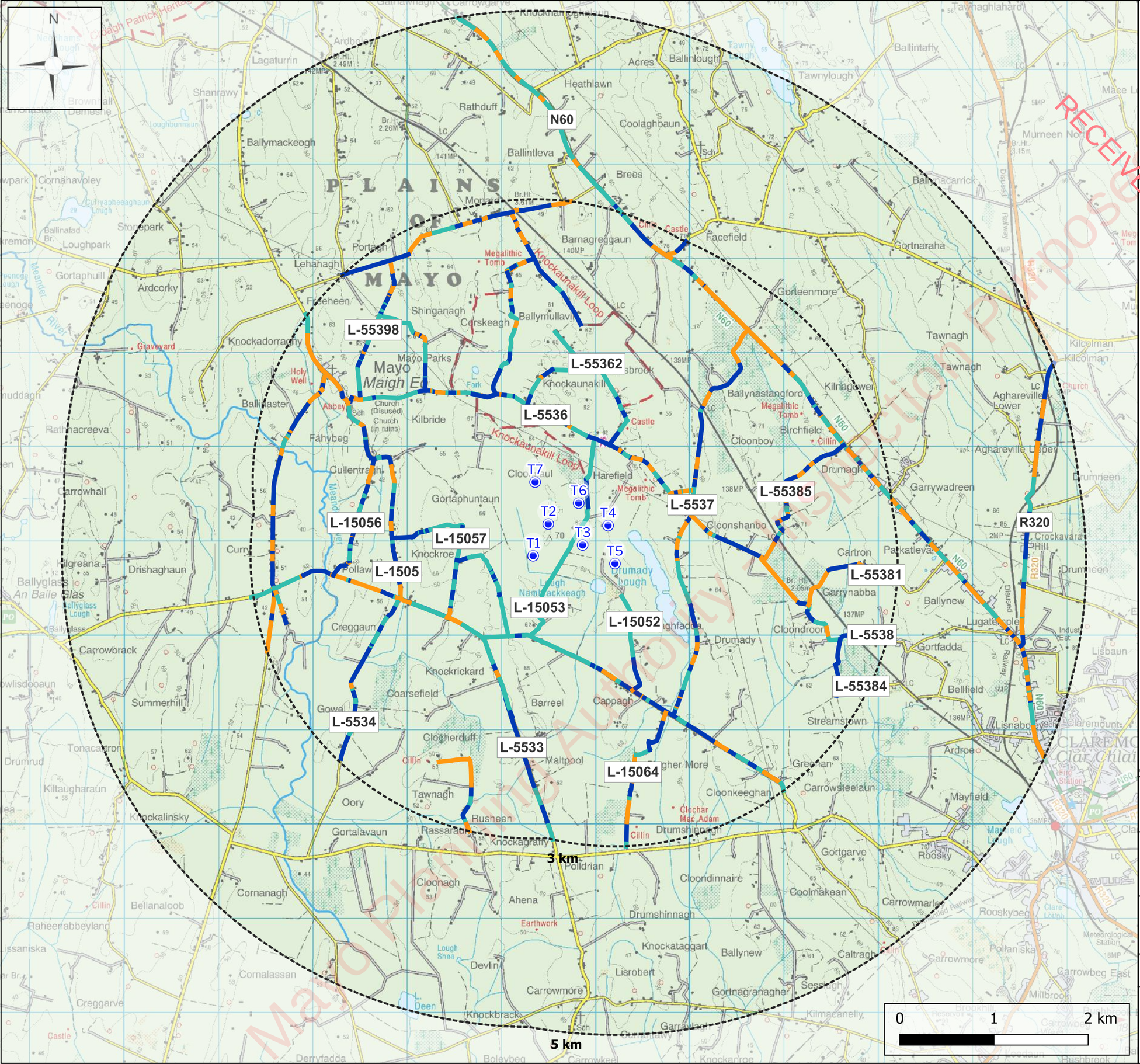
Route Screening Analysis (RSA) was conducted to comprehensively demonstrate the varying characteristics of the degree of visual screening existent along the local road network and to record the actual visibility of the proposed turbines in comparison to the theoretical visibility indicated by ZTV mapping. The full methodology is outlined in *Appendix 13-1: LVIA Methodology* (Section 1.5.3: On-Site Visibility Appraisal: RSA).

The RSA visual screening categories are:

- **'Little/No'** visual screening: areas of the road that are mainly open with open views in the direction of the proposed turbines (see example below in Plate 13-1);
- **'Intermittent/Partial'** visual screening: areas of the road where there are intermittent or partial views in the direction of the proposed turbines (see Plate 13-2);
- **'Dense/Full'** visual screening: areas of the road with dense visual screening, sufficient to block views in the direction of the proposed turbines (see Plate 13-3).

The results of RSA are mapped in Figure 13-4 below, showing the extent at which each visual screening classification is present on all public roads within 3km of the proposed turbines. Where roads continued beyond 3km from the proposed turbines, the RSA survey continued to record screening until reaching an appropriate termination point or junction.

RSA was conducted along the N60 National Road and the R320 Regional Road to a distance of 5km as these are considered relatively prominent and well-trafficked transport routes in close proximity to the Site. RSA was also conducted along all prominent local roads within 3km from the proposed turbines.



Map Legend

- RSA Extent
- Proposed Turbines

Route Screening Analysis

- No / Very Little Visual Screening
- Partial / Intermittent Visual Screening
- Dense / Full Visual Screening

Drawing No.

Figure 13-4

Drawing Title

Route Screening Analysis

Project Title

Cunlaghfadda Green Energy Project

Scale	Project No.	Date	Drawn By	Checked By
1:38,000	220825	08.05.2026	GL	DM

MKO Planning and Environmental Consultants

Plate 13-1 An example of 'Little / No Screening'

Plate 13-2 An Example of 'Intermittent / Partial Screening'

Plate 13-3 An Example of 'Full Screening'

N60 National Road

The N60 National Road runs in a south-east to north-west direction, covering a length of 10.1km within 5km of the proposed turbines. The road exhibits a varied screening profile, featuring predominantly 'Intermittent/Partial' Visual Screening or 'Dense/Full' Visual Screening within 3km of the proposed turbines, with longer stretches of 'Little/No' Visual Screening within 3-5km from the proposed turbines.

R320 Regional Road

A very small stretch of the R320 Regional Road is located within the 5km radius of the nearest proposed turbine (T5), covering a total length of approximately 2.8km within 5km. The road exhibits a varied screening profile, comprising stretches of 'Intermittent/Partial', 'Little/No' Visual Screening, and 'Dense/Full' Visual Screening.

Local Roads

The local road network exhibits a varied screening profile. The local bog road traversing the Site is primarily comprised of 'Little/No' Visual Screening. Immediately south of the proposed turbines, the L-1505 local road is also primarily comprised of 'Little/No' Visual Screening. As the L-1505 local road travels further east and west, screening becomes more varied along this route, and along the local roads emerging from it (including the L-5534, L-5533, and L-15064 local roads). These roads comprise stretches of 'Intermittent/Partial', 'Little/No', and 'Dense/Full' Visual Screening.

The local roads to the west (L-15057, L-1505, L-15056, and L-1517) and the local roads to the east (L-15052, L-5537, L-5538, L-55385, L-55381, and L-55384) also exhibit varied visual screening, primarily comprising 'Intermittent/Partial' or 'Dense/Full' Visual Screening, with occasional stretches of 'Little/No' Visual Screening.

The local road network to the north exhibits a similar screening profile. Immediately north of the proposed turbines, there are stretches of 'Little/No' Visual Screening along the L-5536 and L-55362 local roads. As the L-5536 travels westward, it merges with the L-1505 local road at Mayo Abbey Church and Ruins. As the L-1505 moves northward through Mayo Abbey Village, it becomes primarily characterised by 'Dense/Full' Visual Screening. The L-55398 local road travelling to the east of Mayo Abbey is primarily comprised of 'Little/No' Visual Screening, with pockets of 'Intermittent/Partial' Visual Screening. To the north-east, visibility is varied along the L-5537 and L-55385 local roads, which primarily comprise 'Intermittent/Partial' Visual Screening, with small stretches of 'Little/No' and 'Dense/Full' Visual Screening.

Summary of RSA Results

'Dense/Full' visual screening was recorded along 25% of the surveyed roads and was the least common class recorded. 'Intermittent/Partial' visual screening was recorded along 41% of the roads and was the most common class recorded. 'Little/No' visual screening was recorded for 34% of roads.

The RSA map depicted above in Figure 13-4 indicates a 'mosaic' pattern of visual screening evident along the major transport routes, suggesting primarily Intermittent/Partial visibility of the turbines within 3km. This means that, in a journey scenario along these routes, there will be glimpses of turbine visibility mixed with areas of open visibility which quickly transition into Intermittent/Partial or Dense/Full visual screening.

Given that there is at least some level of visual screening present along the majority (66% = Intermittent + Dense screening combined) of all public roads within 3km and those extending to 5km, this demonstrates that the widespread theoretical visibility indicated on the ZTV in close proximity to the

proposed turbines is not fully representative of the actual on-the-ground visibility of the proposed turbines. Site visits and the RSA determined that most open visibility of the proposed turbines occurs from L-15053, the local road that runs through the Site, and from the portion of L-1505 that runs directly to the south of the Site.

An overview of the visual screening recorded during the RSA along prominent transport routes within 3km of the proposed turbines is presented below in Table 13-1.

Table 13-1: Distribution of Roadside Visual Screening Recorded during RSA

Screening Class	Length of Road Mapped in Figure 13-4	Percentage Distribution of Screening on the Surveyed Roads
Little/No Visual Screening	20.9km	34%
Partial/Intermittent Visual Screening	25.5km	41%
Dense/Full Visual Screening	15.3km	25%

13.4 Landscape Baseline

The Landscape Baseline provides baseline information about the receiving landscape of the Proposed Project and its wider setting.

13.4.1 Landscape Designations and Policy Context

This section provides an overview of local planning policy and identifies landscape and visual protections, designations and spatial zoning for wind energy development relevant to the LVIA of the Proposed Project. The Proposed Project is located in Co. Mayo, therefore the Mayo County Development Plan 2022–2028 (hereafter 'MCDP') was the primary document used to inform this exercise.

13.4.1.1 Mayo County Development Plan 2022 – 2028 (MCDP)

Volume 1 comprises the main policy material of the MCDP. Chapter 10 of Volume 1 is called 'Natural Environment' and outlines policies pertaining to the natural environment and landscape for County Mayo. Volume 4 comprises the Landscape Appraisal for County Mayo (hereafter referred to as the LACM).

13.4.1.1.1 *General Landscape Policy*

Chapter 10 of the MCDP contains the following general policies related to landscape:

> "***NEP 14*** *To protect, enhance and contribute to the physical, visual and scenic character of County Mayo and to preserve its unique landscape character.*
>
> *"**NEO 25** To consider applications for development, along Mayo's' Scenic routes, that can demonstrate a clear need to locate in the area concerned, whilst ensuring that it:*
>
> - *Does not impinge in any significant way on the character, integrity and distinctiveness of the area;*
> - *Meets high standards in siting and design;*
> - *Contributes to and enhances local landscape character;*
> - *Satisfies all other criteria, with regard to, inter alia, servicing, public safety and environmental considerations."*
>
> *"**NEO 26** To consider applications for development, within Mayo's Coastal Areas and Lakeshores and within areas along scenic routes with designated scenic views, that can demonstrate a long-standing social link to the area concerned, whilst ensuring that it:*
>
> - *Does not impinge in any significant way on the character, integrity and distinctiveness of the area;*
> - *Cannot be considered at an alternative location;*
> - *Meets high standards in siting and design;*
> - *Contributes to and enhances local landscape character.*
> - *Satisfies all other criteria, with regard to, inter alia, servicing, public safety and environmental considerations"*
>
> *"**NEO 27** To ensure all development proposals are consistent with the Landscape Appraisal of County Mayo and the associated Landscape Sensitivity Matrix and future editions thereof.*

NEO 28 *To review the Landscape Appraisal for Mayo and update this plan as appropriate, following publication of the statutory guidelines for Planning Authorities on Local Landscape Character Assessments, as detailed in the National Landscape Strategy 2015-2025 and ensure consistency with the provisions of RPO 4.16 and RPO 5.2(b) of the RSES, 2020-2032."*

*"**NEO 29** Require a Landscape/Visual Impact Assessment to accompany significant proposals, located within or adjacent to sensitive landscapes, where appropriate."*

The following subsections address the specific elements covered by this planning policy including the designations of the Landscape Character Assessment, the designated Views and Prospects, as well as the designated Vulnerable Features.

13.4.1.1.2 County Mayo Landscape Character Assessment

The Landscape Character Assessment for County Mayo is contained in the LACM and identifies 16 'Landscape Character Units' (LCUs) within the county which are amalgamated into 4 generic 'Principle Policy Areas' based on *"similarity of landscape types, which for Mayo have been identified as:*

1. *Montaine Coastal*
2. *Lowland Coastal*
3. *Uplands, Moors, Heath or Bogs* (also includes sub-policy area 3a – Lakeland Sub-area)"
4. *Drumlins and Inland Lowlands* (also includes sub-policy area 4a – Lakeland Sub-area)"

The LCUs that are located within the 15km LCA Study Area, and are scoped in for assessment are as follows:

- LCU K: East-Central Drumlin Spine
- LCU L: South-East Mayo Plains
- LCU M: Lakeland Drumlins

All of the proposed turbines are located within **LCU L: South-East Mayo Plains**. The LACM of County Mayo notes the following in relation to this LCU:

"This area is a mosaic of high quality pasture with distinct paddocks divided by rock walls and well-maintained hedgerows. There are occasional pockets of transitional pasture and woodland scrub throughout the gently rolling drumlins."

This LCU is located within **Policy Area 4 – Drumlins and Inland Lowlands**. The LACM of County Mayo notes the following in relation to this Policy Area:

"undulating areas of pasture, woodland and forest make up the remainder of the County and are considered to have a generally similar ability to absorb development. Many of these areas are underlain by glacial drumlins and incorporate low-lying lakelands".

The LACM continues to state the following policies with regards to development in Policy Area 4:

*"**Policy 21**: Recognise that these areas are made up of a variety of working landscapes and contain the vast proportion of the Counties population within principle towns and on rural holdings. These also incorporate all of the major national primary and regional roads, and railways.*

***Policy 22**: Continue to permit development that can utilise existing infrastructure, whilst taking account of absorption opportunities provided by the landscape and prevailing vegetation.*

> ***Policy 23****: Encourage development that will not significantly interfere or detract from scenic Lakeland vistas, as identified in the Development Plan, when viewed from areas of the public realm.*
>
> ***Policy 24****: Encourage development that will not result in detrimental impacts (through excessive bulk, scale or inappropriate siting) on the landscape at a local or micro level as viewed from areas of the public realm.*

The LACP also notes to apply Policy 14 and Policy 16 *"as appropriate"*:

> *"**Policy 14:** Encourage development that will not interrupt or penetrate distinct linear sections of primary ridge lines when viewed from areas of the public realm.*
>
> ***Policy 16****: Preserve from development any areas that have not already been subject to development, which have retained a dominantly undisturbed upland/moorland character."*

A full description of the key characteristics of LCUs scoped in for further assessment are included in the LCA impact assessment tables comprising *Appendix 13-2.*