Drumlins Park Wind Farm Substation & Grid Connection

Chapter 9: Landscape

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Contents

9.1 Introduction

This chapter describes the landscape context of the proposed development and assesses the likely significant landscape and visual impacts of the scheme on the receiving environment.

Although closely linked, landscape and visual impacts are assessed separately. Landscape Impact Assessment (LIA) relates to changes in the physical landscape brought about by the proposed development, which may alter its character, and how the landscape is experienced. This requires a detailed analysis of the individual elements and characteristics of a landscape that go together to make up the overall landscape character of that area. By understanding the aspects that contribute to landscape character, it is possible to make judgements in relation to its quality (integrity) and to identify key sensitivities. This, in turn, provides a measure of the ability of the landscape in question to accommodate the type and scale of change associated with the proposed development, without causing unacceptable adverse changes to its character.

Visual Impact Assessment (VIA) relates to assessing effects on specific views and on the general visual amenity experienced by people. This deals with how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements. Visual impacts may occur from; visual obstruction (blocking of a view, be it full, partial or intermittent) or; visual intrusion (interruption of a view without blocking).

Cumulative landscape and visual impact assessment is concerned with additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.

This assessment uses methodology as prescribed in the following guidance documents:-

- Environmental Protection Agency (EPA) publication '*Guidelines on the Information to be contained in Environmental Impact Statements* (Draft 2017) and the accompanying *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (Draft 2015);
- Landscape Institute and the Institute of Environmental Management and Assessment publication entitled '*Guidelines for Landscape and Visual Impact Assessment – Third Addition'* (2013);
- Scottish Natural Heritage (SNH) '*Guidance Note: Cumulative Effect of Wind' Farms* (2012);
- Department of the Environment, Heritage and Local Government '*Wind Energy Development Guidelines for Planning Authorities*' (2006); and
- Scottish Natural Heritage (SNH) '*Visual representation of wind farms: Best Practice Guidelines*' (version 2.2 - 2017).

9.1.1 Statement of Authority

This landscape and visual assessment (LVIA) was prepared by Richard Barker (MLA MILI) and Cian Doughan (BSLA) of Macro Works Ltd, a specialist LVIA company with over 20-years of experience in the appraisal of effects from a variety of energy, infrastructure and commercial developments. Relevant experience includes LVIA work on over 140 on-shore wind farm proposals throughout Ireland, including six

Strategic Infrastructure Development (SID) wind farms. Macro Works and its senior staff members are affiliated with the Irish Landscape Institute.

9.1.2 Description of Proposed Development

A full description of the proposed development is presented in **Chapter 3**. In summary, the proposed development comprises the following main components:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electrical substation, including single-storey control buildings and all associated electrical equipment;
- Approximately 700m of 110kV underground electricity lines;
- Replacement of 1 no. existing pole-set with 2 no. lattice-type end masts, to a maximum height of up to 16m; and
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure.

The entirety of the proposed development is located within the administrative area of County Monaghan; while candidate quarries which may supply construction materials are also located within County Cavan.

9.1.3 Definition of Study Area

Within this rolling drumlin context, it is anticipated that the proposed development is likely to be difficult to discern beyond approximately 500m–1,000m due to screening afforded by the rolling terrain and dense vegetation. Even if discernible from greater distances, it is not likely to give rise to significant landscape or visual impacts beyond this threshold. In the interests of a comprehensive appraisal, a 2km radius study area is used in this instance. However, there will a particular focus on receptors contained within 1km of the proposed development site.

9.2 Methodology

The production of this LVIA involved desktop studies to understand the existing baseline environment; fieldwork recording the elements and characteristics of the landscape and the selection and capture of images to allow the preparation of photomontages; and the professional evaluation of the baseline environment and the effects which may occur as a result of the proposed development with the aid of the accompanying photomontages.

9.2.1 Desk Study

The desk study involved:-

- Establishing an appropriate study area from which to study the landscape and visual impacts of the proposed development;
- Review of a Zone of Theoretical Visibility (ZTV) map, which indicates areas from which the development is potentially visible in relation to terrain within the study area;
- Review of relevant legislation and guidance, including County Development Plans, particularly with regard to sensitive landscape and scenic view/route designations; and
- Selection of potential Viewshed Reference Points (VRPs/VPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity.

9.2.2 Fieldwork

The fieldwork undertaken to inform this assessment included:-

- Recording a description of the landscape elements and characteristics within the study area;
- Selection of a refined set of VRP's for assessment. This includes the capture of reference images and grid reference coordinates for each VRP location for the visualisation specialist to prepare photomontages; and
- Following the selection of VRPs, a set of photo-realistic images (photomontages) of the proposed development were prepared.

9.2.3 Appraisal

This assessment, undertaken following the completion of fieldwork and the preparation of photomontages has included:-

- Consideration of the receiving landscape with regard to overall landscape character as well as the salient features of the study area including landform, drainage, vegetation, land use and landscape designations;
- Consideration of the visual environment including receptor locations such as centres of population and houses; transport routes; public amenities and facilities and; designated and recognised views of scenic value;
- Consideration of design guidance and planning policies;
- Consideration of potentially significant effects and the mitigation measures that could be employed to reduce such effects;
- Estimation of the significance of residual landscape impacts;
- Estimation of the significance of residual visual impacts aided by photomontages prepared at all of the selected VRP locations; and
- Estimation of cumulative landscape and visual effects in combination with other existing, permitted or proposed developments.

9.2.3.1 Assessment Criteria for Landscape Impact

The classification system used by Macro Works to determine the significance of landscape and visual impacts is based on the IEMA *Guidelines for Landscape and Visual Impact Assessment* (2013). When assessing the likely impacts on the landscape resulting from a development, the following criteria are considered:-

- Landscape character, value and sensitivity;
- Magnitude of likely impacts; and
- Significance of landscape effects

The sensitivity of the landscape to change is the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. The value and sensitivity of landscapes is classified using the following criteria.

Sensitivity	Description
Very High	Areas where the landscape character exhibits a very low capacity for change in the form of development. Examples of which are high value landscapes, protected at an international or national level (World Heritage Site/National Park), where the principal management objectives are likely to be protection of the existing character.
High	Areas where the landscape character exhibits a low capacity for change in

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

Table 9.1: Landscape Value and Sensitivity

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

Magnitude of Impact	Description
Very High	Change that would be large in extent and scale with the loss of critically important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
High	Change that would be more limited in extent and scale with the loss of important landscape elements and features, that may also involve the introduction of new uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
Medium	Changes that are modest in extent and scale involving the loss of landscape characteristics or elements that may also involve the introduction of new uncharacteristic elements or features that would lead to changes in landscape character, and quality.
Low	Changes affecting small areas of landscape character and quality, together with the loss of some less characteristic landscape elements or the addition of new features or elements.
Negligible	Changes affecting small or very restricted areas of landscape character. This may include the limited loss of some elements or the addition of some new features or elements that are characteristic of the existing landscape or are hardly perceivable.

Table 9.2: Magnitude of Landscape Impacts

The significance of a landscape impact is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. The significance of landscape impacts is arrived at using the following matrix:-

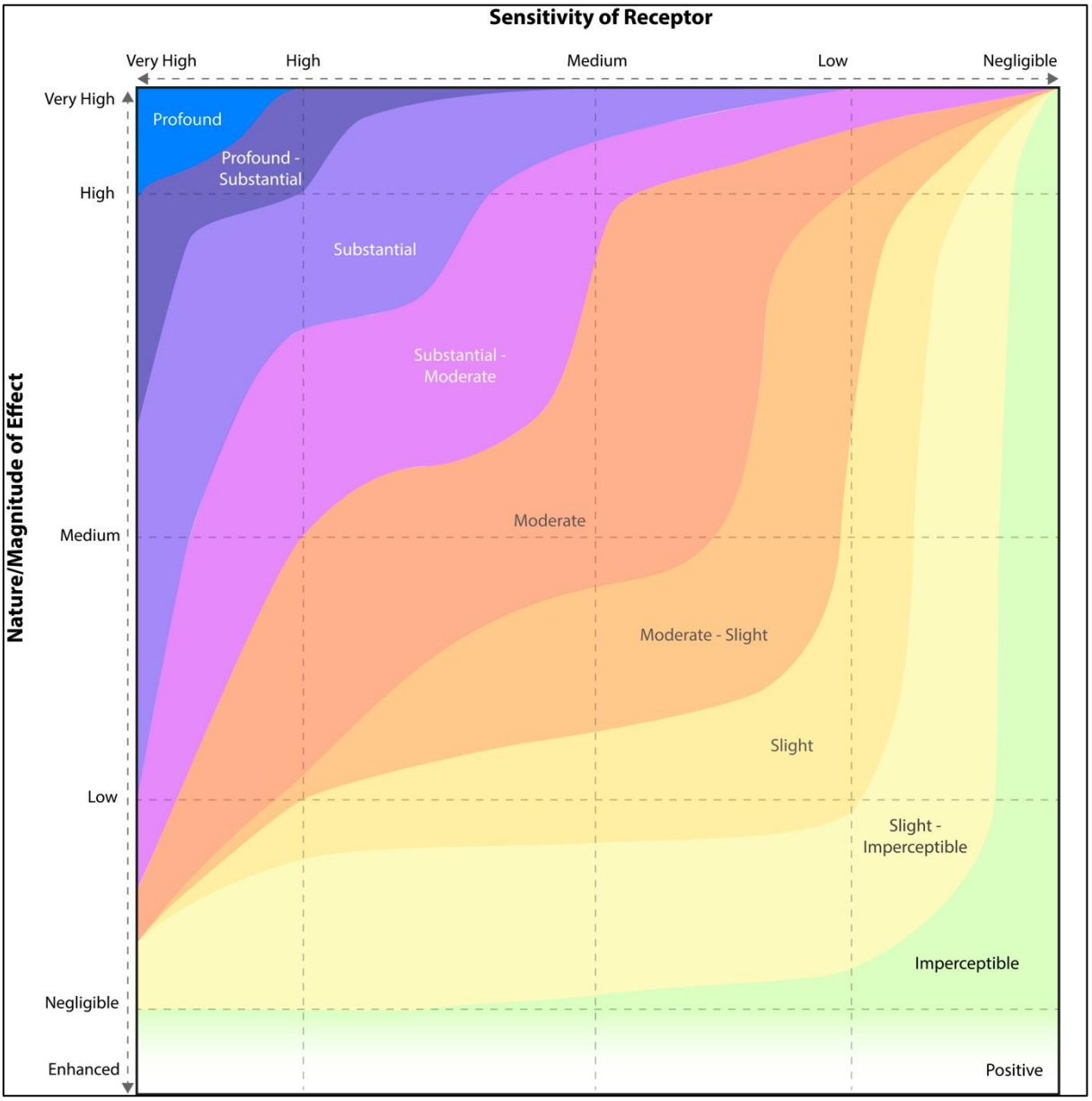

Figure 9.1: Landscape Impact Significance Matrix

** Note: Judgements deemed 'substantial' and above are considered to be 'significant impacts' in EIA terms.*

9.2.3.2 Assessment Criteria for Visual Impact

As with the landscape impact, the visual impact of the proposed development will be assessed as a function of receptor sensitivity versus magnitude of effect. In this instance, the sensitivity of visual receptors will be weighed against the magnitude of visual effects.

Visual sensitivity

Unlike landscape sensitivity, visual sensitivity has an anthropocentric basis. Visual

sensitivity is a two-sided analysis of receptor susceptibility (people or groups of people) versus the value of the view on offer at a particular location.

To assess the susceptibility of viewers and the amenity value of views, the assessors use a range of criteria and provide a four-point weighting scale to indicate how strongly the viewer/view is associated with each of the criterion. Susceptibility criteria are extracted directly from the *IEMA Guidelines for Landscape and Visual Assessment* (2013), whilst the value criteria relate to various aspects of a view that might typically be related to high amenity including, but not limited to, scenic designations. The susceptibility criteria are set out below.

Susceptibility of receptor group to changes in view

This is one of the most important criteria to consider in determining overall visual sensitivity because it is the single category dealing with viewer susceptibility. In accordance with the *IEMA Guidelines for Landscape and Visual Assessment* visual receptors most susceptible to changes in views and visual amenity are:-

- Residents at home;
- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focussed on the landscape and on particular views;
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience;
- Communities where views contribute to the landscape setting enjoyed by residents in the area; and
- Users of road, rail or other transport routes where such travel involves recognised scenic routes and awareness of views is likely to be heightened.

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

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

Recognised scenic value of the view (County Development Plan designations, guidebooks, touring maps, postcards etc)

These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because, in the case of County Development Plans, a public consultation process is required.

Views from within highly sensitive landscape areas

Again, highly sensitive landscape designations are usually part of a Landscape Character Assessment, which is then incorporated into the County Development Plan and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them.

Intensity of use, popularity

Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale.

Connection with the landscape

This considers whether or not receptors are likely to be highly attuned to views of the landscape i.e. commuters hurriedly driving on busy national route versus hill walkers directly engaged with the landscape enjoying changing sequential views over it.

Provision of elevated panoramic views

This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.

Sense of remoteness and/or tranquillity

Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example.

Degree of perceived naturalness

Where a view is valued for the sense of naturalness of the surrounding landscape, it is likely to be highly sensitive to visual intrusion by obvious human interventions.

Presence of striking or noteworthy features

A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle.

Historical, cultural or spiritual value

Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings;

Rarity or uniqueness of the view

This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context;

Integrity of the landscape character in view

This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components;

Sense of place

This criterion considers whether there is special sense of wholeness and harmony at the viewing location; and

Sense of awe

This criterion considers whether the view inspires an overwhelming sense of scale or the power of nature.

Those locations where highly susceptible receptors or receptor groups are present and which are deemed to satisfy many of the view value criteria above are likely to be judged to have a high visual sensitivity and vice versa.

Visual Impact Magnitude

The magnitude of visual effects is determined on the basis of two factors; the visual

presence of the proposed development and its effect on visual amenity.

Visual presence is a somewhat quantitative measure relating to how noticeable or visually dominant the proposal is within a particular view. This is based on a number of aspects beyond simply scale in relation to distance. Some of these include the extent of the view as well as its complexity and the degree of existing contextual movement experienced. The backdrop against which the development is presented and its relationship with other focal points or prominent features within the view is also considered. Visual presence is essentially a measure of the relative visual dominance of the proposal within the available vista and is expressed as such i.e. minimal, sub-dominant, co-dominant, dominant or highly dominant.

It should be noted that as a result of this two-sided analysis, a high order visual presence can be moderated by a low level of effect on visual amenity and vice versa. The magnitude of visual impacts is classified in the following table:-

Criteria	Description
Very High	The proposal intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. A high degree of visual disorder or disharmony is also generated, strongly reducing the visual amenity of the scene.
High	The proposal intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual disorder or disharmony is also likely to be generated, appreciably reducing the visual amenity of the scene.
Medium	The proposal represents a moderate intrusion into the available vista, is a readily noticeable element and/or it may generate a degree of visual disorder or disharmony, thereby reducing the visual amenity of the scene. Alternatively, it may represent a balance of higher and lower order estimates in relation to visual presence and visual amenity.
Low	The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene.
Negligible	The proposal would be barely discernible within the available vista and/or it would not detract from, and may even enhance, the visual amenity of the scene.

Table 9.3: Magnitude of Visual Impact

9.2.3.3 Visual Impact Significance

As stated above, the significance of visual impacts is a function of visual receptor sensitivity and visual impact magnitude. This relationship is expressed in the impact significance matrix at **Figure 9.1**.

9.3 Description of Existing Environment

9.3.1 Landscape Baseline

The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the proposed development will be assessed. This also includes reference to any relevant landscape character appraisals and the current landscape policy context (both are generally contained within County Development Plans).

A description of the landscape context of the proposed development site and wider

study area is provided below under the headings of 'landform and drainage', 'vegetation and land use', 'centres of population', 'transport route's and 'public amenities and facilities' as well as the immediate site context. Additional descriptions of the landscape, as viewed from each of the selected viewpoints, are provided under the detailed assessments later using a similar structure. Although this description forms part of the landscape baseline, many of the landscape elements identified also relate to visual receptors i.e. places and transport routes from which viewers can potentially see the proposed development. The visual resource will be described in greater detail in **Section 9.3.3** below.

Figure 9.2: Aerial photograph showing the landscape context of the site and its immediate surrounds.

9.3.1.1 Landform and Drainage

The landform of the study area is primarily comprised of rolling drumlin hills and ridges (illustrated at **Figure 9.3**) formed during periods of glaciation, the majority of which rise to similar elevations. The site itself gently drains in a southerly direction into a small agricultural drain that merges with the Bunnoe River. The Bunnoe River flows through the southern and eastern portions of the study area and is located just over c. 125m southeast of the proposed development at its nearest point (i.e. proposed end masts). Other notable waterbodies within the study area include Drum Lough located at the southern periphery of the study area c. 1.9km from the proposed development site.

9.3.1.2 Vegetation and Land Use

Vegetation within the study area is relatively uniform comprising of rolling agricultural farmland mainly consisting of good quality pasture. The modest sized fields are often bound by a mix of dense tree lined hedgerows and low-clipped hedgerows. Small blocks of commercial conifer forest are also located in the northern half of the study area, whilst an area of transitional woodland is located along the northern banks of Drum Lough in the southern half of the study area.

Though not yet constructed, it is important to note that the permitted Drumlins Park Wind Farm will soon be a distinctive feature and land use of this landscape setting and this is an important baseline consideration as, in the absence of the permitted wind farm, the proposed development would not be progressed.

Figure 9.3: Aerial photograph showing the landscape context of the wider study area

9.3.2 Landscape Policy Context and Designations

9.3.2.1 Monaghan County Development Plan 2019-2025 – Landscape Character

Section 6.3 of the Monaghan County Development Plan 2019-2025 addresses the landscape in County Monaghan. It states that the *"landscape of Monaghan is different to the more open landscapes encountered elsewhere in the country due to the deposition of drumlins at the end of the last glaciations. The landscape*

vegetation has evolved over centuries due to changes in agricultural practices, settlement patterns and infrastructural development". A number of policies are listed within the development plan relating to Heritage, Conservation and Landscape, some of which relate to the proposed development and are included below:-

HLP 8 To ensure the preservation of the County's landscapes, by having regard to the character, value and sensitivity of the landscape as identified in the County Monaghan Landscape Character Assessment (2008) or any subsequent versions when considering planning applications.

HLP 9 To protect the landscapes and natural environments of the County by ensuring that any new developments in designated sensitive rural landscapes do not detrimentally impact on the character, integrity, distinctiveness or scenic value of the area. Any development which could unduly impact upon such landscapes shall be resisted.

HLP 10 To co-operate with adjoining local authorities north and south of the border, to ensure that the natural environment is maintained in a sustainable manner and to encourage a collaborative and consistent policy approach with adjoining areas on matters of environmental and landscape protection and to identify threats to the integrity of such sites through a transboundary approach.

HLP 11 To contribute towards the protection of County and local level landscape designations from incompatible developments. Proposals for development that have the potential to significantly adversely impact upon these designations shall be accompanied by an assessment of the potential landscape and visual impacts of the proposed development. This shall demonstrate that landscape impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape and the nature of the designation.

HLP 12 Support, as appropriate, any relevant recommendations contained in the National Landscape Strategy for Ireland.

The County Development Plan also identifies 'Areas of Primary Amenity Value' and 'Areas of Secondary Amenity Value' (**Figure 9.3** refers). There are no 'Areas of Primary Amenity Value' or 'Areas of Secondary Amenity' located within the 2km study area. Nevertheless, one 'Area of Secondary Amenity' occurs just outside the eastern boundary of the study area and is 'SA 9 – Annaghmakerring Lake, Woodlands & Environs'.

A Landscape Character Assessment was produced for County Monaghan in 2008 and has been included within the current Monaghan County Development Plan 2019-2025. Within the landscape character assessment, 14 no. different Landscape Character Types (LCT's) and 9 no. Landscape Character Areas (LCA's) are identified. The assessment defines a landscape character types and landscape character areas as;

> *"Landscape Character Types are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different localities throughout any defined area. Nonetheless, where they do occur, they commonly share similar combinations of geology, topography, land cover and historical land use. For example, blanket bog uplands are distinct landscape character types and are recognisable as such whether they occur in Monaghan or other counties."*

"Landscape Character Areas are the unique individual geographical areas in which landscape types occur. They share generic characteristics with other areas of the same type but also have their own particular identity."

The proposed substation development is wholly situated within *'LCT 4 – Farmed Foothills'* (**Figure 9.4** refers). This part of LCT 4 *"presents as a series of closely spaced low hills in which pasture is the main land use. Fields are bounded by hedgerows, many of which are cut of managed to facilitate farming activities. Generally the field pattern is of a small scale….Occasional small crops of commercial forestry are located in this landscape and contrast strongly with clumps of deciduous woodland (beech and oak) and scrub vegetation is also present here. This landscape type contains few permanent loughs although streams and smaller watercourses are present and lower lying areas contain marshy wetland grasses."* A number of forces for change for this landscape type are also identified within the landscape character assessment, however none of these relate to electrical developments/energy infrastructure. LCT 4 transitions to 'LCT 3 – Drumlin Foothills' less than c. 200m south of the proposed development site whilst 'LCT 5 – Farmed Lakelands' is located at the southernmost extent of the 2km study radius.

With regard to the identified LCAs, the proposed development is situated within 'LCA 7 – Ballybay Castleblaney Lakelands' which transitions to 'LCA 5 – Monaghan Drumlin Uplands' c. 800m northwest of the proposed development (**Figure 9.5** refers). As the site is located at the border of two contrasting LCA's, the landscape is likely to possess characteristics from both. A summary of each LCA is provided in **Table 9.4** below.

LCA	*Description*	Condition & Sensitivity
LCA 7 – Ballybay Castleblaney Lakelands	• *"a low lying pastoral landscape which is present as an east west channel located or enclosed between two upland landscapes located to the north and the south. The landscape contains widely spaced drumlin hills…"* • *"This character area contains numerous loughs, the majority of which present as highly scenic landscapes."* • *"Rivers and smaller watercourses extend through this landscape in an east west orientation, the most important of these being the Dromore River which links many of the loughs. Traditional stone bridge crossings feature occasionally on these rivers."* • *"The pastoral landscape pattern comprises small to medium sized fields bounded by hedgerows which vary in form."*	• This is a highly scenic landscape. The farmland is generally in very good condition and the variable drumlin topography and inter drumlin hollows is a key contributing factor to character and high scenic quality. • The Lough and lough shore landscape settings comprising reeds and riparian vegetation are highly scenic and ecologically valuable. These would be highly sensitive to any form of development.

LCA 5 – Monaghan Drumlin Uplands	• *"a farmed upland landscape which is relatively remote, being distant and elevated topographically from major and minor towns or settlements."* • *"landscape pattern is relatively strong and takes the form of cut or managed hedgerows mostly with some hedge trees abounding pastoral fields"* • *"Small watercourses and streams are present albeit flow is very slow and sometimes stagnant."*	• *"Most of this landscape is in good condition. The summit or highest point along the ridgeline is likely to be highly sensitive to development because it is visually exposed for many kilometres."* • *"In general, this landscape would not be regarded as highly scenic and hence, the capacity to accommodate development without undue compromise to the farmed landscape pattern is good."*

Table 9.4: Summary of landscape character areas (LCAs) relevant to the proposed development

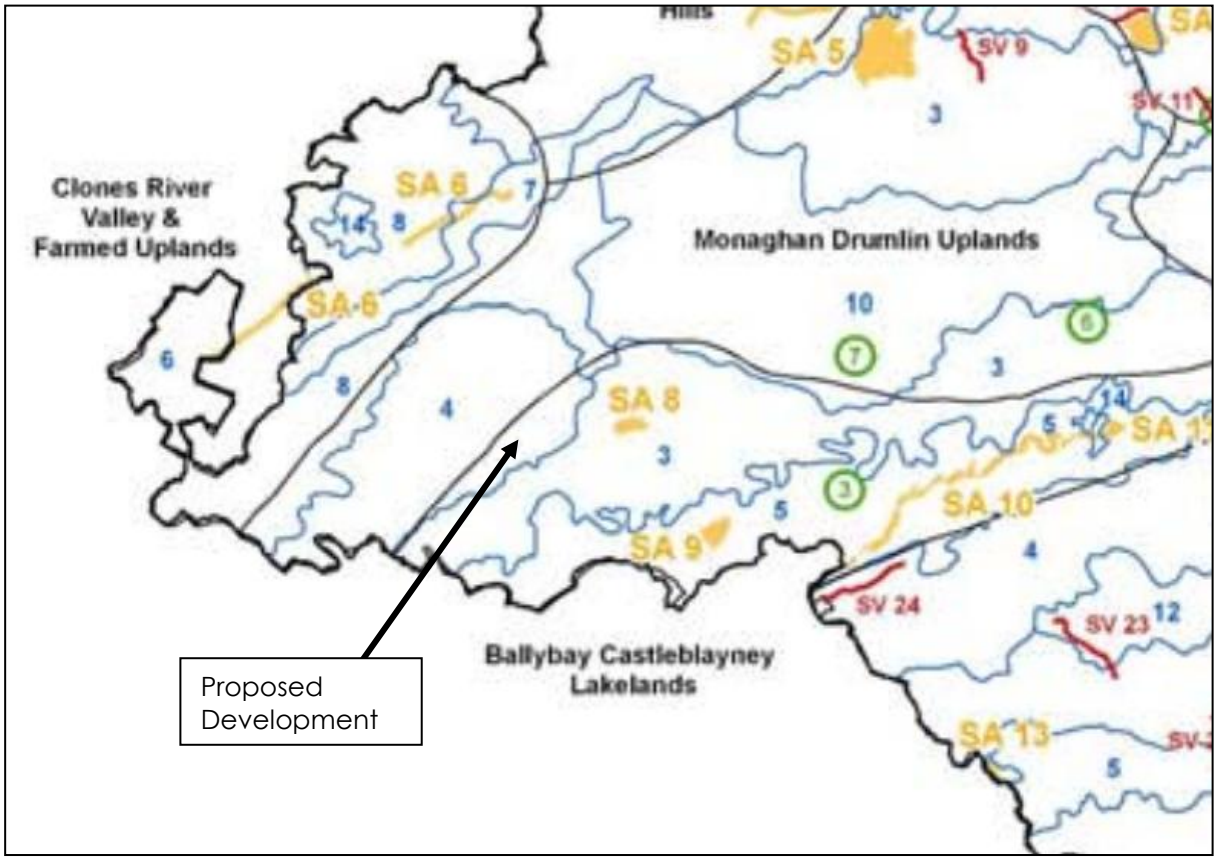

Figure 9.4: Landscape Character Assessment: Figure 5(b) Landscape Designations showing approximate location of site in relation to Areas of Primary & Secondary Amenity.

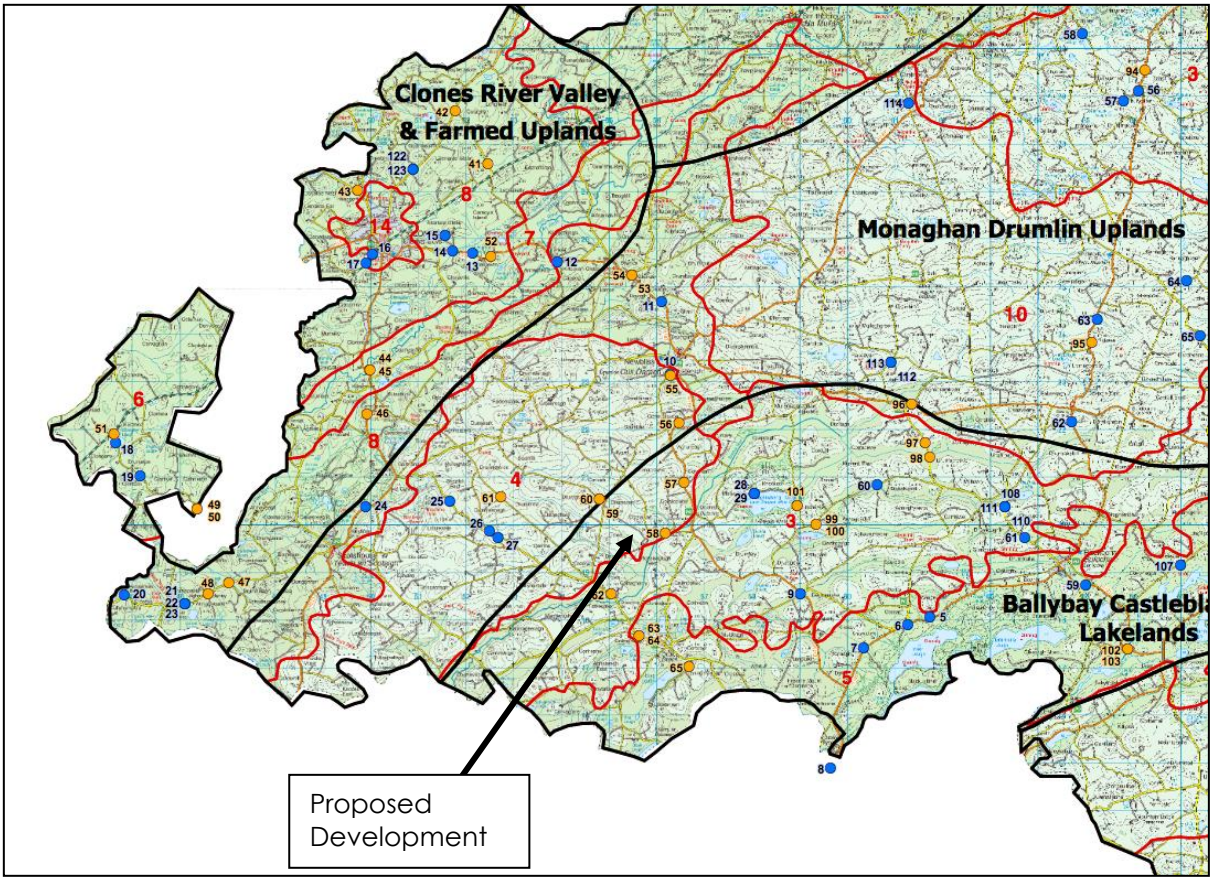

Figure 9.5: Landscape Character Assessment: Location of proposed development in relation to Landscape Character Types (LCTs) and Landscape Character Areas (LCAs)

9.3.3 Visual Baseline

Only those parts of the study area that potentially afford views of the proposed development are of interest to this part of the assessment. Therefore, the first part of the visual baseline is establishing a 'Zone of Theoretical Visibility' and subsequently, identifying important visual receptors from which to base the visual impact assessment.

9.3.3.1 Zone of Theoretical Visibility (ZTV)

A computer generated Zone of Theoretical Visibility (ZTV) map has been prepared to illustrate where the proposed development is potentially visible from. The ZTV map is based solely on terrain data (bare ground visibility) and ignores features such as trees, hedges or buildings which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the proposed substation development will definitely not be visible, due to terrain screening, within the 2km study area.

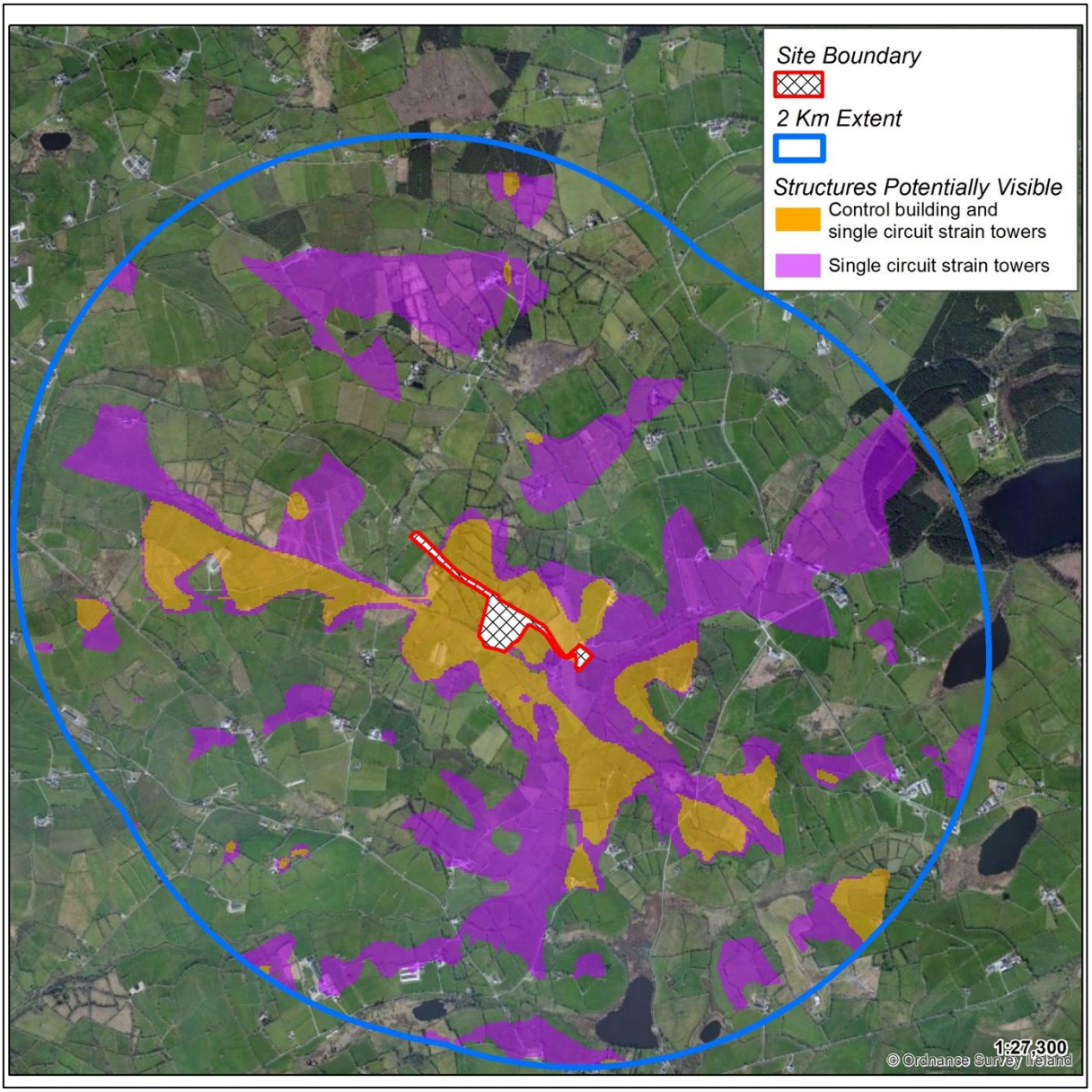

Figure 9.6: Bare-ground Zone of Theoretically Visibility (ZTV) Map. (See Volume II, Annex 9.1 for larger scale map)

It should be noted that the colouring system used in the above ZTV relates to the degree of visibility of the proposed development based on a 'bare-ground' scenario (Orange = control building and end masts are both theoretically visible; Magenta = only the end masts are theoretically visible). Where there is no colour pattern, visibility of the proposed development is not afforded. The following key points are illustrated by the 'bare-ground' ZTV map (**Figure 9.6** refers):-

- Whilst the proposed end masts are theoretically visible throughout a notable extent of the study area, visibility of the proposed substation will be relatively limited to its immediate surrounds;
- A splay of visibility of the both the proposed end masts and substation occurs in a general northwest by southeast direction as a result of a small valley formation in the surrounding terrain;
- Up to half of the study area will afford no view of the proposed development; and

- A large proportion of the theoretical visibility occurs along elevated sections of the drumlin landscape. Much of the lower inter drumlin hollows, which are typically the locations of residential dwellings and encompass much of the surrounding local road network, will afford no visibility of the proposed development.

9.3.3.2 Views of Recognised Scenic Value

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

The current Monaghan County Development Plan includes Map 6.1 which identifies scenic routes within the county. While there are a number of designated views identified, none of these are located within the 2km radius study area.

9.3.3.3 Centres of Population and Houses

Whilst there are no settlements within the study area, the small village of Drum is located along a locally elevated ridge just over 2km south of the proposed development at its nearest point and the settlement of Newbliss is situated over 3.5km northeast of the proposed development site. The nearest residential dwellings are located along the local road network to the south-east and east of the proposed development. In general, the study area is relatively sparsely populated with only occasional linear clusters of residential dwellings and small farmsteads located along the local roads that criss-cross the study area.

9.3.3.4 Transport Routes

The most notable transport route is the R189 regional road which traverses the eastern half of the study area and is just over 900m from the proposed development at its nearest point. Aside from this, the study area comprises of a network of local roads and laneways that meander through the rolling drumlin landscape.

9.3.3.5 Tourism, Recreational and Heritage Features

There are no public amenities or facilities of note within the 2km study area.

9.3.4 Identification of Viewshed Reference Points as a Basis for Assessment

The results of the ZTV analysis provide a basis for the selection of Viewshed Reference Points (VRPs/VPs), which are the locations used to study the landscape and visual impact of the proposed development in detail. It is not warranted to include each and every location that provides a view of this development as this would result in an unwieldy report and make it extremely difficult to draw out the key impacts arising from the project. Instead, receptor locations were selected that are likely to provide views of the proposed development from different distances, different angles and different contexts.

The visual impact of a proposed development is assessed using up to 6 no. categories of receptor type as listed below:

- Key Views (from features of national or international importance);
- Designated Scenic Routes and Views;
- Local Community views;
- Centres of Population;
- Major Routes; and

- Amenity and heritage features.

Where a VRP might have been initially selected for more than one reason, it will be assessed according to the primary criterion for which it was chosen. The characteristics of each receptor type vary as does the way in which the view is experienced. These are described below.

9.3.4.1 Key Views

These VRPs are at features or locations that are significant at the national or even international level, typically in terms of heritage, recreation or tourism. They are locations that attract a significant number of viewers who are likely to be in a reflective or recreational frame of mind, possibly increasing their appreciation of the landscape around them. The location of this receptor type is usually quite specific.

9.3.4.2 Designated Scenic Routes and Views

Due to their identification in the County Development Plan, this type of VRP location represents a general policy consensus on locations of high scenic value within the Study Area. These are commonly elevated, long distance, panoramic views and may or may not be mapped from precise locations. They are more likely to be experienced by static viewers who seek out or stop to take in such vistas.

9.3.4.3 Local Community Views

This type of VRP represents those people who live and/or work in the locality of the proposed development. Although the VRPs are generally located on local level roads, they also represent similar views that may be available from adjacent houses. The precise location of this VRP type is not critical; however, clear elevated views are preferred, particularly when closely associated with a cluster of houses and representing their primary views. Coverage of a range of viewing angles using several VRPs is necessary in order to sample the spectrum of views that would be available from surrounding dwellings.

9.3.4.4 Centres of Population

VRPs are selected at centres of population primarily due to the number of viewers that are likely to experience that view. The relevance of the settlement is based on the significance of its size in terms of the study area or its proximity to the site. The VRP may be selected from any location within the public domain that provides a clear view either within the settlement or in close proximity to it.

9.3.4.5 Major Routes

These include national and regional level roads and rail lines and are relevant VRP locations due to the number of viewers potentially impacted by the proposed development. The precise location of this category of VRP is not critical and might be chosen anywhere along the route that provides clear views towards the proposal site, but with a preference towards close and/or elevated views. Major routes typically provide views experienced whilst in motion and these may be fleeting and intermittent depending on screening by intervening vegetation or buildings.

9.3.4.6 Tourism, Recreational and Heritage Features

These views are often one and the same given that heritage locations can be important tourist and visitor destinations and amenity areas or walking routes are commonly designed to incorporate heritage features. Such locations or routes tend to be sensitive to development within the landscape as viewers are likely to be in a

receptive frame of mind with respect to the landscape around them. The sensitivity of this type of visual receptor is strongly related to the number of visitors they might attract and, in the case of heritage features, whether these are discerning experts or lay tourists. Sensitivity is also heavily influenced by the experience of the viewer at a heritage site as distinct from simply the view of it. This is a complex phenomenon that is likely to be different for every site.

Experiential considerations might relate to the sequential approach to a castle from the car park or the view from a hilltop monument reached after a demanding climb. It might also relate to the influence of contemporary features within a key view and whether these detract from a sense of past times. It must also be noted that the sensitivity rating attributed to a heritage feature for the purposes of a landscape and visual assessment is not synonymous with its importance to the Archaeological or Architectural Heritage record.

The VRPs selected in this instance are set out in **Table 9.5** and their location illustrated at **Figure 9.7** below.

VRP No.	Location	Distance to Proposed Development	Direction of view
VP1	Local road at Lislea	0.33km	E
VP2	Local road at Cornawall	0.0km	W
VP3	Local road intersection at Cornawall	0.01km	SW
VP4	R189 at Doohat	0.88km	W
VP5	Local road at Drumborisk	0.99km	NW
VP6	Local road at Drum	2.24km	N

Table 9.5: Outline description of selected Viewshed Reference Points (VRPs)

Figure 9.7: Map of Viewshed Reference Points (VRPs)

9.4 Description of Likely Effects

9.4.1 Landscape Impacts

Landscape impacts are assessed on the basis of landscape sensitivity weighed against the magnitude of physical landscape effects within the proposed development site and effects on landscape character in the wider study area.

9.4.1.1 Landscape Character, Value and Sensitivity

The landscape of the proposed development site and its immediate surrounds is that of a low rolling drumlin landscape interspersed with small loughs and streams. The predominant land use here is that of pastoral farmland comprising of small to medium sized geometric fields. These agricultural fields are often bound by dense and managed hedgerows, which, in combination with the rolling terrain, serve to restrict visual catchments, especially from low points in the terrain. This is a highly productive rural landscape, which is reflected in the numerous farmsteads and local rural/industrial facilities situated within the surrounding area. The productive qualities of this landscape setting will also be reinforced by the addition of wind turbines from

the permitted Drumlins Park Wind Farm. Rather than replace existing farming practices, the wind farm will co-exist as a supplementary layer of productivity predominantly above the existing ground plain land uses. Notwithstanding its utilitarian values, the receiving landscape has a strong degree of integrity with few untidy, unused or fallow areas.

A dispersed rural population of small linear clusters of dwellings and farmsteads also exists within the study area and is situated along the network of criss-crossing local roads that weave through the rolling drumlin hills. The nearest settlement to the proposed development is that of Drum, which is perched along a locally elevated drumlin hill immediately south of Drum Lough and just over 2km south of the proposed development site. The larger village of Newbliss is similarly situated outside of the study area just over 3.5km northeast of the site. Landscape values for the modest population settled in this area are likely to relate as much to subsistence of the rural economy and farming lifestyle as to scenic or naturalistic landscape values.

There are no scenic designations situated within the study area, however, that is not to say that no scenic quality exists here. Instead scenic quality within the study areas tends to relate to enclosed localised views of rolling drumlin hills and small loughs which present a traditional pastoral aesthetic. Furthermore, there is no notable aspect of amenity value within the study area. Instead, the value of the surrounding landscape typically relates to its productive rural uses, rather than any susceptible scenic, naturalistic or recreational values. This is further reflected within the current County Development Plan where there are no primary or secondary amenity areas located within the study area.

Nonetheless, the study area comprises two landscape character areas; 'LCA 5 – Monaghan Drumlin Uplands' and 'LCA 7 – Ballybay-Castleblaney Lakelands', both of which have contrasting values and sensitivities. The site itself is wholly contained within LCA 7 although its border with LCA 5 is located only c. 800m northwest of the site, and therefore the landscape of the site and its immediate surrounds could be described as an area of transition. Whilst both LCAs comprise of their own localised sensitivities, LCA 7 is noted as a "*highly scenic landscape*" and "*would be highly sensitive to any form of development.*

Overall, the landscape of the study area is a robust and productive one where values tend to relate to rural productivity and subsistence for the local population, as opposed to any sensitive scenic or naturalistic values. On balance, it is considered that the landscape in the immediate context of the proposed development site is of a **Medium-low** landscape sensitivity[1].

9.4.1.2 Magnitude of Landscape Impacts – Construction Phase

Physical landscape impacts will occur during the construction phase at the proposed development site. This will result from disturbance to the landform and land cover of the proposed substation footprint, associated access track and site entrances, underground cable trenching and construction of the proposed end masts.

[1] It is acknowledged that the landscape sensitivity judgement for the central study area (c. 5km radius) of the Drumlins Park Wind Farm Landscape assessment (see **Volume II**, **Chapter 9**) (also completed by Macro Works) was deemed to be Medium. However, it is considered that the more enclosed and homogenous farmland setting of the current study area (2km radius) is inherently less sensitive than the wider context, which also contains the likes of loughs and demesne landscapes. Sensitivity is also relative to the scale and nature of the development type and any landscape is likely to more inherently sensitive to a wind farm development than a much smaller scale development such as that currently proposed.

The site of the proposed substation is gently sloping towards the south and, as a result, extensive earthworks will not be required. It is proposed to adopt a cut/fill approach whereby topsoil and subsoil will be removed (at higher elevations) while suitable aggregates will be imported to increase the levels of the lower elevations. Whilst substantial levels of spoil are not expected, any excess spoil that is generated will be utilised insofar as possible in the reinstatement of trenches/foundations and in the landscaping of the proposed development. Earthworks will also be required to facilitate the installation of the underground electricity line and the foundations of the proposed end masts. The scale of these earthworks will be substantially less than those of the proposed substation and will not result in any perceptible alteration to the existing landform.

The existing land cover at the proposed development site is predominantly pasture. Short sections of hedgerow vegetation and a number of semi-mature trees that cut through the proposed substation site will be removed to facilitate the full footprint of the proposed development.

In addition to the physical disturbance of the landform and land cover within the proposed development site during construction, there will also be temporary effects on the landscape character of the site and its immediate surrounding landscape. This will occur due to the intensity of construction activities, which will involve the frequent movement of construction vehicles to and from the site and within the site. There will be site welfare facilities and vehicle parking as well as areas of the site dedicated to the storage of excavated earth and building materials. Cranes and partially completed structures will also be characteristic elements of the construction phase which will be more visible from a broader area than surface level construction activities. There is potential for construction phase works to temporarily impact on landscape character. This will result from the movement of heavy machinery, excavation and stockpiling of material as well as the temporary storage of construction materials. Such effects are likely to be most noticeable in the immediate vicinity of the proposed development.

These are all typical construction phase activities for a development of this scale but they represent a noticeable increase in the baseline levels of activity experienced in this rural setting. Most importantly, construction stage effects will be short-term in terms of duration (EPA guidance deems effects of between 1-7 years to be short-term). On the basis of the factors discussed above, it is considered that the magnitude of construction phase landscape impacts will be **Medium**.

9.4.1.3 Significance of Landscape Impacts – Construction Phase

The significance of landscape impacts is a function of landscape sensitivity weighed against the magnitude of landscape impact. This is derived from the significance matrix (**Figure 9.1**) used in combination with professional judgement. Based on a Medium-low sensitivity judgement and a Medium magnitude of landscape impact, the significance of impact is considered to be **Moderate-slight** within the immediate context of the site (c. 500m). Thereafter, significance will reduce to Slight and Imperceptible at increasing distances as construction activities become screened from view and vehicle movements become more dispersed.

9.4.1.4 Magnitude of Landscape Impacts – Operational Phase

Following completion of the construction phase for the proposed development, the main landscape effects remaining to be considered at the operational phase relate to permanent changes in landscape character regarding the physical impact on

the landscape, the introduction of above-ground elements and any permanent removal of vegetation.

The main effect of the proposed development will be an increased sense of industrialisation and intensity of built development within this predominantly rural setting. It will also contribute to the diversity of land use, slightly diminishing the integrity of this substantially tranquil rural landscape setting. Electrical substations and associated electrical equipment (incl. end masts) are relatively familiar features throughout the Irish countryside so there will not be a sense of ambiguity associated with its location in this setting, particularly in the context of the permitted Drumlins Park Wind Farm to which the proposed development is directly and overtly related. Any effects will also be heavily diluted by the fact that the proposed development is located in an area that avails of a considerable degree of vegetative screening. Whilst the proposed end masts will be more visually exposed than the proposed substation compound, their thin lattice structures are familiar features within the rural Ireland and will not appear out of place in this robust rural landscape context.

As proposed mitigation planting becomes established around the perimeter of the proposed substation, it will assist in screening the bulkier low level or near ground infrastructure and activity associated with the proposed development. It will also assist in assimilating the substation into it the surrounding landscape setting of fields and dense hedgerow vegetation.

The scale and intensity of the proposed development will have a noticeable influence on the landscape of the immediate surrounds of the site; however, such effects will be extremely localised and beyond approximately 500m from both the main substation compound and the proposed end masts, the development likely be perceived as another minor and fairly typical element in the broader context of this rural landscape fabric.

In terms of duration, the operational stage landscape impacts will be long term or permanent in accordance with EPA definitions.

On balance of the factors outlined above, the magnitude of operational phase landscape effect arising from the proposed development is deemed to be **Medium-low** in the immediate context of the site reducing to Slight and Imperceptible beyond c. 500m.

9.4.1.5 Significance of Landscape Impacts – Operational Phase

The significance of operational phase landscape impact is a function of landscape sensitivity weighed against the magnitude of operational phase landscape effects. This is derived from the significance matrix (**Figure 9.1**) used in combination with professional judgement. Based on a Medium-low sensitivity judgement and a Medium-low magnitude of operational phase landscape effects, the significance of impact is considered to be **Moderate-slight**. Thereafter, the significance will reduce to Slight and Imperceptible at increasing distances as the development becomes a progressively smaller component of the wider landscape fabric.

9.4.1.6 Landscape Impacts – Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning is not proposed. Therefore, decommissioning phase effects will not occur.

9.4.2 Visual Impacts

The likelihood of visual impacts was considered for the construction phase, the operational phase and the decommissioning phase. The first aspect in determining the significance of visual impacts is establishing the sensitivity of each of the selected viewshed reference points.

9.4.2.1 Visual Receptor Sensitivity

Unlike landscape sensitivity, visual sensitivity has an anthropocentric basis. Visual sensitivity is a two-sided analysis of receptor susceptibility (people or groups of people) versus the value of the view on offer at a particular location.

To assess the susceptibility of viewers and the amenity value of views, the assessor uses a range of criteria and provides a four point weighting scale to indicate how strongly the viewer/view is associated with each of the criterion identified in **Section 9.2.3.2** above.

Strong association	Moderate association	Mild association			Negligible association		
Values associated with the view		**VP1**	**VP2**	**VP3**	**VP4**	**VP5**	**VP6**
Susceptibility of viewers to changes in views							
Recognised scenic value of the view							
Views from within highly sensitive landscape areas							
Primary views from residences							
Intensity of use, popularity (number of viewers)							
Viewer connection with the landscape							
Provision of vast, elevated panoramic views							
Sense of remoteness / tranquillity at the viewing location							
Degree of perceived naturalness							
Presence of striking or noteworthy features							
Sense of Historical, cultural and / or spiritual significance							
Rarity or uniqueness of the view							
Integrity of the landscape character within the view							
Sense of place at the viewing location							
Sense of awe							

Overall sensitivity assessment	**ML**	**ML**	**ML**	**ML**	**ML**	**M**

Table 9.6: Analysis of Visual Receptor Sensitivity at Viewshed Reference Points

9.4.2.2 Magnitude of Visual Impact – Construction Phase

It is not considered gainful to assess construction phase visual impacts from specific receptor locations using photomontages, which is instead reserved for the operational phase of the proposed development in relation to both pre-mitigation and residual (post-mitigation establishment) impact scenarios. This approach is partly on the basis that construction phase visual effects are constantly changing in nature, intensity and location. Furthermore, many construction related visual effects such as dust, lighting and heavy vehicle movements are also not easily depicted or readily experienced through the use of static photomontages. Furthermore, a more generalised approach to assessing construction phase visual impacts is also warranted on the basis that such effects are only short-term or temporary in nature.

Construction phase visual effects will occur in relation to the proposed development throughout the predicted 15-18 month construction period. Visual receptors most likely to be affected by the proposed development during construction phase are the residents of the nearest dwellings to the south-east of the proposed substation.

The greatest level of construction phase visual effects for these receptors will likely occur when the proposed end masts have emerged and construction vehicles and associated traffic is moving within as well as to and from the site.

Construction related visual effects from the proposed development will be short-term in duration and their combined magnitude of effect is considered to be similar to the construction stage effects on landscape character, i.e. **Medium**, and only for the closest of receptors with the clearest views towards the site.

9.4.2.3 Significance of Visual Impacts – Construction Phase

Despite the fact that there are a variety of receptors with differing sensitivities (medium-low to high-medium) within the study area as shown in **Table 9.6**, it is not anticipated that the Medium magnitude of construction effects will result in any significant construction phase visual impacts as a result of any part of the proposed development.

9.4.2.4 Magnitude of Visual Impacts at Viewshed Reference Points – Operational Phase

Each of the identified VRPs will be assessed to determine the magnitude of effect of visual impacts during the operational phase. This judgement, based on the photomontages presented at **Volume II**, **Annex 9.2**, will be considered with respect to the sensitivity of the receptor, as determined in **Error! Reference source not found.6**, to yield a judgement on the significance of visual impact.

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

- Existing view[2];
- Outline view (yellow outline showing the extent of the development overlaid on the photograph);
- Montage view pre-mitigation establishment; and
- Montage view with mitigation established.

[2] Although not yet constructed, wind turbines associated with the permitted Drumlins Park Wind Farm are included within the baseline descriptions of each of the viewshed reference points as they represent the likely imminent baseline scenario. Both the proposed development and permitted turbines are interdependent, and therefore, it is not expected that either development would be constructed without the other. As a result, the proposed development is assessed with the expectation that the permitted turbines will be constructed, and thus, they are included within each of the 'existing view' descriptions below.

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP1	Local road at Lislea west of site	E	0.33km

Representative of:	• Local community views		
Receptor Sensitivity	**Medium-low**		
Existing View	This is a contained view from a local road laneway in the townland of Lislea. In the foreground, the view extends through a gap in the roadside hedgerow towards a relatively flat open field contained in scrubby grassland. Just beyond the foreground context of the view, the terrain swiftly rises from the low drumlin hollow and is contained in agricultural fields and dense mature tree-lined hedgerows, which in combination with the rolling terrain, contains this view at a near distance. One of the permitted wind turbines is clearly visible at a relatively large scale from here rising just above the foreground hedgerow atop of the rolling drumlin hill.		
Visual Impact of the proposed development (pre-mitigation)	The proposed development will not be visible from here due to the dense intervening hedgerow vegetation. The magnitude of visual impact is **Negligible** by default.		
Visual Impact of the proposed development (post-mitigation)	The proposed mitigation planting will not be visible from here, and as a result, the magnitude of visual impact will remain at **Negligible.**		
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.		
	Visual Receptor Sensitivity	**Visual Impact Magnitude**	**Significance of Visual Impact**
Pre-mitigation	Medium-low	Negligible	**Imperceptible**
Post-mitigation	Medium-low	Negligible	**Imperceptible**

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP2	Local road at Cornawall east of site	W & SE	0.0km
Representative of:	• Local community views		
Receptor Sensitivity	**Medium-low**		
Existing View	This is a partially contained view from a local road laneway in the townland of Cornawall immediately east of the proposed electricity substation. The depicted easterly view looks across a low hedgerow in the foreground towards an area of relatively flat terrain surrounded by low rolling drumlin hills. A dense hedgerow backed by layers of intervening vegetation beyond partially contains the view at a middle distance, whilst a view towards a rolling drumlin hill topped with dense hedgerow vegetation is afforded further to the east again. Up to 3 of the permitted wind turbines will also be clearly visible rotating above the vegetated skyline in the background of the view. The southerly depicted view looks back along the local road corridor and across the neighbouring pastoral fields which are bound by low clipped hedgerows interspersed with mature trees. This aspect of the view is contained at a near distance by a combination of the rolling terrain and layers of intervening vegetation.		
Visual Impact of the proposed development (pre-mitigation)	The proposed substation compound will be visible here in the near distance in combination with the permitted wind turbines, and will occupy the relatively flat inter drumlin hollow. The substation presents with a sizable horizontal extent from this near distance and will be viewed backed by the dense layers of vegetation beyond without notably breaking the skyline, aside from the proposed lightning mast. Whilst the proposed substation compound is located in a relatively discrete area within the surrounding landscape context, from this short distance, the proposed development will have a dominant visual presence. To the southeast, in the opposite direction to the proposed substation, only a very minor glimpse of the proposed end masts will be theoretically visible from here and will unlikely be discernible to the casual observer. The addition of the proposed substation compound in combination with the permitted turbines will represent a notable shift from the remote rural character of this view and will considerably increase the intensity of built development within the afforded vista. The proposed control building will appear similar to a single storey residential dwelling whilst the considerable number of steel towers and cables will generate a sense of visual clutter and disharmony. The proposed energy storage containers are partially visible adjacent to the site entrance. The proposed development is viewed backed by the dense layers of intervening vegetation which helps to soften and anchor the appearance of this highly anthropogenic development within the scene. Nevertheless, the proposed substation will introduce a new and unfamiliar form of land use into area that currently presents with a sense of rural tranquillity, and thus, the magnitude of visual impact is deemed to be **High-Medium.**		

Visual impacts of the proposed development (post-mitigation)	Whilst the proposed mitigation planting will not entirely screen the proposed development from this view, it will help to assimilate the substation compound into its immediate landscape context. The proposed hedgerows will screen much of the bulkier ground hugging elements within the site and will partially screen the strongly utilitarian palisade fencing. Overall, the proposed mitigation will aid in softening the appearance of the substation, and consequently, the magnitude of visual impact is considered to reduce to **Medium**.		
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.		
	Visual Receptor Sensitivity	**Visual Impact Magnitude**	**Significance of Visual Impact**
Pre-mitigation	Medium-low	High-medium	**Moderate**
Post-mitigation	Medium-low	Medium	**Moderate-slight**

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP3	Local road intersection at Cornawall east of site	SW	0.01km

Representative of:	• Local community views
Receptor Sensitivity	**Medium-low**
Existing View	This is a view from the intersection of two local roads in the townland of Cornawall. In the foreground, the view extends over a grassed area that contains a mobile home and is enclosed by a timber post and rail fence. Beyond this, the view extends across a sloping pastoral field intersected by overhead electricity cables and is bound by low hedgerow vegetation. As the terrain descends downhill, the view opens up across a collection of distant folding drumlin hills contained in pastoral farmland and layers of hedgerow vegetation. Two of the permitted turbines will be partially visible in the northern aspect of this view at a distance of just over 1.5km.
Visual Impact of the proposed development (pre-mitigation)	Whilst the proposed substation will not be visible from here, the two proposed end masts will be clearly visible at a distance of c.50m. The proposed end mast will replace the existing timber pylons and will have notably larger visual mass and complexity than the previous timber pole structures, even though the proposed structures will have a similar overall height. Consequently, the visual presence of the proposed end masts is deemed to be of co-dominant. Whilst the proposed end masts will be a relatively prominent feature from this near distance, their lattice structure will allow for some visual permeability where they are viewed partially backed by the rolling landscape beyond. The proposed structures will not present here in a spatially overbearing manner, nor will they appear incongruous in this robust working landscape that currently encompasses existing overhead electricity cables. Nevertheless, the two structures in combination with the permitted wind turbines will represent a notable increase in the intensity of built development within this view, and consequently, the magnitude of visual impact is deemed to be **Medium-low**.
Visual Impact of the proposed development (post-mitigation)	There is no mitigation planting proposed in the immediate surrounds of the proposed end masts. As a result, the magnitude of visual impact will remain at **Medium-low**.
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.

	Visual Receptor Sensitivity	Visual Impact Magnitude	Significance of Visual Impact
Pre-mitigation	Medium-low	Medium-low	**Moderate-slight**
Post-mitigation	Medium-low	Medium-low	**Moderate-slight**

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP4	R189 at Doohat east of site	W	0.88km

Representative of:	• Major route • Local community views		
Receptor Sensitivity	**Medium-low**		
Existing View	This is a view from the R189 regional road in the townland of Doohat east of the proposal site. The view extends across the regional road corridor in the foreground and looks towards its intersection with the L63102 local road which is lined by a corridor of mature trees. A filtered view extends beyond the regional road context towards a rolling landscape of pastoral farmland interspersed with areas of mature vegetation. A number of large farm buildings, a residential dwelling and several of the permitted wind turbines are also visible along the distant ridgeline which contains the view.		
Visual Impact of the proposed development (pre-mitigation)	Neither the proposed end masts nor the proposed substation will be visible from this location, and therefore, the magnitude of visual impact is **Negligible** by default.		
Visual Impact of the proposed development (post-mitigation)	The proposed mitigation planting will not be visible from here, and as a result, the magnitude of visual impact will remain at **Negligible.**		
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.		
	Visual Receptor Sensitivity	**Visual Impact Magnitude**	**Significance of Visual Impact**
Pre-mitigation	Medium-low	Negligible	**Negligible**
Post-mitigation	Medium-low	Negligible	**Negligible**

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP5	Local road at Drumborisk southeast of site	NW	0.91km

Representative of:	• Local community views
Receptor Sensitivity	**Medium-low**
Existing View	This is a relatively contained view from a local road in the townland of Drumborisk south east of the proposal site. The view looks across a low clipped hedgerow which lines the local road corridor in the foreground of the view. The neighbouring narrow pastoral field is bound by a low hedgerow which partially screens the following landscape context. Overtop of the nearest layers of hedgerow vegetation, a view is afforded towards the folding distant landscape which is similarly cloaked in layers of intervening hedgerow vegetation that contain the view. Up to five of the permitted wind turbines are visible here at a notable scale in the background of the view.
Visual Impact of the proposed development (pre-mitigation)	A partial glimpse of the proposed end masts will be theoretically visible from here through the layers of intervening hedgerow vegetation. Nevertheless, their lattice structure allow for visual permeability through the proposed ends masts and helps them to visually blend with the surrounding vegetation, so much so, that they will be barely discernible from here. Whilst the proposed end masts may slightly increase the intensity of development if observed from here, the proposed structures will not appear incongruous in this robust working landscape that already comprises of overhead electricity cables and a permitted wind farm development. On balance, the proposed development will have a minimal visual presence from here, and therefore, the magnitude of visual impact is deemed to be **Negligible.**
Visual Impact of the proposed development (post-mitigation)	The proposed mitigation planting will not be visible from here, and as a result, the magnitude of visual impact will remain at **Negligible.**
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.

	Visual Receptor Sensitivity	Visual Impact Magnitude	Significance of Visual Impact
Pre-mitigation	Medium-low	Negligible	**Imperceptible**
Post-mitigation	Medium-low	Negligible	**Imperceptible**

Viewshed Reference Point		Direction of View	Distance to Proposed Development
VP6	Local road at Drum south of site	N	2.24km
Representative of:	• Centre of population		
Receptor Sensitivity	**Medium**		
Existing View	This is a locally elevated view from the western outskirts of the small settlement of Drum. It takes in a broad vista of low rolling drumlin hills carpeted in pastoral fields defined by mature tree line hedgerows. The dense nature of these hedgerows partially screens many of the fields as it becomes stacked in perspective throughout the middle ground of the view. Several rural dwellings are scatted along the hillsides and lower portions of the rolling drumlin hills throughout the view. One of the most notable aspects of the view is the permitted wind turbines which will be clearly visible rotating above the drumlin landscape in the background of the view.		
Visual Impact of the proposed development (pre-mitigation)	The proposed substation and end masts will not be visible from here due to the layers of dense intervening hedgerows throughout the view. Thus, the magnitude of visual impact is **Negligible** by default.		
Visual Impact of the proposed development (post-mitigation)	The proposed mitigation planting will not be visible from here, and as a result, the magnitude of visual impact will remain at **Negligible.**		
Summary	Based on the assessment criteria and matrices outlined above, the significance of visual impact is summarised below.		
	Visual Receptor Sensitivity	**Visual Impact Magnitude**	**Significance of Visual Impact**
Pre-mitigation	Medium	Negligible	**Imperceptible**
Post-mitigation	Medium	Negligible	**Imperceptible**

9.4.2.5 Visual Impacts – Decommissioning Stage

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

9.4.3 Cumulative and Transboundary Effects

In order to fully assess the likelihood for cumulative impacts to arise, all existing, permitted and proposed developments within the study area were assessed for the likelihood of resulting in cumulative effects. As set out above, the vast majority of developments within the study area are rural dwellings and agricultural development which are small scale, do not extend over large areas and, typically,

do not comprise tall structures. Given the characteristic of the existing landscape, it is considered that there is no likelihood for the proposed development acting in combination with any of these development types.

The main likelihood for cumulative effects to arise in combination with the proposed development is with the permitted Drumlins Park Wind Farm and the existing Lisdrum-Shankill 110kV overhead electricity line). Each of these developments are interrelated and occur in the immediate vicinity of the proposed development site.

With regard to cumulative visual impacts, the photomontages enclosed at **Volume II**, **Annex 9.2** depict the cumulative scenario of the proposed development and the permitted wind farm. Cumulative visual effects with the permitted Drumlins Park Wind Farm are assessed in respect of each of the viewpoints outlined in **Section 9.4.2.2** above. This also informs the closely related assessment of cumulative landscape impacts, particularly those relating to in-combination effects on the overall landscape character of the study area. The assessment below, therefore, relates to both cumulative visual effects and cumulative landscape effects. It is also important to note that the proposed development was assessed in principle as one of three grid connections options for the permitted wind farm project as both developments are interconnected.

The permitted wind turbines will only be visible in combination with the proposed development from VP2, VP3 and VP5. Whilst neither the permitted or proposed developments will appear out of place in this robust rural landscape context, their cumulative impact will result in an increase in the intensity of built development within the immediate surrounds of the proposed development. However, as both the proposed and permitted developments are interrelated, the proposed development will likely be read as a component of the overall wind farm development, and will almost always appear in the same context as the permitted wind farm. The discrete and heavily contained location of the proposed electricity substation also notably decreases the likelihood of significant cumulative effects to occur between both developments.

Overall, it is considered that the proposed development will be well screened even in its immediate context and will contribute an additional cumulative effect that is in the order of **Low-Negligible.** Similarly, due to the topography of the surrounding landscape and the presence of mature vegetation, there is no likelihood of significant visual effects on any receptor located within Northern Ireland.

9.5 Mitigation Measures

The main mitigation measure employed in this instance is mitigation by avoidance. As part of the design process, detailed consideration was given to the appropriate siting of the proposed development to ensure that it would be located in a robust rural area capable of absorbing it and where it would not be prominent within the surrounding landscape. The overall site design also sought to maximise, to the greatest possible degree, the retention of existing hedgerows within and bordering the site to aid visual screening and to maintain the existing field pattern.

In addition, planting is proposed around the perimeter of the proposed development. However, it should be noted that while will have a limited effect in screening the proposed development; it will assist in assimilating the development within the surrounding landscape and maintaining field patterns through the provision of additional hedgerow.

9.5.1 Construction Phase

Aside from standard practice construction stage measures to minimise land and vegetation disturbance (such as clearly delineating the works area) and dust emissions (through damping down of access tracks if necessary), there are no specific landscape & visual mitigation measures to be implemented. The appropriate management and reinstatement of shallow excavations, in a timely manner, will ensure that any adverse effects caused, for example at the proposed site entrance, are minimised insofar as possible.

Similarly, the progressive reinstatement and landscaping of the site will remediate any short term adverse effects on the local landscape. As part of the reinstatement and landscaping process, replanting of hedgerows will also be completed at the site entrance. This planting will be located sufficiently behind the visibility splay to allow for future growth and will ensure that extensive views of the proposed development are not afforded from the local road.

9.5.2 Operational Phase

Any vegetation which is not required to be removed to facilitate the full footprint of the proposed development will be retained and avoided insofar as possible during construction. In terms of planting, the following is proposed:-

- New hedgerows (Hedgerow Type 2) are proposed to be planted around the perimeter of the substation compound as per **Annex 9.3**. Any hedgerows that are to be removed to facilitate sightlines will also be replaced as per Hedgerow Type 2. Any areas of existing hedgerow that are retained around the sites perimeter will also be bolstered as per hedgerow type 1 with additional whip planting and advanced nursery stock (where necessary). Species mix is to be finalised in conjunction with the project ecologist and will be of local provenance. A total of c. 50 linear meters of hedgerow type 1 is proposed, whilst a total of c. 530 linear meters of new hedgerow type 2 is proposed;
- A low-canopy woodland planting mix (c. 0.16ha) is proposed along the northern boundary of the proposed substation compound. This woodland mix will be provided in the form of high canopy (dominants) species, low canopy (sub-dominant) species, understory and fringe (higher shrubs) species and understory and edge (lower shrub) species, and will comprise of a mix of advanced nursery stock and whip planting. The proposed planting will be allowed to grow out to reach maturity and will provide a consistent dense band of screening along the northern boundary of the site; and
- It is intended to manage and maintain proposed hedgerows at c. 3m in height and the proposed woodland planting at c. 10m in height.

Areas of ground disturbed during the construction phase will be reseeded with suitable grass mix of local provenance.

These proposed mitigation measures are illustrated on the Landscape Plan, enclosed at **Volume II**, **Annex 9.3**.

9.5.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

9.6 Residual Impacts and Monitoring

9.6.1 Residual Landscape Impacts

Whilst mitigation screen planting and replacement planting will help assimilate the proposed development within the landscape setting, it is not considered that the macro level effects on landscape character and landscape fabric will be noticeably reduced from those predicted for the operational phase in **Section 9.4.3**. Therefore, it is concluded that the post-mitigation landscape effects will generally remain as assessed in respect of the pre-mitigation effects.

9.6.2 Residual Visual Impacts

In addition to the preparation of a landscape masterplan, a set of photomontages have been created specifically to illustrate the effect of the proposed planting for each of the VRPs.

Once the proposed planting becomes established, it will aid in visually softening the proposed substation from it the surrounding local road and residential receptors. Nevertheless, the proposed planting will not entirely screen the proposed development from its immediate context. Where views are afforded of the development from the surrounding local road and residential receptors, the proposed mitigation planting will help assimilate the proposed substation compound into its landscape context, thus slightly reducing the magnitude of visual effect.

9.7 Summary

9.7.1 Landscape Impacts

In terms of physical impacts, the proposed development is considered to have only a minor physical impact on the proposed development site which will include for some hedgerow removal and minor areas of cut and fill to facilitate the full footprint of the proposed substation and embed it into its landscape setting. Nevertheless, the proposal site is relatively level and is situated within an inter-drumlin hollow, and therefore, will not require significant excavation works.

In terms of impacts on landscape character, the proposed development represents the introduction of a new and relatively unfamiliar form of built development into a typical rural setting. Nevertheless the proposed development is relatively small in scale and will sit discreetly in its landscape context within the existing hedgerow network.

There will be direct physical impacts on the site during construction and operational stages of the development, but such effects are considered to be modest in scale and nature in this already modified rural setting. There will also be effects on landscape character of the central study area as the proposed development will notably increase the intensity of built development within the immediate surrounds of the site. Nevertheless, any such effects will be heavily offset as a result of the proposed development's location in a relatively discreet and well screened part of the landscape. Within the study area, the magnitude of landscape impacts is deemed to be 'Medium-low' resulting in a landscape impact significance of 'Moderate-slight'.

For the reasons contained herein, it is considered that the proposed development will not give rise to significant landscape effects.

9.7.2 Visual Impacts

Visual impacts where assessed at 6 no. visual receptor locations throughout the study area which represent a variety of viewing distances, angles and receptor types. This is a relatively typical rural landscape that is not highly rare or distinctive at a local or regional level, which is reflected within the visual receptor sensitivity where 5 no. out of the 6 no. views are categorised as Medium-low. The only other visual receptor is judged to be of Medium sensitivity and this relates to the locally elevated settlement of Drum.

The overall significance of residual visual impacts range between Moderate-slight and Imperceptible, and in the majority of cases, residual visual impacts were deemed Imperceptible. This is principally due to the rolling nature of the landscape and high degree of mature vegetative screening, which is proposed to be supplemented with additional planting in the immediate surrounds of the site to further reduce the degree of site visibility.

The highest residual impacts occur at VP2 and VP3 which are both situated immediately adjacent to the proposed substation and end masts. VP2 will have a clear and slightly elevated view of the proposed substation compound from the adjoining local road, whilst VP3 will have a prominent view of the proposed end masts from a near distance. Whilst it is not feasible to screen the proposed end masts with mitigation planting, the proposed mitigation in the surrounds of the substation will aid in softening its appearance from its near surrounds and will help to embed the proposed substation compound into its surrounding landscape context.

9.7.3 Overall Significance of Impact

Based on the landscape and visual impact judgements provided throughout this chapter, the proposed development in combination with the permitted Drumlins Park Wind Farm is not considered to give rise to any likely significant residual impacts.