The Great Grid Upgrade

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Volume 6: Environmental Statement

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Part 2 Suffolk
Chapter 1 Appendix 2.1.A
Landscape and Visual Impact Assessment and Photomontage Methodology

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1. Landscape and Visual Impact Assessment Methodology

1.1 Approach and Methodology

1.1.1 This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used specifically for the landscape and visual assessment of the Suffolk Onshore Scheme. It should be noted that the methodology for the LVIA does not use the standard significance matrix set out within **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**, as the approach to determining significance is based on professional judgement with narrative descriptions provided.

Guidance Specific to the Landscape and Visual Assessment

1.1.2 The landscape and visual assessment has been carried out in accordance with the following good practice guidance documents:

- Guidelines for Landscape and Visual Impact Assessment: Third edition (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment , 2013);
- Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3) – Technical Guidance Note LITGN-2024-01 (Published August 2024) (Landscape Institute, 2024);
- Assessing landscape value outside national designations - Technical Guidance Note 02/21 (Landscape Institute, 2021);
- Lighting Design Guide (Suffolk and Essex Coast and Heaths National Landscape Partnership, 2023);
- Design Principles for National Infrastructure (National Infrastructure Commission, 2020);
- Infrastructure - Technical Guidance Note 04/2020 (Landscape Institute, 2020);
- Tranquillity - An overview – Technical Information Note 01/2017 (Landscape Institute, 2017);
- An approach to seascape sensitivity assessment (MMO1204) (Marine Management Organisation, 2019); and
- Visual Representation of Development Proposals – Technical Guidance Note 06/19 (Landscape Institute, 2019).

Baseline Data Gathering and Forecasting Methods

1.1.3 Field work has been undertaken by two Chartered Landscape Architects within winter 2022, summer and winter 2023, and summer 2024, to inform the scoping process, assess the existing character of the landscape and visit representative viewpoints. Winter viewpoint photography was captured on the 6 and 7 April 2024 and summer viewpoint photography was captured on the 13 and 14 September 2023 and 30 July 2024.

1.1.4 Data sources that have been used to inform the baseline data gathering include but are not limited to the following:

- planning policy and local plan evidence base documents;
- published landscape and seascape character documents;
- ordnance survey mapping;
- ZTV plans;
- aerial photography; and
- fieldwork photography.

Assessment Criteria

1.1.5 GLVIA3 (Landscape Institute and Institute of Environmental Management and Assessment , 2013) places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA has been undertaken by Chartered Landscape Architects who are experienced in undertaking and reporting assessments of similar types of projects. Professional judgement has been used in combination with structured methods and criteria to determine the sensitivity of landscape and visual receptors (informed by their value and susceptibility to change) the magnitude of effects on those receptors (i.e., the nature of the effect) and the significance of effects.

1.1.6 The following section summarises the methodology for the LVIA, which builds on the general assessment methodology presented in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**. For clarity, and in accordance with good practice, the assessment of likely significant effects on landscape character and visual amenity, although closely related, are undertaken separately.

1.1.7 The method for the production of visualisations, which support the completion of the assessment, is set out in Section 2 of this Appendix.

1.1.8 The LVIA methodology broadly follows the terminology described in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology** however, to provide the necessary level of assessment detail, additional levels of sensitivity and magnitude have been used to allow for a finer grain of assessment.

Sensitivity of landscape receptors

1.1.9 Landscape receptors are described as components of the landscape that are likely to be affected by the Suffolk Onshore Scheme. These can include overall character and key characteristics, individual elements or features, and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Suffolk Onshore

Scheme and these landscape receptors which has potential to result in landscape impacts and effects (both adverse and beneficial).

1.1.10 The sensitivity of a landscape receptor has been derived by combining of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

1.1.11 Landscape value is frequently addressed by reference to international, national, regional, and local designations. An absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource. The evaluation of landscape value has been informed by Technical Guidance Note 02/21 (Landscape Institute, 2021) and classified as very high, high, medium, low and negligible with evidence provided as to the basis of the evaluation, having considered the following factors:

- *"natural heritage – Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape;*
- *cultural heritage – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape;*
- *landscape condition – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure;*
- *associations – Landscape which is connected with notable people, events and the arts;*
- *distinctiveness – Landscape that has a strong sense of identity;*
- *recreational – Landscape offering recreational opportunities where experience of landscape is important;*
- *perceptual (scenic) – Landscape that appeals to the senses, primarily the visual sense;*
- *perceptual (wildness and tranquillity) – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies; and*
- *functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape."*

1.1.12 Landscape susceptibility relates to the ability of a particular landscape to accommodate the type of development proposed. It is assessed through consideration of the baseline characteristics and attributes of the landscape, and in particular, the scale or complexity of a given landscape. Attributes relate to topography and landform, landcover, pattern, scale, complexity, and perceptual aspects, and it is the combination of these that makes one landscape more susceptible to the type of development proposed when compared with another. For example, a small scale, complex wooded landscape is likely to be more susceptible to the introduction of the Proposed Project than one which is larger scale, simple, and with fewer vegetated features. The evaluation of landscape susceptibility is defined as very high, high, medium, low, and negligible, and is supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the type of development proposed.

1.1.13 The overall sensitivity assessment of the landscape receptor has been made by applying professional judgement to combine and analyse the identified value and

susceptibility ratings. Overall sensitivity has been rated as very high, high, medium, low, and negligible. Table 1.1 below outlines indicators that inform landscape value, susceptibility, and sensitivity.

Table 1.1 Sensitivity of landscape receptors

Sensitivity	Typical Criteria Descriptors
Very high	Landscape of national value with distinctive elements and characteristics, highly susceptible to small changes of the type of development proposed, which it would not be able to accommodate without undue consequences for the maintenance of the baseline situation. Typically, these would be: • of high quality with distinctive elements and features making a positive contribution to character and sense of place; • designated and the aspects which underpin such value may also be present outside the designated areas, especially at the local scale; • areas of special recognised value through use, perception or historic and cultural associations; and • likely to contain features and elements that are rare and could not be replaced.
High	Landscape of national or regional value, with some distinctive elements and characteristics and others that may be more common place, which by nature of their character are unlikely to be able to accommodate change of the type proposed without undue consequences for the maintenance of the baseline situation. Typically, these would be: • some distinctive elements and features and some more common place making a positive contribution to character and sense of place; • likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale; • containing features of value through use, perception, or historic and cultural associations; and • likely to contain some features and elements that are rare and could not be replaced.
Medium	Landscape of regional or local value, with mostly common elements and characteristics, which, by nature of their character, would be able to partly accommodate change of the type proposed without undue consequences for the maintenance of the baseline situation. Typically, these would be: • comprised of mostly commonplace elements and features but may include some rarer elements and with some sense of place;

Sensitivity	Typical Criteria Descriptors
	• locally designated, or value may be expressed through non-statutory local publications or relevant Neighbourhood Plan policies; • containing some features of value through use, perception or historic and cultural associations; and • likely to contain some features and elements that could not be replaced.
Low	Landscape of local or limited value and relatively inconsequential elements and characteristics, the nature of which is potentially tolerant of substantial change of the type proposed. Typically, these would be: • comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place; • not designated; • containing few, if any, features of value through use, perception or historic and cultural associations; and • likely to contain few, if any, features and elements that could not be replaced.
Negligible	Landscape of very low or limited value that is damaged, degraded or a substantially modified landscape pattern, with few or no natural or original features remaining, such that it is tolerant of the type of change proposed.

Sensitivity of visual receptors

1.1.14 Sensitivity of visual receptors has been defined through an appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

1.1.15 Value of the view is an appraisal of the value attached to views and is often informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature and art, or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view has been classified as very high, high, medium, low, or negligible and is supported by evidenced, professional judgements.

1.1.16 The susceptibility of visual receptors to change has been established as a function of the occupation or activity of people experiencing the view, and the extent to which their attention or interest is focused on the view and the visual amenity they experience. For example, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, indicate a higher level of susceptibility. The susceptibility of visual receptors is not dependent on the specific change being proposed.

1.1.17 Conversely receptors engaged in outdoor sport where views are not important, or receptors at their place of work, are considered less susceptible to change.

1.1.18 Judgements about the susceptibility of visual receptors have been ascribed using very high, high, medium, low, or negligible ratings using consistent and reasoned judgements.

1.1.19 The overall sensitivity assessment of the visual receptor has been determined by applying professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity has been rated as very high, high, medium, low, or negligible. Table 1.2 below outlines indicators that inform value of the view, susceptibility and sensitivity of visual receptors.

Table 1.2 Sensitivity of visual receptors

Sensitivity	Typical Criteria Descriptors
Very high	Activity resulting in a particular interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation whose attention is focused on the landscape). Where people might visit purely to experience the iconic and highly valued view (such as promoted viewpoints, protected by designation, or recorded on maps / guidebooks or with cultural associations); and/or a view of national value (e.g. within/towards a designated landscape) with very high scenic qualities relating to the content and composition of the view.
High	Activity resulting in a particular interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation whose attention is focused on the landscape, which is an important part of the experience. Where people may be passing through the landscape on defined scenic routes and/or a highly valued or well composed view with high scenic qualities relating to the content and composition of the view (e.g. locally designated view within a local plan or neighbourhood plan).
Medium	Activity resulting in a general interest or appreciation of the view (e.g. residents or people engaged in outdoor recreation that does not largely focus on the appreciation of the landscape and/or a view of local value with some scenic qualities relating to the content and composition of the view (e.g. typical agricultural landscape with some detracting features).
Low	Activity where interest or appreciation of the view is secondary to the activity or the period of exposure to the view is limited (e.g. people at work, motorists travelling through the area or people engaged in outdoor recreation that does not focus on an appreciation of the landscape) and/or a view of limited value with low scenic qualities relating to the content of and composition of the view (e.g. featureless agricultural landscape, poor quality urban fringe).

Sensitivity	Typical Criteria Descriptors
Negligible	Activity where interest or appreciation of the view is inconsequential (e.g. people at work) and/or very low value of existing view (e.g. industrial areas or derelict land).

Landscape magnitude of effect

1.1.20 Landscape magnitude of effect refers to the extent to which the Suffolk Onshore Scheme would alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced, and its duration and reversibility. Notes and Clarifications on Aspects of GLVIA3 Technical Guidance Note LITGN-2024-01 (Landscape Institute, 2024) notes that the size/scale of effect is likely to be the most important factor with geographical extent and duration/reversibility considered as 'modifiers'. The variables involved are:

- the extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- the extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by the addition of new components;
- whether the change alters the key characteristics of the landscape that are integral to its distinctive character;
- the geographic area over which the change would be experienced (for example within the application boundary, the immediate setting around that boundary, at the local LCA scale, or on a larger scale influencing broader areas of landscape character);
- the duration of the change (i.e., short-term (0-4 years), medium term (5-10 years), or long term (11+ years)), and its reversibility (i.e., whether it is permanent, temporary, or partially reversible); and
- landscape change can be both direct, through alteration of physical components, or indirect, resulting from changes to perceptual aspects of character and how it is experienced.

1.1.21 An overall assessment of the magnitude of landscape effect resulting from the Suffolk Onshore Scheme on landscape receptors has been made by combining the above judgements using evidence and professional judgement. The levels of landscape magnitude of change are described as being very large, large, medium, small, negligible and none as defined in Table 1.3 below.

Table 1.3 Magnitude of effect - landscape receptors

Magnitude	Criteria
Very large	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.

Magnitude	Criteria
Large	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Small	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Negligible	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short-term, permanent or reversible.
None	No change to the landscape receptor.

Visual magnitude of effect

1.1.22 Visual magnitude of effect relates to the extent to which the Suffolk Onshore Scheme would alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. Notes and Clarifications on Aspects of GLVIA3 Technical Guidance Note LITGN-2024-01 (Landscape Institute, 2024) notes that not all components of magnitude of effect are equally weighted. It is considered that the scale of change and degree of contrast are likely to be the most important factors with the nature of view, angle of the view and duration/reversibility considered as 'modifiers'. The variables involved are described below:

- the scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Suffolk Onshore Scheme;
- the degree of contrast or integration of any new features or changes in the form, scale, composition and focal points of the view;
- the nature of the view of the Suffolk Onshore Scheme in relation to the amount of time over which it would be experienced, and whether views of this would be visible fully, partially or glimpsed;
- the angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Suffolk Onshore Scheme and the extent of the area over which the changes would be visible; and
- the duration of the change (i.e., short-term (0-4 years), medium term (5-10 years), or long term (11+ years)), and its reversibility (i.e., whether it is permanent, temporary, or partially reversible).

1.1.23 An overall assessment of the magnitude of visual effect resulting from the Suffolk Onshore Scheme on the visual receptor has been made combining the above judgements using evidence and professional judgement. The levels of visual magnitude of change are described as being very large, large, medium, small, negligible and none as defined in Table 1.4 below.

Table 1.4 Magnitude of effect - visual receptors

Magnitude	Criteria
Very large	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Large	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Small	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Negligible	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short-term, permanent or reversible.
None	No change to the view.

Significance of effects

1.1.24 The assessment of visual and landscape effects follows the methodology and classification presented in Table 1.5.

1.1.25 Determination of the significance of landscape and visual effects has been undertaken by employing professional judgement and experience to combine and analyse the magnitude of effect against the identified sensitivity of landscape and visual receptors.

1.1.26 The landscape assessment has taken account of direct and indirect changes to existing landscape elements, features and key characteristics, and evaluates the extent to which these would be lost or modified, in the context of their importance in determining the existing baseline character.

1.1.27 The visual assessment has taken account of the likely changes to the visual composition, including the extent to which new features would distract or screen existing elements in the view or disrupt the scale, structure, or focus of the existing view.

1.1.28 The significance of landscape and visual effects are described with reference to the criteria presented in Table 1.5 below. For the purposes of this assessment, effects rated as being of moderate or major significance are considered to be significant.

Table 1.5 Significance of effect

Significance of effect	Landscape	Visual
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
No Change	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

Temporal Scope of Assessment

1.1.29 Landscape and visual effects can differ from one stage of the Proposed Project to the next and change over time as mitigation planting establishes and matures. As such,

landscape and visual effects of the Proposed Project have been assessed at construction and at Year 1 and Year 15 during operation and maintenance.

1.1.30 **Application Document 6.3.2.1.C Appendix 2.1.C Landscape Designation and Landscape Character Assessment** and **Application Document 6.3.2.1.D Appendix 2.1.D Visual Amenity Baseline and Assessment** consider potential effects of the Suffolk Onshore Scheme at each of the following stages:

- construction: including consideration of introduction of construction activity including temporary compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storage of materials, and lighting;
- operation year 1: including consideration of potential medium to longer term effects associated with the operational converter station, substation and reinstatement of the HVDC and HVAC cable corridors. Permanent alteration to landscape character for directional lighting associated with the converter station and substation. This stage is intended to represent the potential worst-case operational effects prior to establishment of mitigation planting;
- operation year 15: including consideration of potential longer-term effects of the Suffolk Onshore Scheme 15 years after becoming operational. This stage is intended to help demonstrate how proposed mitigation planting would influence effects once established;
- maintenance: including consideration of maintenance of the substation and converter station and underground HVDC and HVAC cables, such as visual checks and refurbishment work mainly limited to overground parts of the Suffolk Onshore Scheme; and
- decommissioning: including consideration of decommissioning works involved with the substation and converter station and underground HVDC and HVAC cables including dismantling and removal of elements of the Suffolk Onshore Scheme. The lifespan of the substation and converter station equipment is anticipated to be 40 years but it is likely that during this period replacement would extend the lifespan. It is not considered that the assessment of effects at decommissioning would be over and above those identified at construction, therefore this project stage is included within the construction stage assessment.

1.1.31 Following construction of the landfall and the underground HVDC and HVAC cable routes, the working width along with construction compounds would be fully reinstated. Noting the time taken to reinstate boundary vegetation, requests within the Scoping Opinion, and the potential for the loss of trees above the HVDC and HVAC cable routes, operational effects at Year 1 and Year 15 are included within the assessment of effects associated with the HVDC and HVAC cable.

2. Photomontage Methodology

2.1 Introduction

2.1.1 This document details how photomontages are prepared. These are Visually Verified Montages (VVM), also known as Accurate Visual Representations (AVR), as they are produced using a combination of specific site photography and accurate survey data. It also provides information on the suite of visualisations that have been prepared and Year 15 growth rates.

2.2 Guidelines

2.2.1 The photomontages prepared to accompany the Proposed Project are based on guidance from a number of publications:

- Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute, 2019);
- Photography and Photomontage in Landscape and Visual Impact Assessment Advice Note 01-11 (Landscape Institute, 2011); and
- Guidelines for Landscape & Visual Impact Assessment (Third Edition) (Landscape Institute and Institute of Environmental Management and Assessment , 2013).

2.2.2 Reference has also been made to the guidance published by the Scottish Natural Heritage. Although specific to wind farms this offers guidance on photography and the presentation of visualisations (Scottish Natural Heritage, 2017).

2.3 Site Photography

2.3.1 The procedure for taking photography on site is described below:

- site visits are based upon the time of day and take the weather into consideration. The photographs are best taken with the sun behind the camera. This means views facing west are best taken in the morning and views facing east in the afternoon;
- photographs are taken using a full-frame format with a fixed 50 mm focal length lens mounted to a panoramic head on a steady tripod;
- the panoramic head is used to eliminate any parallax problems between near and distant objects in the scene. The sliding plates are set to the marks calculated to enable the camera & lens combination to rotate accurately around the nodal point (centre of panorama rotation);
- the camera is levelled in both pitch and roll referencing the bubble level on the panoramic head. A levelling base between tripod and panoramic head is used to fine adjust the camera level;
- manual camera settings are used to ensure consistent exposure across all photographs taken;

- photographs are taken using a remote shutter release to eliminate any camera shake;
- the panoramic head is rotated to the next interval using the built-in step rotator and another photograph is taken using the remote shutter release. This is repeated until a full 360° sweep of photographs is taken; and
- the position of the camera head is recorded using a Global Navigation Satellite System (GNSS) receiver. This provides an accurate GPS position including camera elevation.

2.4 Photograph Stitching and Post-Production

2.4.1 When dealing with panoramic views the photographs are loaded into specialist photograph stitching software (PTGui Pro). The images are automatically corrected for lens distortion and stitched to create a full 360° image. Adjustments can be made to manually correct the blend between images where appropriate.

2.4.2 The resulting image is output as spherical projection to correctly match the virtual camera to be used later in the 3D software. With spherical projection (also known as equirectangular) the height and width in pixels is proportional to the Field of View's (FOV's) angle. The software can remap images as cylindrical or planar projection in accordance with Landscape and Visual Impact Assessment (LVIA) requirements. Planar is a flat photograph as a camera records the photograph. Panoramas are stitched together from flat photographs, but as they are to show a wider view, they are technically cylindrical projection because they were taken about a point. They are therefore specified on a photosheet as cylindrical.

2.4.3 A virtual camera is positioned in the 3D software (Autodesk 3ds Max) according to the same real-world position and height as per the survey. This camera is set-up to match the field of view as the stitched panorama. The stitched image is loaded as the camera back plate.

2.4.4 The commercially available point cloud survey data is imported into the 3D model space. The camera target is aligned to ensure the spread of points match any fixed structures exact locations visible in the photograph.

Plate 2.1 Photographs illustrating an existing photograph (top) and typical point cloud match (bottom)

2.4.5 The daylight settings in the scene are matched to the time and location of the original photography. This ensures the direction of shadows created in the render would match those in the existing photography.

2.4.6 The proposed design is modelled and placed at the correct geo-referenced position. The virtual camera views are rendered and composited into the background photography using Adobe Photoshop. The images are adjusted to mask the correct parts of the render behind existing elements in the photography.

2.4.7 The Online Map Data data was analysed to identify areas where plantation vegetation around the River Fromus was to be removed, and three-dimensional markers were created in Autodesk 3ds Max. These markers were rendered and composited into the existing photographs to visually highlight the vegetation identified for removal. Using Adobe Photoshop, the planting was removed and, where necessary, replaced it with background planting. The positioning and height of the background planting were verified against point cloud data to ensure accuracy. Realistic background planting, using the point cloud data, was added and seamlessly blended into the existing photographs for a natural appearance (**Application Document 2.12.1 Trees and Hedgerows to be removed or managed plans – Suffolk**).

Plate 2.2 Photographs illustrating a photomontage with proposed massing and towers

2.5 Scope of visualisations

2.5.1 The following suite of visualisations have been prepared to accompany **Application Document 6.2.2.1 Part 2 Suffolk Chapter 1 Landscape and Visual**. This is set out as follows:

- Type 1 winter photography;
- Type 1 summer photography;
- Type 3 Year 1 winter photomontage; and
- Type 3 Year 15 summer photomontage.

2.5.2 The suite of visualisations is set out within **Application Document 6.4.2.1.10 Representative Viewpoint Visualisations**.

2.5.3 Type 3 photomontages have only been produced for representative viewpoints in which operational infrastructure would be visible within the view. Year 1 winter photomontages are used to show the reasonable worst-case scenario, where the mitigation planting would be young and not established and the existing deciduous vegetation not in leaf. The year 15 summer photomontages are used to show the best-case scenario with the mitigation planting established and seen within the landscape context of trees in leaf. Year 1 summer and Year 15 winter photomontages have not been prepared. It is considered that the only difference would be that the leaves would either be in leaf or not and that the height of the mitigation planting would not be different, therefore not providing any additional material information.

2.5.4 The following planting heights in Table 2.1 have been used as a basis for the year 15 visualisations. This has been developed using information that East Suffolk Council provided for a local tree planting scheme as a reference for local tree growth rates and has been agreed by all stakeholders during the landscape thematic meetings (see **Application Document 7.4.8 Draft Statement of Common Ground Between National Grid Electricity Transmission and East Suffolk Council and Suffolk County Council**). Further detail on maintenance and management of the landscape mitigation planting is set out within **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan – Suffolk**.

Table 2.1 Year 15 visualisation planting heights

Species Common Name (Scientific Name)	Recommended height of species at Year 15
native oak (*Quercus robur/petraea*)	3.3 m
birch (*Betula* sp.)	6 m
beech (*Fagus sylvatica*)	3.6 m
alder (*Alnus Glutinosa*)	6 m
lime (*Tilia* spp.)	6 m
field maple (*Acer campestre*)	3.6 m
rowan (*Sorbus aucuparia*)	3.3 m
bird cherry (*Prunus padus*)	3.3 m
holly (*Ilex aquifolium*)	1.8 m
willow species (*Salix* spp.)	3.3 m
hazel (*Corylus avellana*)	3.6 m
hawthorn (*Crataegus monogyna*)	3.3 m
blackthorn (*Prunus spinosa*)	3.3 m
whitebeam (*Sorbus aria*)	3.3 m
crab apple (*Malus sylvestris*)	3.3 m
hornbeam (*Carpinus betulus*)	3.6 m

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