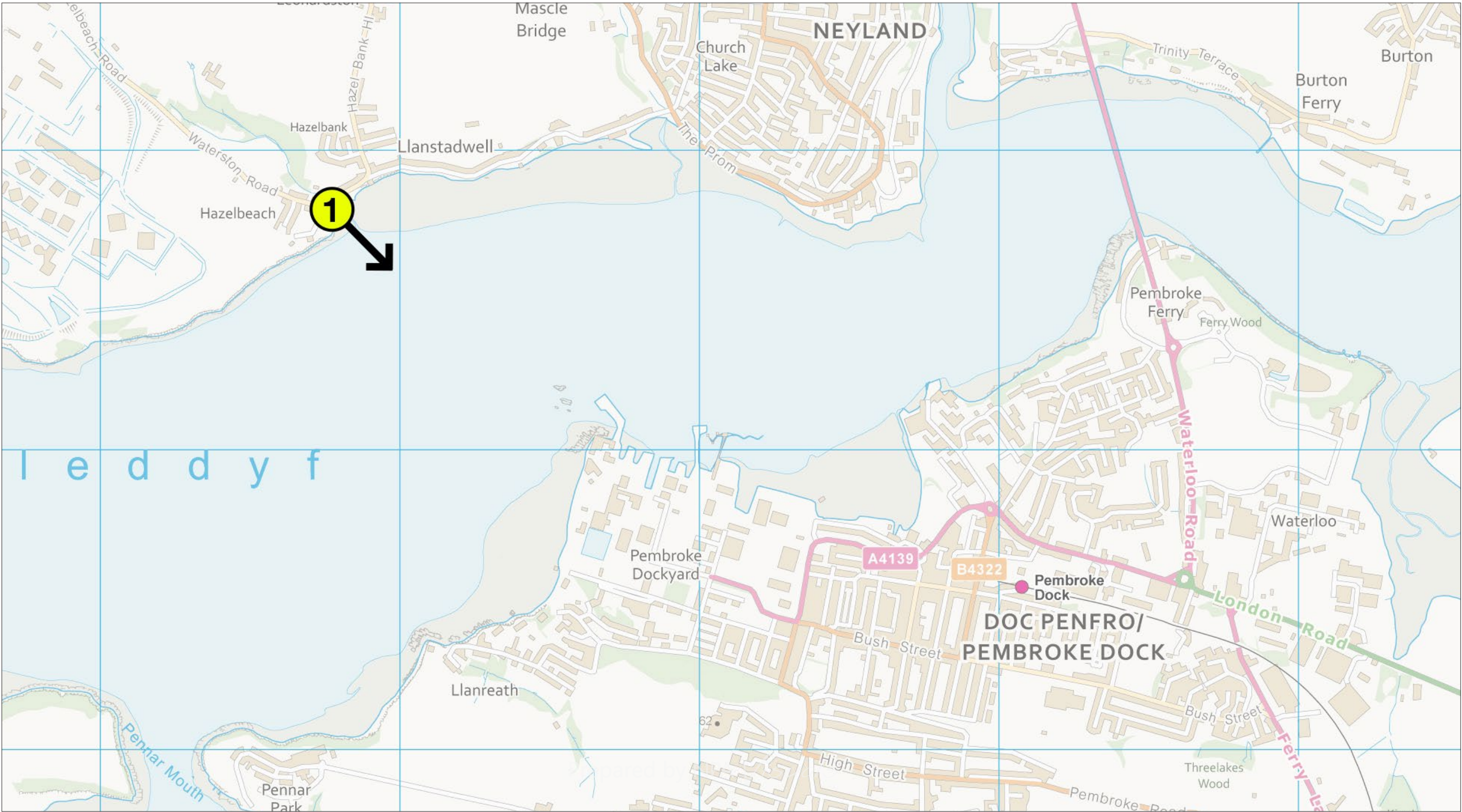


Pembroke Dock Marine, Pembroke

Visually Verified Montages

September 2020 | NPA 11167 RPS |

Viewpoint Location Plan



Project No:	11167	Date:	Sep - 2020
Client:	RPS	Project:	Pembroke Dock Marine, Pembroke
Status:	Planning	Figure:	Fig. 01: Viewpoint Location Plan

Viewpoint Information

View 1 - Church Road, Hazelbeach



Date of Photo: 29/03/2019 11:21
Weather: Nighttime
Visualisation Type: Type 3
AVR Level: 3
Bearing of View: 135.4°
Camera: Canon EOS 5D MK III
Frame Type: Composite
Projection: Planar
Lens Focal Length: Sigma 50mm
Horizontal FOV: 53.5°
Distance to site : 1328m

OS: 194769 , 204810



Project No:	11167	Date:	Sep - 2020
Client:	RPS	Project:	Pembroke Dock Marine, Pembroke
Status:	Planning	Figure:	Fig. 02: Data Sheet



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Project No:	11167	Date:	Sep-20
Client:	RPS	Project:	Pembroke Dock Marine
Status:	Planning	Figure:	Fig. 03: View 1 - Church Road, Hazelbeach Existing



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Visualisation Type:	Type 3	Project No:	11167	Date:	Sep-20
Image Enlargement:	150% (Binocular)	Client:	RPS	Project:	Pembroke Dock Marine
Page Size:	A1 width	Status:	Planning	Figure:	Fig. 04: View 1 - Church Road, Hazelbeach Proposed

Visually Verifiable Montage Methodology

Introduction

A Type 3 Photomontage is an image that combines a photographic view with an accurate 3d CAD representation of a proposed development, displayed to an agreed level of detail. Using a baseline of visual data and information, its purpose is to impartially and if required, realistically represent the proposal.

“Photographs can have an important role to play in communicating information about the landscape and the visual effects of a proposed development, although they cannot convey exactly the way that the effects would appear on site.” (GLVIA, Third Edition)

We have an established reputation for the production of Verified Views for both urban and rural developments and have successfully presented these for planning applications and as expert witnesses at public inquiry.

The methodology used by us accords with the following guidance documents where appropriate:

- The Third Edition of the good practice ‘Guidelines for Landscape and Visual Impact Assessment’ 2013; produced by the Landscape Institute and Institute of Environmental Management & Assessment.*
- Visual Representation of Development Proposals, September 2019. Landscape Institute Technical Guidance Note 06/19*
- London View Management Framework Supplementary Planning Guidance: Appendix C: Accurate Visual Representations. March 2012.*
- Visual Representation of Wind Farms Version 2.2, February 2017, Scottish Natural Heritage*
- Assessing the impact of small-scale wind energy proposals on the natural heritage, March 2016 Version 3, Scottish Natural Heritage*
- ‘Visualisation Standards for Wind Energy Developments’ (July 2016), The Highland Council*

When producing Type 3 Photomontages, a series of options are available to aid design and planning decisions according to the level of detail required. To assist agreement between all parties prior to preparation, the following classification types are presented to broadly define the purpose of the photomontage in terms of the visual properties it represents.

This classification is a cumulative scale in which each level incorporates all the properties of the previous level.

- AVR Level 0 Location and size of proposal*
- AVR Level 1 As level 0 + degree of visibility of proposal*
- AVR Level 2 As level 1 + visual architectural form and details*
- AVR Level 3 As level 2 + use of realistic materials and lighting*

Visualisation ‘Types’ according to the Landscape Institute guidance note 06/19 refer to the following

- Type 4: visualisations where the highest level of locational accuracy. Image scaleing may be required.*
- Type 3: Visulialisations where a verifiable process and printed scale representation is not required*

Preparation

Each view of the proposal is represented so that an informed decision can be made by balancing the needs of the assessor or viewer on site. Wherever possible, consultation with the relevant planning professional takes place on the matter and our final methodology is based on the most appropriate agreed set of professional Guidance.

Initially all baseline and proposal data is compiled so we can plan and agree the viewpoint locations with the client and relevant authorities. If the information is available we will also “pre-visualise” the viewpoints showing both the existing and proposed. This can also be used as an accurate guide on site and discuss all options with the client to ensure that our site photography covers all the potential locations and captures the full extent of the proposed scene correctly.

Prior to the site visit we prepare a “site pack” containing all the drawings and information we require on site. Pre-planning also includes a review of transport options so that public transport is utilised wherever possible. Route planning and time estimates are considered and a site risk assessment is completed for record.

Photography

Equipment available:

- Canon 5D MkIII full frame digital SLR camera (Full frame sensor)*
- Canon EF 50mm f/1.4 STM lens*
- Sigma 50mm f/1.4 EX DG HSM*
- Canon EF 28mm f/1.8 USM Lens*
- Canon TS-E 24mm f/3.5 L II*
- Manfrotto Tripod 190*
- Nodal Ninja Ultimate M2 Panorama Head with Advanced Rotator RD16-II*
- NN4-D16-Nodal Ninja NN4 Panorama head with RD-16 rotator base*
- Arca-Swiss Style Standard Camera Plate*
- NN-EZ-Nodal Ninja EZ Leveler MKII (Tribrach)*
- Hand held spirit level*
- Canon RS-80N3 Remote Switch*
- UV, Polarising, Graduation & neutral density filters*
- Batteries & chargers*
- SD cards*
- Plumb bob, tape measure, spray paint & Hilti nails*
- Compass*

Suitable weather conditions are sought so that the proposals may be clearly visible in the context of the view. We endeavor to take the photographs at an appropriate time of day to reduce the chance of the site being in shadow or back-lit. Therefore, when planning a site visit, detailed consideration is given to weather forecasts and sunrise/set times, particularly during the winter when the low angle of the sun can be problematic. The photograph(s) correctly portray the view which is obtained at each representative viewpoint whilst avoiding obvious obstructions.

At each viewpoint the camera is mounted on a tripod at a height of between 1.5 and 1.65m above existing ground level, which best represents the average human eye level. The height of the lens “nodal point” is checked by using a tape measure.

Photographs are taken in a RAW format using manual settings to enable the best quality results. If necessary, the original RAW file can be submitted as part of the verification process

The photographer takes note of the weather conditions and direction of view. All other details relating to the photograph are stored in the image EXIF data.

Lenses

No ‘one size fits all’, and we will use the most appropriate set of lenses / formats to convey the view. Only prime lenses are used; in the following order of preference: 50mm, 28mm, 24mm, 24mm/Shift. Both landscape and portrait orientations are considered when planning the photography. The 50mm lens has always been regarded as the “standard” lens on a full frame 35mm camera and closest to the human eye when image printed at A3 and viewed at arm’s length. 50mm lenses are not always appropriate for all situations and so when viewing photomontages based on other lenses, the observer must be aware of the limitations of the printed format. Alternative lenses are only selected when the viewpoint is close to the site. This means that even at a reduced printed scale, the observer is still able to identify all the features visible by the naked eye. (Ref: LI TGN 06/19 Appendix 1.1 & 13.1)

Full Frame Sensor lenses are quoted as having the following Horizontal Fields of View. Canon EF 50mm: 39.6 Degrees / Canon EF 28mm: 65.5 Degrees / Canon TS-E 24mm: 74 Degrees. However, the exact field of view cannot be assumed, and the actual field of view may vary +/- 2 or 3 degrees depending on the lens.

Visually Verifiable Montage Methodology

The Effective Focal Lengths (EFL) shown below represent the calculated field of view for our lenses based on known measurements.

Canon EF 50mm f/1.4 STM lens – EFL 51.4mm (38.6° HFoV / 26.3° VFoV)

Sigma 50mm f/1.4 EX DG HSM – EFL 47.8mm (41.2° HFoV / 28.2° VFoV)

Canon EF 28mm f/1.8 USM Lens – EFL 28.2mm (65.1° HFoV / 46.1° VFoV)

Canon TS-E 24mm f/3.5 L II – EFL 24.7mm (73.7° HFoV / 51.8° VFoV)

Image composition and Presentation

Each viewpoint is intended to capture the view as perceived and experienced by the observer.

A practical and aesthetic approach is applied to our viewpoint photography where good composition is important. No one format or lens is suitable for all situations; as a rule of thumb, rural and coastal sites tend to require a 50mm based “panoramic” format (in line with SNH & LI TGN 06/19 guidelines), whilst urban sites can require a more considered approach where alternative lenses and formats may be required.

Viewpoint photographs are taken so that the camera is level to the horizon, so that converging verticals and perspective distortion is avoided. Proposals are in the central portion of the view.

The final baseline viewpoint photographs are single frame planar or composite panoramic images.

Planar or Cylindrical? Most technical guidance advises that the final verified views should be presented in Planar format. Therefore, cylindrical “panoramic” views will be re-projected back to planar (53.5° or 60° HFoV) for presentation. Occasionally linear sites or panoramic urban views (such as city scapes, power lines, roads and solar farms for example), may be best presented cylindrically.

When a proposed development is at distance, whilst the observer is aware of the wider area within their peripheral vision they tend to focus on the area in question. To ensure that the viewer is provided with a representation of the wider context, a “representative” view with a wider horizontal field of view may be presented alongside. This may be a single frame photograph or panorama of either 60° or 90° HFoV and “provides landscape and visual context only”

Most imagery is viewed electronically on screen or printed at A3 with the occasional use of A1 wide by A4 high (840 x 297mm) for panoramic views. Therefore, a sensible balance must be struck to place the proposal within meaningful context whilst providing clarity for the viewer.

Baseline Imagery Processing

Following review in Adobe Bridge, the original Canon RAW files are selected and processed in Adobe Photoshop to adjust white balance, colour accuracy and sharpness. The images undergo further correction procedures to ensure the horizon is precisely horizontal and any lens/barrel distortion is compensated for. The images are then saved as uncompressed Photoshop files for future compositing. Separate .jpg images are saved for use in the camera matching process.

Camera locations and accuracy

The method used to establish the camera location can either be handheld GPS/GNSS, GNSS/RTK, survey point, visual reference and the level of accuracy depends upon the best survey information available.

3d Modeling

The proposals supplied by the architects and landscape architects are combined with the site survey and mapping data so that they correspond with each other. A geo-referencing system is used when doing this so that information regarding viewpoints can be accurately located. The model(s) supplied or constructed by us are cross-checked with the site plan and elevations to ensure they accurately match the design drawings, including floor levels, roof heights and footprint.

Camera Matching & Verification:

Irrespective of whether the final photomontage is output as a single or composite panoramic image, each view is based upon a single rendered image.

Viewpoint markers are used to tie the photograph to the CAD Camera view. These are surveyed features and points such as lamp posts, walls, boundaries and buildings; anything that has a known location. These markers are required to be as accurate as possible and should ideally be positioned within the central portion of the image. They should be at both varying heights, distances and breadth within the view. The background plate photograph is imported into 3ds Max to verify the accuracy of the match.

The location accuracy and angle of view can also be checked by triangulating the position and preparing view line sections. This is a reliable method successfully used for location finding in the field.

There are two ways of camera matching.

For planar baseline photography:

This can be achieved within the 3D modeling program by aligning a virtual camera with the reference survey points to obtain an accurate match. The survey is rendered out and, if necessary, this can be adjusted to align correctly to detailed or distant elements that may have been difficult to get pixel perfect precision in 3ds max. The rendered Survey points can then be replaced by the final render to ensure accuracy.

For cylindrical baseline photography:

This can be achieved within the 3D modeling program by aligning virtual planar camera and survey points with a version of the cylindrical image re-projected to a planar perspective. The reference points are then rendered out cylindrically to the required horizontal and vertical FoV, and this is aligned in Photoshop to the cylindrical baseline image. The survey image is then replaced with the rendered model output, based upon the same camera and render settings.

Texturing, Rendering & Post Production

3ds Max is used for applying photo-realistic surfaces and materials to the 3D model. Material references and planting sizes are based upon information provided by the Architects / Landscape Architect

The exact resolution of the photograph is noted and used as the size for the final rendered output of the 3D Model view so that the two overlay each other precisely.

Adobe Photoshop is used to blend the render(s) of the model(s) with the existing baseline / base plate photograph. Where elements are removed from the baseline photograph, reference photography and/or models of the existing site are used to accurately place elements that were not seen in the original photography

Viewing Procedures

The purpose is to reproduce the photomontage so that it correctly reconstructs the perspective seen from the location from which the photograph was taken.

We aim to reproduce all wire frames and photomontages so that they can be viewed at a comfortable arm’s length. When comparing the view in the field, the viewer must keep their head motionless and fix their eyes on the centre of the view. This ensures that the represented view falls within the human field of view.

Cylindrical views are only intended for viewing as a printed image or in an appropriate electronic viewing application. The printed image should be viewed on an arc that matches the images field of view, at a comfortable arms-length.

Additional Comments

While all effort has been made to achieve reasonable levels of viewpoint accuracy, all photomontages should be regarded as such and not as verified views.

Visually Verifiable Montage Methodology

Appendix A

Project Title	Pembroke Dock Marine
Site Location	Pembroke
Status	Planning
Architect	NA
Landscape Architect	NA
Planning Consultant	NA
Heritage Consultant	NA
Coordinate System	OSGB36 (EPSG 277000)
Accuracy of Viewpoint Location	±1.5m
Method used to locate camera horizontally	Aerial Photography / DSM & DTM
Method used to locate camera vertically	Aerial Photography / DSM & DTM
Camera Matching Technique	Planar (Model Camera Aligned)
Details used for camera matching - Horizontally	DSM & DTM / Topographic Survey
Details used for camera matching - Vertically	DSM & DTM / Topographic Survey
Modeling Software	3ds Max
Compositing Software	Photoshop / PT GUI
Other applications	InDesign
Height and Age of Proposed Planting	NA
Season(s)	Summer
LI Visualisation Type	View 1: Type 3
AVR Level	View 1: AVR 3
Design Data Provided	2d CAD Plans / Sketchup Model
Photography Equipment Used	Canon 5D full frame digital SLR camera (Full frame sensor) Sigma 50mm f/1.4 EX DG HSM Manfrotto Tripod 190 NNodal Ninja Ultimate M2 Panorama Head with Advanced Rotator RD16-II NN-EZ-Nodal Ninja EZ Leveler MKII

Lens and format

50mm / 150% / 53.5° @ A1 Wide

The baseline photograph for Viewpoint 1 was a composite image taken using the Sigma 50mm f/1.4 lens at intervals of 20 degrees (Landscape Orientation), these images were then stitched together to form a standard 53.5-degree field of view planar image and reproduced suitable to be viewed at comfortable arm’s length (150% @ A1wide). This format is selected as suitable for assessing sites which sit within a panoramic landscape setting and a method derived from the SNH Visual representation of wind farms and the landscape institute.

Exceptions to regular Methodology / Additional Comments

Limitations on night time photomontage views:

The size, design and layout of all the lighting is per the specifications supplied and are only representative.

The night time views are an indication of the change resulting from the proposed scheme which would be experienced at night within the wider scene. The model and proposed lighting design was based on all available information provided.

It should be born in mind that in addition to the proposed exterior lighting, there is an unpredictable variation in accumulated private lighting that would ultimately affect the overall amount of increased lighting visible. Time of day, season and atmospheric conditions are beyond our control and all affect the depiction of the lighting on the visuals.

The verified view image cannot fully represent the night time view as experience in reality by the human eye.

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Each viewpoint within the document may be supplied with all or some of the following information:

Figure Number	Direction of View (Bearing)	Horizontal Field of View
Viewpoint Number	Camera Height (AGL)	Vertical Field of View
Viewpoint Details	Date & Time	Weather / Lighting Conditions
OS Coordinates (12 digit)	Viewing distance (Advisory)	Camera Type
Eye level (A.O.D)	Single Frame or Composite	Lens / Focal Length

Model and camera location accuracy

The Verified views in this document may also contain other information such as:

Illustrative bar indicating compass bearing		
Extent of central 50mm frame used to construct panorama	Number of buildings visible	Annotation of key features
Extent of which Proposed development occupy – (Degrees noted)	Distance to site	Note: “View flat at a comfortable arm’s length”
	Note on A3 versions: “This image provides landscape and visual context only.”	Building ID numbers
Viewpoint Pack: Note: This image is intended only for use at the viewpoint.		

Wirelines views are colour coded as follows:

- DTM – Grey/Black
- Waterbodies – Light Blue
- Proposed structures – Brown
- Existing structures - Blue
- Proposed Vegetation - Light Green
- Existing Vegetation - Dark Green

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