Appendix 6.2: Method for the Production of Verified Photomontage

6.2.1 TEP's method for preparing photomontages accords with the guidance contained in the Landscape Institute Technical guidance note 06/19 Visual Representation of Development Proposals. Consideration has also been given to guidance included in 'Visual Representation of Windfarms Version 2 for Scottish Natural Heritage (SNH) July 2014. The LI Guidance Note 06/19 strongly advises (LI) members to take a proportional approach to SNH guidance previously referenced, where applicable in preference to any other guidance or methodology. Further reference material includes Historic England' Seeing History in the View, London View Management Framework and Windfarm Visualisation, Perspective or Perception by Alan Macdonald RIBA.

6.2.2 A photograph from each viewpoint is taken using a 50mm lens on a 21.1-megapixel full frame digital Single Lens Reflex (SLR) camera (Canon EOS 5d Mark II with a 50mm EF 50mm F/1.4 USM lens). A 50mm lens is used as recommended in guidance because this offers an equivalent view to the vision of the human eye and has long been used in comparative and photomontage techniques in environmental assessment.

6.2.3 The camera is sited level on a tripod with a panoramic head (Manfrotto 338 Leveling base with Manfrotto 308 Panoramic Head). The camera's position is adjusted so that the nodal point of the lens is on the rotating axis of the panoramic head and also 1.6m above ground level in normal situation (based on Historic England Guidance). The nodal point of the camera lens is accurately surveyed. Grid co-ordinates and height above ordnance datum (AOD) are recorded. A 'baseline' photograph is taken with a minimum of three specific reference points accurately surveyed, where required, for instance when there are no existing features that are recordable in the view a second photograph is taken with surveyor's ranging rods in and these are recorded as reference points. Where possible, existing long distance features in the view are surveyed. Reference points are chosen so that one is in the centre of the photograph. The camera remains fixed on the tripod in position for the second photograph so that the only difference is that the reference points are inserted. This is repeated at each viewpoint.

6.2.4 From some viewpoints where there is a wide view, 'panorama' baseline photographs are taken by rotating the camera on the tripod (the nodal point of the camera lens is on the rotating axis) to take in a wide expanse of view equivalent to the viewer moving their head when stood still at one place. The rotating angle between adjacent photographs is approximately 20° (about 50% overlap on field of view). This means that each panoramic photograph is constructed using only the centre 50% of each shot with the 25% left and right hand edges being discarded (NB: the far left and right photos only lose 25% edges on one side). Panorama baseline photographs are joined together in Adobe Photoshop, and once joined together are clearly labelled 'panoramic views'.

6.2.5 In relation to exposure settings on site, the AV (Aperture-Priority) mode is used. For the greatest depth of view the aperture is set to the minimum available (normally f/16 to f/22, depending on light conditions). If a greater resolution is required a slightly larger aperture of f8 is used. In some circumstances where the best quality image of the view cannot be achieved using the AV mode, the manual setting is used. Photographs are taken in RAW and high quality JPG formats, and will be further adjusted in Adobe Photoshop to achieve the best quality images.

6.2.6 A three-dimensional (3D) model of the proposed development, generally including the proposed materials, landform and landscape proposals, is built in computer aided design software (CAD). The camera positions and surveyed reference points are also modelled in CAD. The virtual camera is located at equivalent co-ordinates and height,

and with the same ‘lens’, orientation and settings as used in the photograph at each viewpoint. The ‘virtual ranging rods’ and/or ‘virtual features’ (reference points) are set at the same heights and co-ordinates as those used as reference points in the photographs.

6.2.7 ‘Photographs’ of the model are taken or rendered with ‘virtual’ cameras in the 3D CAD software (3ds Max Design) in positions equivalent to the locations from which the actual photographs were taken at each representative viewpoint. Each photograph view is taken / rendered twice – one with associated reference points and one without).

6.2.8 The photograph of the model is compared to the equivalent photograph of the representative viewpoint, with particular emphasis on ensuring the correct alignment of the ‘reference points’ and/or terrain data to align the model correctly in the image. Once the alignment is made using Adobe Photoshop software, the model is ‘dropped’ into the photograph. The process of using ranging rods/ or fixed reference points to check the appropriate alignment is shown below in Figure 1. This is an image of proposed new buildings and landform. The model being imported shows the building and changed landform in the distance and the ‘virtual’ ranging rods (black lines) being aligned with the surveyor’s ranging rods used on site (red and white poles) in the foreground. The parts of the model that would be behind land, trees, buildings or other structures has been removed, so that only the visible parts of the model remain in Image 1.



Image 1: Aligning model in photograph to reference points (surveyor’s rods)

6.2.9 Once the model is correctly aligned in each reference photograph, the first ‘baseline’ photograph is used instead of the reference photograph with high confidence that the position of the development is accurately shown.

6.2.10 Photomontages are presented as per LI guidance note 06/19 depending on the type produced. Viewpoint OS grid coordinates and viewpoint height above ordnance datum (AOD) are noted on the photomontage figure. Additional information on the photomontage figure (or in the Landscape and Visual Impact Assessment) includes details of the camera, the lens focal length, the horizontal field of view, the date and time when photographs were taken, the orientation of the view, and the distance of the viewpoint from the site. The correct viewing distance of the photomontage (images should be viewed at a comfortable arms length) is also identified as is the paper size the figure should be printed at. When printing photomontage images, the desired pixels per inch (DPI) is 300. Test prints are produced to ensure the best print quality is achieved within the limitations of the print process.

6.2.11 A photograph is a representation of a view and a photomontage shares that limitation. Many people comment that their souvenir or holiday photographs fail to fully convey the experience had at the time they were taken. Baseline photographs are a representation of a view and the photomontages on which they are prepared, regardless of accuracy, share the limitations of the baseline photograph with regard to conveying the overall impression of the final development.

Verified Photomontage Technical Methodology Project Details

Project :	7596
Date of Photography:	08/07/2021
	Response
Photography	
Method used to establish Camera Location	Surveyed on site using professional surveyor with GNSS equipment and laser range finding
Level of accuracy	<100mm
Lens type	50mm fixed
Equipment used	Canon Eos 5d FFS, Manfrotto Tripod with Manfrotto Pano head and Tribach
	Response
3D Model/ Visualisation	
Source and accuracy of topographic height data	Site Topographic Survey
How has the model and camera locations been placed in the software?	Using supplied surveyed coordinates
Elements in view used as target points to check horizontal alignment	Exisiting surveyed street furniture, telegraph poles and lamp posts. Surveyed on site using professional survayor with GNSS equipment and lazer range finding
Elements in view used as target points to check vertical alignment	Exisiting surveyed street furniture, telegraph poles and lamp posts. Surveyed on site using professional survayor with GNSS equipment and lazer range finding
3D modeling software	AutoCAD, Revit and 3Ds Max, Rhino (External)
	Response
Generally	
Limitations to method	South facing, carnival on site location