

Appendix 7.2:

Photomontage Pack

PHOTOMONTAGE METHODOLOGY

METHODOLOGY ADOPTED

Photomontages

A photomontage is the superimposition of an image onto a photograph for the purpose of creating a realistic representation of proposed or potential changes to a view. The preparation of photomontage illustrations is carried out by a graphics specialist. In 2001 Scottish Natural Heritage (SNH) published Guidelines on the Environmental Impact of Windfarms which contains a helpful and detailed commentary on the limitations of photomontages, concluding that they “generally underestimate the true visual impact of a windfarm”. SNH later produced a guide to Best Practice on the Visual Assessment of Windfarms (2001) which recommended in respect of visualisations that “the limitations of photomontages should be recognised and acknowledged” (7.5 p68). The key is for decision makers to treat photographs as an interim *aide memoire*, taking them into the field in good viewing conditions to locate the viewpoints, comparing the images with the existing scene to enable an appreciation of the predicted effects. Used in this way photomontages are an important tool for the assessment of wind turbine applications, but should not be used on their own to assess the scheme.

Photography Methodology

Photographs are taken as high quality image files using the digital Canon EOS 5D camera (12.8 million pixels), adopting the following techniques on site:

- Photographs using the digital Canon EOS 5D camera are taken with a fixed digital 50mm lens (as specified by the current SNH Guidance, the GLVIA and Highland Council Guidance Visualisation Standards for Wind Energy Developments 2010).
- Using a tripod set at 1.6m height, levelled in two directions and using a compass to note the direction of the shot, a series of photos are taken.
- Using the embedded data that is attached to each photograph, exact times of photography are noted.
- Clear notes of the exact location of the viewpoint are taken and the GPS coordinates are noted using GPS Log software (accuracy level of approximately 5m). The co-ordinates of each viewpoint location is subsequently verified using the online ‘Grid Reference Finder’ website and aerial/3D mapping software.

- Each photograph is individually numbered and its location marked using the Ordnance Survey explorer 1:25,000 scale map or a comparable scale map.
- In addition to photographs from specific viewpoints identified as part of the Visual Assessment, a number of other photos are taken to comprehensively record the overall context of the proposed development including swept panoramas, close and distant views to the site, and any existing development of relevance.

Photomontage Methodology

Once the photos have been downloaded from the camera and the relevant data recorded, the process of generating the photomontage images begins. Digital terrain data (generated from OS Landform xyz data by means of a script that translates lateral and vertical measurements into a 3D mesh), the turbine locations and their geometry are loaded in to the Wind Farmer software. The 3D geometry of the wind turbine is uploaded into the Wind Farmer Software and once the information is loaded, a virtual wire frame representation of the wind turbine can be viewed. An example is shown in the following image:

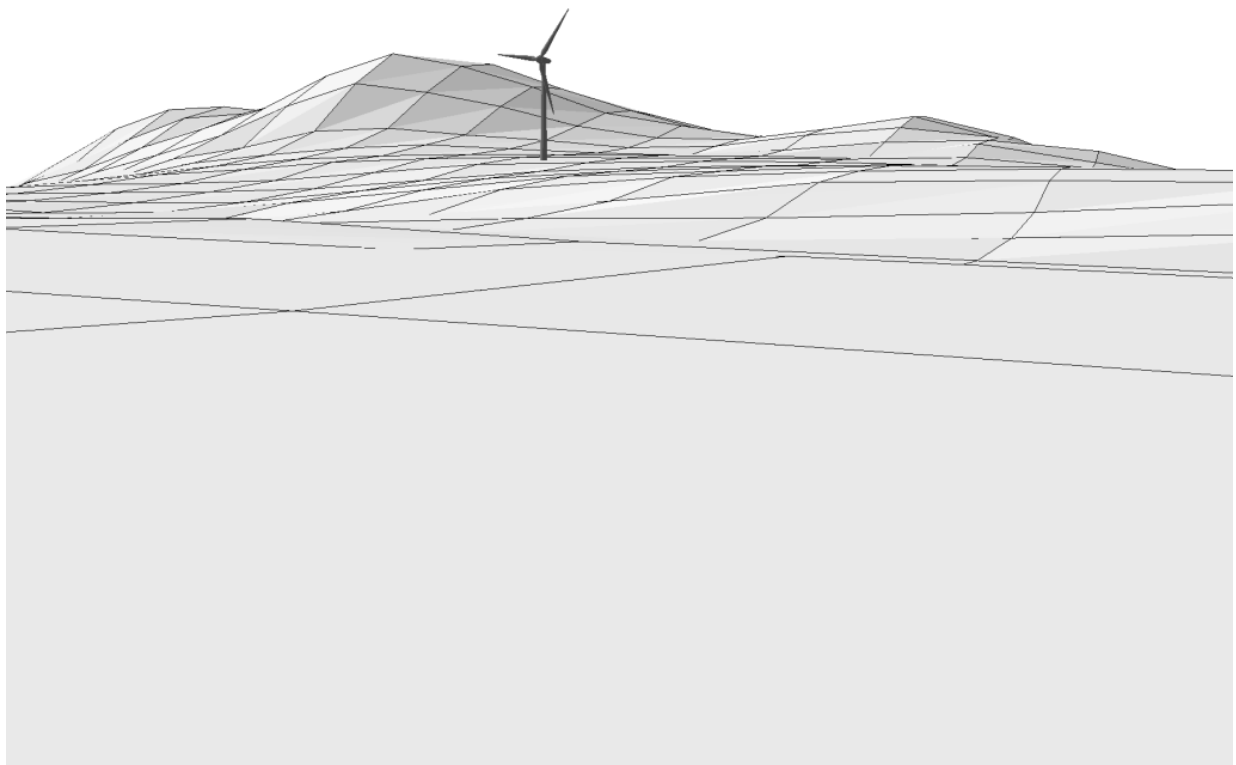


Image 1.1: Example of a Wireframe within Wind Farmer

To ensure that the locations of the turbine are accurately represented, the photograph is aligned with the terrain within the Wind Farmer Software. This is achieved by adjusting the pitch angle and rotational angle of the photograph until the wire frame terrain matches the terrain in the photograph. It is important to note that the digital terrain data does not include vegetation, so the adjustments are made to fit the terrain and not the tree tops. An example is shown in the following image:

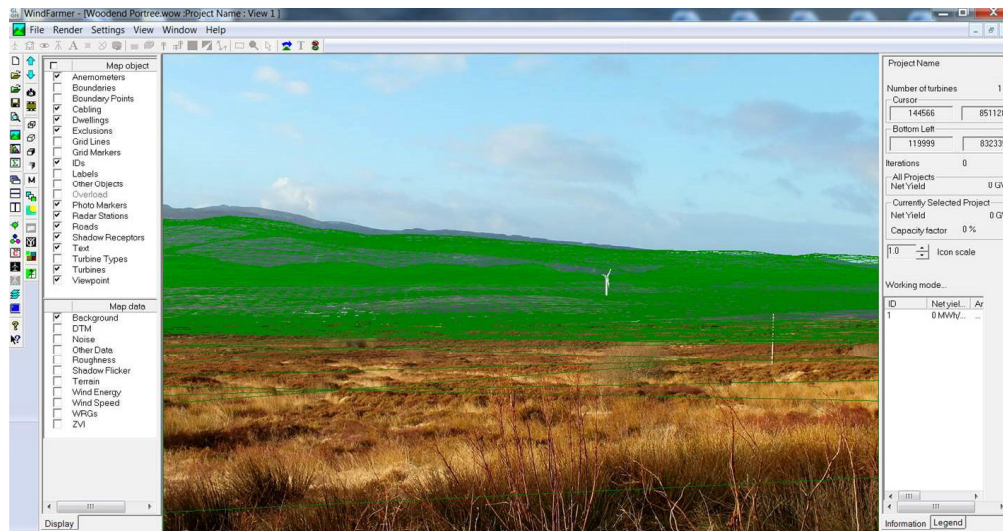


Image 1.2: Screen shot of the wireframe within Wind Farmer over laid onto an existing photo

Once the photograph is correctly aligned, the final stage is to render the turbine to ensure that the 3D wind turbine geometry creates a real world representation on the photograph. At this stage the angle of the rotor and the turbine's colour are set to ensure a realistic representation. Using the wireframe view and rendered views aligned to the photography, a mask is applied to hide aspects of the proposed turbines that would be occluded by existing features. The wireframe and rendered views can then be extracted as individual images.

Each individual image; existing view; wireframe; and photomontage photo viewpoint are then imported on to a separate A3 sheet set in landscape proportions. The single frame image size is set within this document as 390mm x 260mm as recommended by the Highland Council Guidance Visualisation Standards for Wind Energy Developments (2015).

It is essential that photomontages are viewed correctly from a distance appropriate to the size of the image on the printed page. Good practice states that viewing distances less than 250mm are too close for comfort and requires a squinting approach. The reason is that in practice viewers naturally tend to examine photographs from a typical comfortable reading/viewing distance which

approximates to that seen when sitting at a desk. So for small photographs this would mean that the viewer would perceive the landscape and any correctly scaled image of a turbine as smaller than should be the case. Subsequently current guidance is that photographs should be sufficiently large to correspond to a viewing distance of greater than 300mm. We have subsequently set the image size within an A3 sheet to enable compliance with this viewing distance and allow the assessment of the image to be viewed naturally and comfortably. For a single frame image viewed normally with both eyes, the natural viewing distance is approximately the diagonal of the page regardless of the focal length. For an A3 page, this is approximately 500mm which is at a comfortable arms' length.

All photographic images have been taken in landscape format and that the images have not been cropped in any way, thus retaining the vertical and horizontal fields of view characteristic of the stated focal length in the 35mm camera format. The 50mm and the 75mm single frame images conform to the horizontal, vertical and diagonal fields of view as defined below.

Focal Length (mm)	Horizontal Field of View (degrees)	Vertical Field of View (degrees)	Diagonal field of view (degrees)
50	39.6	27.0	46.8
75	27.0	18.0	32.0

Table 1.1: Breakdown of Field of View of the Respective Montages

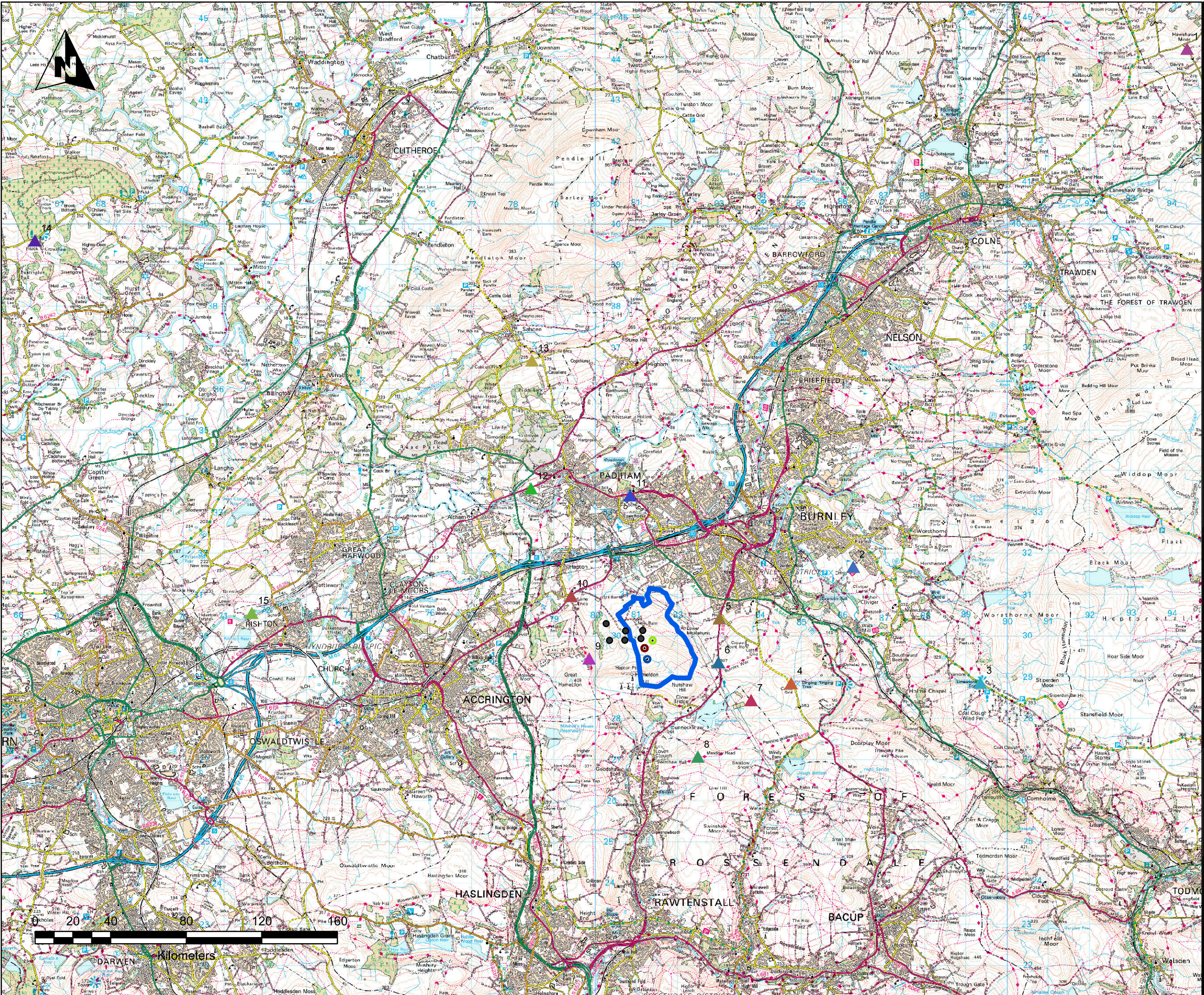
Single frame images for each viewpoint are submitted at the standard focal length of 50mm, taken with a fixed lens in landscape format on a full size 35mm format sensor. In addition, single frame 75mm focal length images are provided for each viewpoint where the turbine can be seen and are extracted from the 50mm master using specialist 3D computer software - in this case, Adobe Lightroom. The image should be viewed at a comfortable arm's length (approximately 500mm) and viewed normally with both eyes. The page should obscure any foreground not visible within the photomontage itself. This enables the photomontage to be directly compared within the wider context of the real landscape.



Image 1.3 Viewing Method

Table of Viewpoint Locations

View point	Description	Grid Reference	X	Y	Latitude	Longitude
1	Hawshaw Moor, near Cowling	SD 94377 44242	394377	444242	53.89432	-2.08705
2	Deer Park Road, Brunshaw Golf Course	SD 86271 31672	386271	431672	53.78119	-2.20983
3	Long Causeway	SD 89355 28857	389355	428857	53.75596	-2.16293
4	Tree Panopticum	SD 84762 28847	384762	428847	53.75576	-2.23259
5	A682, South of Burnley	SD 83023 30419	383023	430419	53.76983	-2.25905
6	New Waggoners Public House (PH)	SD 82998 29353	382998	429353	53.76025	-2.25937
7	Limy Valley Walk, Dunnockshaw Community Forest	SD 83790 28435	383790	428435	53.75203	-2.24731
8	Rossendale Way, Meadow Head	SD 82499 27063	382499	427063	53.73965	-2.26681
9	Burnley Way, Great Hameldon	SD 79859 29446	379859	429446	53.76098	-2.30699
10	A679, Hapton Inn	SD 79422 30961	379422	430961	53.77457	-2.31372
11	School playing fields, Habergham	SD 80854 33402	380854	433402	53.79657	-2.29214
12	A678, Padiham	SD 78446 33576	378446	433576	53.79804	-2.32871
13	Padiham Heights	SD 78470 36678	378470	436678	53.82592	-2.32856
14	Old Clitheroe Park, near Hurst Green	SD 66401 39590	366401	439590	53.85145	-2.51223
15	National Cycle Route(NCR) 6, Rishton	SD 71669 30553	371669	430553	53.77054	-2.43132



- Legend**
- | Description | |
|--|---|
| A678, Padiham | ▲ |
| A679, Hapton Inn | ▲ |
| A682, South of Burnley | ▲ |
| Burnley Way, Great Hameldon | ▲ |
| Deer Park Road, Brunshaw Golf Course | ▲ |
| Hawshaw Moor, near Cowling | ▲ |
| Limy Valley Walk, Dunnockshaw Community Forest | ▲ |
| Long Causeway | ▲ |
| NCR 6, Rishton | ▲ |
| New Waggoners PH | ▲ |
| Old Clitheroe Park, near Hurst Green | ▲ |
| Padiham Heights | ▲ |
| Rossendale Way, Meadow Head | ▲ |
| School playing fields, Habergham | ▲ |
| Tree Panopticum | ▲ |
| Land Ownership | ■ |
| Proposed - Turbine 3 | ■ |
| Proposed - Turbine 2 | ■ |
| Proposed - Turbine 1 | ■ |
| Hameldon Wind Farm | ● |



Drawing No: LO Map
Rev No: 1
Drawn by: AAH
Checked by: AAH

Scale 1:85,000 at A3:

Viewpoint Locations

Proposed three turbines
adjacent to Hameldon Hill
Wind Farm