

PRESTWICH VERIFIED VIEWS - METHODOLOGY
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This document outlines the methodology used by Virtual Planit for producing verified views of the proposed development in Prestwich town centre.

PHOTOGRAPHY

Virtual Planit commissioned Gary Beal of Vantage Point Photos for all of the photography on Prestwich. Gary has worked on many verified projects and has over 28 years of professional experience. The aim with the photography is to create an image similar to that perceived by the human eye. The lens and camera configuration can affect this perception but it is critical to maintain data accuracy especially if the proposed development is a considerable distance from the view position.



The equipment used in this instance was: Canon EOS R5 camera. We used two lens EF16-35mm and a TS-E24mm. The angle of view in landscape orientation is 65.5 degrees. Each scene was photographed using a survey pin or suitable marker to accurately identify the view location. A plumb line was used to ensure that the centre of the camera lens was directly over the surveyed viewing position at a height of 1.65 metres.

The camera is mounted on a tripod at eye level which is 1.65m from the ground. The orientation of the camera is adjusted so that the horizontal axis of the sensor is aligned with the horizon.

Images are captured using the native camera RAW format to ensure maximum tonal and colour information is retained for use in the image processing stage. Choices for aperture and focus distance are designed to render all parts of the scene 'in focus'. Supplementary photographs are taken to record the camera position.

The metadata of each image records the exact time and date of each image allowing accurate lighting conditions to be recreated in the computer model as required.

Further information is also recorded such as the camera, lens, and exposure and aperture settings. All camera data is recorded in a spreadsheet for reference.



3D SURVEY

Virtual Planit have a long standing relationship with Powers and Tiltman, experienced RICS surveyors, who are familiar and experienced with verified work.

In preparation for the surveys, a series of key points were identified in each of the photographs used to verify the shots, particularly on the clearly visible corners of buildings. Care is taken to ensure a good spread of points including points close to the camera, points near the target development, together with points at ground and roof level, and points across the width of the image. A wide spread enables a more thorough and accurate analysis. The surveyor would then add a further series of additional reference points, in order to provide a comprehensive range of point reference across the photograph. It is these 2d points on the photograph that are surveyed to give each a 3 dimensional co-ordinate value.

The points were surveyed by a professional survey team using GPS. The survey points are related back to the Ordnance Survey National Grid - selected as it is the most widely used and also allows captured data to be incorporated into other digital products.



Below is a recording of what the survey information received looks like.

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Viewpoint Co-ordinates			Instrument Height (metres)	Point ID	Horizontal Angle			Vertical Angle		
Easting	Northing	Level			Deg	Min	Sec	Deg	Min	Sec
381386.158	404123.526	95.224	1.653	1	269	50	23	74	41	42
				2	281	37	26	76	02	20
				3	287	32	08	78	00	11
				4	292	47	46	80	03	13
				5	296	01	51	82	51	25
				6	299	05	58	93	52	21
				7	321	01	36	81	20	44
				8	329	30	18	78	29	12

3D MODEL AND CAMERA MATCHING

Virtual Planit were supplied with a digital 3D model of the proposed scheme by JMA Architects.

The model is then related back to the Ordnance Survey grid and absolute (AOD) heights.

The same 3D model is used as the basis for each of the photographs, and was certified as being correct by the architect.

This 3D model was precisely aligned to the survey information using proprietary 3D modelling and rendering software, using the following information for each of the views.

- Specific details of the camera and lens used.
- The photograph, rotated if necessary to ensure the horizon line is level
- The surveyed viewpoint co-ordinates.
- The surveyed co-ordinates of points on existing buildings or immovable objects within the photograph.
- The 3D model of the proposed scheme.

The information listed above is used to situate the virtual camera in each case, such that the 3D model, survey points and model align exactly with the photograph.

WIRELINES AND RENDERING

A render is a technical term referring to the process of creating a two-dimensional output image from a 3D model. Using the virtual camera described previously, the 3D modelling and rendering software produces a render of the proposed building.

Where the required output is a wireline view and not a fully rendered image, the wireline is created by utilising a basic render; devoid of material, texture and lighting information; but fully representative of the building form, and using tools within the compositing software package (in this case Adobe Photoshop) placing a thin coloured line at the exact edge of the rendered building, defining the building envelope.

Where the required output is fully rendered, the output image from the modelling and rendering software displays the predetermined materials, textures and lighting. All materials specifications, textures and daylighting are applied to model prior to rendering. After rendering the fully rendered building is combined with the photograph in proprietary digital 'paint' software (again Adobe Photoshop) to produce the photomontage image.

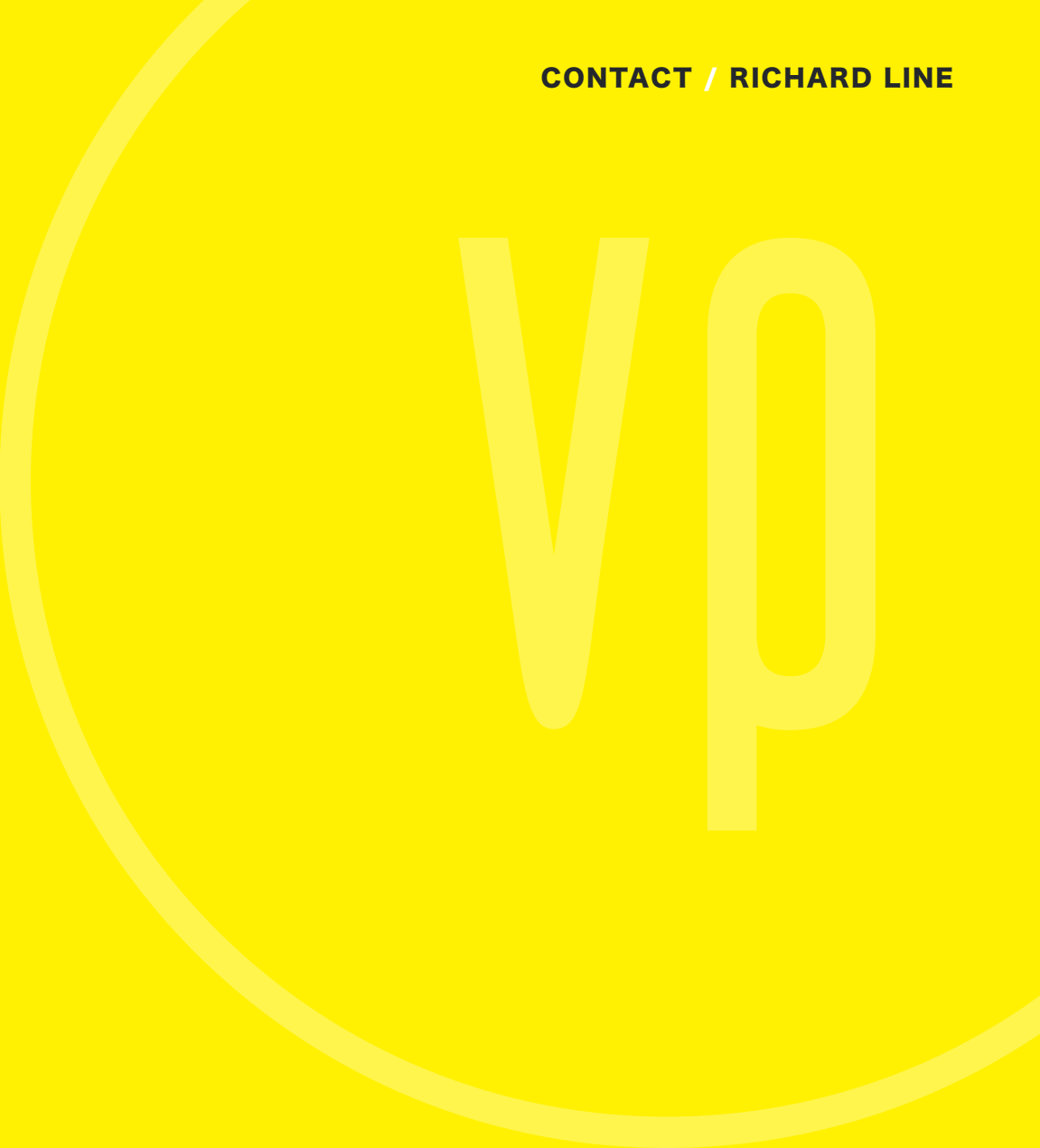
In order to achieve the most photorealistic result, colour correction adjustments may be made to the rendered image. For example hue, saturation and brightness values of the rendered image may be adjusted to better match the colour tones of the photograph. For example, poor air quality at the time of photography may necessitate the rendered image to be 'degraded' to ensure that it behaves visually as the other buildings within the photograph. This is an iterative process and is reliant on the skill of the artist and good communication between the artist and the architect to ensure their vision for the material and texture qualities is maintained. The design team then signed off on the appearance of the scheme in the views.

'Masks' are created where the line of sight to the proposed scheme is interrupted by foreground buildings or elements such as lampposts, vehicles and street furniture.

No physical correction or distortion is made to the base photography or 3d rendered image. The images are prepared in this manner to provide a representation of the mass and scale of the development.

Below is one of the finished verified views which is part 3d render and part solid fill for the cumulative development.





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