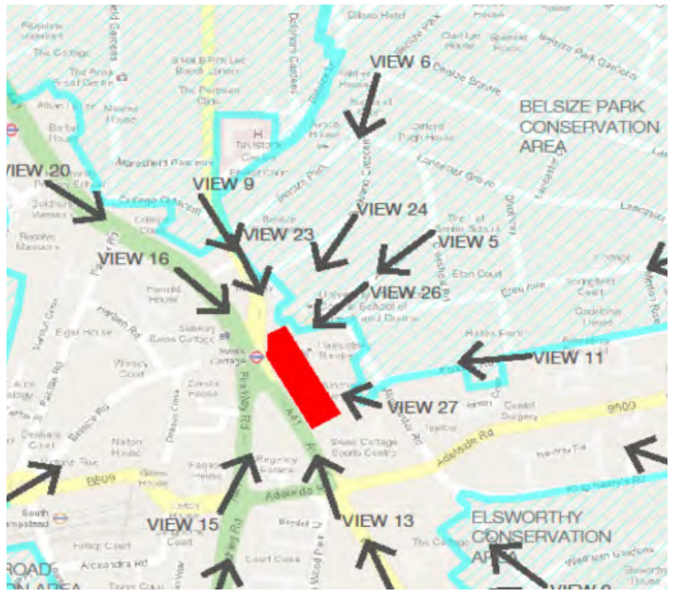
SUMMER EXISTING

100 Avenue Road
Swiss Cottage
February 2025

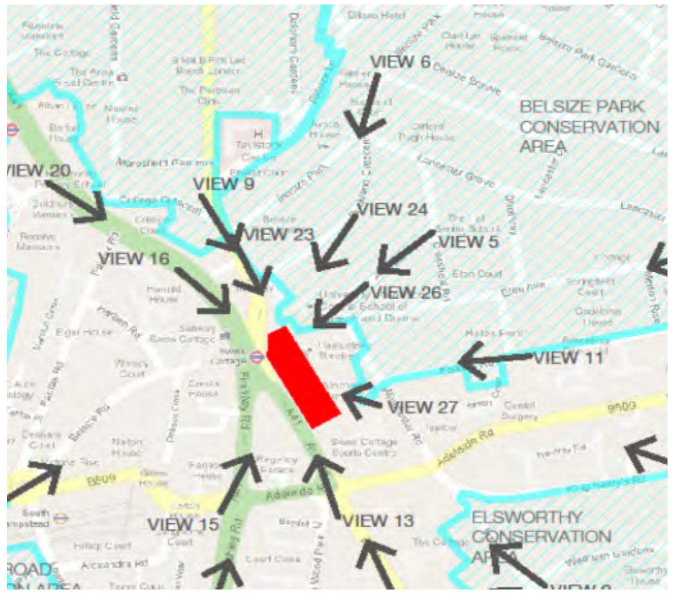


AVR_26

WINTER EXISTING

100 Avenue Road
Swiss Cottage
February 2025

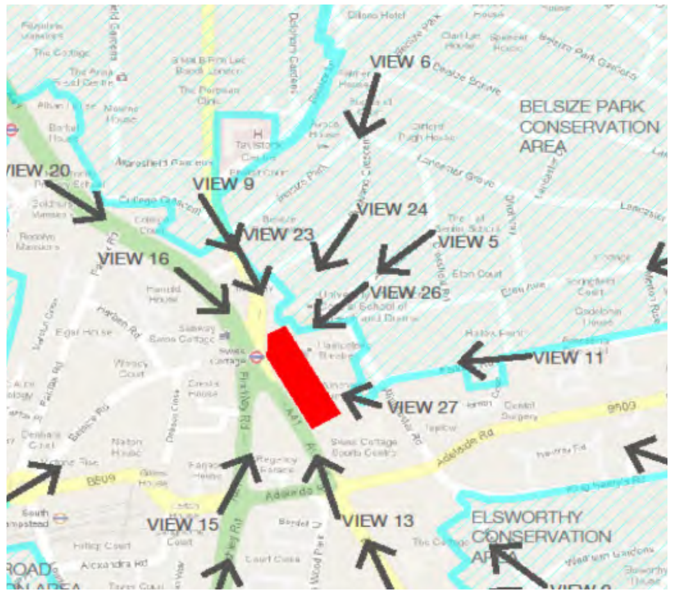
AVR_26



WINTER PROPOSED

100 Avenue Road
Swiss Cottage
February 2025

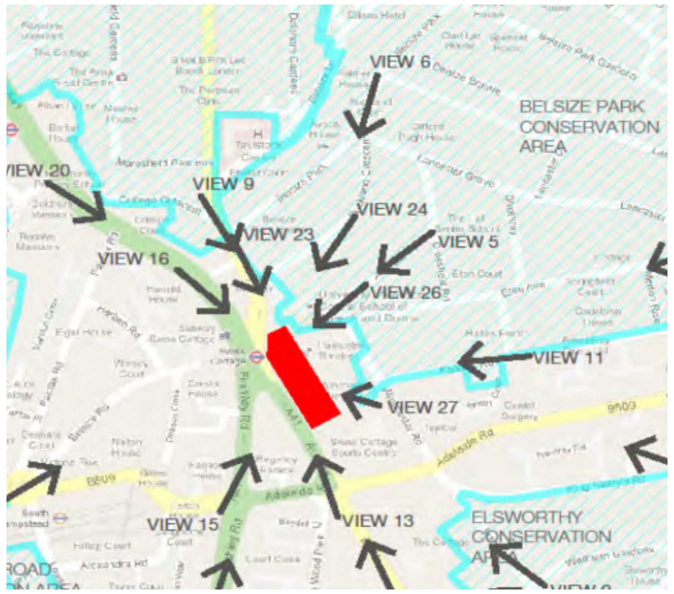
AVR_26



100 Avenue Road
Swiss Cottage
February 2025

SUMMER EXISTING

AVR_27



WINTER EXISTING

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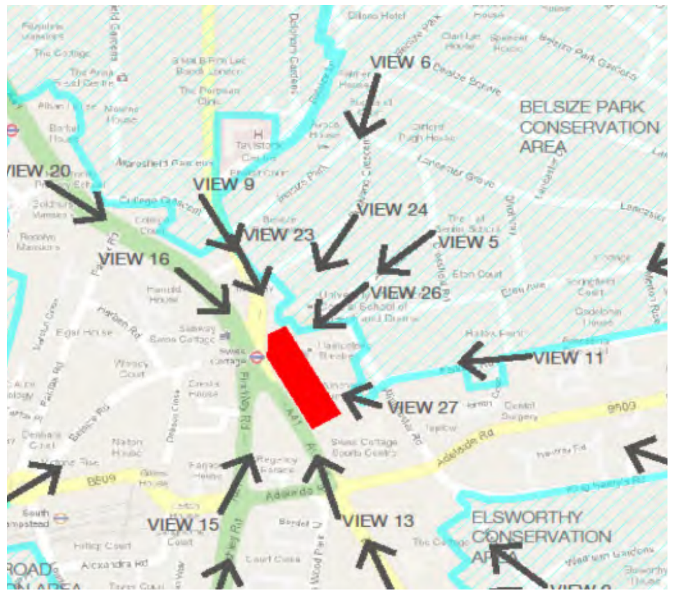
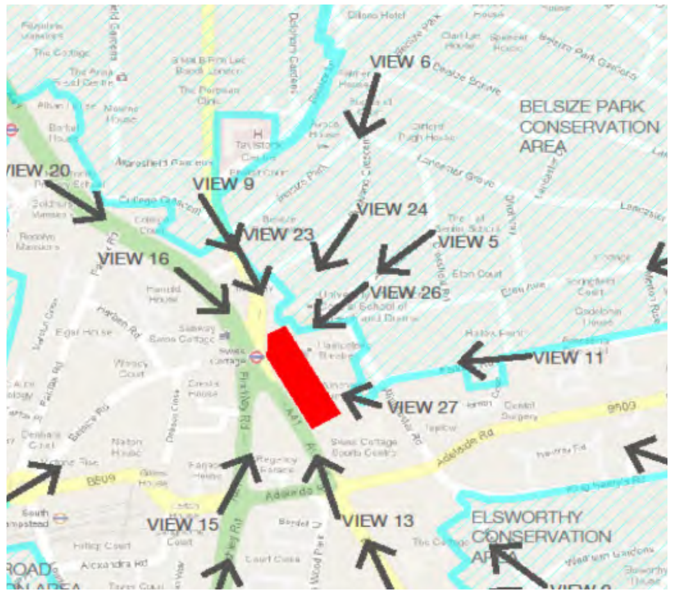
AVR_27



AVR_27

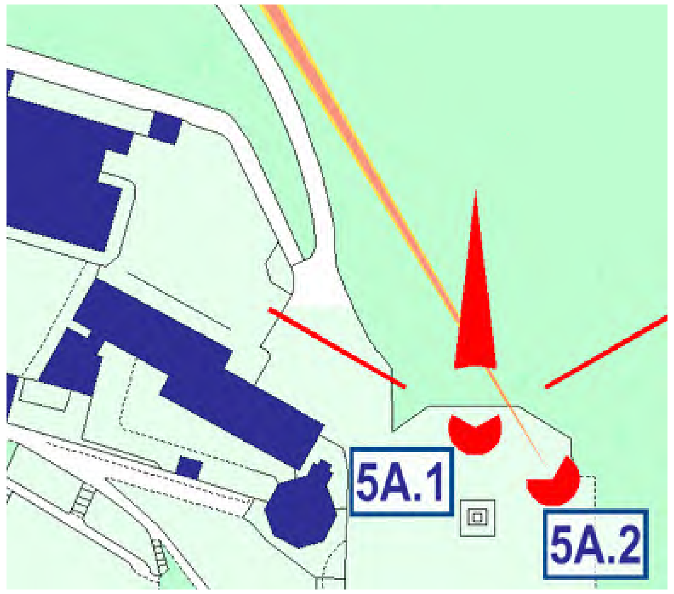
100 Avenue Road
Swiss Cottage
February 2025



100 Avenue Road
Swiss Cottage
February 2025

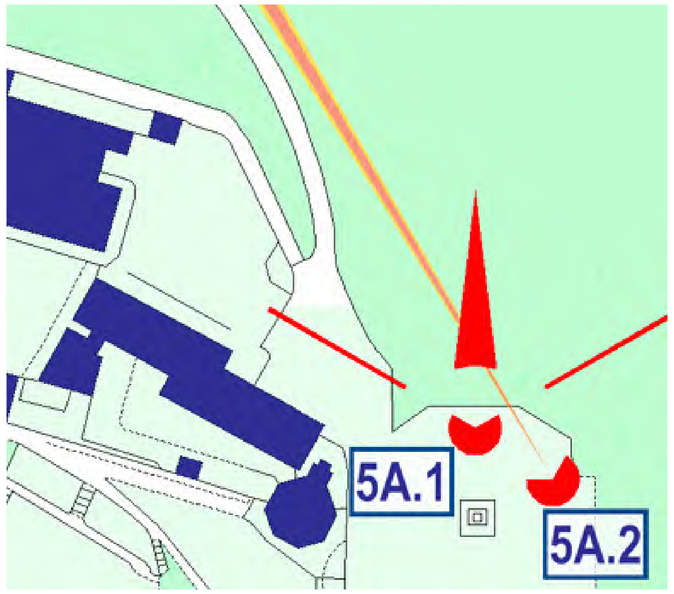
SUMMER EXISTING

LVMF5A.2



100 Avenue Road
Swiss Cottage
February 2025

WINTER EXISTING



LVMF5A.2

WINTER PROPOSED

100 Avenue Road
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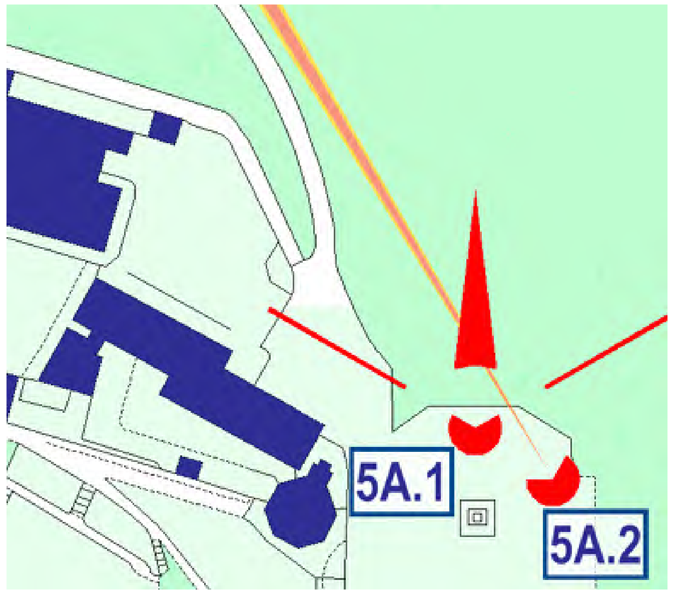

LVMF5A.2

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AVR

LONDON

PROJECT: 100 Avenue Road
DATE: February 2025

AVR London were commissioned to produce a number of verified views of the proposals at 100 Avenue Road. AVR positions were identified by the planning consultant.

2D plans, Ordnance Survey Mapping, local survey data, and the 3D model for the proposed development were provided by the architect.

PHOTOGRAPHY

Equipment:

Canon EOS R5
Canon TS-E 24mm f/3.5L II

1.1 All photography is undertaken by AVR London's in-house professional photographers.

1.2 In professional architectural photography, having the camera level with the horizon is desirable in order to prevent three point perspective being introduced to the image and to ensure the verticals within the photographed scene remain parallel. This is standard practice and more realistically reflects the viewing experience.

1.3 The lens used by the photographer has the ability, where necessary, to shift up or down while remaining parallel to the sensor, allowing for the horizon in the image to be above, below or central within the image whilst maintaining two point perspective. This allows the photographer to capture the top of a taller proposed development which would usually be cropped, without introducing three point perspective.

When the shift capability of the lens is not used the image FOV and dimensions are the same as a prime lens of equal focal length.

1.4 Once the view positions are confirmed by the townscape consultant, AVR London takes professional photography from each location. At each location the camera is set up over a defined ground point using a plumb line to ensure the position can be identified later.

1.5 The centre of the camera lens is positioned at a height of 1.60 metres above the ground to simulate average viewing height. For standard verified photography, each view is taken with a lens that gives a 68 degree field of view, approximately, a standard which has emerged for verified architectural photography. The nature of digital photography means that a record of the time and date of each photograph is embedded within the photo file; this metadata allows accurate lighting timings to be recreated within the computer model.

1.6 Once the image is taken, the photographer records the tripod location by photographing it in position to ensure the position can be accurately located for surveying (Fig 02).

1.7 Each image is processed by the photographer to ensure it visually matches the conditions on site when the photograph is taken.

REGARDING 24mm FOCAL LENTH IN AN URBAN ENVIRONMENT

1.8 **The Landscape Institute Technical Guidance Note** [2] states:

1.5.5 ***'When regulatory authorities specify their own photographic and photomontage requirements, the landscape professional should follow them unless there is a good reason not to do so.'***

1.9 **The London View Management Framework: Supplementary Planning Guidance (2012) Appendix C: Accurate Visual Representation** [1] sets out a well-defined and verifiable procedure for preparing Accurate Visual Representations as part of the assessment of the visual impacts of proposed developments. As the LVMF aims to protect the most significant views in London, the guidance set out in Appendix C is considered best practice within the industry.

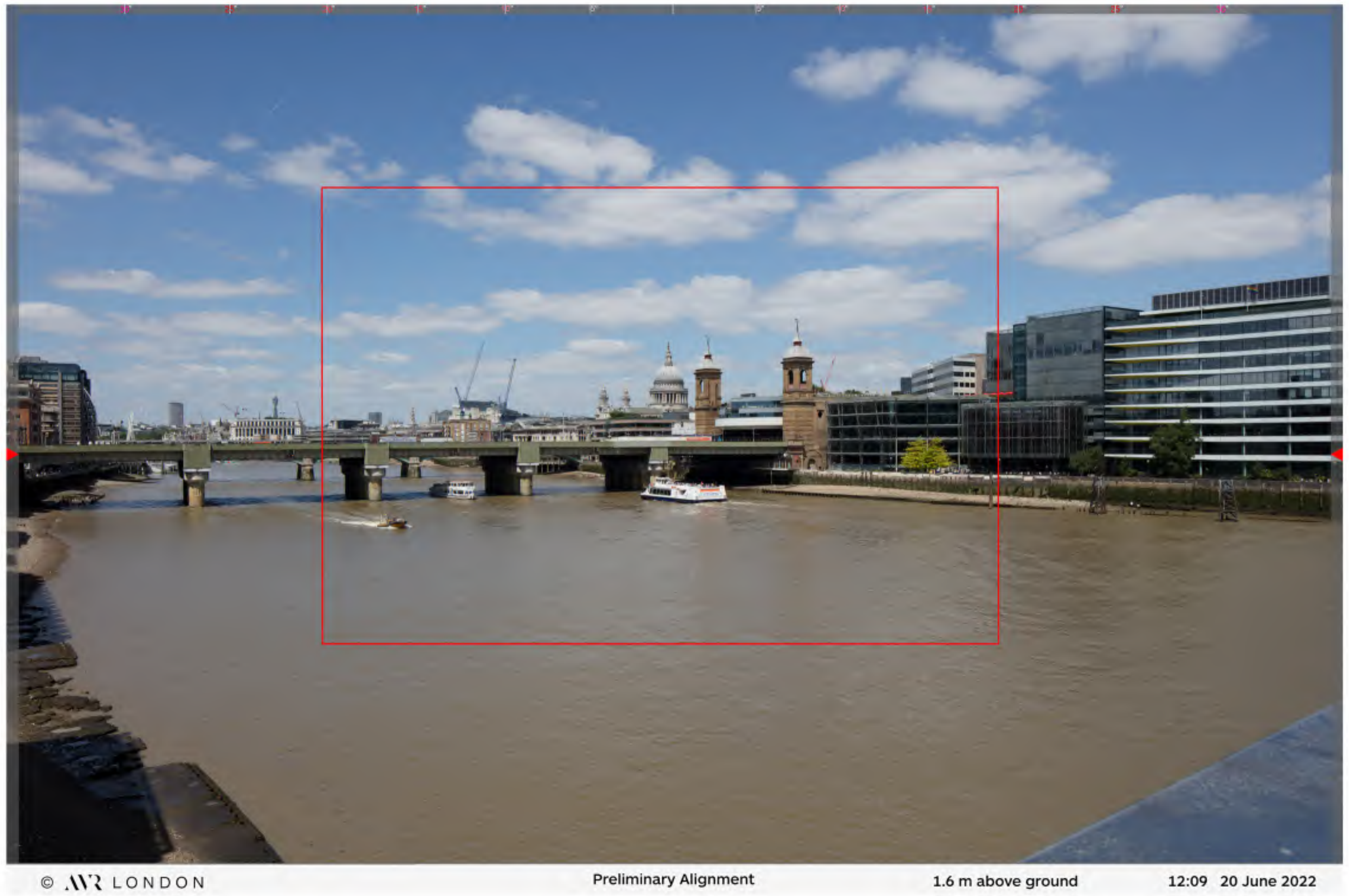

Fig 01: 24mm photograph with 50mm photograph overlaid

The LVMF guidance indicates that creators of AVRs should use the appropriate lens for each study, which could include wide angle lenses (wider than 50mm) or telephoto lenses (more zoomed than 50mm), where necessary.

Over time the 24mm lens has become the industry standard in urban visualisation due to its ability to capture context with limited distortion.

Given the Landscape Institute's advice to follow the authorities' own requirements, where applicable, AVR London follows the LVMF guidance.

1.10 When we observe a scene, we can focus on 6-10 degrees. However, without moving our head, the scene beyond is observed using our peripheral vision. Once we move our eyes we can observe almost 180 degrees without moving our head. In reality we do not view the world through one fixed position, we move our eyes around a scene and observe, height, width and depth.

1.11 This is acknowledged by the Landscape Institute's Technical Guidance Note [2]. The appreciation of the wider context seen through peripheral vision or by moving our eyes (changing the focal point) is key to our experience of a scene.

While photography cannot replicate the human experience entirely, it is widely acknowledged that the use of a 24mm lens in an urban environment provides the viewer with a more realistic experience than a 50mm lens. For these reasons the 24mm lens is industry standard in the creation of urban photo montages. It should also be noted that using a consistent focal length is favourable so as not to confuse the viewer's sense of scale.

50mm LENS/CROP

1.12 It should also be stressed that if you were to centrally crop into an image taken with a 24mm lens to the same HFOV (Horizontal Field Of View) as a 50mm lens, the resulting image is identical to that produced by taking it directly with a 50mm lens. An image with a 70 degree HFOV (24mm lens) is geometrically and perspectively identical to an image showing a HFOV of 40 degrees (50mm lens), the 24mm lens purely gives more context to all sides (Fig 01). Further, all of our images allow this 50mm equivalent HFOV to be seen, read and understood on the image itself.

The benefit of using images taken with a 24mm lens is that the observer and in particular an experienced inspector, is able to analyse the image with the benefit of both fields of view.

POINT	EASTING	NORTHING	HEIGHT
9	526589.830	184567.507	63.017
901	526617.622	184550.914	78.833
902	526613.313	184551.339	69.417
903	526636.304	184507.174	76.606
904	526668.639	184433.393	78.765
905	526634.251	184455.199	76.074
906	526617.206	184490.044	76.084
907	526585.777	184482.207	76.053
908	526605.399	184554.208	62.739
909	526595.826	184561.553	62.870
910	526599.491	184550.721	62.732
911	526608.688	184541.366	62.484

Table 1: Example surveying data

Fig 04: Example AVR London graticule

Fig 02: Tripod location as documented by photographer

Fig 03: Survey points as highlighted by surveyor

SURVEY

Equipment:

- Leica Total Station Electronic Theodolite which has 1" angle measuring accuracy and 2mm + 2ppm distance accuracy.
- Leica Smart Rover RTK Global Positioning System.
- Wild/Leica NAK2 automatic level which a standard deviation of +/- 0.7mm/km

2.1 The photographer briefs the surveyor, sending across the prepared photographs, ground positions and appropriate data.

2.2 The surveyor establishes a line of sight, two station baseline, coordinated and levelled by real time kinetic GPS observations, usually with one of the stations being the camera location. The eastings and northings are aligned to the Ordnance Survey National Grid (OSGB36) and elevation to Ordnance Survey Datum (OSD) using the OSTN15 GPS transformation program.

2.3 Once the baseline is established, a bearing is determined and a series of clearly identifiable static points across the photograph are observed using the total station. These observations are taken throughout the depth of field of the photograph and at differing heights within the image.

2.4 The survey control stations are extracted from the OS base mapping and wherever possible, linked together to form a survey network. This means that survey information is accurate to

REFERENCES:
[1] GLA - London View Management Framework: Supplementary Planning Guidance (2012) Appendix C: Accurate Visual Representations
[2] Landscape Institute - Visual Representation of Development Proposals - Technical Guidance Note (September 2019)
[3] Landscape Institute - Guidelines for Landscape and Visual Impact Assessment: 3rd edition (April 2013)

tolerances quoted by GPS survey methods in plan and commensurate with this in level.

2.5 Horizontal and vertical angle observations from the control stations allow the previously identified points within the view to be surveyed using line of sight surveying and the accurate coordination of these points determined using an intersection program. These points are then related back to the Ordnance Survey grid and provided in a spreadsheet format showing point number, easting, northing and level of each point surveyed, together with a reference file showing each marked up image (Fig 03 and Table 1).

2.6 The required horizon line within the image is established using the horizontal collimation of the theodolite (set to approximately above the ground) to identify 3 or 4 features that fall along the horizon line. The theodolite more generally is used for measuring angles and distances.

2.7 Using the surveyed horizon points as a guide, each photograph is checked and rotated, if necessary, in proprietary digital image manipulation software to ensure that the horizon line on the photograph is level and consistent with the information received from the surveyor.

Accurate Visual Representation Production

Process

3.1 The 3D computer model is precisely aligned to a site plan on the OS coordinate grid system.

3.2 Within the 3D software a virtual camera is set up using the coordinates provided by the surveyor along with the previously identified points within the scene. The virtual camera is verified by matching the contextual surveyed points with matching points within the overlaid photograph. As the surveyed data points, virtual camera and 3D model all relate to the same 3-dimensional coordinate system, there is only one position, viewing direction and field of view where all these points coincide with the actual photograph from site. The virtual camera is now verified against the site photograph.

3.3 For fully-rendered views a lighting simulation (usingaccurate latitude, longitude and time) is established within the proprietary 3D modelling software matching that of the actual site photograph. Along with the virtual sunlight, virtual materials are applied to the 3D model to match those advised by the architects. The proprietary 3D modelling software then uses the verified virtual camera, 3D digital model, lighting and material setup to produce a computer generated render of the proposed building.

3.4 The proposal is masked where it is obscured behind built form or street furniture.

3.5 Using the surveyed information and verification process described above, the scale and position of a proposal within a scene can be objectively calculated. However, using the proprietary software currently available the exact response of proposed materials to their environment is subjective so the exact portrayal of a proposal is a collaboration between illustrator and architect. The final computer generated image of the proposed building is achieved by combining the computer-generated render and the site photography within proprietary digital compositing software.

Presentation

Graticule

4.1 Each Accurate Visual Representation is framed by a graticule which provides further information including time and date of photography, horizon markers and field of view of the lens (Fig 04).

4.2 The Field of View is represented along the top of the image in the form of markers with degrees written at the correct intervals.

4.3 The horizon markers indicate where the horizontal plane of view from the camera lies. (section 2 above explains how the surveyor establishes these horizon points).

4.4 The date and time stamp documents exactly when the photograph was taken. This data is recorded in every digital camera file, known as EXIF data.

6. PUBLISHED GUIDANCE

6.1 The Landscape Institute, states in "Visual Representation of Development Proposals - Technical Guidance Note (September 2019)", that:

"The LI recognises that, for some types of development, targeted or authority-specific guidance may be appropriate."

"The London View Management Framework provides useful guidance for large-scale urban development, and is particularly useful in identifying what it refers to as 'AVR Types' (0 - 3)"

6.2 We agree with the Landscape Institute and it is broadly accepted across the industry that the London View Management Framework Guidance, Appendix C: Accurate Visual Representations outlines best practice for producing Accurate Visual Representations of urban developments.

The framework was set up to protect London's most important views and has been used as the industry standard for all significant strategic developments in the capital since. The LVMF Guidance was the subject of full consultation with the local authorities in London and other bodies such as Historic England and Historic Royal Palaces.

The following, outlines the key reasons why LVMF guidelines for urban development are recommended:

Field of View (FOV) and Lens Selection

6.3 It is outlined in the guidance (Point 467) "As we experience a scene, our perception is built from a sophisticated visual process that allows us to focus onto individual areas with remarkable clarity whilst remaining aware of a wider overall context." For this reason a 50mm lens with a FOV of 40 degrees is not appropriate in a built environment. In comparison a 24mm lens with a FOV of 70 degrees allows the viewer to appreciate and understand urban context.

Tilt/Shift Lens

6.4 A tilt/shift lens allows the axis of the lens to be moved vertically or horizontally in order to avoid distortion and thus to replicate more closely the complex manner in which human vision is interpreted into an image in our mind.

Due to the complex nature of these lenses, they are of a much higher quality and cost compared to standard lenses and do not have any distortion, barreling/pin cushion effect that lenses of a lesser quality often have. Despite their complexity and cost, the ability to control the viewing centre of an image without any distortion has made these lenses essential to professional photographers, especially in the discipline of architecture in urban environments.

It should be stressed that AVR London only use the shift function of the lens and this is only shifted in the vertical direction. This is simply to allow us to compose images to better demonstrate the view and the proposal's place within it without introducing 3-point perspective distortion (converging verticals) and to closer replicate how our mind interprets and corrects for such (Fig 04).

Not only is the use of tilt shift lenses standard practice within architectural photography, it is also standard practice throughout all the established professional practices conducting verified images in London. The LVMF guidance itself uses a vertical rise image as its main image of explanation in the Annex identifying good practice.

Stitching and Accuracy

6.5 A 24mm lens captures enough context that it almost always possible to use one photograph to capture a view position. This ensures stitching of multiple images will not be required, on the rare occasion that 24mm FOV is not wide enough a diptych or triptych is preferable, again this is to avoid stitching of images together. Stitching images together introduces inaccuracies and distortion in to the photograph and leads to a composite of blended perspectives.

It is always more accurate to verify a single photograph compared to a stitched image. Stitched images are impossible to replicate using the same methodology compared with single photographs as the stitching is either done by hand with causes variation or by automated programs which may also introduce variation.

Proven History

6.6 AVR London has used this methodology, aligned with the London View Management Framework, for planning applications in every London borough, throughout the UK from Cornwall to Scotland and Northern Ireland and as far afield as Sydney, Australia without question.

AVR London have also presented work using this methodology at numerous planning inquiries without question.

Research and Future Developments

6.7 AVR London have always undertaken research in to new areas of technology within the industry and this includes within the verified workflow.

Given the previous stated issues surrounding stitched photography we have worked on various research projects and developed a separate methodology to ensure 360 degree photography can be fully verified and viewed within a headset where appropriate. This accuracy has been tested and proven at planning inquiry.

Notes:

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