

METHODOLOGY STATEMENT

School Road

Ealing, London

Accurate Visual Representation (AVR) / Verified View Methodology
Methodology for Accurate Visual Representations

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1.0 Introduction and Purpose

This document sets out the methodology adopted by Construct Media Ltd for the preparation of Accurate Visual Representations (AVRs), also referred to as Verified Views. AVRs are produced to support the assessment of the visual effects of development proposals within the planning process.

The methodology is designed to be transparent, robust and verifiable, allowing independent third parties to audit the accuracy of the resulting imagery in terms of scale, height, position and visibility. It is suitable for use in planning applications, appeals and public inquiry.

This document describes the primary verification process. Project-specific parameters are recorded in Appendix A, and supporting photographic and technical material is provided separately within an Appendix where required.

The disciplines employed represent the highest levels of accuracy and photo-realism achievable with current standards of architectural photography and computer-generated modelling.

2.0 Guidance and Standards

The methodology accords with, and where appropriate exceeds, current recognised best practice, including:

- London View Management Framework (LVMF) Supplementary Planning Guidance, Appendix C: Accurate Visual Representations
- Landscape Institute / IEMA Guidelines for Landscape and Visual Impact Assessment (GLVIA3)
- Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals

These documents establish the principles of verifiability, transparency and proportionality that underpin the preparation of AVRs. Where local authority-specific requirements or project-specific agreements apply, these take precedence and are followed unless otherwise agreed in writing.

2.1 Published Guidance

The Landscape Institute states in TGN 06/19 (September 2019) that, for certain types of development, targeted or authority-specific guidance may be appropriate. In the context of large-scale urban development, the LVMF provides specific and widely adopted guidance for the preparation of AVRs, including the classification of AVR Types (Levels 0–3).

This methodology therefore follows the principles set out within LVMF Appendix C, as it represents established best practice for verified visual material in urban planning assessments, while remaining consistent with the overarching guidance of the Landscape Institute.

3.0 Definition and Classification of AVRs

An Accurate Visual Representation (AVR) is a static image that shows the location of a proposed development as accurately as possible from a defined viewpoint. Depending on the agreed purpose, an AVR may illustrate location and scale, degree of visibility, architectural form, and proposed materiality and lighting.

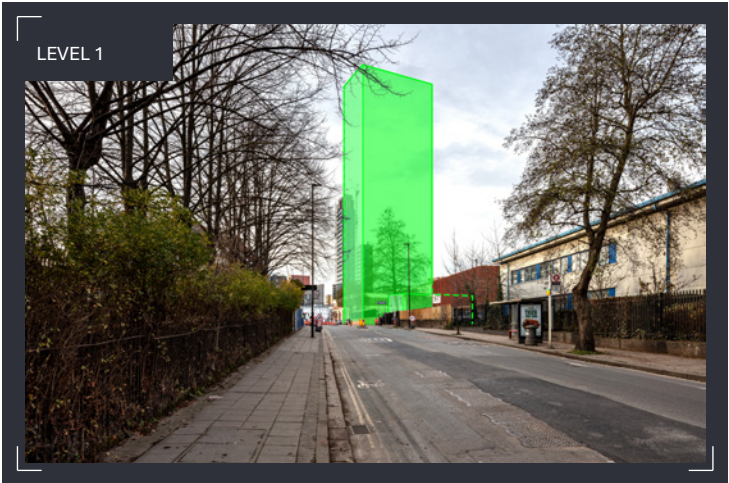
AVRs are prepared following a defined and verifiable procedure and can therefore be relied upon to fairly represent the selected visual properties of a proposed development. They are classified by intended purpose using the following cumulative levels:

AVR Level 0	Location and size of proposal
AVR Level 1	Location, size and degree of visibility
AVR Level 2	As Level 1 + description of architectural form
AVR Level 3	As Level 2 + use of materials

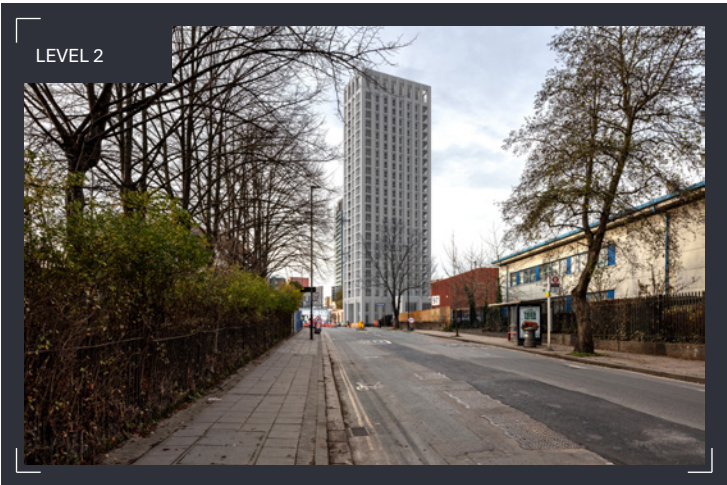
The required AVR level is agreed with the project team prior to commencement, having regard to the assessment objectives and the sensitivity of the receiving environment. The four cumulative levels are illustrated opposite for an identical viewpoint.



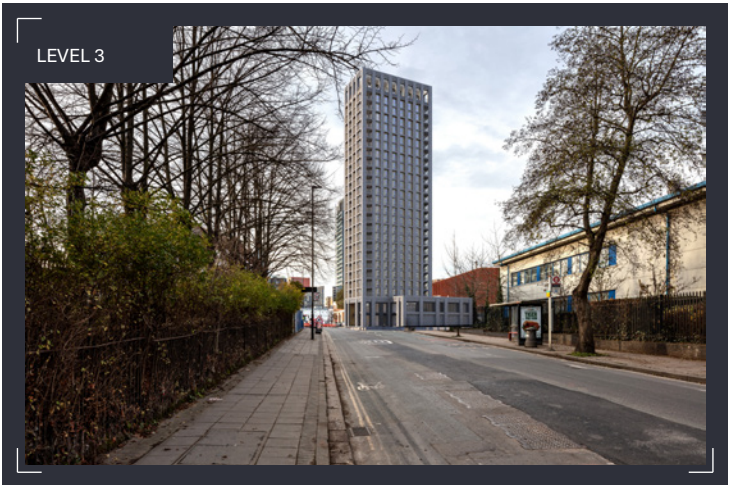
AVR Level 0 — location and size



AVR Level 1 — degree of visibility



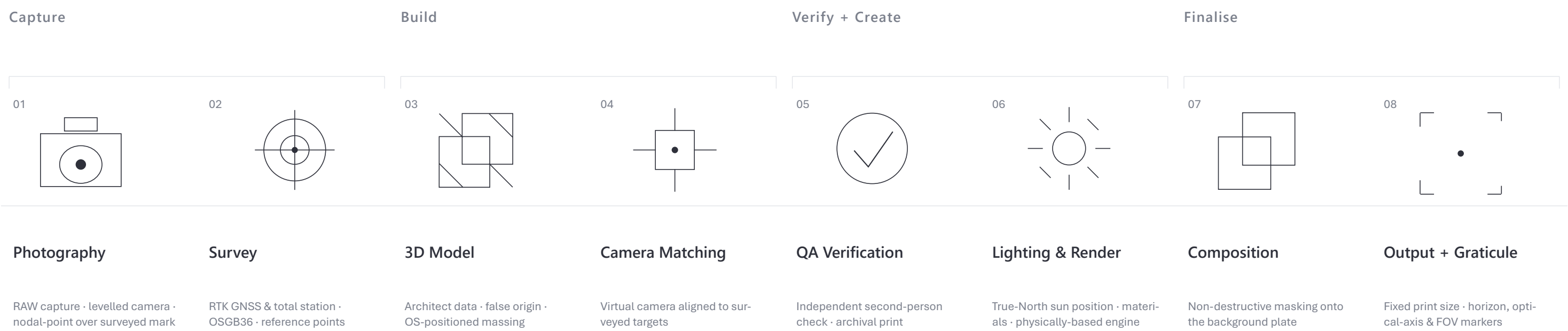
AVR Level 2 — architectural form



AVR Level 3 — use of materials

3.1 The AVR Process — Overview

Every Verified View follows the same controlled, auditable sequence. Each stage produces recorded data or imagery that can be independently checked, so that the geometry of the final image is traceable from surveyed control through to print output. The eight stages below are described in detail in Sections 5 to 12.



A structured eight-step workflow for survey-accurate architectural visualisation

4.0 Viewpoint Selection

Viewpoints are identified by the project’s townscape, heritage or landscape consultant, having regard to relevant planning policy, guidance and assessment objectives, and through consultation with the relevant statutory consultees where appropriate.

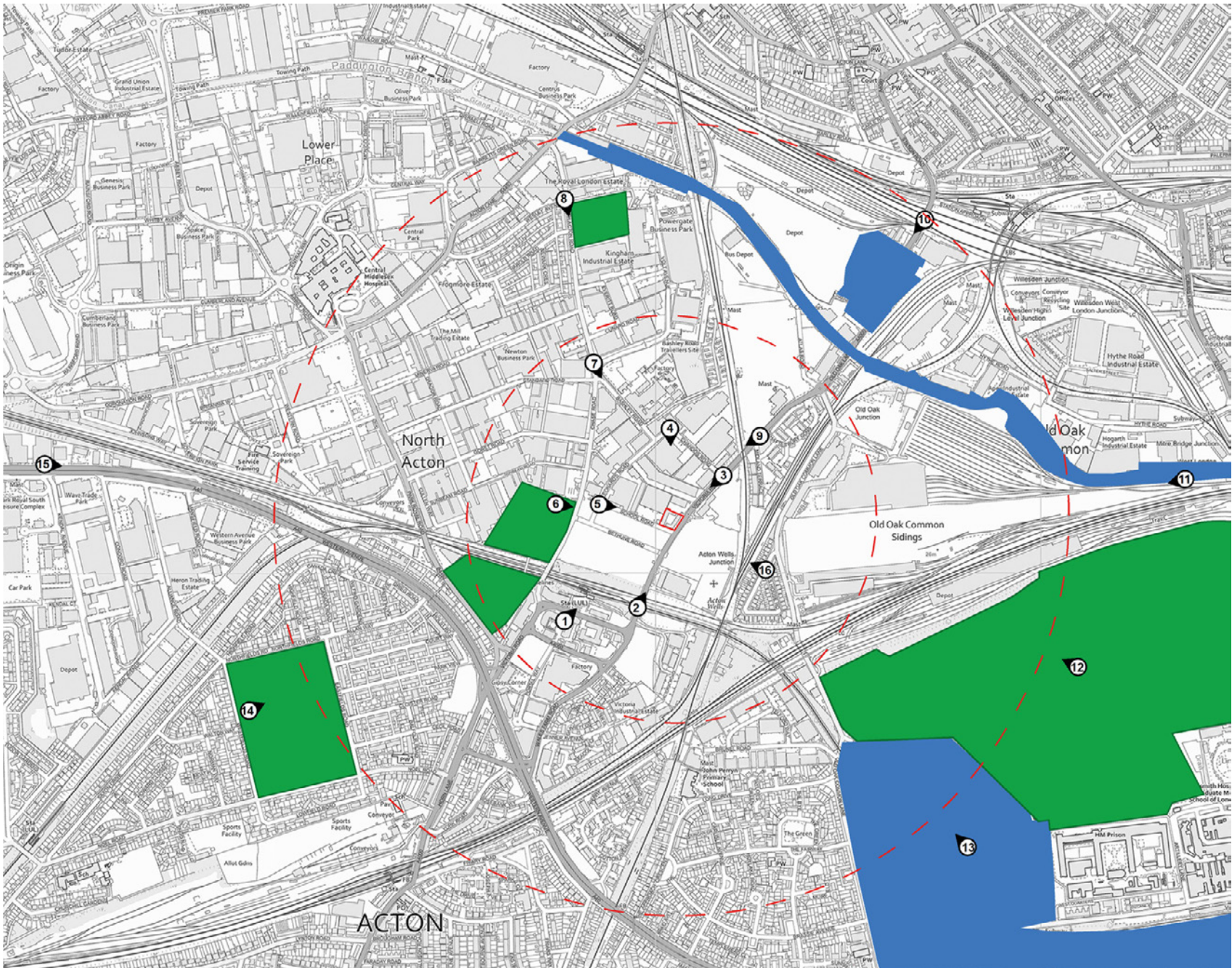
Viewpoint information typically includes:

- An Ordnance Survey–based location plan
- A reference photograph or description of the intended view
- Confirmation of AVR level and field of view requirements

Where necessary, Construct Media undertakes a site reconnaissance to confirm accessibility, safety and suitability of the viewpoint locations. The photographer is provided with an Ordnance Survey map indicating each viewpoint and, where helpful, a digital mock-up rendered with a context model of the desired view.

Seasonal note

Where the assessment requires a worst-case representation of visibility, baseline photography is undertaken in winter, when deciduous vegetation is not in leaf and the proposed development is at its most visible. The season of capture for this project is recorded in Appendix A.



Representative viewpoint location plan — site, townscape study area (750m) and representative viewpoints.

5.0 Photography Methodology

Professional full-frame digital cameras and calibrated lenses suitable for verified visual work are used. All photographs are captured in RAW format using manual exposure settings to maximise image quality and tonal range.

5.1 Camera Equipment and Positioning

The camera, a Canon EOS 5DS R full-frame digital SLR, is mounted on a Giottos MTL8271B carbon-fibre tripod fitted with a Manfrotto 410 Junior geared head. A sliding mount positions the optical centre of the lens directly over the surveyed ground point, eliminating parallax error during capture. The camera is set at 1.60m above ground level, approximating human eye level and within the 1.5–1.65m range provided by TGN 06/19.

5.2 Camera Orientation and Perspective

The camera is levelled horizontally and vertically to maintain a horizontal optical axis, avoiding converging verticals which, while perspectively correct, can be misleading in printed form. Where tilt or vertical rise is used to control framing, this is applied without introducing perspective distortion and is documented as part of the verification process.

5.3 Lens Selection and Field of View

Lens selection is based on the requirements of the assessment rather than aesthetic preference. The Horizontal Field of View (HFoV) is recorded and used as the primary metric for verification, giving a consistent basis for comparison across camera and sensor formats. As noted in LVMF guidance (Point 467), a 50mm lens ($\approx 40^\circ$) is not always appropriate in a built environment, whereas a 24mm lens ($\approx 74^\circ$) allows the viewer to appreciate urban context.

5.4 Tilt-Shift Lens Use

Where tilt-shift lenses are used, only the shift function in the vertical direction is applied, allowing framing of the view without introducing perspective distortion or converging verticals, consistent with architectural photography best practice.

5.5 Image Capture

Where panoramic views are required, images are captured with sufficient overlap and with the camera rotating around the nodal point to avoid parallax. Date, time, lens and exposure data are recorded automatically via EXIF metadata, and reference photographs of the camera and tripod in position are taken to support verification.

Lens	HFoV	Application
105mm	19.5°	Long-range relationships, distant detail
50mm	39.6°	Standard lens, approximates focused human attention
35mm	54.4°	General purpose, moderate context
24mm	73.7°	Urban contexts, constrained spaces, tall buildings
17mm	93.3°	Very constrained viewpoints, panoramic requirements



Camera and tripod in position over the surveyed mark

6.0 Image Preparation and Lens Correction

6.1 Raw File Conversion

Professional digital cameras record a RAW file, which is processed for both high detail and colour accuracy. The image is converted to a high-bit-depth TIFF, preserving tonal range for the subsequent stages. No content-altering adjustments are made that would affect the scale, geometry or visibility of the scene.

6.2 Lens Distortion and the ‘Safe Area’

All lenses exhibit a degree of geometric distortion. The most common forms are radially symmetrical about the principal axis and grow towards the perimeter of the frame. To avoid introducing error, the distorted outer edges of the image are excluded from the camera-matching process: a non-distorted central ‘safe area’ is defined and used to register the photograph against the survey.

Where a lens correction profile is applied, only the manufacturer’s calibrated geometric profile is used, and the corrected image is verified against straight surveyed reference edges before matching proceeds.

6.3 The Background Plate

The corrected image — known as the ‘background plate’ — is saved ready for camera matching (Sections 8 and 9). On each plate, the safe area and priority survey points (building corners, retained elements and party walls) are identified to guide the survey and the alignment that follows.



Background plate

7.0 Survey Methodology

An independent, suitably qualified surveyor — Warner Land Surveyors Ltd (WLS) — is appointed to record the camera location, height above ground, bearing, and clearly identifiable reference points visible within the photograph.

Survey data is recorded in the Ordnance Survey National Grid (OSGB36), with elevations related to Ordnance Survey Datum. Control is established using appropriate GPS and total-station equipment. Where GPS signal is constrained — near tall buildings or under tree canopies — surveyors position a GPS baseline at a location with coverage and traverse to the required location with the total station, transferring OS coordinates in the process. Data is supplied in digital format suitable for direct import into the 3D environment.

7.1 Survey Accuracy Standards

Method	Plan Accuracy	Height Accuracy
RTK GPS / GNSS	±10–15mm	±15–20mm
Total Station (reflecterless)	±5mm	±5mm
Photogrammetry / DSM	±1.5m	±1.5m

These tolerances accord with the RICS “Guidelines for the use of GPS in Land Surveying”.

7.2 Why Survey Accuracy Matters

The angular consequence of a positional error depends on the distance of the object from the camera. A 1m lateral displacement of the camera produces the following apparent shift, demonstrating why sub-50mm viewpoint accuracy is essential for near-field assessment:

Distance from camera	Apparent shift (per 1m displacement)
10 m	5.70°
100 m	0.57°
1,000 m	0.057°
10,000 m	0.006°



Surveyed reference points identified within the photographic plate.

8.0 3D Model Preparation

The proposed development model is constructed from architect-supplied drawings and/or models. It is checked for consistency against plans, sections and elevations, and positioned accurately within the OSGB36 coordinate system. Site levels are aligned to surveyed data. Where cumulative development is required, neighbouring (consented) schemes are modelled and positioned using equivalent verified data sources.

8.1 False Origin

3D modelling programs, unlike CAD/BIM programs, exhibit inherent inaccuracies the further an object lies from the coordinate origin. A local ‘false origin’ is therefore recorded and used to move the model closer to the origin, alleviating these inaccuracies. The proposed development model, consented scheme models and survey data are all moved uniformly to this false origin; when performing positioning checks, the offset between false origin and OS is added back to the coordinates.

9.0 Camera Matching and Alignment

Surveyed camera position, orientation and reference points are imported into the 3D software environment. A virtual camera is created using the recorded parameters — camera height, bearing and Horizontal Field of View — and aligned so that rendered reference geometry precisely overlays the surveyed features visible in the photograph.

This alignment may involve iterative refinement to achieve an optimal match. Where wide-angle lenses are used, greater weighting is given to reference points in the central portion of the image, where lens distortion is minimal. The completed alignment ensures that scale, distance and spatial relationships of the proposed development are objectively correct.

9.1 Verification Check. Once a satisfactory match is achieved, a second qualified team member independently verifies the judgements made. An archival print of the photograph overlaid with the alignment model is retained as a permanent record of match accuracy.



GPS points from the surveyor are added as helpers (red crosses); the virtual camera is adjusted until all data points align against the photograph.



The proposed model aligned to the camera-matched photograph.

10.0 Context Modelling — Non-Survey & Distant Views

Survey-verified camera matching (Sections 7–9) is used wherever the viewpoint and its reference points can be directly surveyed. For long-range, elevated or inaccessible viewpoints where a full ground survey is not practicable, the camera match is instead established from high-quality context data. The data source used for each view is declared in the schedule at Appendix A.1.

10.1 3D City Models

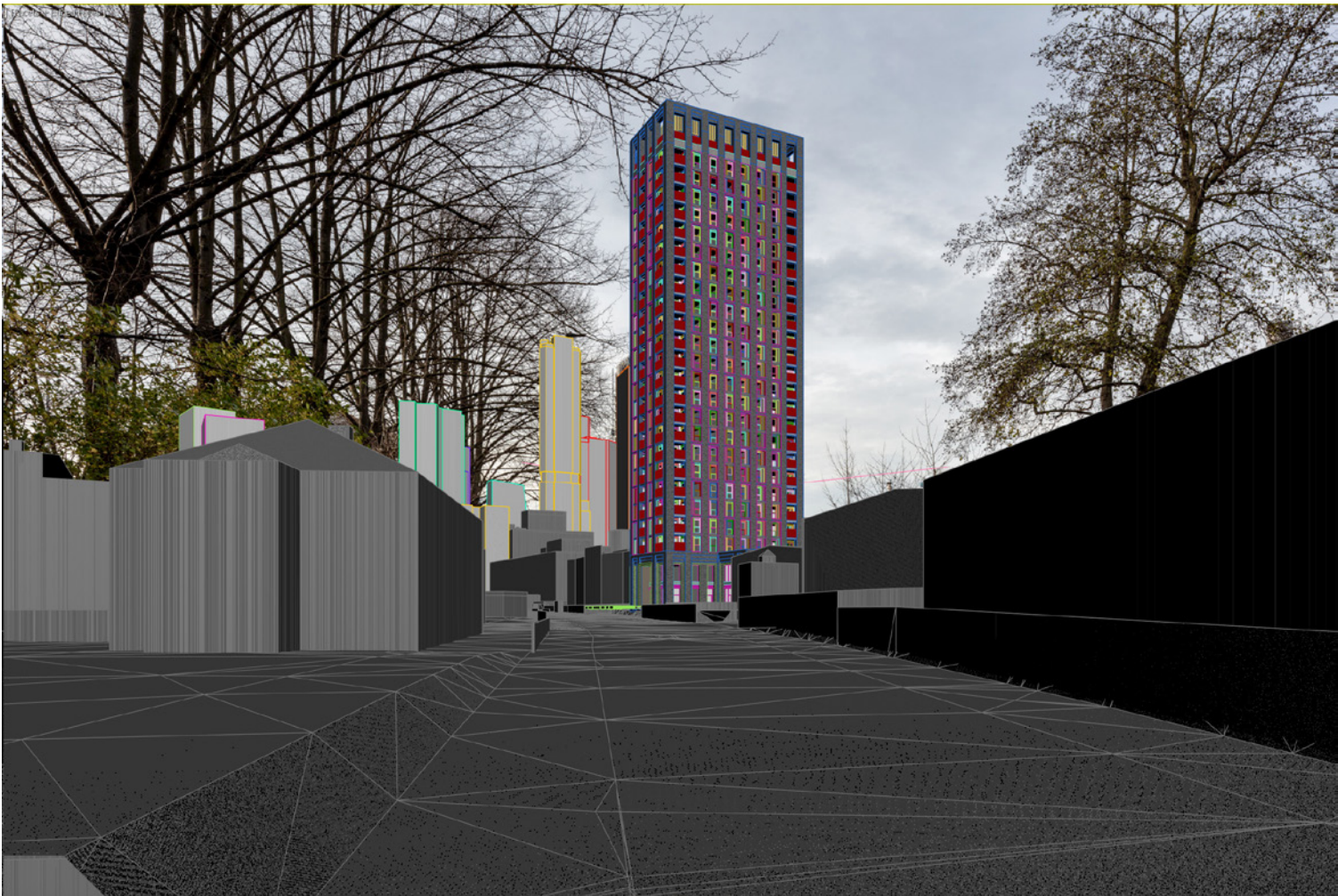
Where available, purchased 3D city models — modelled to within 0.25m — are used to register the photograph. Additional building data is added from architects’ drawings and Construct Media’s verified context data where required.

10.2 Digital Surface Models (DSM) and LiDAR

Where 3D city models are not available, a Digital Surface Model is created from publicly available LiDAR data (for example the Environment Agency / Defra LiDAR Composite DSM). The newest data at the highest available resolution — typically 1m — is processed onto OSGB36 and converted to a square-grid DSM, which is then optimised into a Triangulated Irregular Network (TIN). The optimisation is validated to produce no loss of usable geometric information. This process follows recognised guidance for the visual representation of large-scale proposals.

10.3 Effect on Accuracy

For distant relationships the apparent angular shift arising from any residual positional error is very small (see Section 7.2): at 1,000m a 1m displacement equates to only 0.057°. Context-matched views are therefore appropriate for the assessment of long-range and townscape relationships, while near-field views are always survey-verified.



Surrounding context model registered to the photograph, providing the spatial framework for the proposed development.

Context data source is declared per viewpoint in Appendix A.1. Near-field, survey-verifiable views are matched to surveyed control; distant and inaccessible views are matched to 3D city models or LiDAR-derived DSM/TIN data.

11.0 Lighting, Rendering and Materials

11.1 Lighting and Sun Direction

Lighting conditions are set to match the recorded date, time and geographic location of the photograph, using a True-North alignment (Grid North translated from OSGB36). The date, time, latitude and longitude are entered into an unbiased, physically accurate render engine so that shadows cast by the proposed development are geometrically correct. A sky condition is selected to resemble as closely as possible the sky in the background plate.

11.2 Texturing

Transforming the wireframe model into a photorealistic one is achieved by texturing — a defined stage carried out prior to rendering. High-resolution photographic imagery of real-world material samples, supplied by the client or manufacturer, is used to create accurate textures that reflect the real materials to be used.

11.3 Rendering and AVR Level

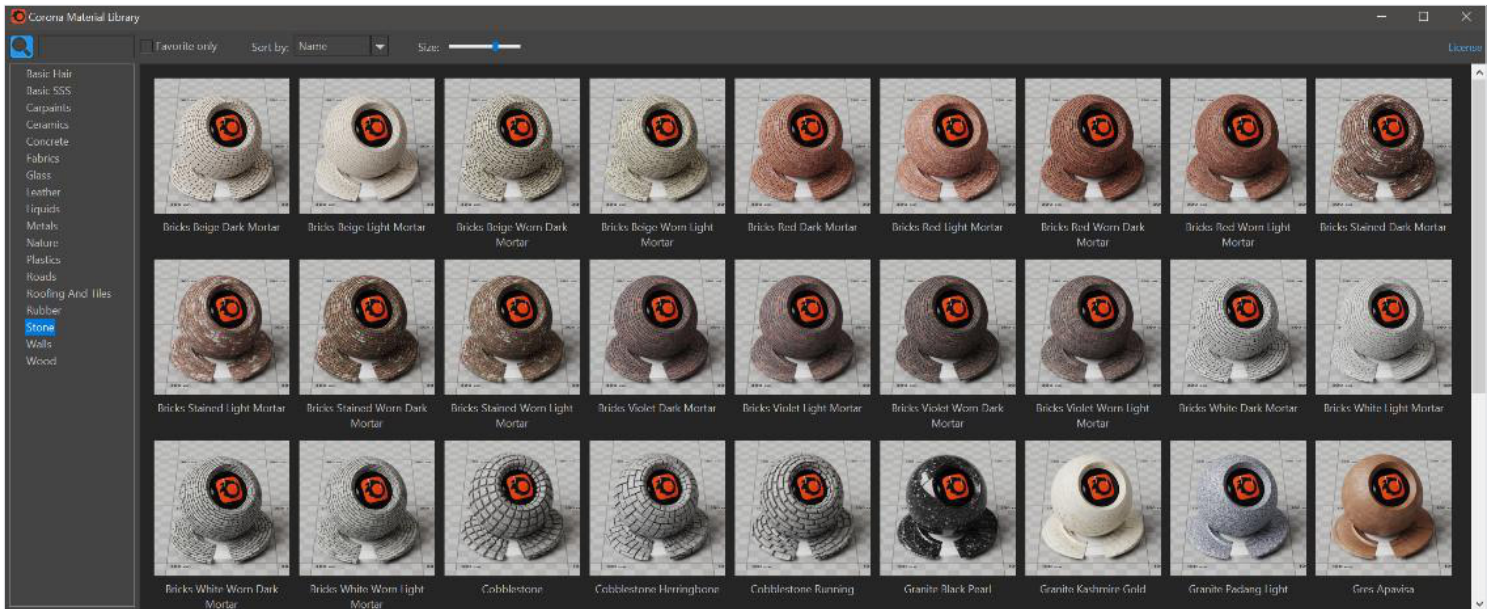
The level of rendering detail corresponds strictly to the agreed AVR level. Where materials are shown (AVR Level 3) they are based on the full material specification supplied by Darling Associates Architects and applied conservatively, avoiding unnecessary embellishment. Where the proposal is shown at night, the lighting representation is based on the intended lighting strategy and ambient conditions in the photograph; exact lighting levels are illustrative rather than photometrically calculated.

11.4 Wireline Output

For wireline (AVR Level 0/1) output the proposal is shown using a constant-thickness line following an ‘inside-stroke’ principle, so that the outer edge of the line touches the outline of the render from the inside, fairly representing maximum visibility. Narrower lines delineate significant stepping in the massing to aid interpretation.



Lighting system added to the 3D model to simulate the source photography.



Materials selected and assigned to the 3D model as per specification.



12.0 Image Composition and Output

The rendered proposal is composited with the photographic background using non-destructive workflows. No elements of the photograph are altered in a manner that would affect scale, visibility or interpretation of the proposal. Final images are output at a fixed size and resolution suitable for accurate assessment and should be viewed at the intended print size.

12.1 Photo Composition

The rendered scheme is positioned against the camera-matched background plate. Masks are created where the line of sight to the proposed scheme is interrupted by foreground buildings or vegetation, producing a verified image of the proposal.

12.2 Presentation and Verification Aids (The Graticule)

Final AVRs are presented with a technical graticule (border) to assist the Planning Officer and third parties in verifying image geometry:

- Horizon Line (0°) — a horizontal marker indicating the precise optical height of the camera (typically 1.6m). Where shift lenses are used, this line may not be at the geometric centre of the page but always represents the true horizon.
- Optical Axis — a vertical marker indicating the centre of the lens’s direction of view.
- Field of View Markers — incremental tick marks (typically every 5° or 10°) along the top and bottom, allowing cross-reference of the HFoV against the camera metadata.

12.3 Viewing Instructions

To experience the correct perspective, printed images should be viewed at a comfortable arm’s length, or the distance implied by the printed image width and FOV geometry. While the images accurately represent the camera’s view, they cannot fully replicate the dynamic range and peripheral vision of the human eye.



Step 2 Photograph with overlaid render



Step 3 Foreground of photograph masked in red.



Step 1 Original photograph

12.4 Final Photo Composition



13.0 Verification and Transparency

Each AVR is accompanied by sufficient supporting information to allow independent verification, including:

- Viewpoint location plans
- Camera data tables (Appendix A.1)
- Survey data summaries
- This methodology statement

Supporting photographic and technical material is provided within an Appendix where required.

13.1 Quality Assurance and Competence

AVRs are prepared by experienced operators and the geometry of each view is independently checked by a second qualified team member before issue (Section 9.1). The survey is undertaken by an independent, suitably qualified surveyor. Project roles, equipment and software are recorded in Appendix A.

13.2 Data Retention and Audit Trail

The source photography (RAW and corrected plate), survey data, camera-match files and an archival overlay print are retained for each view, providing a complete audit trail that allows the accuracy of any image to be re-examined independently at a later date.

14.0 Accuracy Statement

AVRs produced using this methodology are prepared with the intention of maximum achievable accuracy.

All elements that can be objectively defined — including camera position, geometry, scale and shadow position — are derived directly from surveyed and recorded data. Other aspects, such as the visual appearance of materials and lighting response, require informed professional judgement based on architect-supplied information and observed conditions within the photographic context.

Minor tolerances may arise due to photographic, survey or modelling limitations; however, these do not materially affect the interpretation of scale, massing or visibility of the proposed development.

This statement is signed on issue by the responsible AVR operator and countersigned by the independent checker (Section 13.1); signed copies accompany each formal submission.

15.0 Limitations

AVRs represent a specific moment in time and viewing condition. They cannot replicate the full dynamic experience of viewing a place in reality and should be considered alongside site visits and professional judgement as part of the wider planning assessment process.

All objectively measurable properties of the AVR are traceable to surveyed control and recorded camera metadata, enabling independent third-party audit.

Glossary of Terms

AVR	Accurate Visual Representation — a verifiable image showing a proposal from a defined viewpoint.
Verified View	Synonym for an AVR.
AOD	Above Ordnance Datum — height relative to mean sea level (Newlyn).
AGL	Above Ground Level.
Background plate	The corrected photograph used as the base for camera matching.
Camera matching	Aligning a virtual camera to the surveyed photograph.
DSM	Digital Surface Model — a height model of terrain and built/vegetated surfaces.
EXIF	Metadata recorded by the camera (date, time, lens, exposure).
False origin	A local coordinate offset used to improve 3D modelling precision.
FOV / HFoV	(Horizontal) Field of View — the angular extent captured by the lens.
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3rd edition.

GNSS / GPS	Satellite positioning systems used to establish survey control.
Graticule	Technical border of horizon, optical-axis and field-of-view markers.
LiDAR	Laser-scanning survey producing dense surface height data.
LVMF	London View Management Framework Supplementary Planning Guidance.
Nodal point	The lens entrance pupil; rotating about it avoids parallax.
OSGB36	Ordnance Survey National Grid coordinate system.
RTK	Real-Time Kinematic — GNSS correction for high accuracy.
TIN	Triangulated Irregular Network mesh derived from a DSM.
TGN 06/19	Landscape Institute Technical Guidance Note on visual representation.
Tilt-shift	Lens allowing vertical shift to frame tall subjects without converging verticals.
Wireline	Line (inside-stroke) representation of the proposal’s outline (AVR 0/1).

Appendix A Project-Specific Methodology

Project Details	
Project	School Road
Site Location	London
Status	Planning
Architect	Darling Associates Architects
Surveyor	Warner Land Surveyors Ltd (WLS)
Coordinate System	British National Grid (BNG) (OSGB36)
Accuracy of Viewpoint Location	Sub-50mm (XYZ)
Method — camera located horizontally	GNSS SmartRover baseline with robotic total station, reflectorless laser observation
Method — camera located vertically	GNSS SmartRover baseline with robotic total station, reflectorless laser observation
Survey Processing Software	N4ce
Camera and Lenses	Canon EOS 5DS R · TS-E 24mm f/3.5L II · EF 24-105mm f/4L IS USM
Modelling and Rendering Software	Autodesk 3ds Max, Chaos Corona, Adobe Photoshop
Camera Matching Technique	3D camera alignment utilising surveyed target reference points
Season	Winter

Appendix A.1 Full Schedule of Viewpoints

VP	Camera	Lens	Focal	Type	Date / Time	HFoV	Dir°N	Ht	Camera Location (OSGB36)		
VV01	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	09/12/2021 14:09:28	73.7°	47.4	1.6m	520773.224	181894.159	33.729
VV02	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 03	09/12/2021 13:54:45	73.7°	17.8	1.6m	520970.253	181932.375	34.974
VV03	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 03	22/12/2021 10:57:46	73.7°	184.5	1.6m	521170.057	182238.936	30.421
VV04	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	22/12/2021 10:36:11	73.7°	102.3	1.6m	521038.928	182382.716	34.244
VV05	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 03	22/12/2021 10:49:09	73.7°	94.5	1.6m	520856.729	182177.829	37.943
VV06	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	09/12/2021 14:47:23	73.7°	154.7	1.6m	520758.101	182158.354	39.801
VV07	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	22/12/2021 10:25:22	73.7°	229.6	1.6m	520842.942	182552.249	36.037
VV08	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	10/12/2021 10:38:03	39.6°	228.1	1.6m	520769.915	182933.607	32.974
VV09	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	22/12/2021 11:02:41	73.7°	296.2	1.6m	521272.603	182347.555	29.733
VV10	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	10/12/2021 11:16:11	39.6°	95.1	1.6m	521685.479	182883.586	39.613
VV11	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	10/12/2021 12:00:36	39.6°	317.6	1.6m	522258.162	182238.79	30.062
VV12	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 03	22/12/2021 12:04:28	73.7°	293.8	1.6m	522045.115	181687.619	21.165
VV13	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	10/12/2021 13:42:44	39.6°	265.2	1.6m	521818.981	181287.051	13.733
VV14	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	09/12/2021 15:16:33	39.6°	162.7	1.6m	519920.898	181707.541	34.432
VV15	Canon EOS 5DS R	EF24-105mm f/4L IS USM	50mm	AVR 00	09/12/2021 16:14:58	39.6°	221.1	1.6m	519199.705	182299.323	46.275
VV16	Canon EOS 5DS R	TS-E24mm f/3.5L II	24mm	AVR 00	10/12/2021 12:39:27	73.7°	63.9	1.6m	521295.843	182008.789	31.921

Appendix A.2 Viewpoint Location Plan

