Verified View Methodology

Type 4 | AVR Level 0, 1 & 3

Overview
This document has been prepared to explain the process of generating verified views (also referred to as accurate visual representations (AVR)) for the proposed development at Renaissance Hotel, Manchester.

Rob Lockhart uses a methodology that is compliant with relevant sections of The Landscape Institute/IEMA Guidelines for Landscape and Visual Impact Assessment and the Landscape Institute Technical Guidance Note 06/19 (Visual Representation of Development Proposals).

High quality digital photographs were taken from the agreed locations as supplied by Randall Thorp. A number of twenty visible features were surveyed per view along with the precise location of each camera.
Development 3D models were imported to correct geographical co-ordinates. With a known camera position, orientation and surveyed existing visible features the development 3D models were accurately aligned to the photograph.

Photography
Prior to visiting the site virtual cameras were placed into the 3D model to assess and plan the required viewpoints. It was clear that to capture the proposed site and context from the viewpoints that various lenses would be required. It was agreed that 50mm,35mm and 24mm lenses could be used where relevant.
For each agreed photo viewpoint location, photographs were taken with a high resolution full frame digital SLR camera.
The locations at which the photographs were taken were marked by a survey nail, yellow paint or where it was not possible to mark the ground obvious ground features were recorded. Supplementary photographs and the GPS coordinates were taken. This data was all used to brief the surveyors subsequent visit and for them to be able to survey from the exact location.
The camera was mounted on a tripod with a pano head and levelled horizontally and laterally by means of integrated and additional spirit levels.
The camera height from ground level was measured and recorded.
Panoramic photos were required by the client and for most of the shots it was necessary to take portrait photos to capture the full height of the development and context. A sufficient overlap of shots was used for the panoramic photography which were centred by a number of principal shots to capture the development for individual photomontage images.

Equipment Used for Photography:
- Nikon Z6ii Digital SLR
- Nikkor Z S-Line 24mm, 35mm and 50mm Lenses
- Tripod with indexed pano head
- Remote shutter release
- Spirit levels
- Leica DISTO D210
- Plumb line
- Survey nails and ground paint
- 2nd camera to record position and setup of equipment

Post Production
Each photo viewpoint photograph was processed from a RAW data file in 16bit colour space using Adobe Camera Raw.
The individual shots were stitched together using a method of cylindrical projection to form a panorama.
Standard (digital) photographic post production techniques were used to create a corrected final 16bit file to be used as the basis for each photomontage.

Survey
An instructional document covering each agreed viewpoint location was provided to the survey subcontractor. The surveyor was instructed to record a pre determined range of 20 reference points per view. The document included a viewpoint map showing the location of each view, marked up photographs showing all required survey points, camera height data, reference photographs of the camera and tripod in situ with plumb line and ground markings.
The survey was carried out by Chris Partington Land Surveyors on 04/08/2021 in accordance with best practice guidlines and using approved industry standard equipment. A spreadsheet of all the survey data was produced and any altered survey points due to any acquirement issues were clearly marked on accompanying PDF documents.

The Proposed 3D Development Model
The 3D models and CAD drawings were provided by the architect. The model was checked and amended for accuracy and consistency with supplied plans, elevations and proposal CGI images. It was aligned in the correct position and height above ordnance datum to the OSGB36 coordinate system.
Finishes and materials were applied in accordance with those proposed in the design documents, CGI images and communications.
Trees and planting on the site were added according to those shown in provided information and are at this stage indicative of likely form.
The cumulative models were either provided by the architect for AVR level 3 or created from drawings available from the relevant planning portal for AVR level 1. AVR1 models were created as simplistic blocks to represent height and form and positioning is based on the information available at the time.

The Verification Process
The verification process confirms the accuracy of the 3D model in relation to each view.
The survey reference points and camera location data was imported into the 3D model using a propietary script. At the coordinates of each surveyed camera location a virtual camera was created and setup by matching the settings from the EXIF data of each photograph. The cameras were then positioned and aligned in the 3D model by matching the survey points with the relevant visible features as marked up on the photograph. Once all points are perfectly matched the scene is then deemed verified.

For each viewpoint, in the case of AVR3 views, an exact lighting system was setup using the geographic location and the date and time in the EXIF data of each photograph.
This process mimics the real life sun and atmospheric environmental lighting at the point the photograph was captured. Some fine tuning is sometimes necessary to allow for any effects of cloud cover variations and better match the the resultant lighting and shadows in the base photograph.

Post Production
The 3D model of the proposed development was rendered for each viewpoint to create an image file.
Using a photo editing package the rendered images were photomontaged with the corresponding photographs. On each viewpoint the rendered image of the development was masked behind buildings and structures where it would be obscured from sight in the photo.
Adjustments in colour, tone and saturation are then made to the rendered image to create a close impression of how the finishes of the building and structures would look like in context with the photographic image.
In some cases part of the photographic scene are exposed due to existing buildings being removed. When this is the case we attempt to recontsruct the background that becomes visible using available photographic material.

Applications Used
Adobe Photoshop CC
Adobe Lightroom CC
Autodesk 3ds Max 2021
Chaos Group Vray 5
Google Earth Pro
PTGui Pro 12.7

Rob Lockhart
CGI
Design
Arch Vis
Verified Views
Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Verified View Methodology

Type 4 | AVR Level 0, 1 & 3

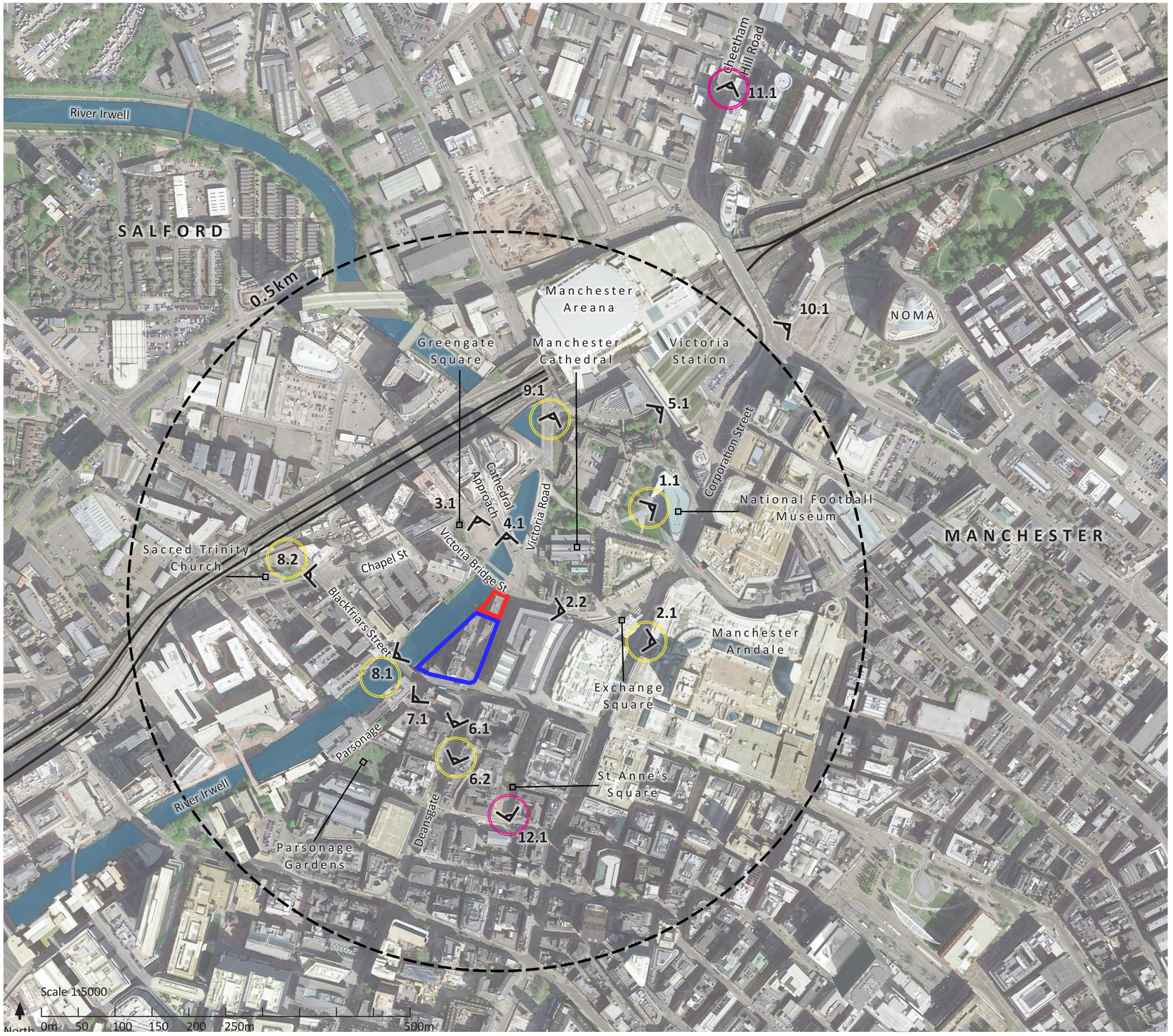
Photo Viewpoint Locations

Key:

- Site boundary
- Adjancent land ownership
- 0.5km offset from the centre of the site
- verified photomontage location (fully rendered)
- verified photomontage location (wireframe)

Key views and visual receptors

1.1	*Cathedral Gardens*
2.1	*Exchange Square*
6.2	*Deansgate/ A56 (north bound)*
8.1 - 8.2	*Blackfriars Street*
9.1	*Victoria Road/ A56 (south bound)*
11.1	*Cheetham Hill Road*
12.1	*St Anne's Square*



Visual Receptors

Supplied by Randall Thorp

Renaissance Hotel, Manchester

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t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 1.1 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 122.9°

Photo Captured | 01/07/2021 @ 14:04
Camera Location | E 384005.755, N 398804.025 @ 37.281m AOD
Camera's Nodal Point Height From Ground | 1.6m
Direction of View | 238° from N
Distance to Nearest Site Boundary | 232m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 1.1 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



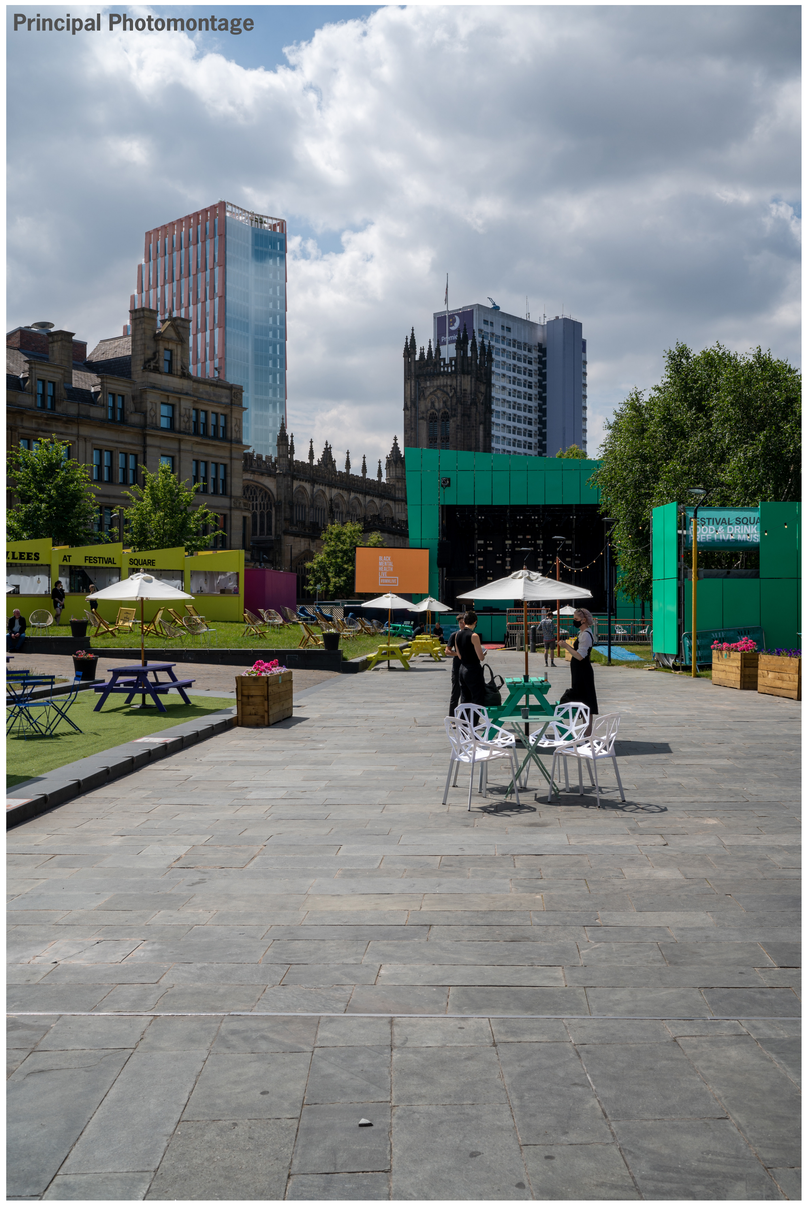
HFOV 122.9°

Photo Captured | 01/07/2021 @ 14:04
Camera Location | E 384005.755, N 398804.025 @ 37.281m AOD
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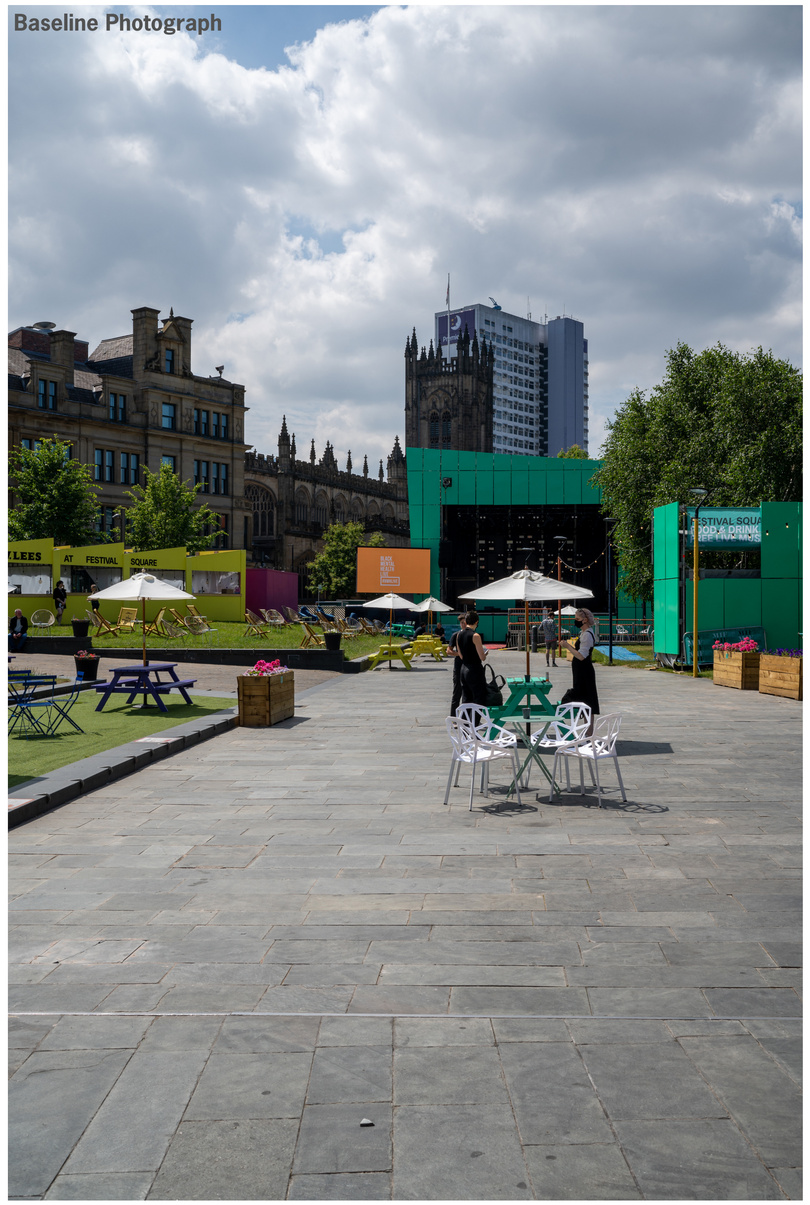
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CGI
Design
Arch Vis
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 1.1 - Principal Photomontage | Type 4 | AVR Level 3



Enlargement 100% at A1 sheet size



HFOV 37.8°

VFOV 54.4°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 14:04
Camera Location | E 384005.755, N 398804.025 @ 37.281m AOD
Camera's Nodal Point Height From Ground | 1.6m
Direction of View | 238° from N
Distance to Nearest Site Boundary | 232m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the bottom left corner of 'Martin Peters' ground plaque.
Located outside the front entrance to the Football Museum.

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Rob Lockhart
CGI
Design
Arch Vis
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 2.1 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 64.9°

Photo Captured | 01/07/2021 @ 14:35
Camera Location | E 383999.266, N 398627.208 @ 41.221m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 220° from N
Distance to Nearest Site Boundary | 206m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Arch Vis
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 2.1 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



HFOV 64.9°

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Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 2.1 - Principal Photomontage | Type 4 | AVR Level 3



Enlargement 100% at A1 sheet size

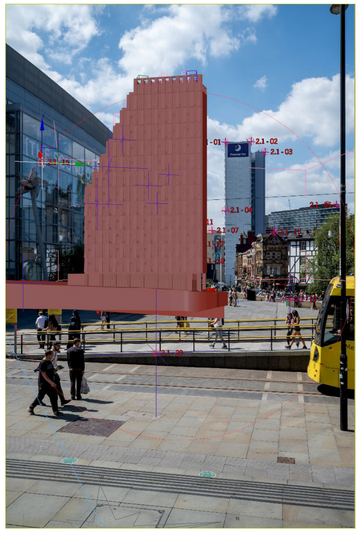


HFOV 37.8°

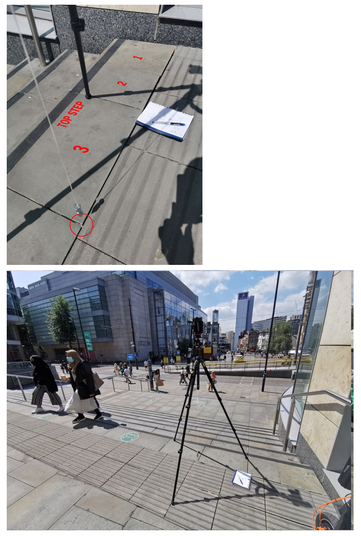
VFOV 54.4°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 14:35
Camera Location | E 383999.266, N 398627.208 @ 41.221m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 220° from N
Distance to Nearest Site Boundary | 206m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the corner of the third paver from the wall, adjacent to the tactile paver as shown in photo. Located on the top step of the entrance to the Arndale Shopping Centre.

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CGI
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Photography
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Viewpoint 6.2 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 65°

Photo Captured | 01/07/2021 @ 15:34
Camera Location | E 383728.399, N 398470.169 @ 37.826m AOD
Camera's Nodal Point Height From Ground | 1.601m
Direction of View | 16° from N
Distance to Nearest Site Boundary | 167m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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CGI
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 6.2 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



HFOV 65°

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Camera's Nodal Point Height From Ground | 1.601m
Direction of View | 16° from N
Distance to Nearest Site Boundary | 167m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Rob Lockhart
CGI
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 6.2 - Principal Photomontage | Type 4 | AVR Level 3



Enlargement 100% at A1 sheet size



HFOV 37.8°

VFOV 54.4°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 15:34
Camera Location | E 383728.399, N 398470.169 @ 37.826m AOD
Camera's Nodal Point Height From Ground | 1.601m
Direction of View | 16° from N
Distance to Nearest Site Boundary | 167m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the survey nail adjacent to drain cover.
Located on the block pavers outside 'Lunya Catalan Deli' on Deansgate.

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Viewpoint 8.1 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 98.5°

Photo Captured | 01/07/2021 @ 15:57
Camera Location | E 383643.742, N 398603.583 @ 33.917m AOD
Camera's Nodal Point Height From Ground | 1.599m
Direction of View | 62° from N
Distance to Nearest Site Boundary | 96m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 24mm

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t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 8.1 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



HFOV 98.5°

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Camera's Nodal Point Height From Ground | 1.599m
Direction of View | 62° from N
Distance to Nearest Site Boundary | 96m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 24mm

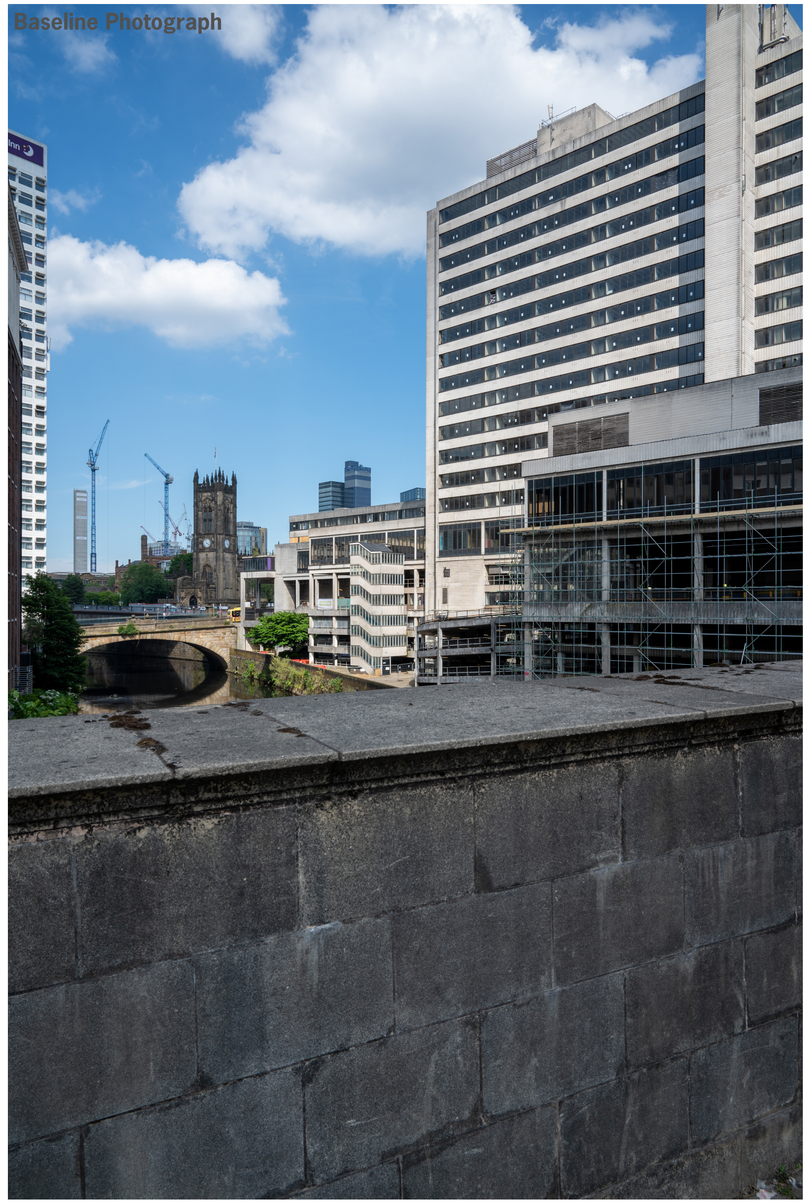
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Viewpoint 8.1 - Principal Photomontage | Type 4 | AVR Level 3



Enlargement 100% at A1 sheet size

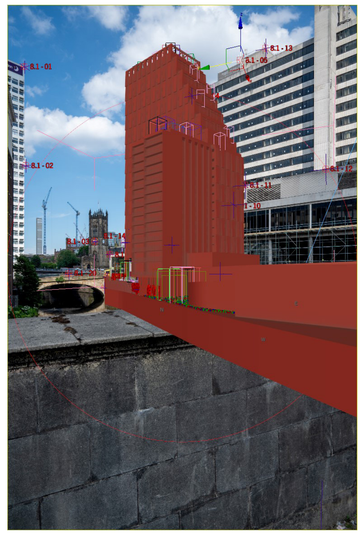


HFOV 53.1°

VFOV 73.7°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 15:57
Camera Location | E 383643.742, N 398603.583 @ 33.917m AOD
Camera's Nodal Point Height From Ground | 1.599m
Direction of View | 62° from N
Distance to Nearest Site Boundary | 96m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 24mm
Additional Location Info | Camera nodal point centred on the survey nail between paver and kerb as shown in photo.
Located on Blackfriars St on the bridge overlooking the site.

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CGI
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t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 8.2 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 108.1°

Photo Captured | 01/07/2021 @ 16:37
Camera Location | E 383525.452, N 398712.89 @ 29.468m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 100° from N
Distance to Nearest Site Boundary | 221m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 8.2 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



HFOV 108.1°

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Viewpoint 8.2 - Principal Photomontage | Type 4 | AVR Level 3

Principal Photomontage



Enlargement 100% at A1 sheet size

Baseline Photograph

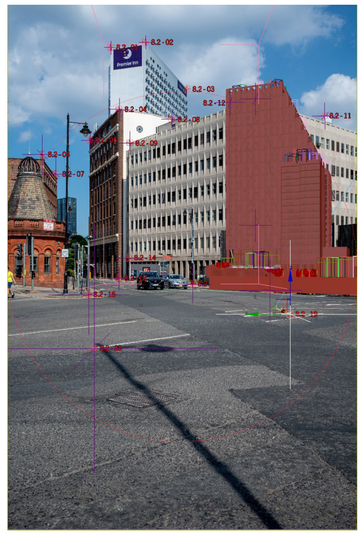


HFOV 37.8°

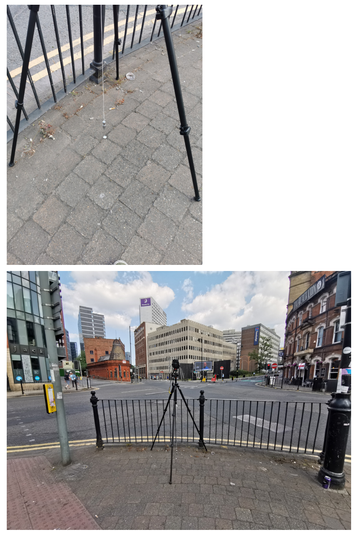
VFOV 54.4°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 16:37
Camera Location | E 383525.452, N 398712.89 @ 29.468m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 100° from N
Distance to Nearest Site Boundary | 221m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the survey nail in block pavers next to the railings.
Located by the road crossings outside the entrance to Sacred Trinity Church.

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Rob Lockhart
CGI
Design
Arch Vis
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Photography
t: 07968 733036 | e: mail@roblockhart.com | w: roblockhart.com

Viewpoint 9.1 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 94.2°

Photo Captured | 01/07/2021 @ 13:38
Camera Location | E 383862.721, N 398930.913 @ 30.321m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 196° from N
Distance to Nearest Site Boundary | 250m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 9.1 - Cylindrical Projection Panorama | Type 4 | AVR Level 3



HFOV 94.2°

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Verified Views
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Photo Captured | 01/07/2021 @ 13:38
Camera Location | E 383862.721, N 398930.913 @ 30.321m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 196° from N
Distance to Nearest Site Boundary | 250m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

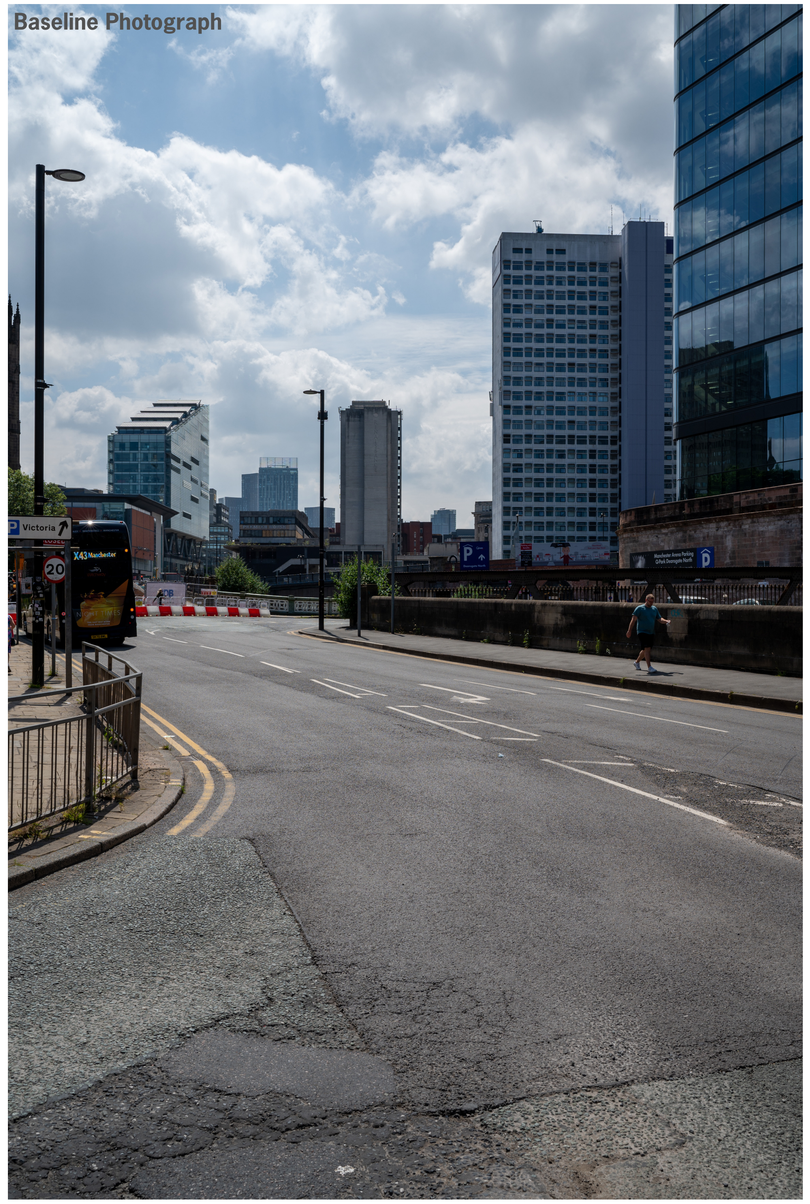
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Viewpoint 9.1 - Principal Photomontage | Type 4 | AVR Level 3

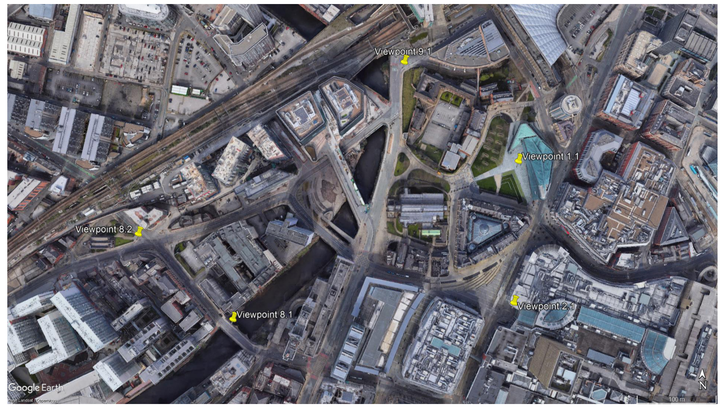


Enlargement 100% at A1 sheet size

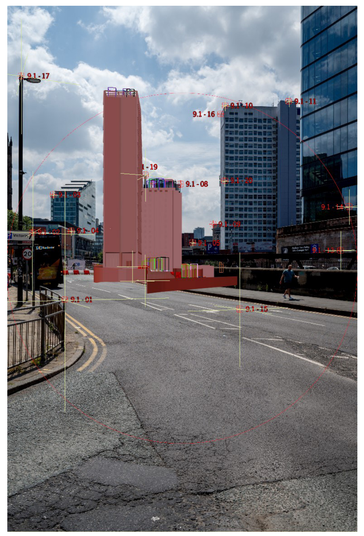


HFOV 37.8°

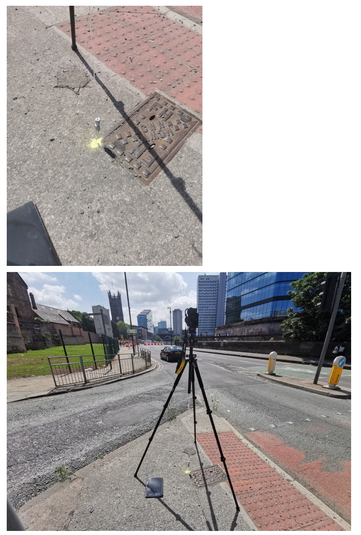
VFOV 54.4°



Camera Location



Screen Grab of Composite View



Location Photos

Photo Captured | 01/07/2021 @ 13:38
Camera Location | E 383862.721, N 398930.913 @ 30.321m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 196° from N
Distance to Nearest Site Boundary | 250m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the corner of the of the drain cover identified by yellow paint as shown in photo.
Located on the traffic island on the junction of Hunts Bnk and Victoria St, adjacent to the tactile paving.

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Viewpoint 11.1 - Photomontage | Type 4 | AVR Level 1





VFOV 27.0°

HFOV 39.6°

Enlargement 100% at A1 sheet size

Solid Outline - Represents the extent of the proposed built form

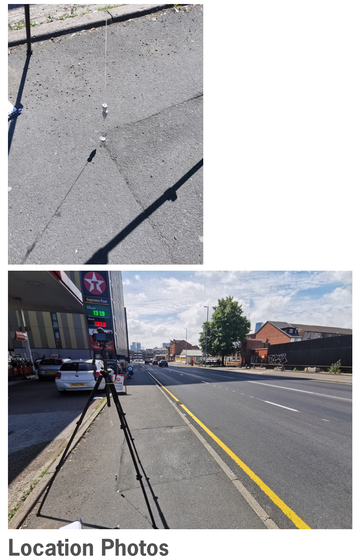


Camera Location

Photo Captured | 01/07/2021 @ 12:31
Camera Location | E 384107.727, N 399391.53 @ 46.024m AOD
Camera's Nodal Point Height From Ground | 1.602m
Direction of View | 204° from N
Distance to Nearest Site Boundary | 769m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 50mm
Additional Location Info | Camera nodal point centred on the survey nail in the pavement on the corner where there is a change of tarmac.
Located adjacent to the Texaco fuel station on Cheetham Hill Rd.



Screen Grab of Composite View



Location Photos

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Viewpoint 12.1 - Cylindrical Projection Panorama | Baseline Photographs



HFOV 109°

Photo Captured | 01/07/2021 @ 15:11
Camera Location | E 383799.999, N 398363.416 @ 38.491m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 356° from N
Distance to Nearest Site Boundary | 267m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

- - - Dashed Outline - Represents the extent of the occluded proposed built form

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Viewpoint 12.1 - Cylindrical Projection Panorama | Type 4 | AVR Level 0



HFOV 109°

Photo Captured | 01/07/2021 @ 15:11
Camera Location | E 383799.999, N 398363.416 @ 38.491m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 356° from N
Distance to Nearest Site Boundary | 267m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

- - - Dashed Outline - Represents the extent of the occluded proposed built form

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Viewpoint 12.1 - Principal Photomontage | Type 4 | AVR Level 0

Principal Photomontage



Enlargement 100% at A1 sheet size

Dashed Outline - Represents the extent of the occluded proposed built form

Baseline Photograph

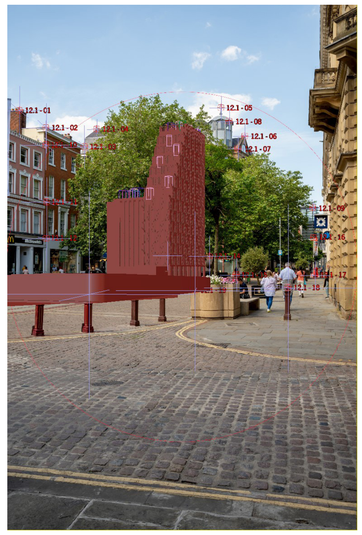


HFOV 37.8°

VFOV 54.4°



Camera Location



Screen Grab of Composite View





Location Photos

Photo Captured | 01/07/2021 @ 15:11
Camera Location | E 383799.999, N 398363.416 @ 38.491m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 356° from N
Distance to Nearest Site Boundary | 267m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm
Additional Location Info | Camera nodal point centred on the bottom right corner of the drain cover as shown in photo.
Located on the large pavers adjacent to the strip drain outside the NE corner of St Ann's Church looking back into St Anne's Square.

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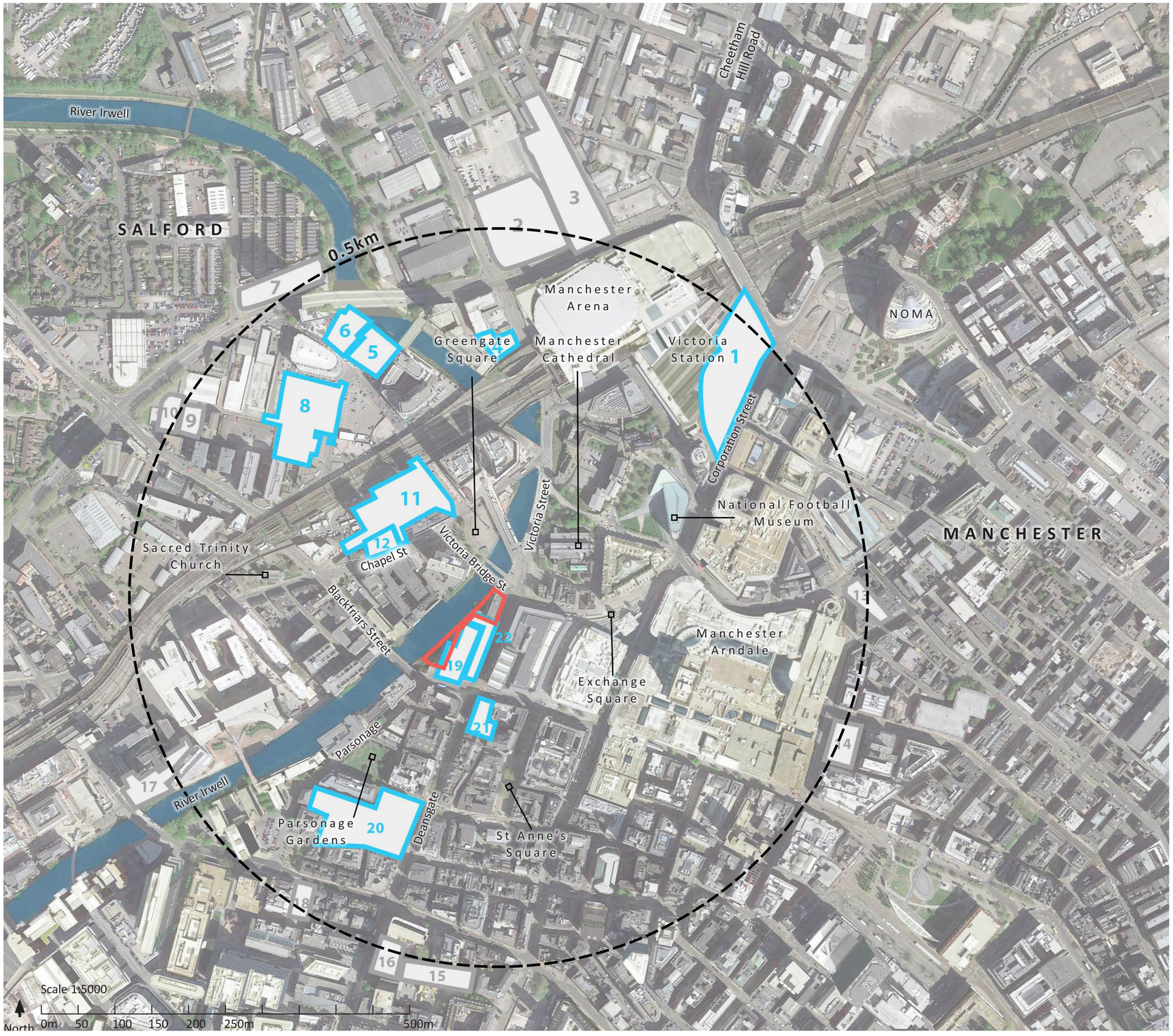
Verified Views - Cumulative Sites

Type 4 | AVR Level 0, 1 & 3

Cumulative Site Locations

Key:

- Site boundary
- 0.5km offset from the centre of the site
- Cumulative Site (Scoped in)
- Cumulative Site (Scoped out)



Supplied by Randall Thorp

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Viewpoint 1.1 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 122.9°

Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 14:04
Camera Location | E 384005.755, N 398804.025 @ 37.281m AOD
Camera's Nodal Point Height From Ground | 1.6m
Direction of View | 238° from N
Distance to Nearest Site Boundary | 232m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 2.1 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 64.9°

Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 14:35
Camera Location | E 383999.266, N 398627.208 @ 41.221m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 220° from N
Distance to Nearest Site Boundary | 206m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 6.2 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 65°

Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 15:34
Camera Location | E 383728.399, N 398470.169 @ 37.826m AOD
Camera's Nodal Point Height From Ground | 1.601m
Direction of View | 16° from N
Distance to Nearest Site Boundary | 167m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 8.1 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 98.5°

Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 15:57
Camera Location | E 383643.742, N 398603.583 @ 33.917m AOD
Camera's Nodal Point Height From Ground | 1.599m
Direction of View | 62° from N
Distance to Nearest Site Boundary | 96m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 24mm

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Viewpoint 8.2 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 108.1°

— Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 16:37
Camera Location | E 383525.452, N 398712.89 @ 29.468m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 100° from N
Distance to Nearest Site Boundary | 221m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 9.1 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 1 & 3



HFOV 94.2°

Solid Outline - Represents the extent of the proposed cumulative built form

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Photo Captured | 01/07/2021 @ 13:38
Camera Location | E 383862.721, N 398930.913 @ 30.321m AOD
Camera's Nodal Point Height From Ground | 1.603m
Direction of View | 196° from N
Distance to Nearest Site Boundary | 250m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

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Viewpoint 11.1 - Cumulative - Photomontage | Type 4 | AVR Level 1



Enlargement 100% at A1 sheet size

Solid Outline - Represents the extent of the proposed built form

Solid Outline - Represents the extent of the proposed cumulative built form

Photo Captured | 01/07/2021 @ 12:31
Camera Location | E 384107.727, N 399391.53 @ 46.024m AOD
Camera's Nodal Point Height From Ground | 1.602m
Direction of View | 204° from N
Distance to Nearest Site Boundary | 769m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 50mm

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Viewpoint 12.1 - Cumulative - Cylindrical Projection Panorama | Type 4 | AVR Level 0 & 1



HFOV 109°

Photo Captured | 01/07/2021 @ 15:11
Camera Location | E 383799.999, N 398363.416 @ 38.491m AOD
Camera's Nodal Point Height From Ground | 1.604m
Direction of View | 356° from N
Distance to Nearest Site Boundary | 267m
Camera Model | Nikon Z6ii, Full Frame Sensor
Camera Lens | Nikon Nikkor Z S-Line 35mm

- - - Dashed Outline - Represents the extent of the occluded proposed built form
——— Solid Outline - Represents the extent of the proposed cumulative built form

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