

VIRTUAL IDEAS

Harbourside

Private View Sharing Analysis Report

1.0 Introduction

This report provides a response to submissions (as relevant) and assessment of the proposed amended Concept Proposal in relation to the State Significant Development (SSD) Development Application (DA) for the redevelopment of the Harbourside Shopping Centre (Harbourside) (SSD 7874).

The SSD DA was publicly exhibited for a period of 62 days from 15 December 2016 to 14 February 2017. During this time, ten (10) submissions were received from government agencies and City of Sydney Council and over 140 submissions were received from the general public.

This report should be read in conjunction with the original assessment prepared by Virtual Ideas dated 17/10/2016 to support the Harbourside Concept Proposal Square (SSD 7874).

2.0 Proposed Amended Development

Since exhibition of the proposal and given the nature and range of submissions made from agencies and the public, Mirvac has been reviewing the overall approach and elements of the Concept Proposal. This has accordingly led to developing an Amended Concept Proposal. The final Concept Proposal therefore includes substantial amendments made by Mirvac pursuant to Clause 55 of the Environmental Planning & Assessment Regulation, in the main to address matters raised in the submissions and deliver an overall significantly improved outcome on the site and for the broader Darling Harbour precinct.

The following key amendments have been made to the proposal:

Relocation of the Tower

The tower element of the Concept Proposal has been relocated from the north of the site to the centre of the site (the widest part of the site) to allow for an increased setback from the heritage listed Pyrmont Bridge, improved relationship to the waterfront and ICC Hotel, to minimise view impacts from 50 Murray Street, together with reducing overshadowing impacts on the public domain and improved solar amenity to the northern end of the retail centre.

Reduction in Height of the Tower

The height of the tower has also been reduced from RL 166.35 to RL 153.75. The reduction in the height will minimise overshadowing impacts to the public domain as well better relate to the height of the ICC Hotel.

Reduction in Height of the Podium

A portion of the podium height at its northern extent has been partly reduced from 30.5 RL to RL 25. The reduction in height provides for improved view sharing from 50 Murray Street.

Removal of Tower 'Tail' element

As part of the relocation of the tower and refinement of the podium, the stepped form of the lower tower element has now been removed. This design move has been made in order to again improve views from adjacent buildings from the west.

Building Footprint of the Tower

The building footprint of the tower has increased in width, to accommodate the floorspace from the reduction in height of the tower and removal of the 'tail'.

Gross Floor Area / Land Use Mix

The amended proposal retains the same overall 87,000sqm of GFA, however there is a minor adjustment in the split between non-residential and residential:

- Non-residential uses floor space – 49,000sqm; and
- Residential uses floor space – 38,000sqm

In response to market demand and the focus of local and regional strategic planning policies, it is proposed for the podium to include both retail and commercial land uses. Indicatively, comprising ~23,000,000sqm lettable area of commercial and ~21,000sqm gross lettable area of retail.

The podium enables large campus sized commercial floor plates that are favoured by large multinational tech, finance and professional services companies.

Apartment numbers

As a result of a review of the mix and sizing of apartments, there is a minor reduction in the indicative number of apartments, from 364 to 357. Note, this yield is on the 'Indicative Design' only and will be subject to future design development and a Stage 2 DA. This Stage 1 DA only seeks approval for land uses and the building envelope comprising a total of 87,000sqm GFA.

Car Parking Spaces

The extent of the basement will remain the same, but there has been a minor increase of 11 car parking spaces from 295 spaces to 306 spaces. As above, this is based on the 'Indicative Design' only.

A more detailed and comprehensive description of the amended proposal is contained in the Response to Submissions and Amended Concept Proposal prepared by Ethos Urban.

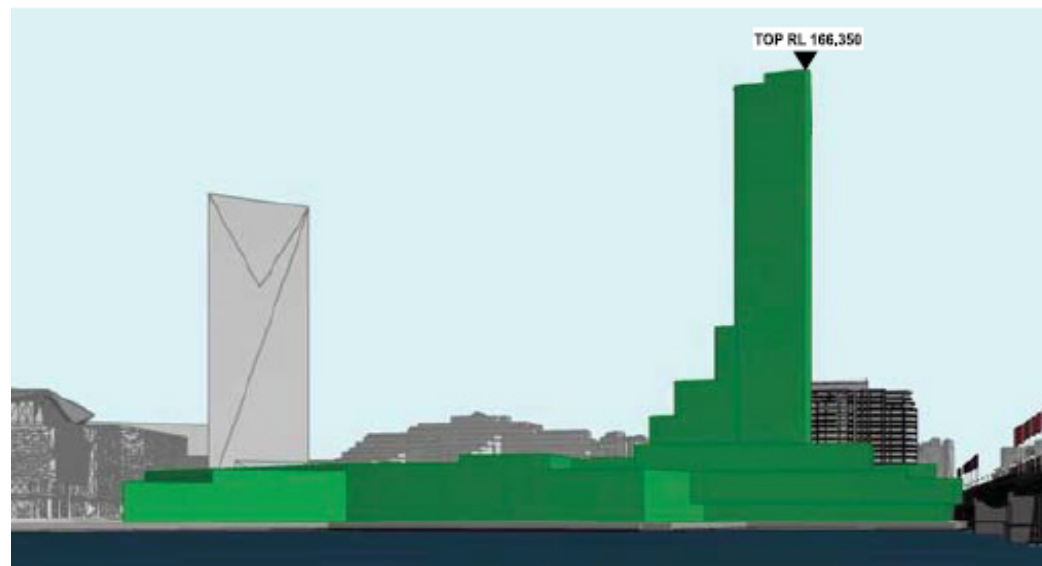


Figure 1 Original submitted Concept Proposal

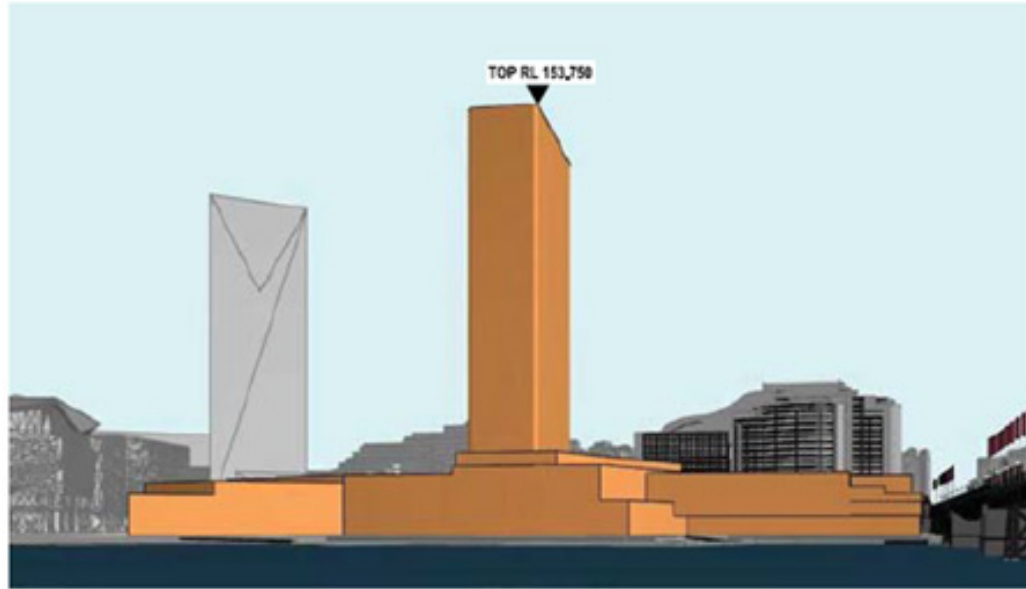


Figure 2 Amended Concept Proposal

Landscaped Open Space and Public Domain

All of the key concepts and public benefits as originally proposed are retained under the amended Concept Proposal, with the addition of further landscaping opportunities on the northern rooftop extent of the retail podium, further enhancing views and outlook from 50 Murray Street.

The final Concept Proposal seeks approval for the following key components and development parameters:

- ☐ Demolition of existing site improvements, including the Harbourside Shopping Centre, pedestrian bridge link across Darling Drive, obsolete monorail infrastructure, and associated tree removal;
- ☐ A network of open space areas and links generally as shown within the Public Domain Concept Proposal, to facilitate re-integration of the site into the wider urban context;
- ☐ Building envelopes;
- ☐ Land uses across the site, non-residential and residential uses;
- ☐ A maximum total Gross Floor Area (GFA) across the Harbourside site of 87,000m² for mixed use development (49,000sqm non-residential and 38,000sqm residential development);
- ☐ Basement car parking;
- ☐ Car parking rates to be utilised in subsequent detailed (Stage 2) Development Applications);
- ☐ Urban Design and Public Realm Guidelines to guide future development and the public domain; and
- ☐ Strategies for utilities and services provision, drainage and flooding, and ecological sustainable development.

Private View Sharing Analysis Report

Harbourside Stage 1 DA (SSD 7874)

EXECUTIVE SUMMARY

This report has been prepared by Virtual Ideas for the purposes of visual impact assessment of the proposed Harbourside Stage 1 DA (SSD 7874) within its context.

The report includes a comparison between Computer Generated Imagery (CGI) of the existing site conditions as captured within a constructed 3D model, alongside CGIs showing the proposed Harbourside Stage 1 DA (SSD 7874) when added to the existing site conditions. All viewpoints are attempting to replicate possible potential views from within the private residences noted.

The report also outlines the methodology used to establish an accurate 3D model and the process followed to create the CGI renders.

Information used in the creation of this report is also noted in the methodolgy and/or included as an appendix for reference.

BACKGROUND

Virtual Ideas is a highly experienced 3D visualisation company, who commonly prepares visual impact assessment material for both development application and court use, and is familiar with the requirements to provide 3D visualisation media that will communicate the visual impact of proposed developments.

Virtual Ideas' methodology and results have been inspected by various court appointed experts in a variety of cases and have always been found to be accurate and acceptable.

OVERVIEW

The process of creating accurate CGI renderings involves the creation of an accurate, real-world scale digital 3D model using surveyed data.

To try and replicate real-world viewing positions from the private residences noted, 3D cameras are then set-up in the 3D model referencing available information to assist approximating the placement of the 3D camera.

A digital image is then rendered from the camera in the 3D software application to generate an image that represents accurate form and visual impact of the proposed development.

METHODOLOGY

3D model

The 3D model was created by firstly importing surveyed data created by Rygate Surveyors and supplied by Mirvac into our 3D software (3DS Studio Max) and then importing the supplied 3D model of the proposed Harbourside Stage 1 DA (SSD 7874) from FJMT.

CGI Renders

3D renderings of the building with realistic textures and lighting were created from the 3D cameras. The resulting images present an accurate representation of the scale and position of the proposed development relative to the existing built form.

3D Camera Position and Lens Selection

For 50 Murray Street, the Ibis Hotel and the ICC Hotel, sectional drawings were referenced to ascertain the floor level RL (refer to Appendix A and B for relevant section drawings). 3D cameras were set-up at a height of 1.6m above the noted floor level RL.

For the Novotel Hotel and Oaks Goldsborough buildings, 3D cameras were set-up relative to previously ascertained survey information of equivalent camera positions surveyed for the private view photomontages (refer to Appendix C for survey mark-up).

For all other buildings where no survey information or sectional drawings were available, 3D cameras were set-up at approximated viewing heights estimated using the context 3D model and Google Street View.

All cameras are showing a 24mm camera lens. Please refer to “Appendix D - Camera Lenses for Photomontages” for a more in-depth discussion on the choice of lens selection.

Notes on additional 3D models included in the photomontages

For the purposes of portraying an accurate representation of the current and future context, 3D models of a number of surrounding buildings that have either commenced construction, completed construction, been approved for construction or submitted for SSDA approval have been included in the images.

This includes the following:

Completed buildings shown with basic textures

- ICC Hotel (Sofitel Hotel)
- ICC Sydney buildings (in some instances shown as 3D model, other times shown as per detail in the base photo)

Buildings that are under construction or with DA approval shown as a solid grey form

- Darling Harbour Square buildings
- The Ribbon (IMAX Darling Harbour redevelopment)
- Crown Tower, Barangaroo
- Stage 1B Residential buildings, Barangaroo

Buildings that have been submitted for SSDA shown as ghosted blue forms

- Cockle Bay tower

CONCLUSION

It is my opinion as an experienced 3D architectural visualisation professional that the images included in this report accurately portray the level of visibility and impact of the indicative built form with respect to the surrounds.

Yours sincerely,

Grant Kolln



DESCRIPTION OF COLLECTED DATA

To create the 3D model and establish accurate reference points for alignment to the photography, a variety of information was collected. This includes the following:

- 1) Architectural 3D model of indicative Harbourside Stage 1 DA (SSD 7874) base building design, proposed envelope and additional surrounding context buildings
 - Supplied by: Francis-Jones Morehen Thorp (FJMT)
Level 5/70 King St, Sydney NSW 2000
 - Format: Din3D model
- 2) 3D models of Barangaroo and Darling Harbour context buildings
 - Supplied by: Lendlease
Level 14, Tower Three, International Towers Exchange Place, 300, Barangaroo Avenue, Sydney NSW 2000
 - Format: 3DS Max files
- 3) 3D models of indicative designs for The Star and Cockle Bay developments
 - Supplied by: Francis-Jones Morehen Thorp (FJMT)
Level 5/70 King St, Sydney NSW 2000
 - Format: Din3D model
- 4) 3D model of ‘The Ribbon’
 - Created by: Virtual Ideas Pty Ltd
Studio 71, 61 Marlborough St, Surry Hills, NSW 2010
 - Format: 3DS Max file (modelled from publicly available information)
- 5) Site Survey data (refer to Appendix A)
 - Supplied by: Rygate & Company Pty. Ltd. Registered Land Surveyors
Level 9, 89 York St, Sydney, NSW 2000
 - Format: DWG and PDF files

CV OF GRANT KOLLN, DIRECTOR OF VIRTUAL IDEAS

Personal Details

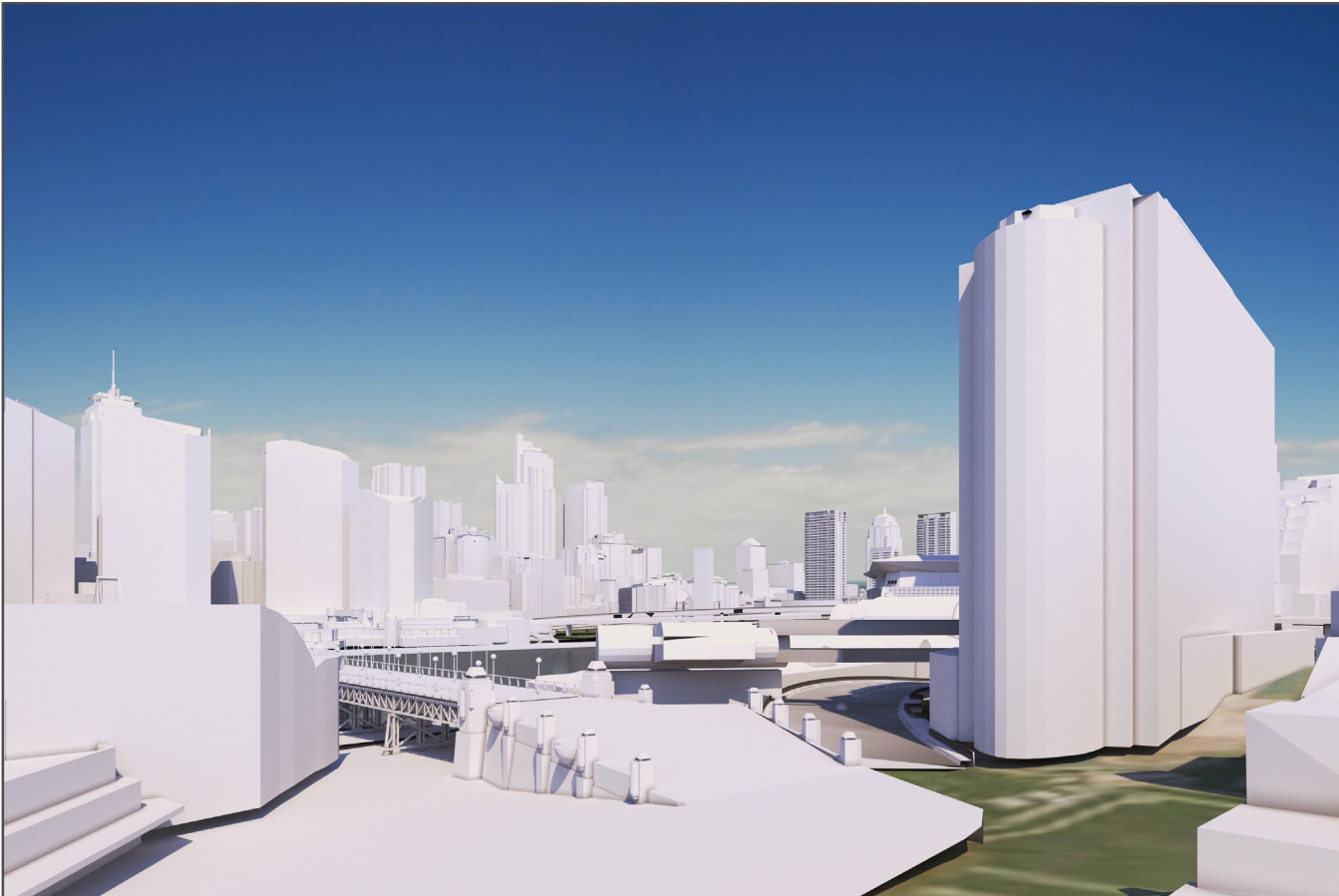
Name: Grant Kolln
DOB: 07/09/1974
Company Address: Suite 71, 61 Marlborough St, Surry Hills, NSW, 2010
Phone Number: 02 8399 0222

Relevant Experience

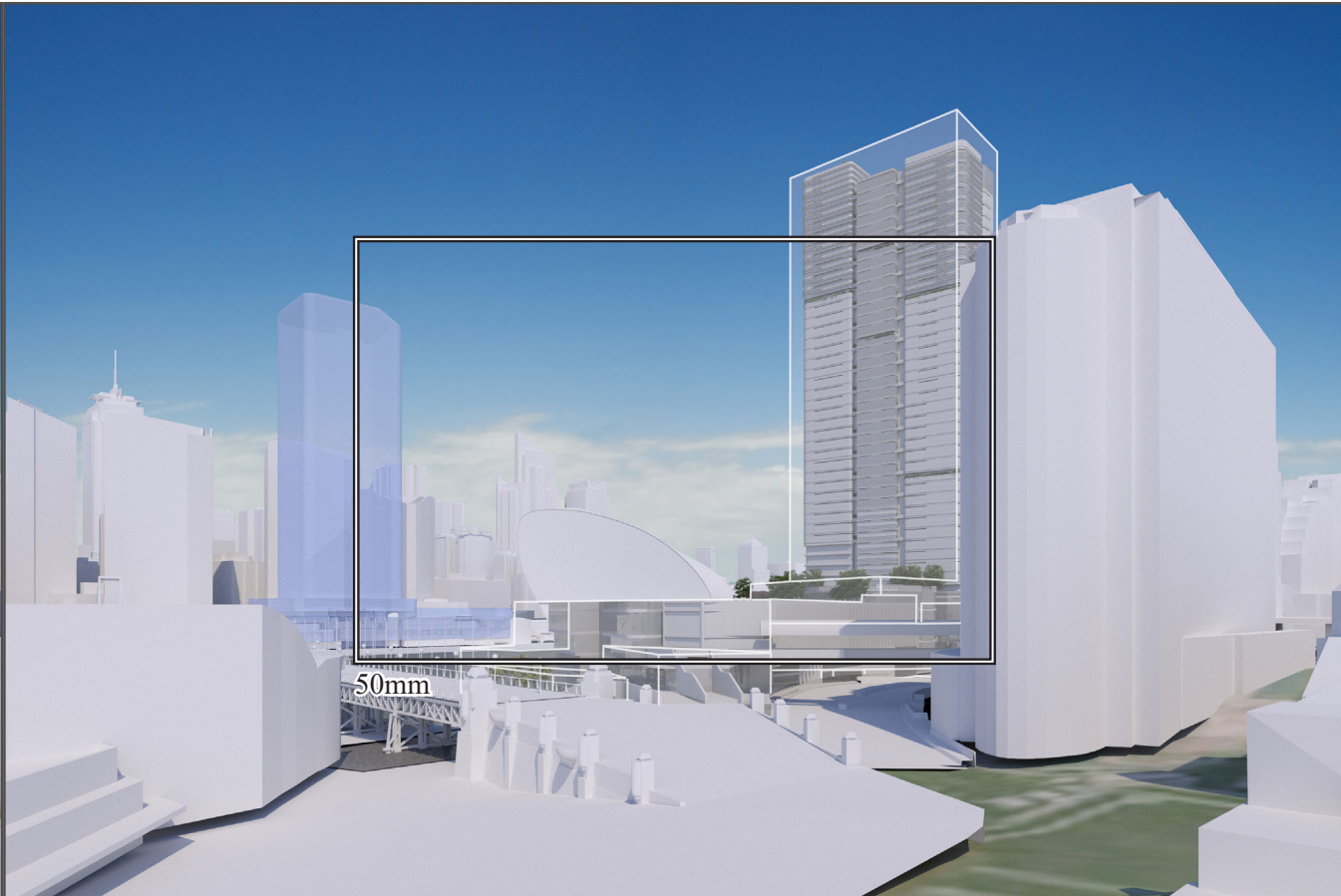
2003 - Present	Director of 3D visualisation studio Virtual Ideas. During this time I have worked on many visual impact studies for legal proceedings in various different types of industries including architectural, industrial, mining, landscaping, and several large public works projects. This experience has enables us to create highly accurate methodologies for the creation of our visual impact media and report creation.
1999 - 2001	Project manager for global SAP infrastructure implementation - Ericsson, Sweden
1999 - 1999	IT consultant - Sci-Fi Channel, London
1994 - 1999	Architectural Technician, Thomson Adsett Architect, Brisbane QLD.

Relevant Education / Qualifications

1997	Advanced Diploma in Architectural Technology. Southbank TAFE, Brisbane, QLD
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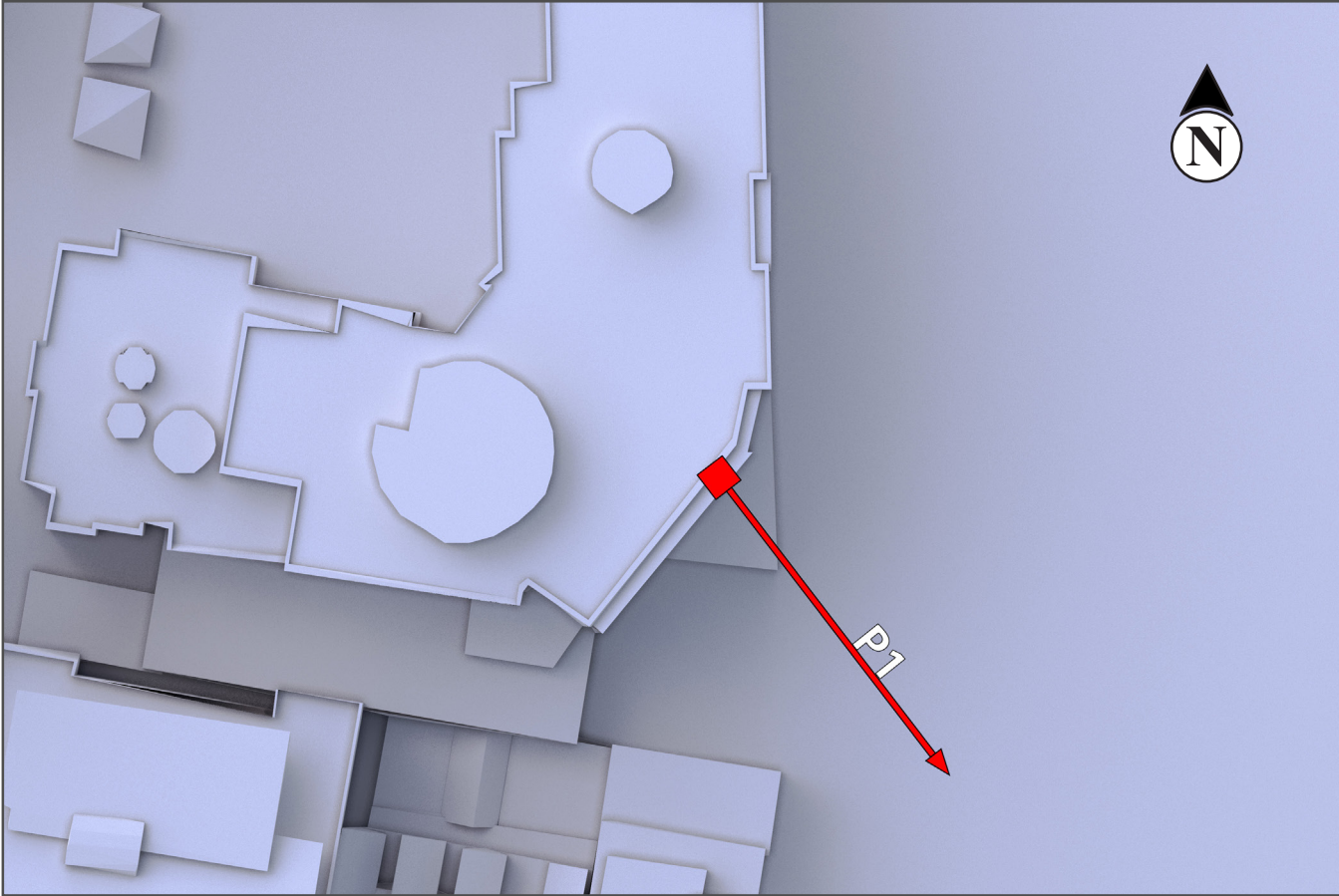


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Proposed View - 24mm

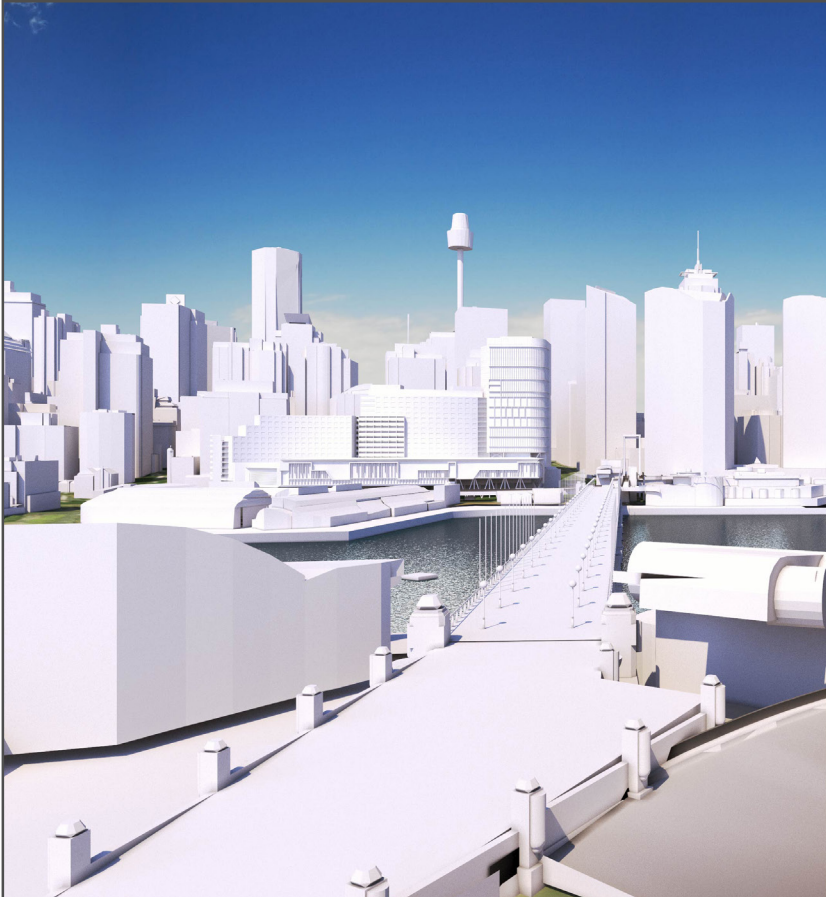
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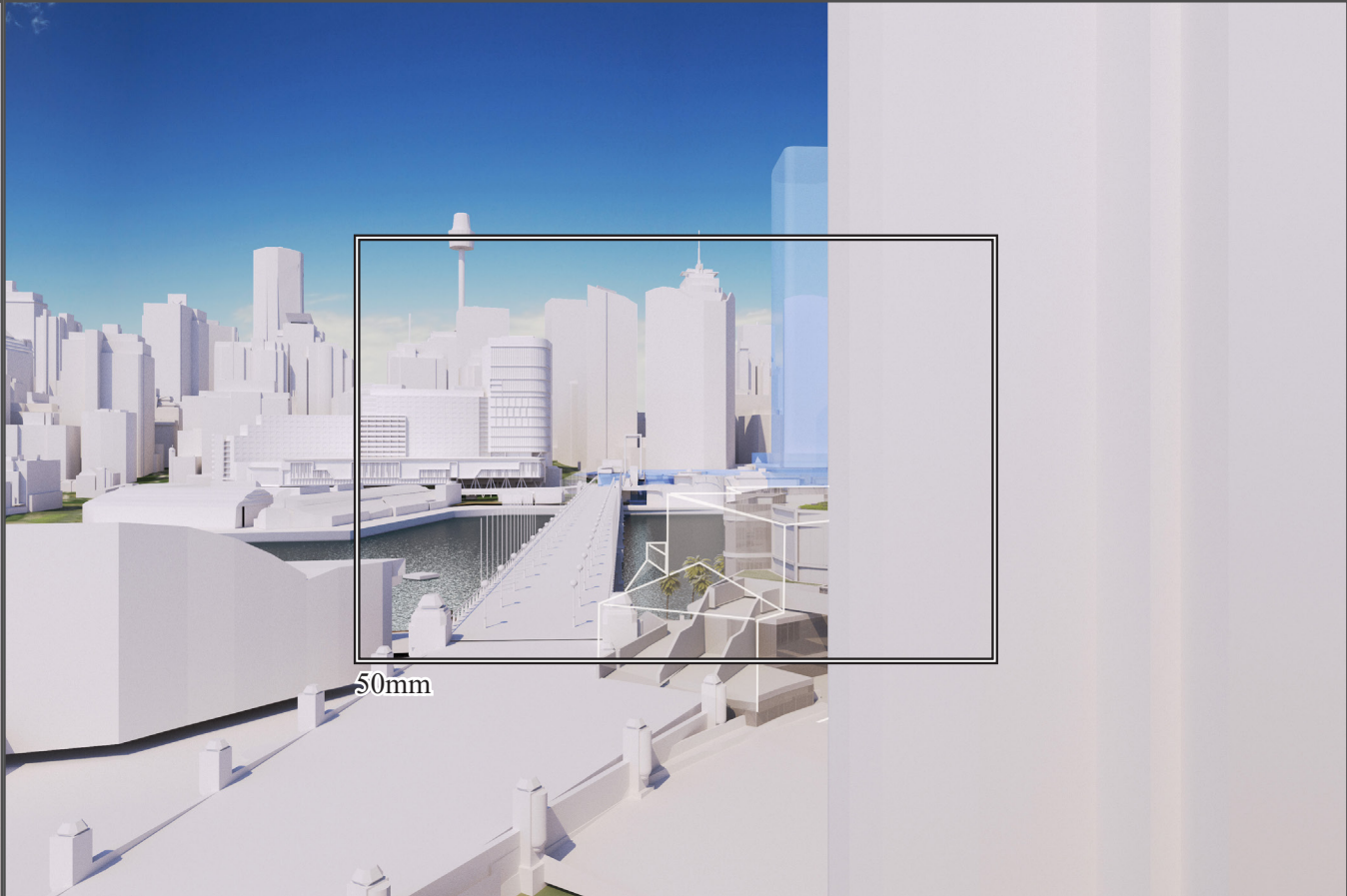
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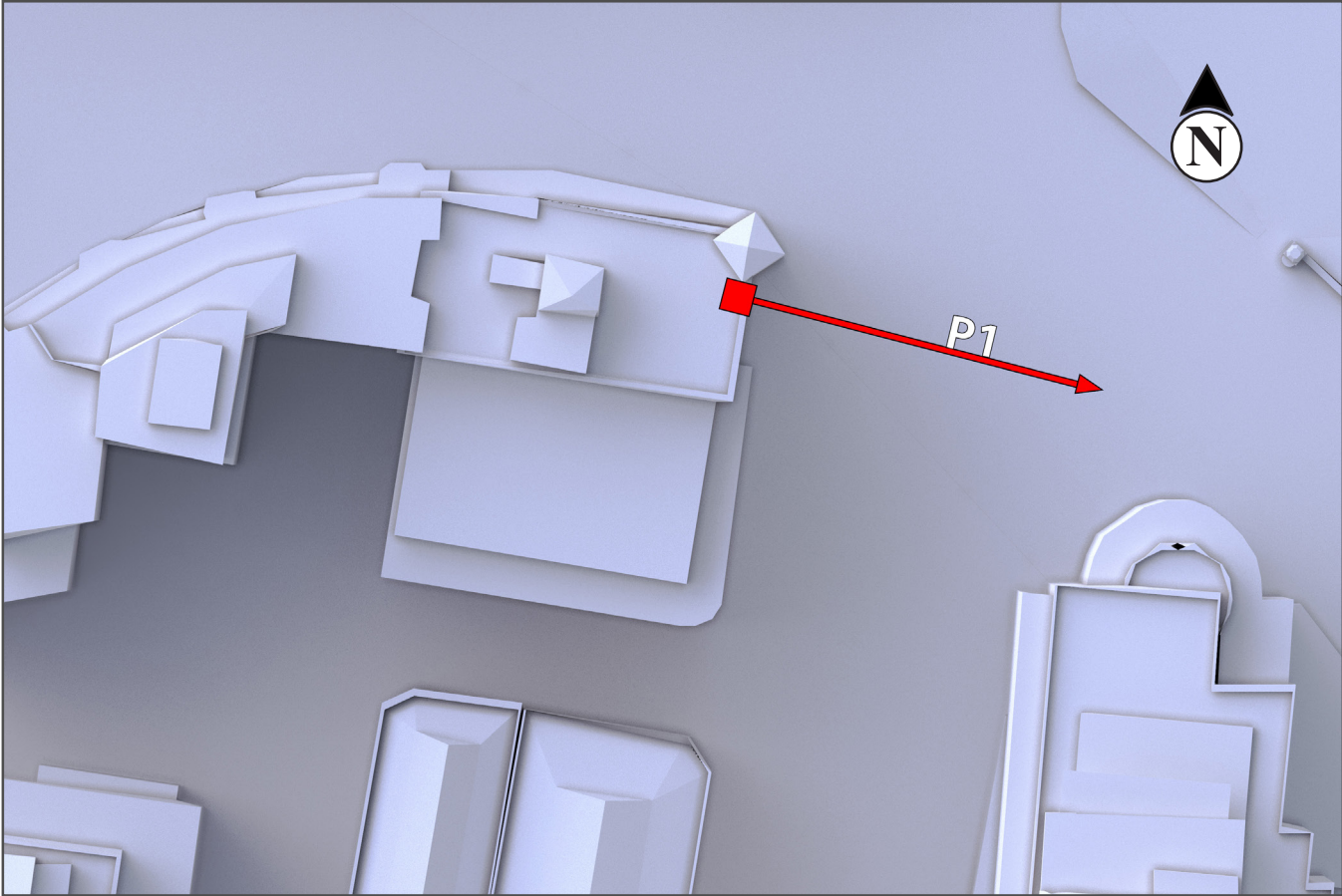


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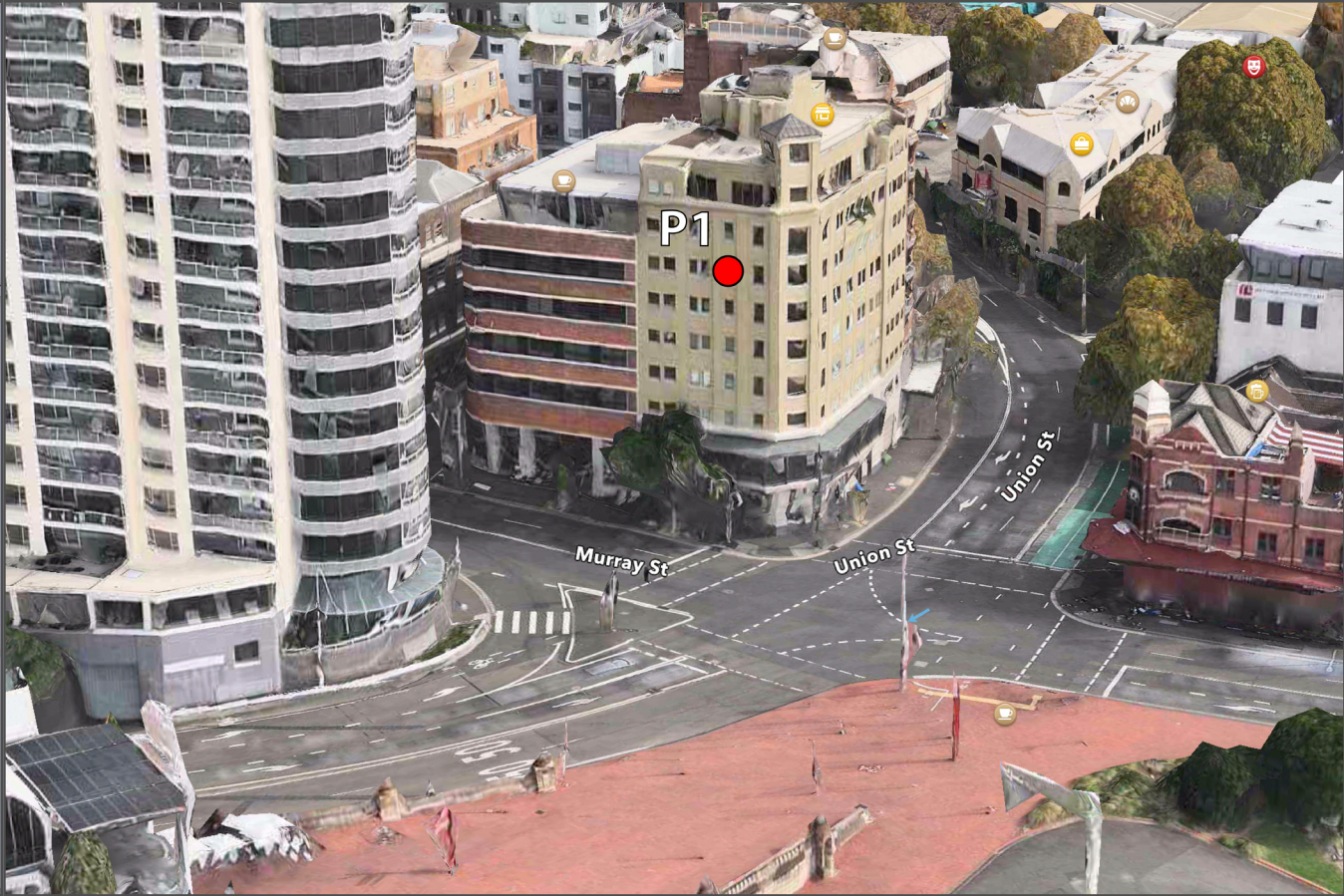


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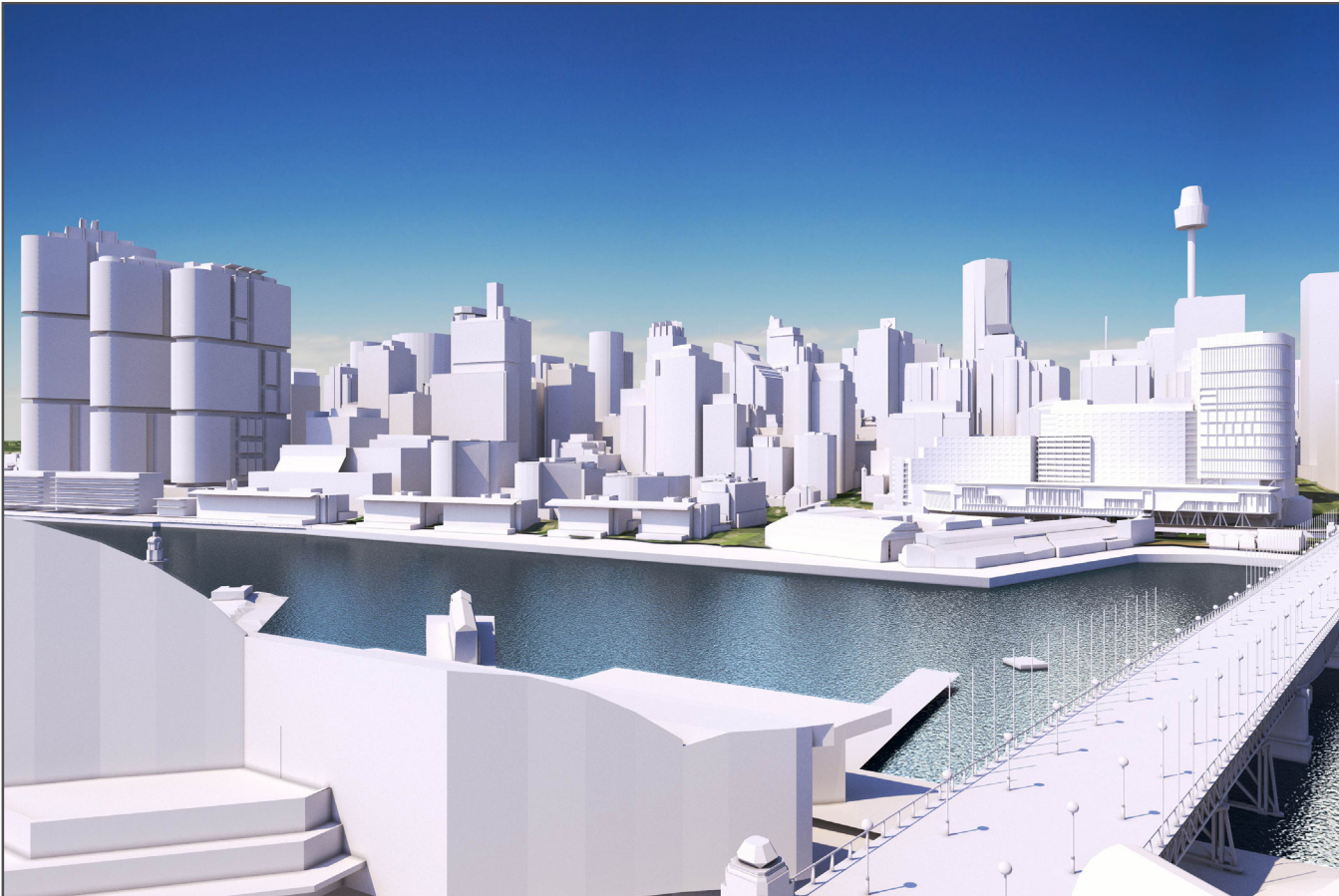
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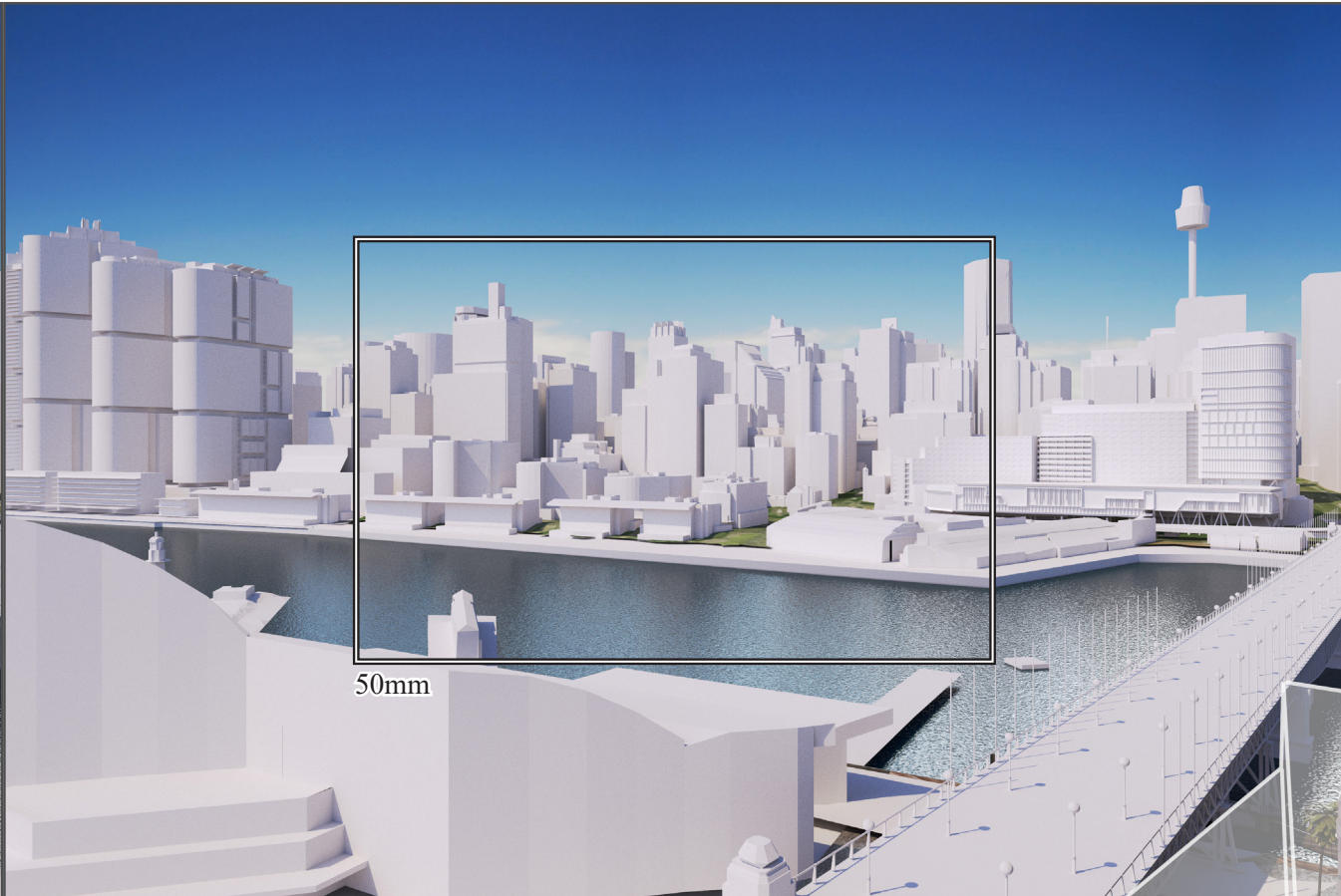
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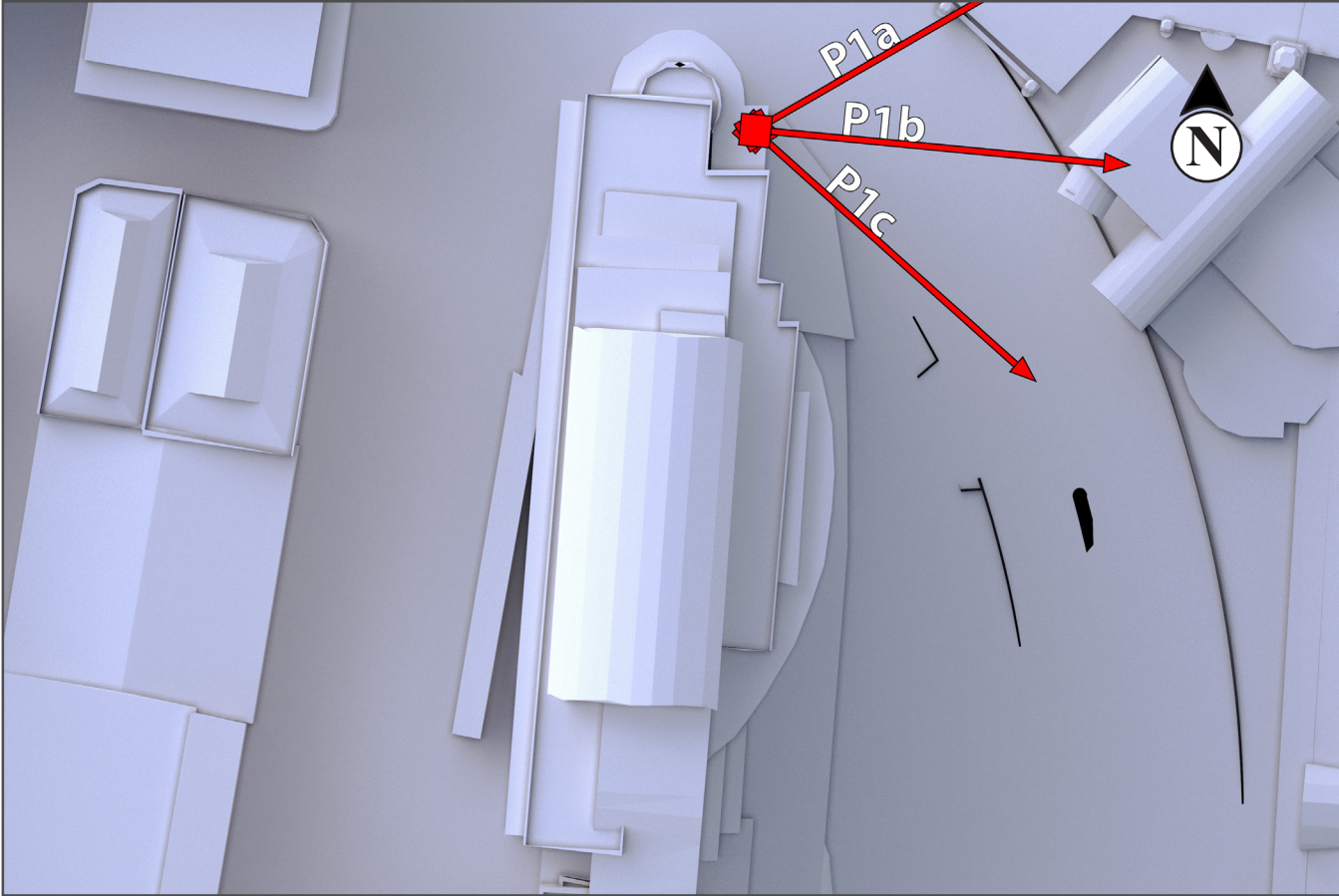


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Proposed View - 24mm

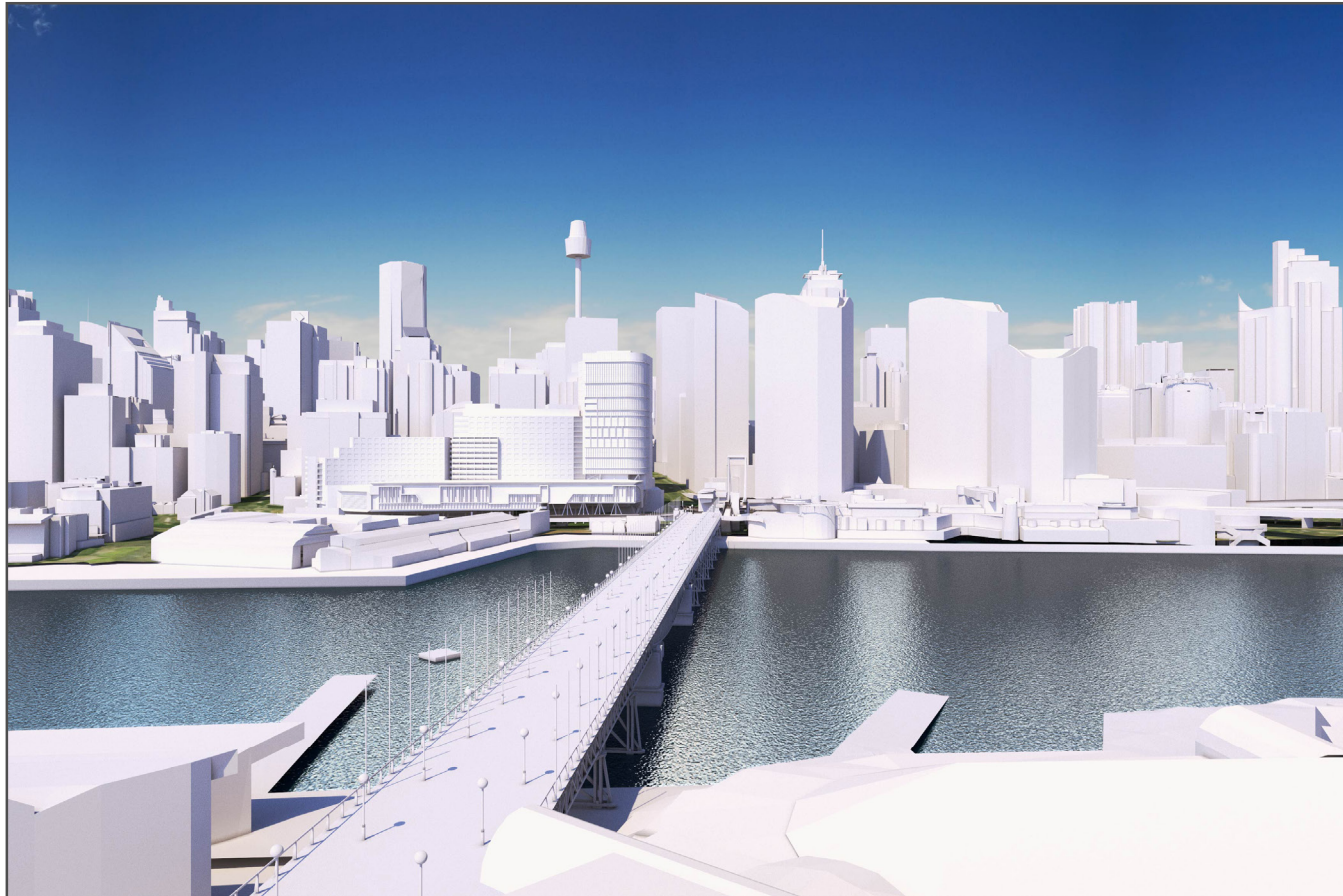
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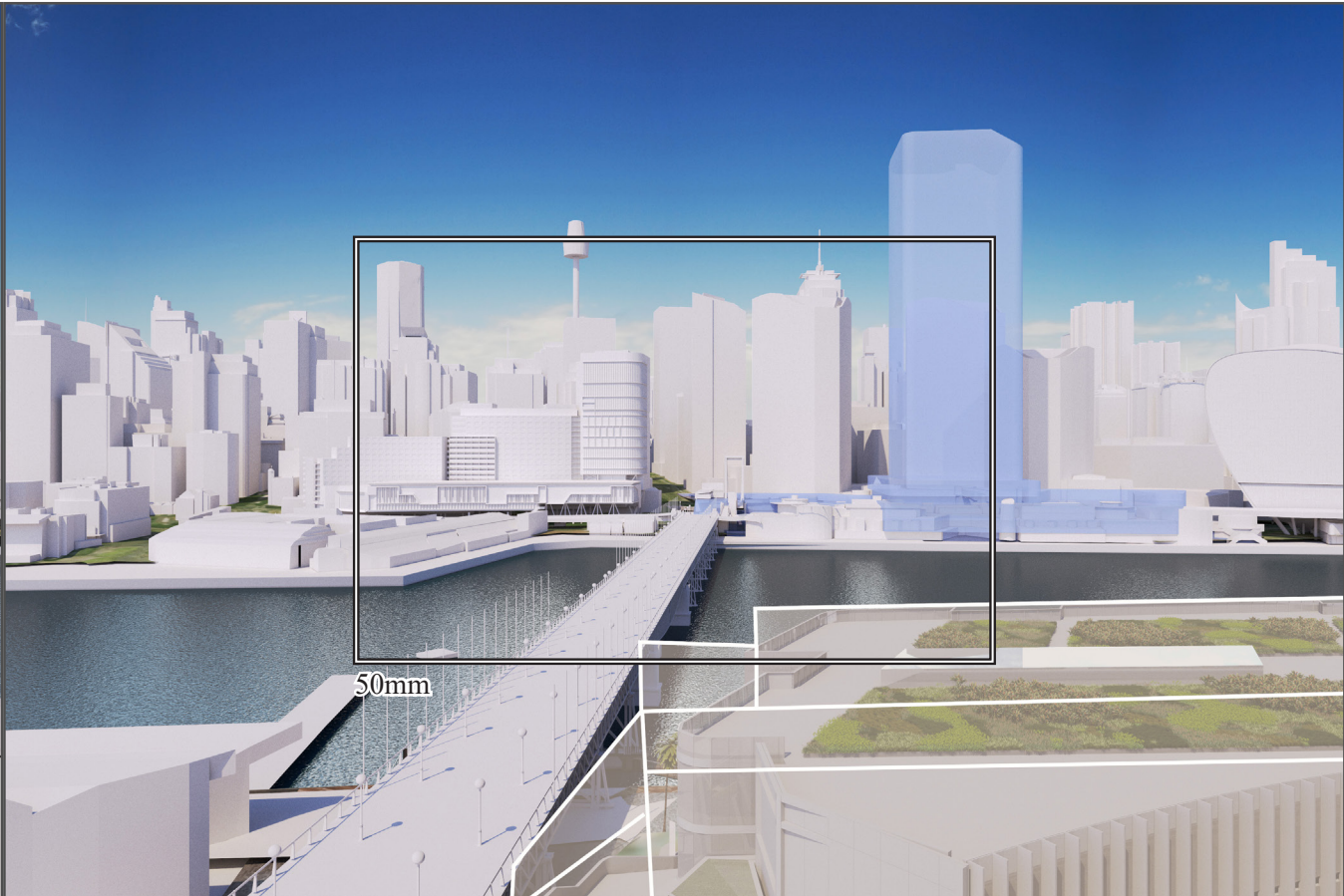
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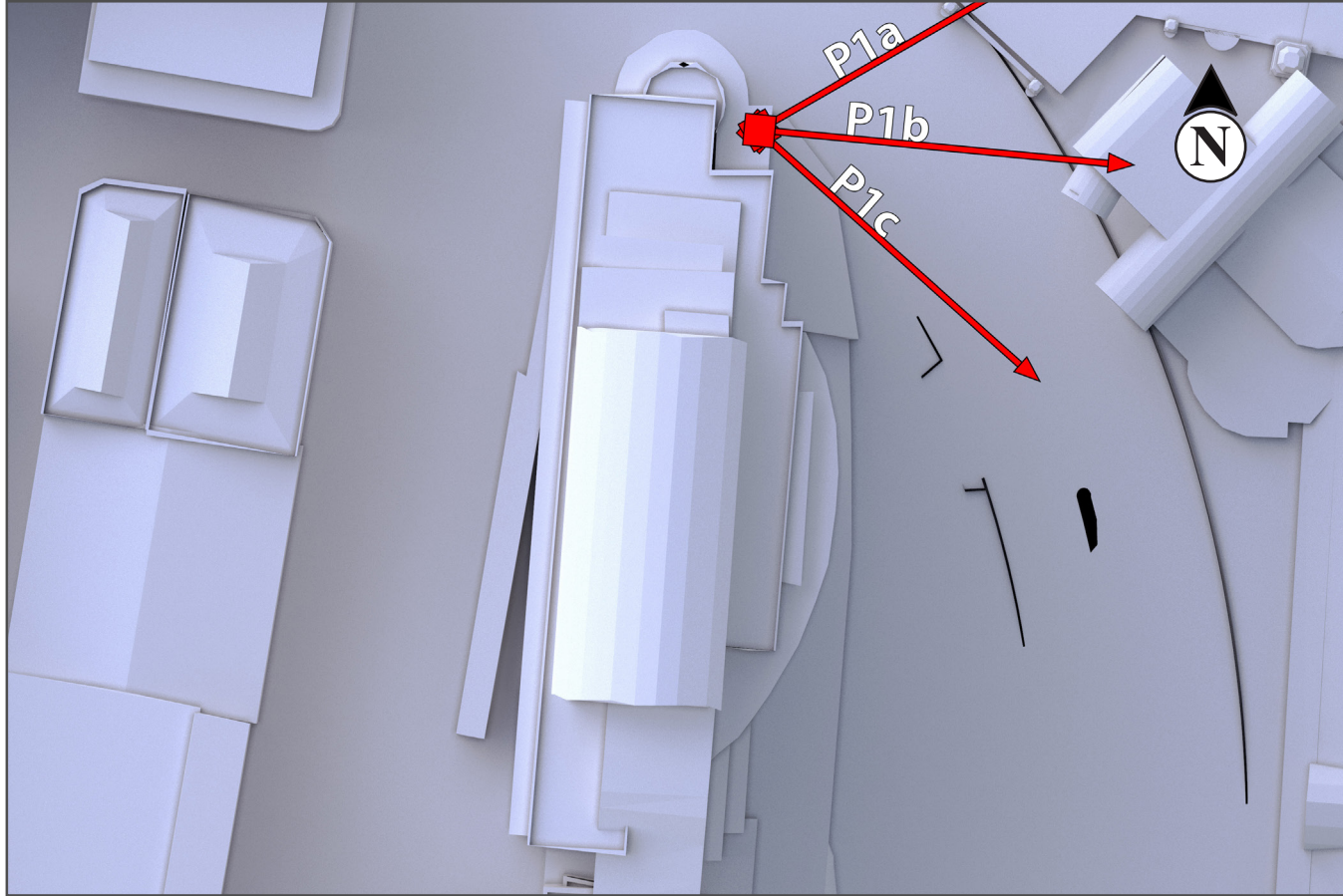


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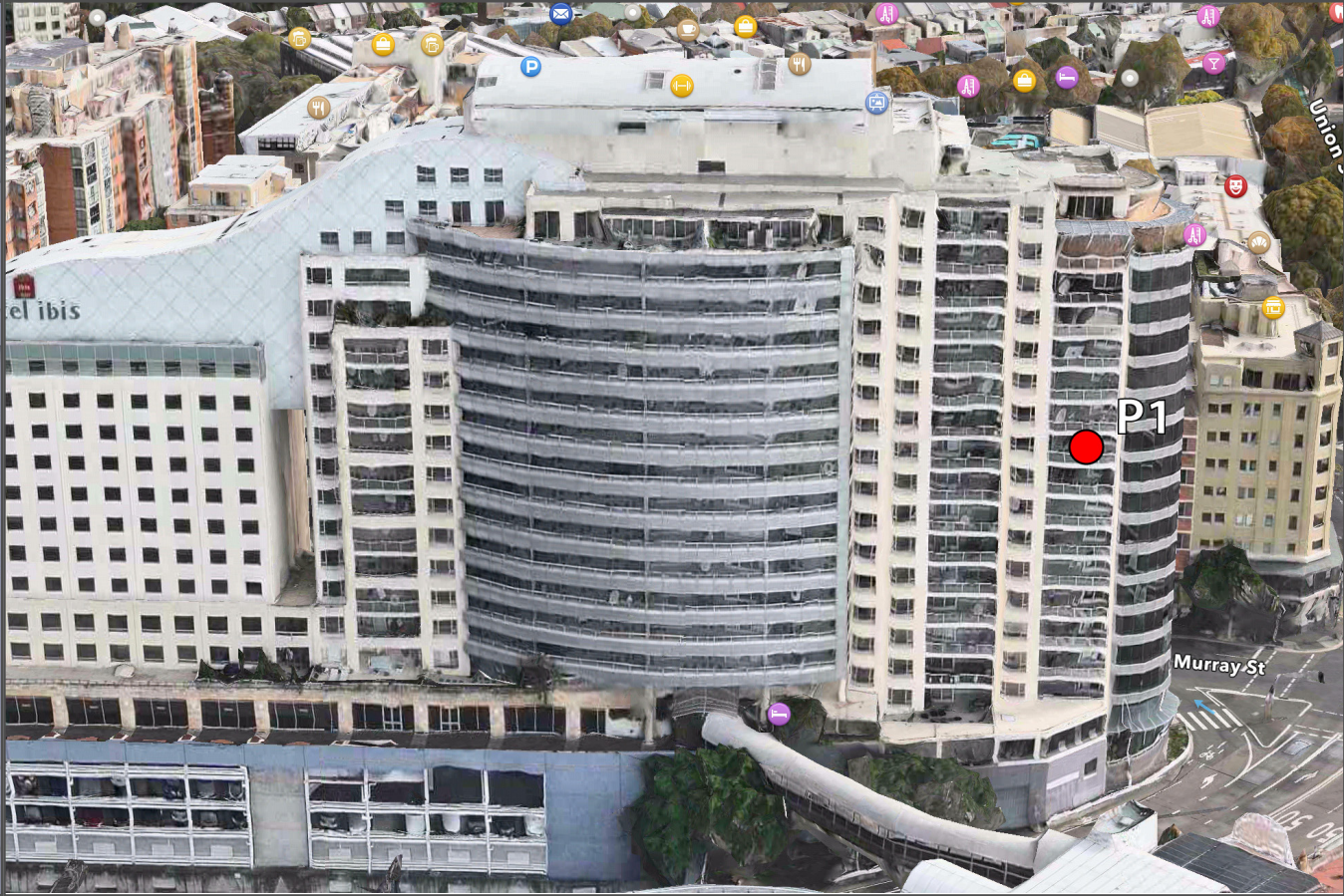


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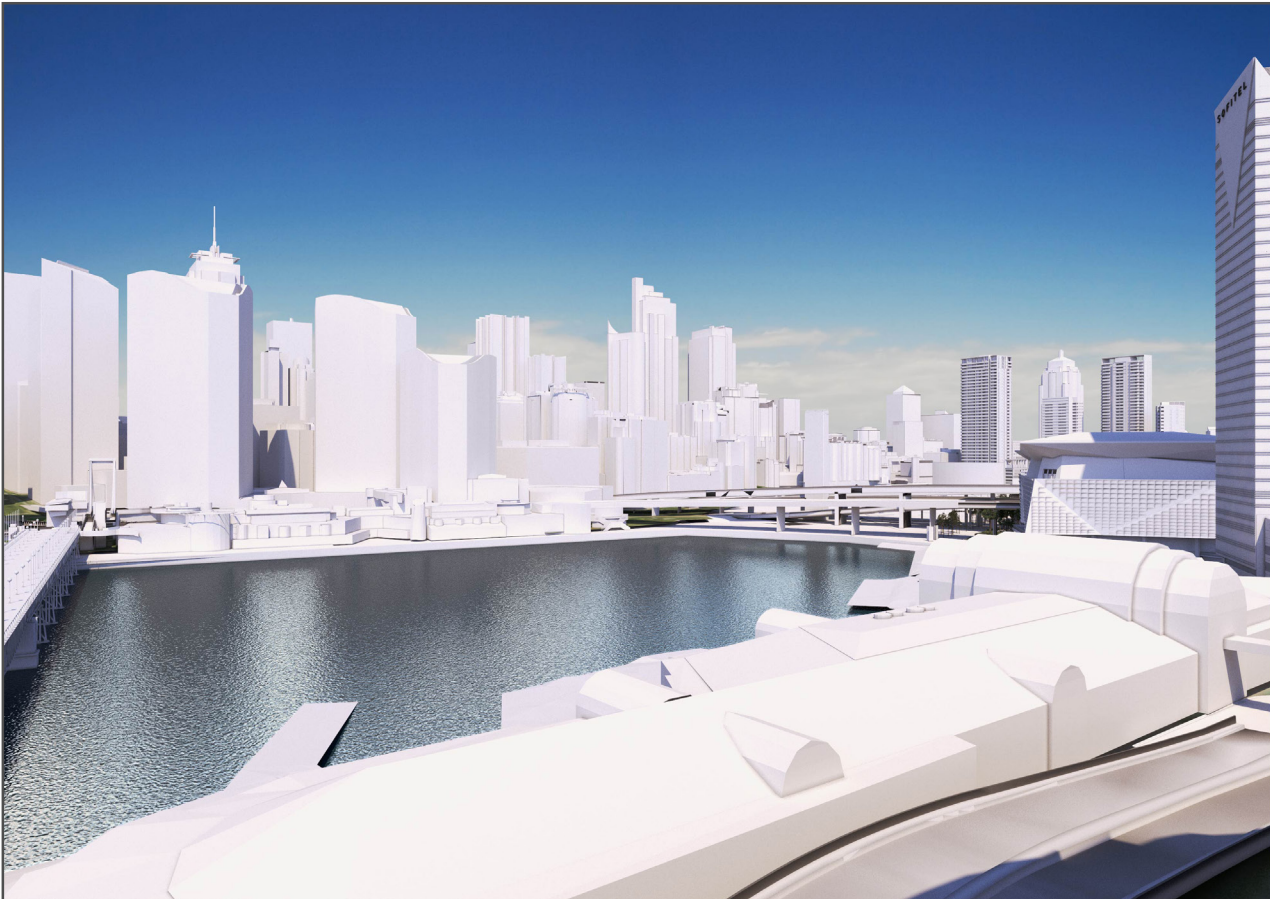
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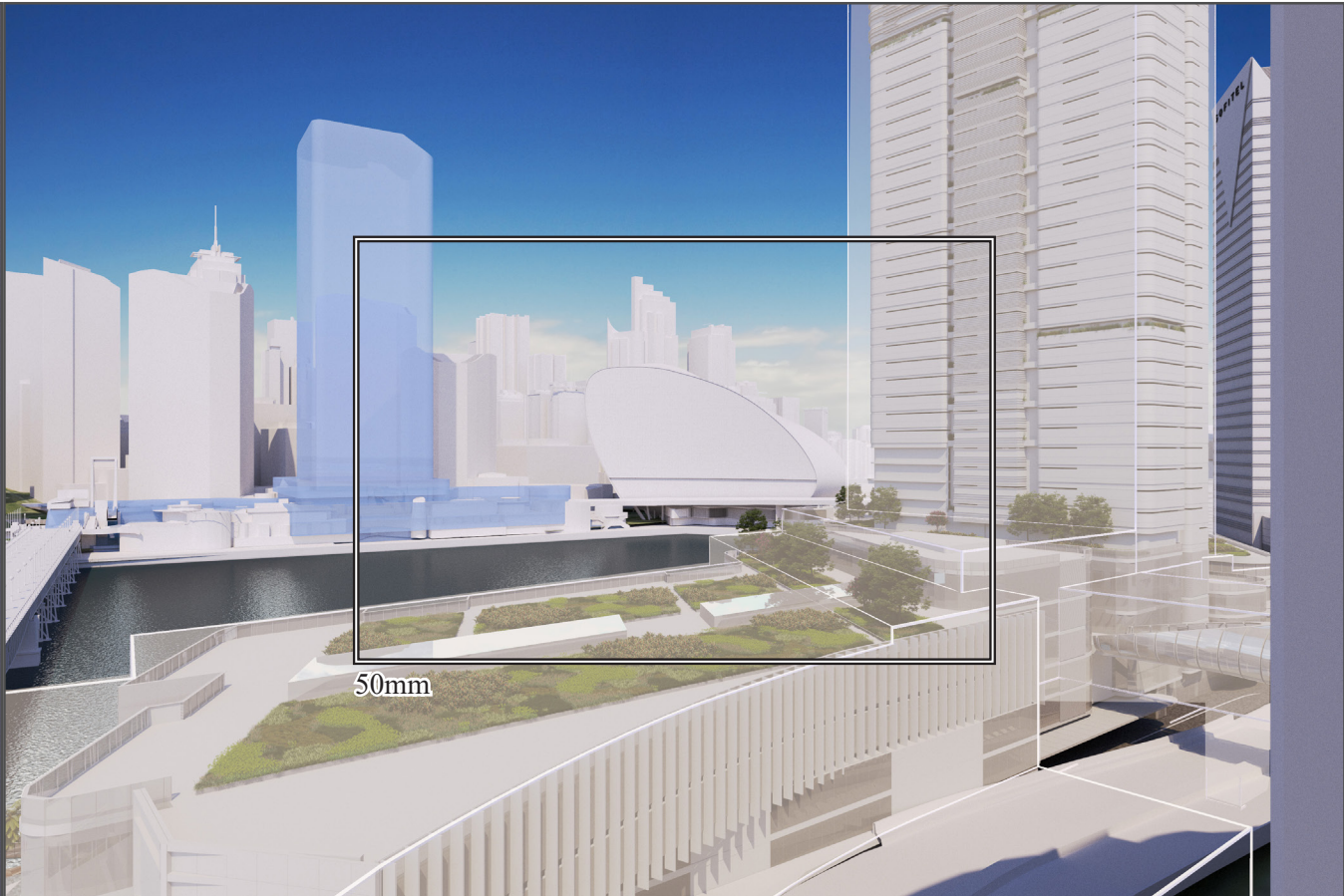
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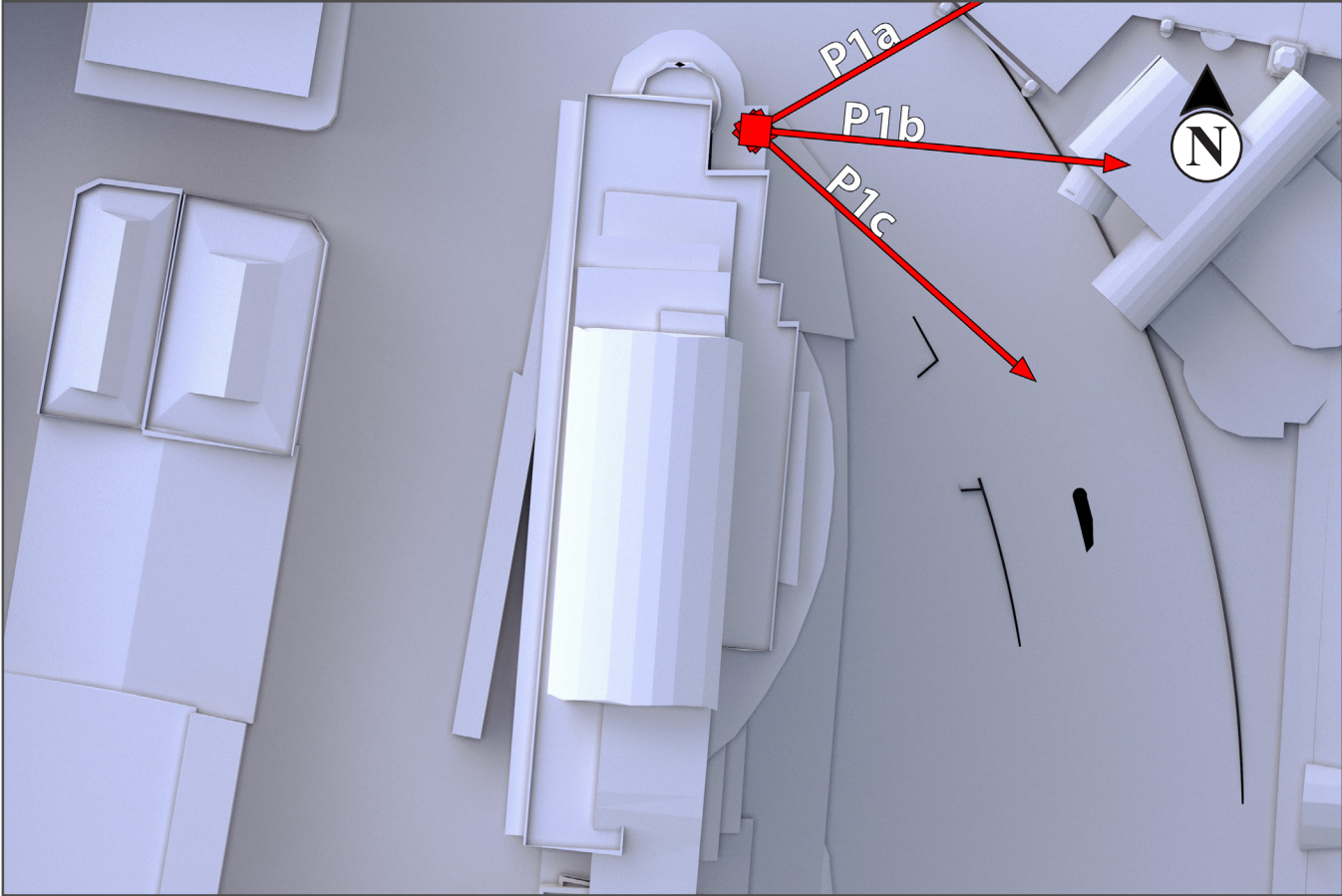


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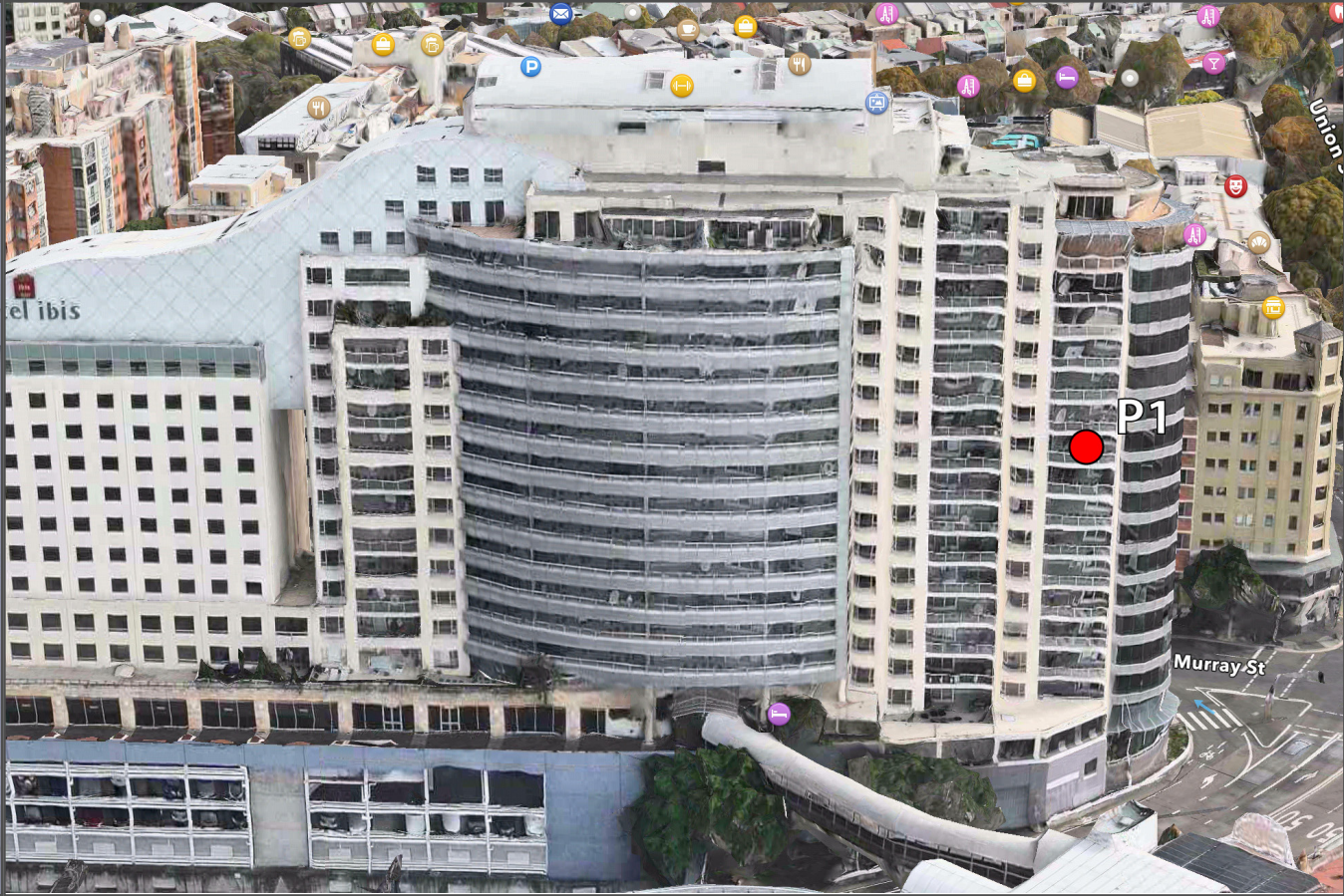


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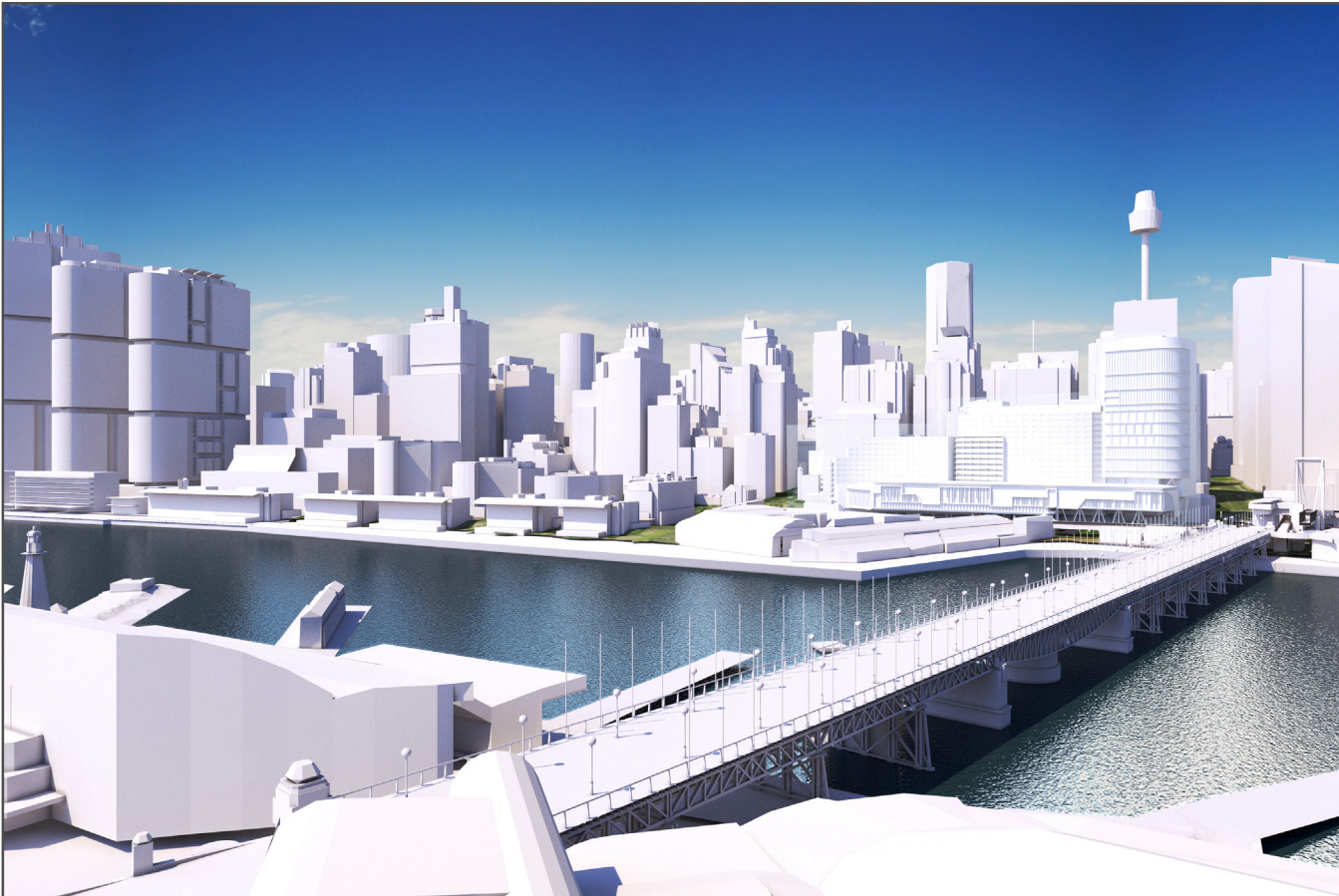
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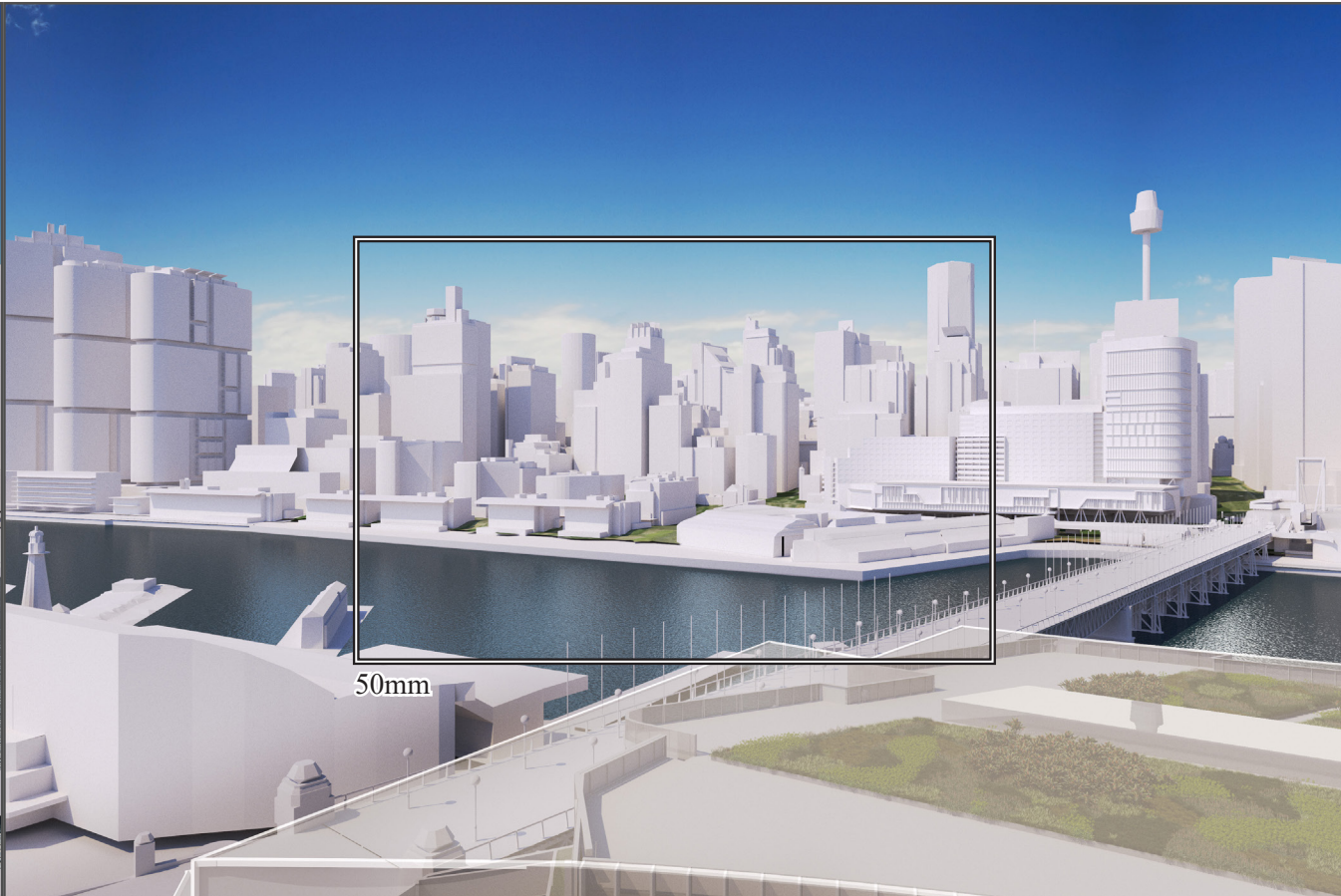
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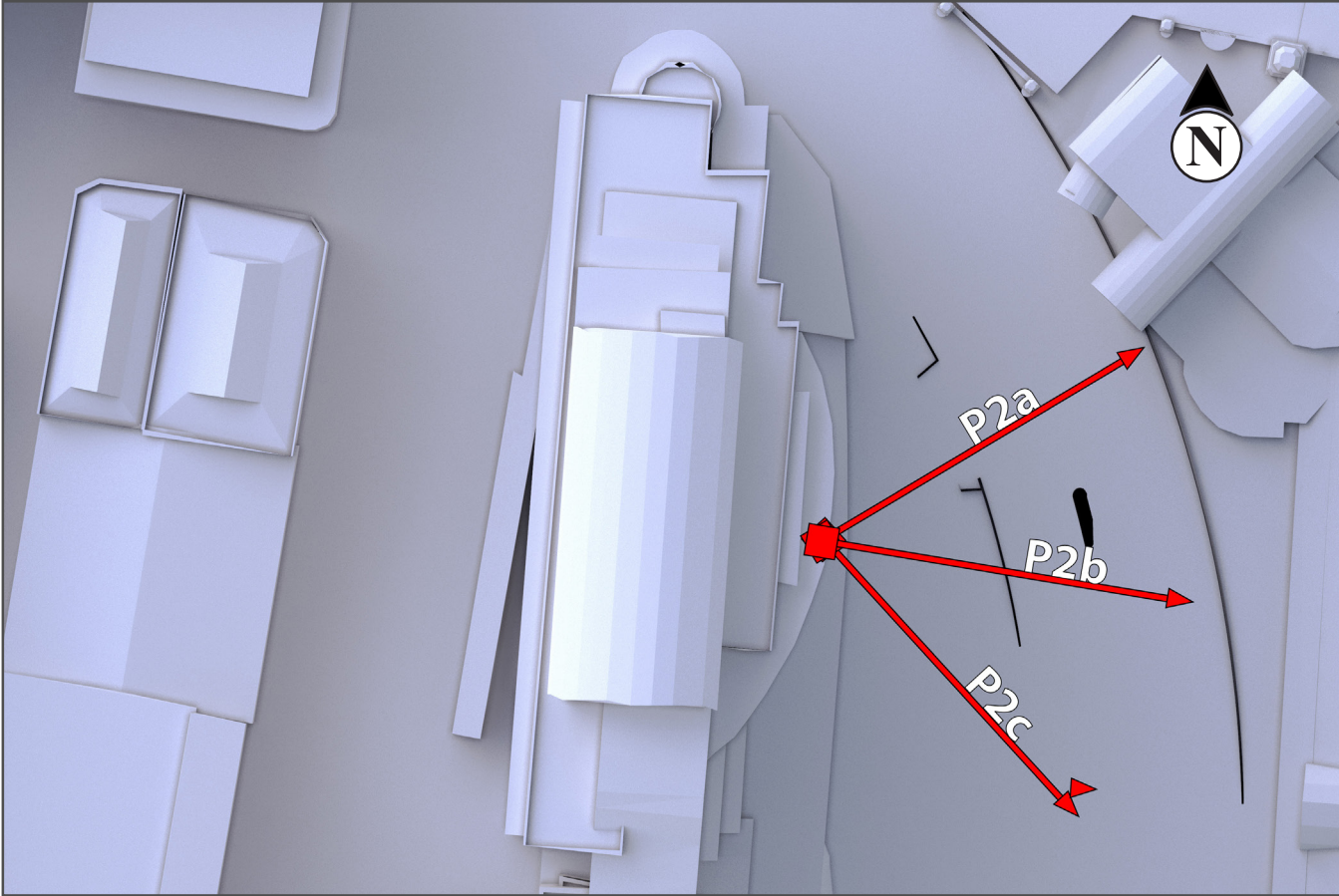


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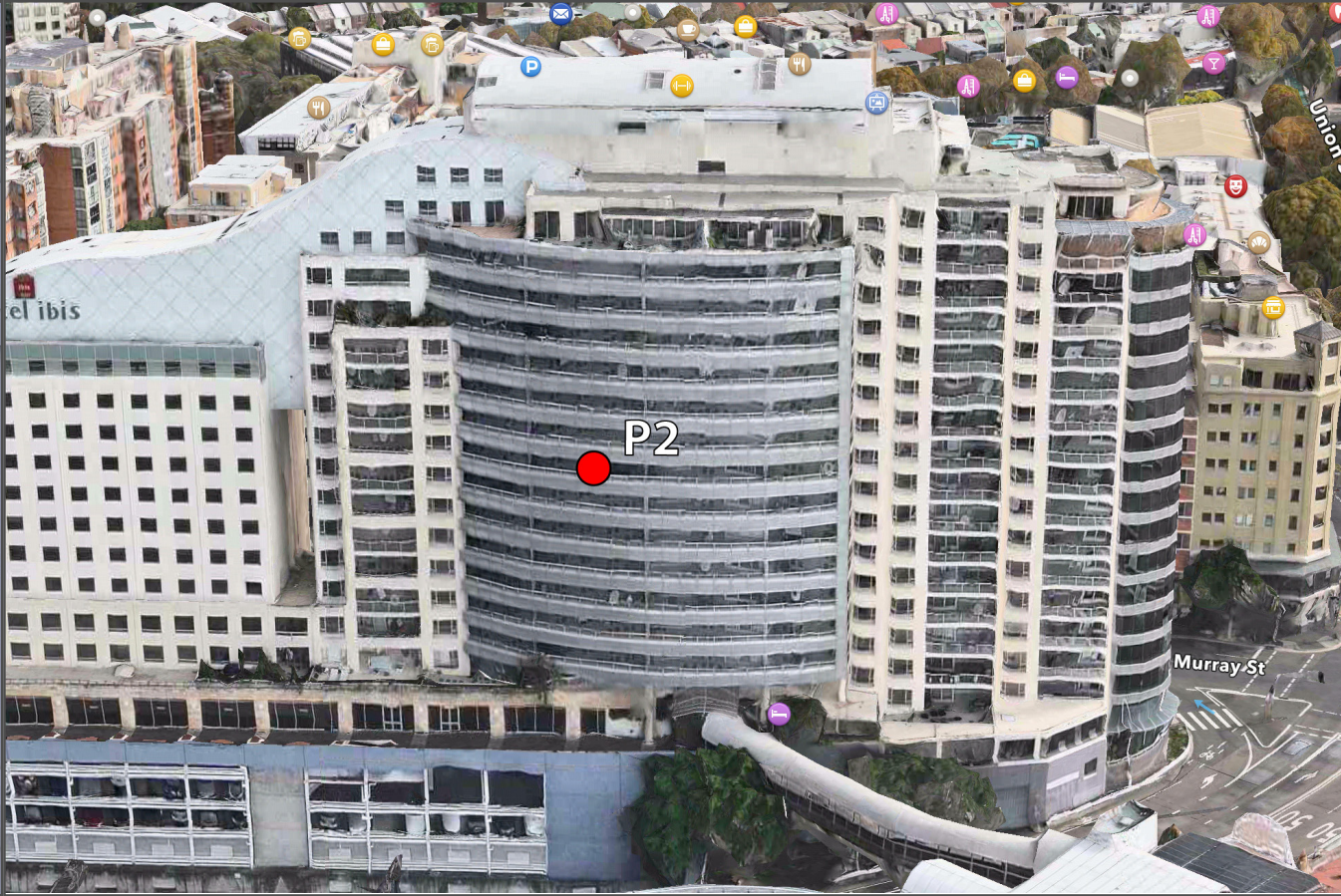


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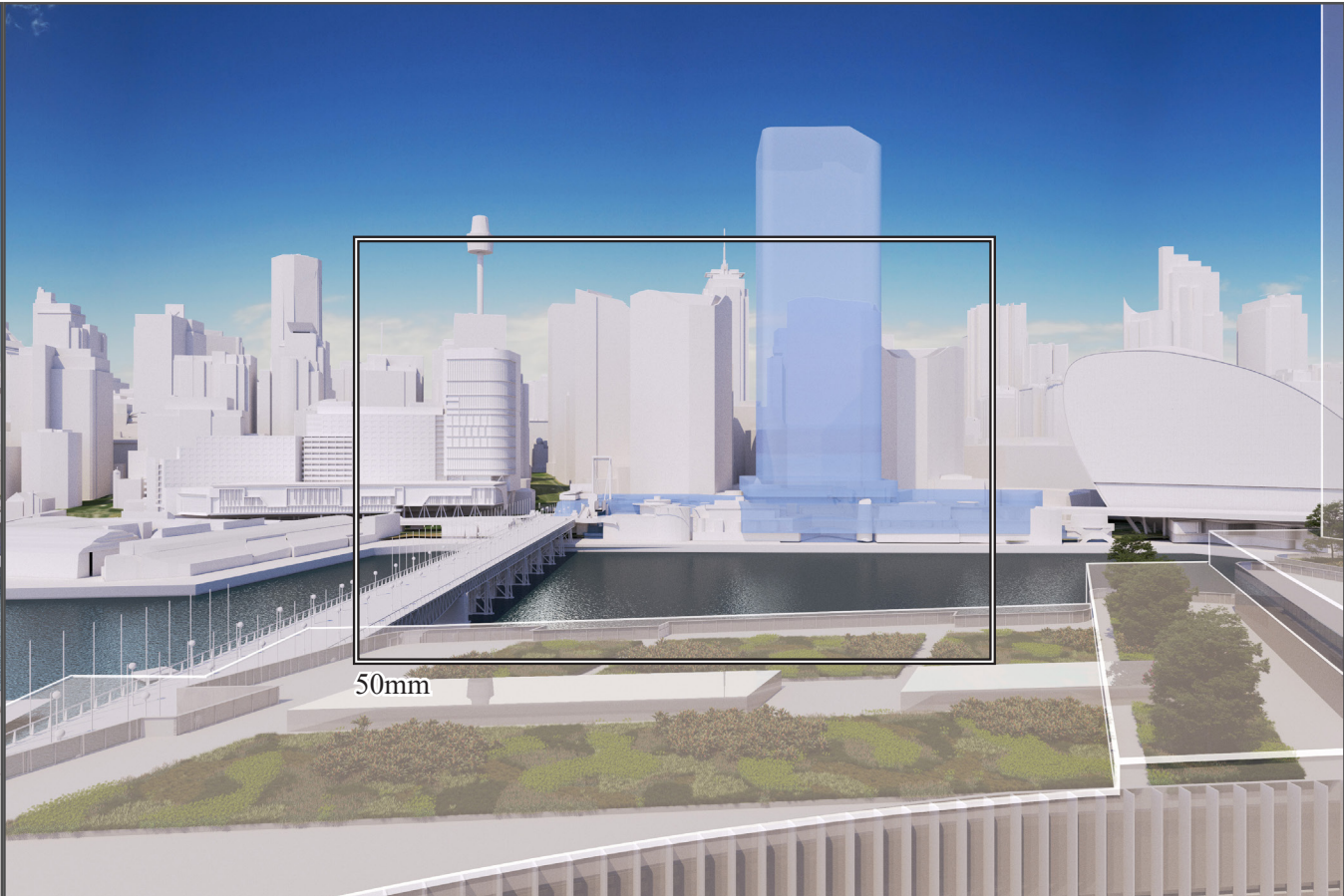


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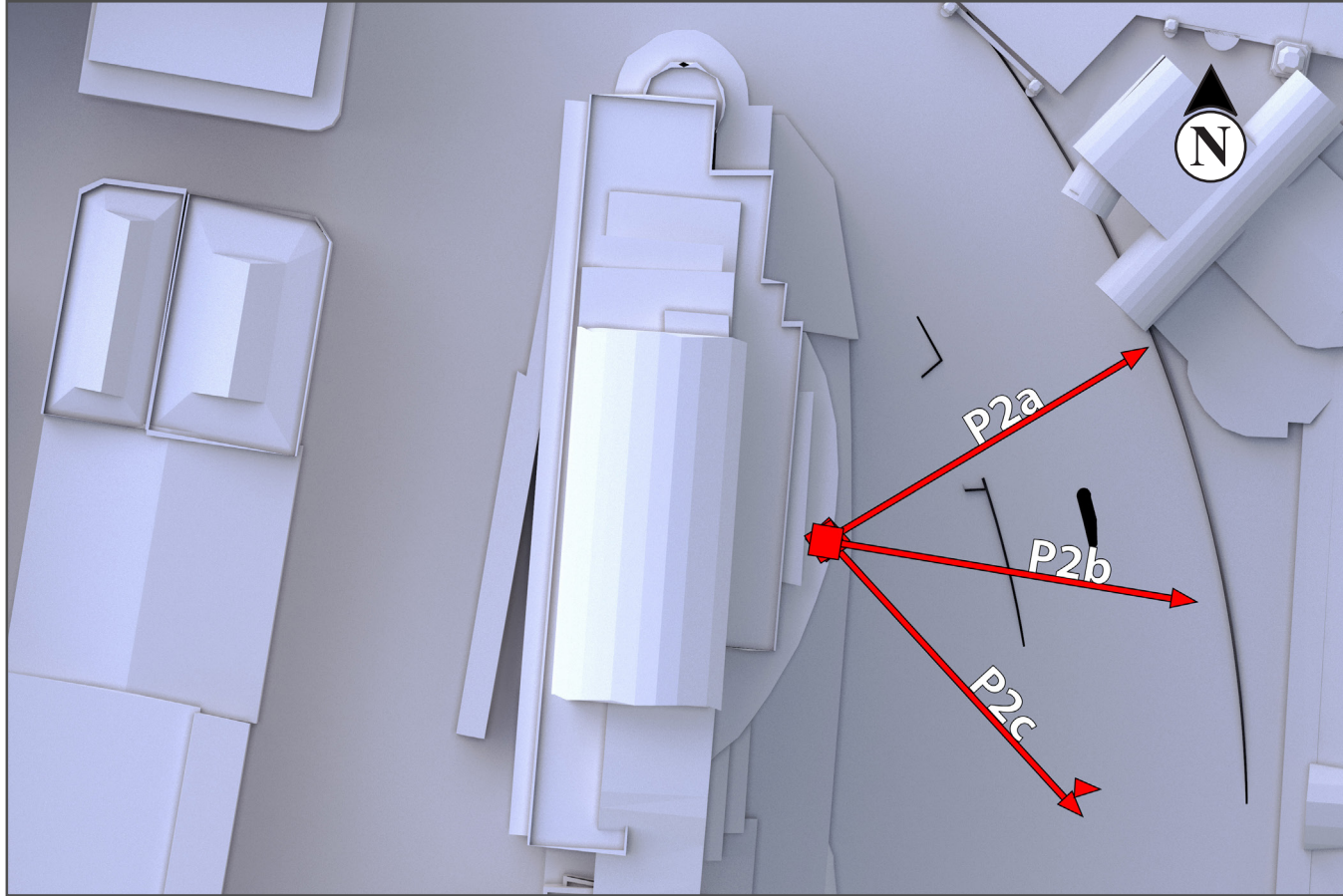


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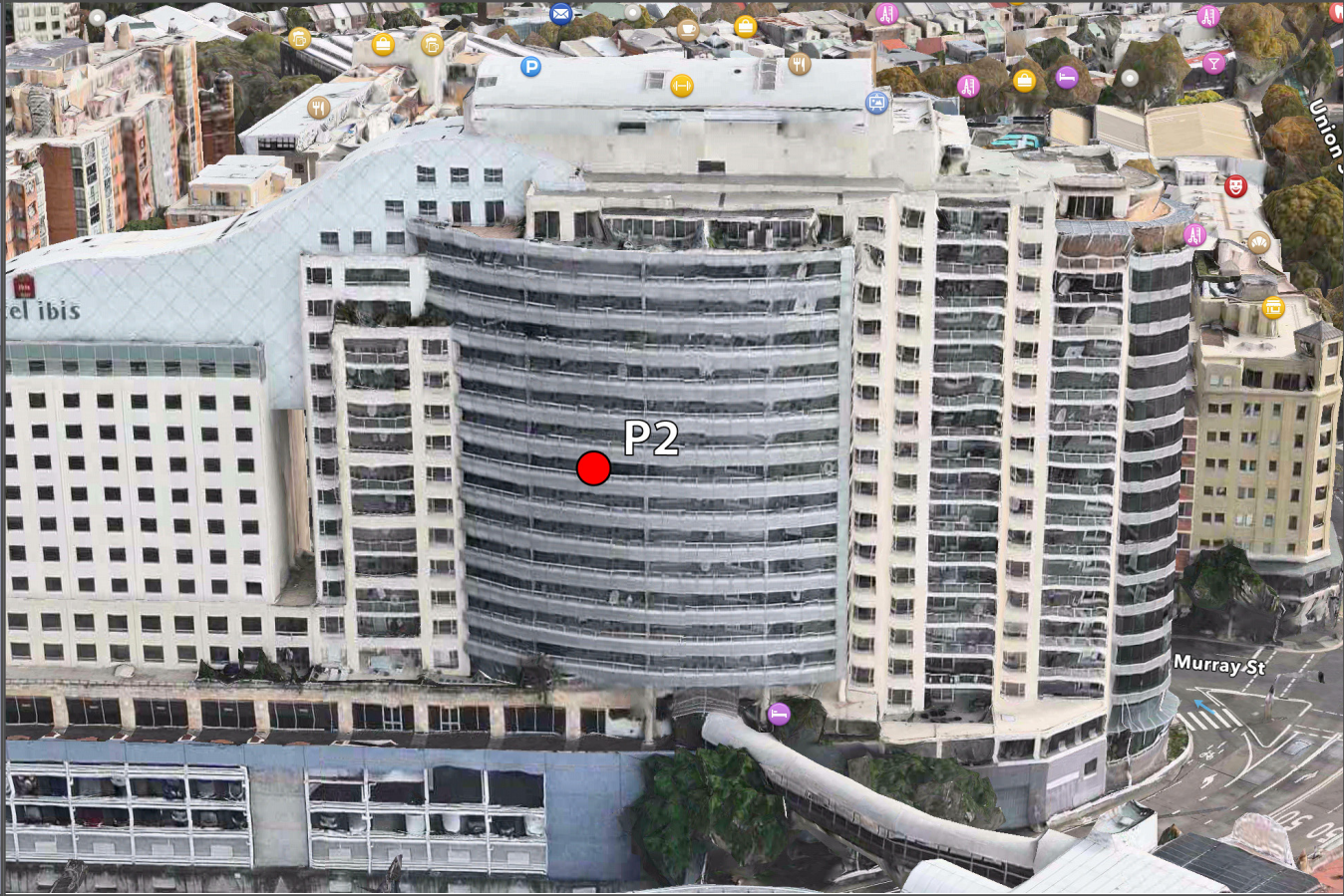


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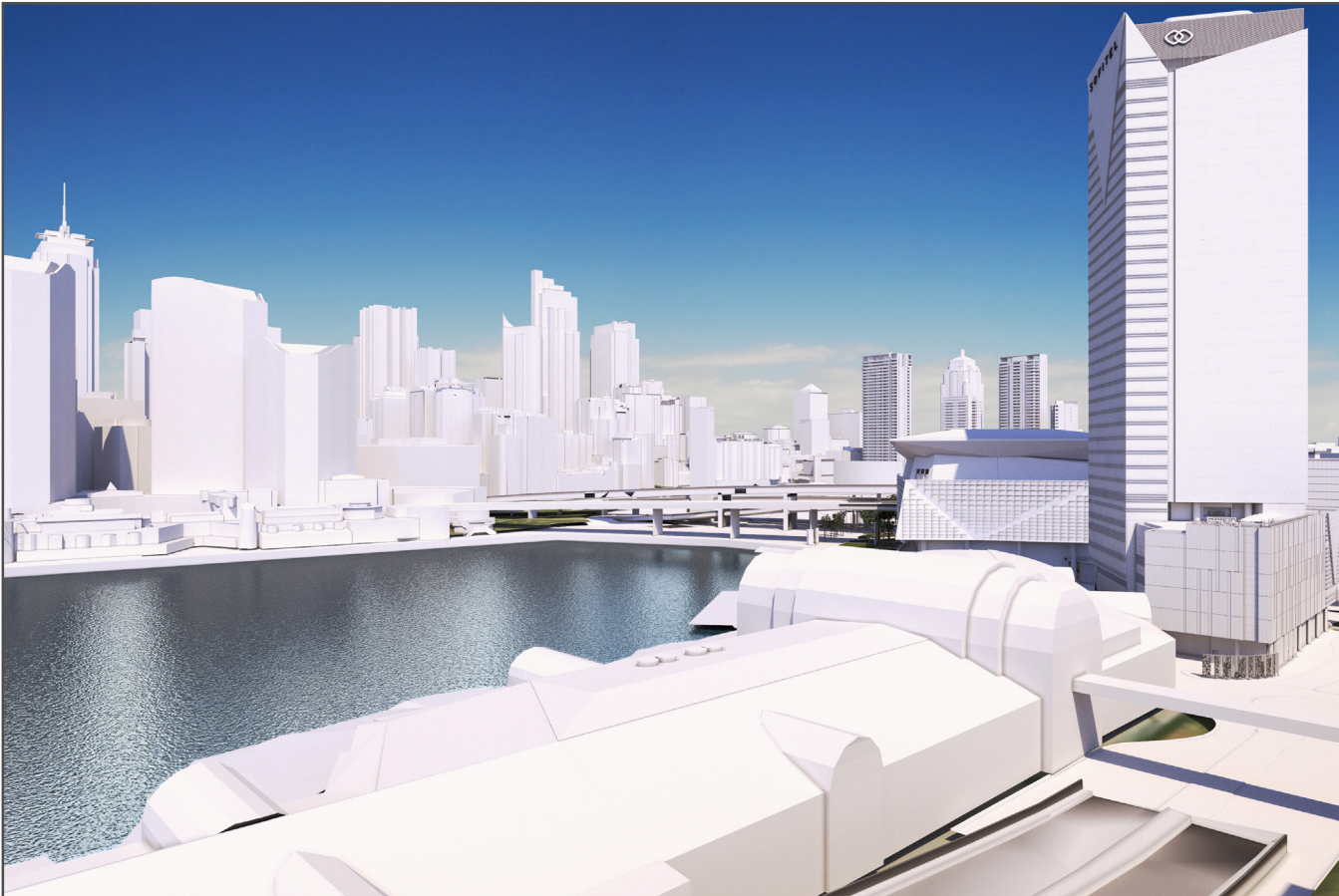
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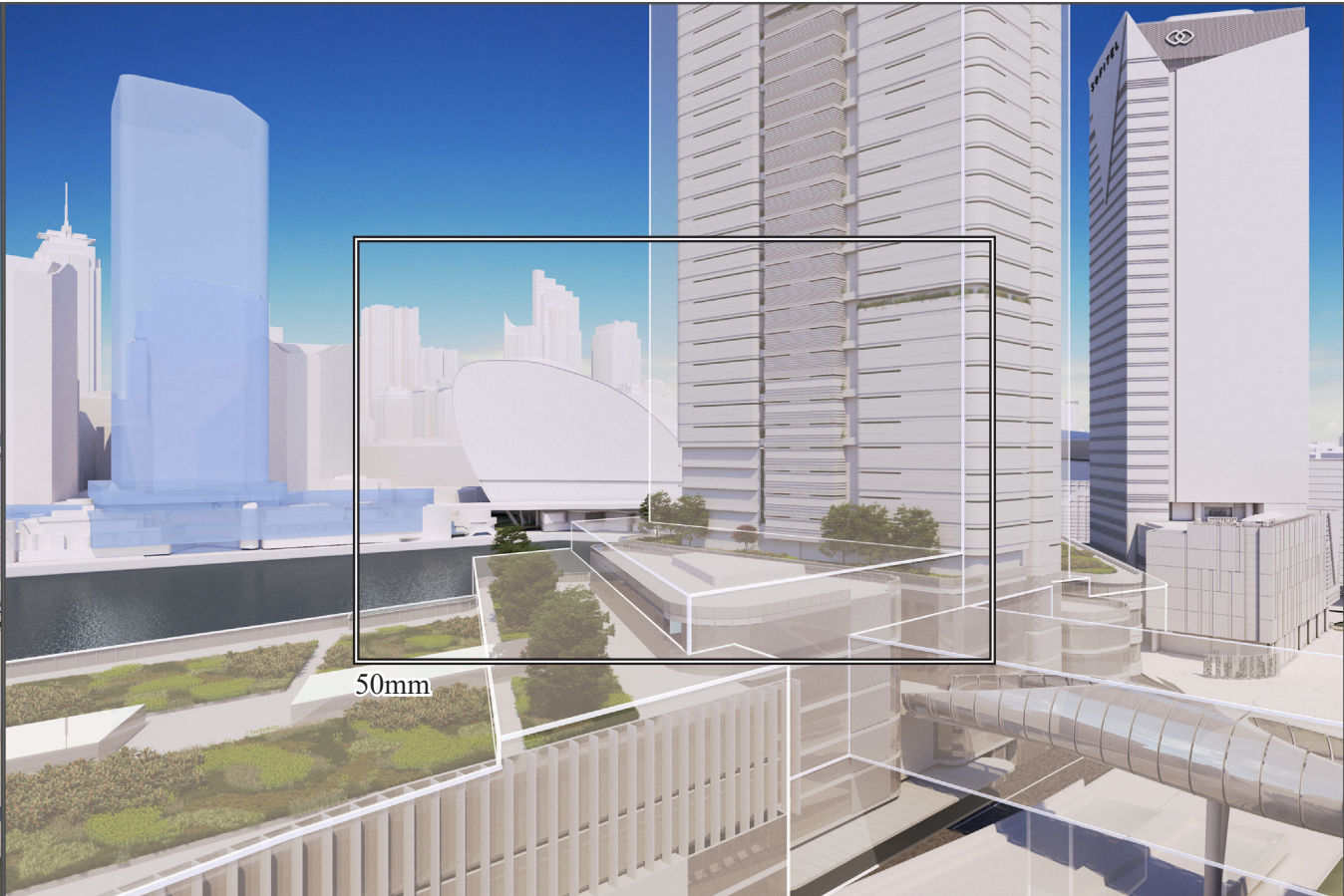
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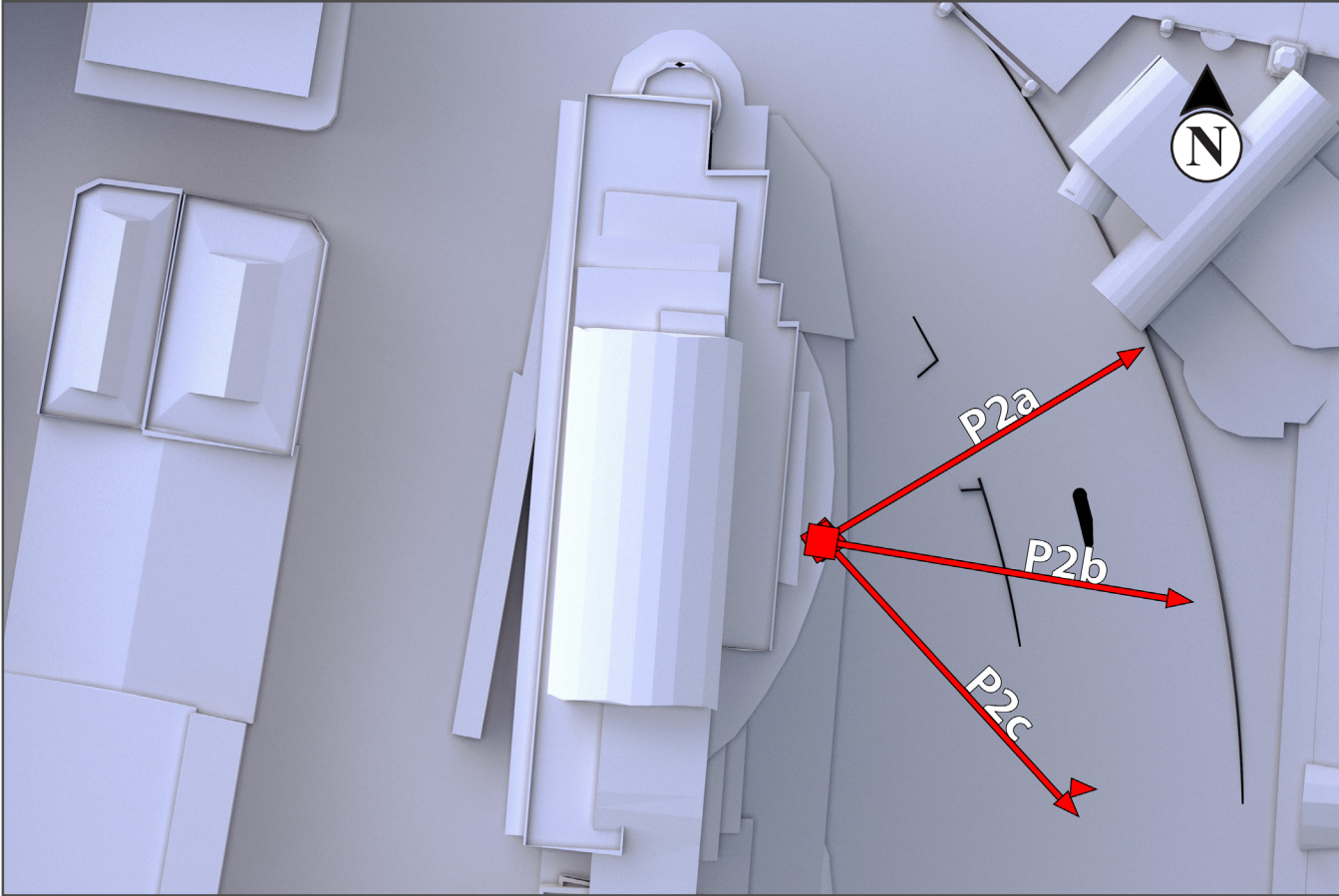


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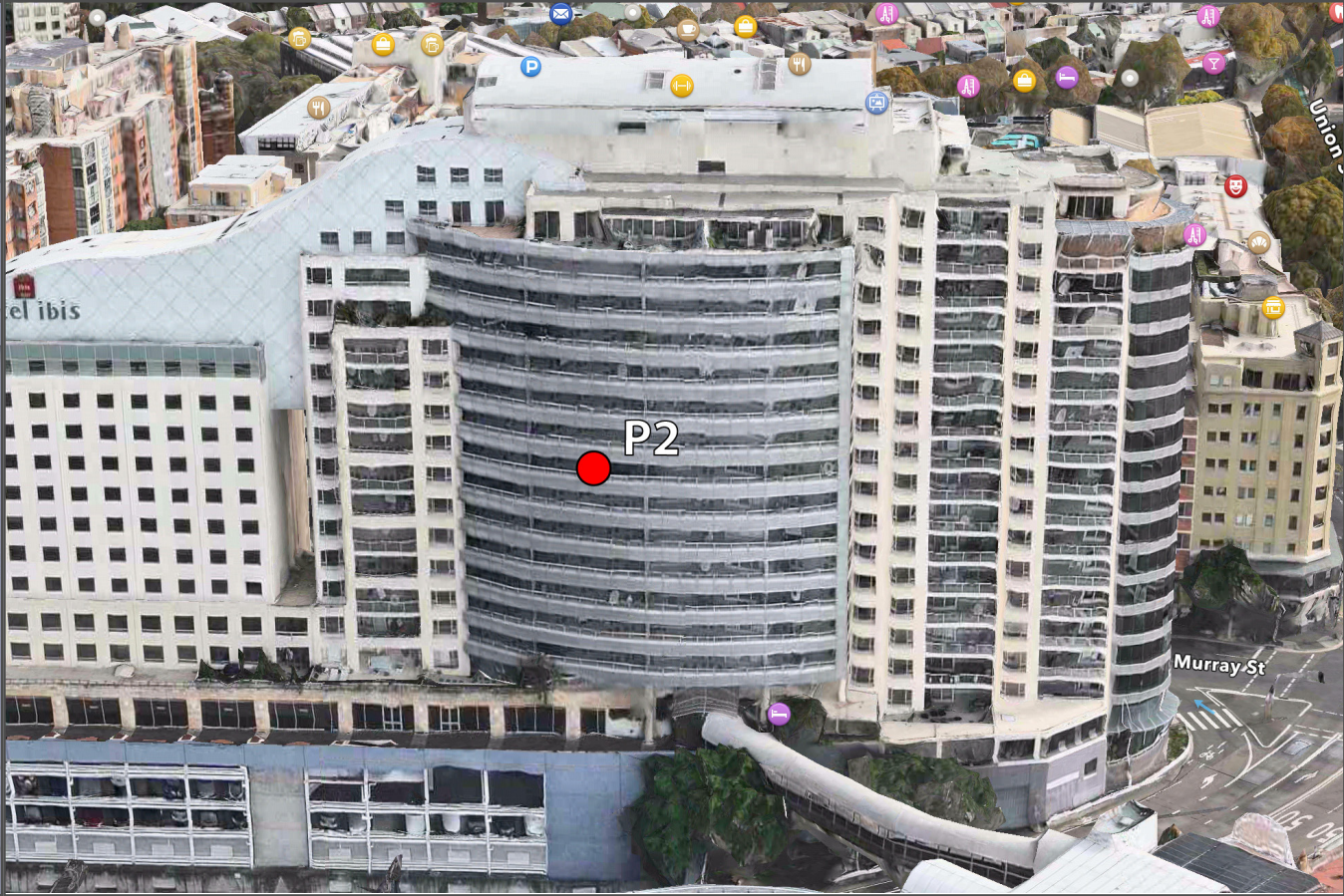


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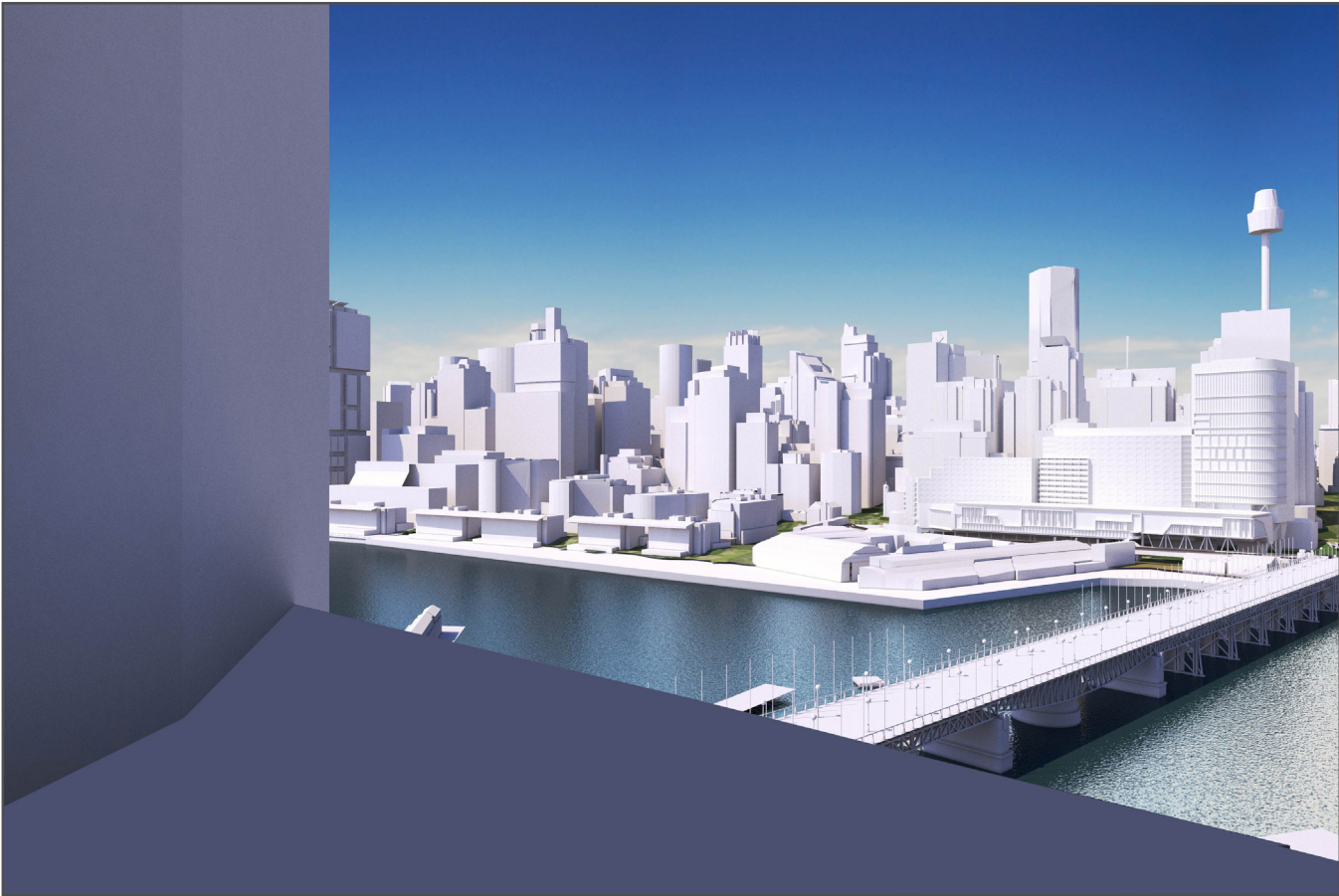
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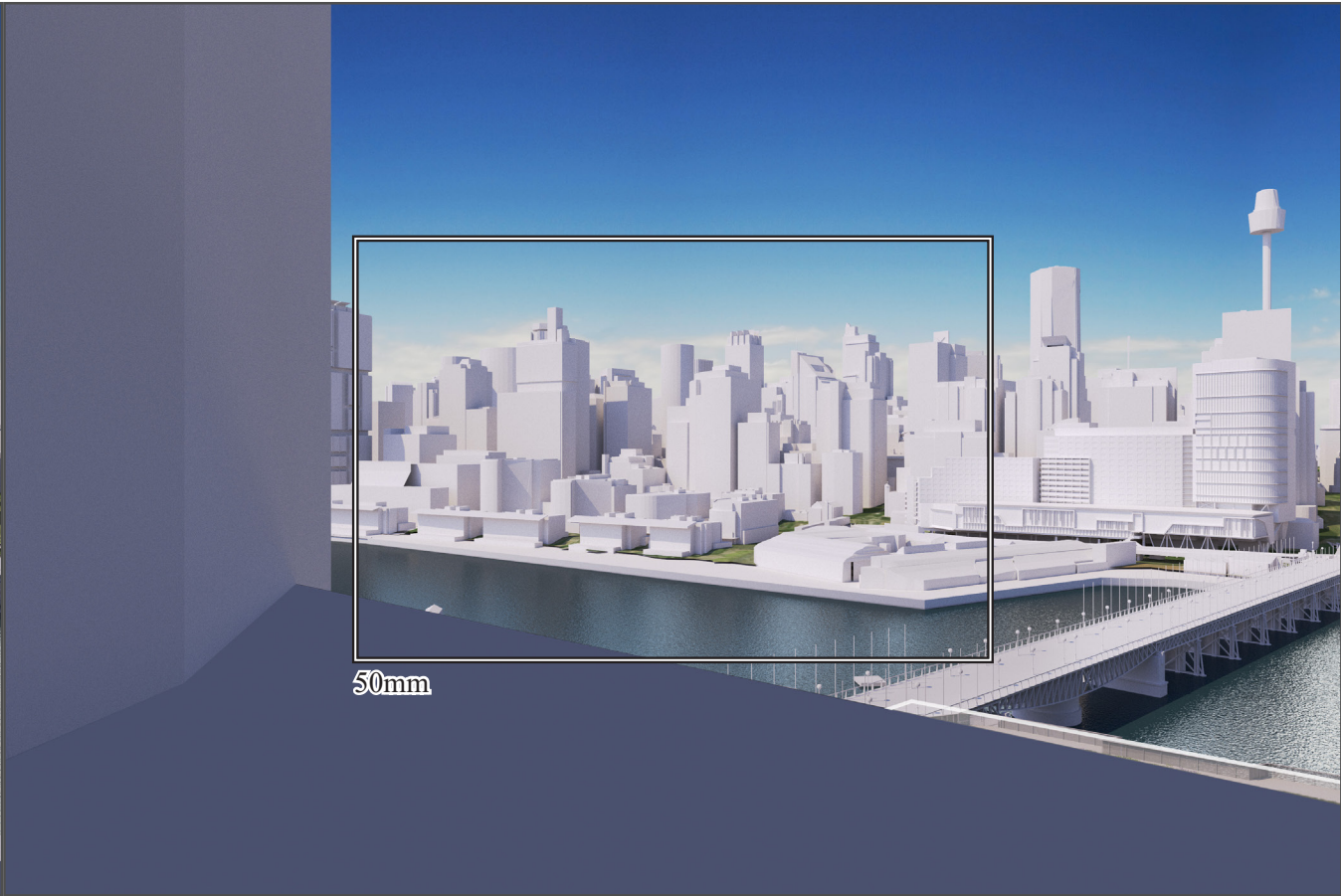
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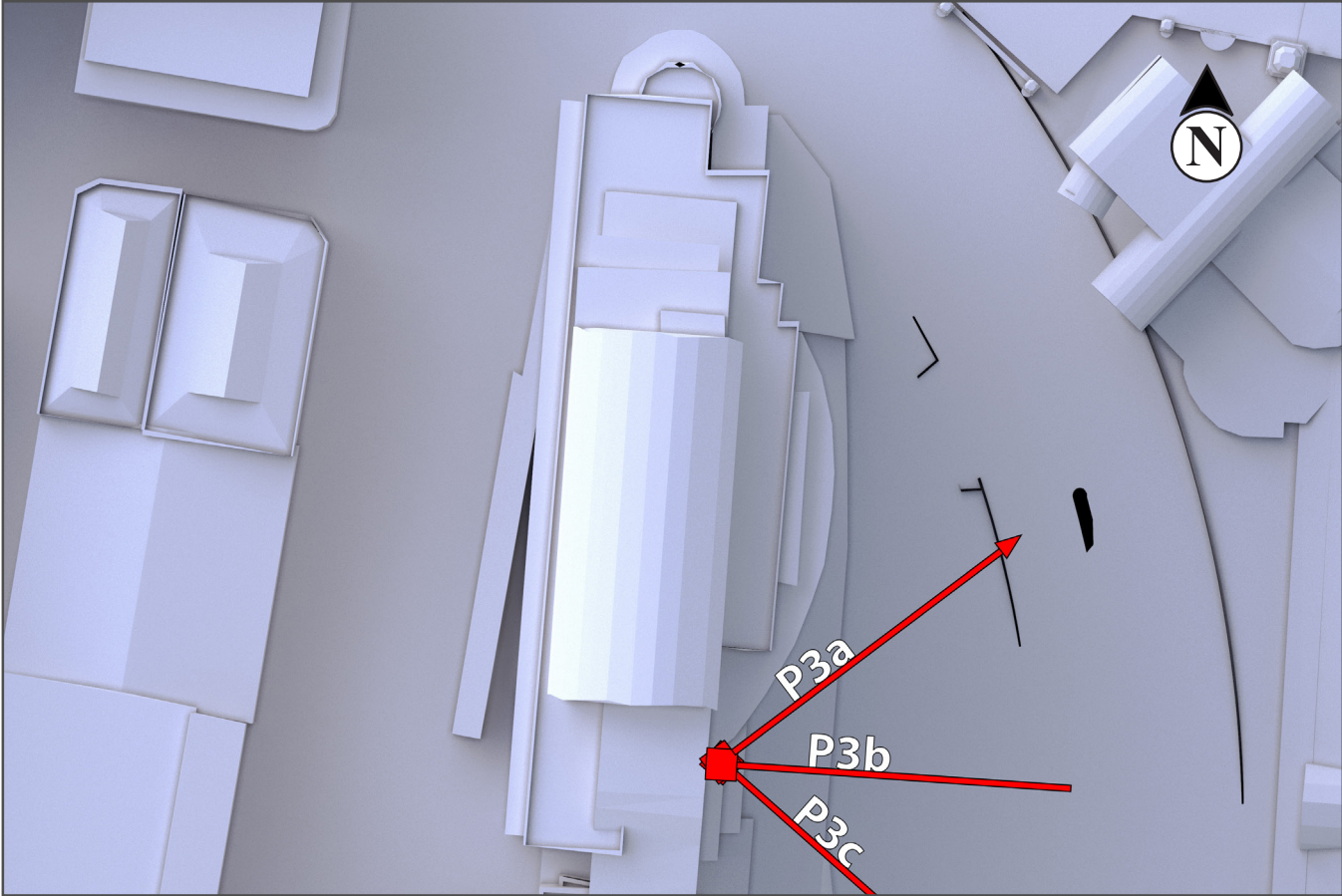


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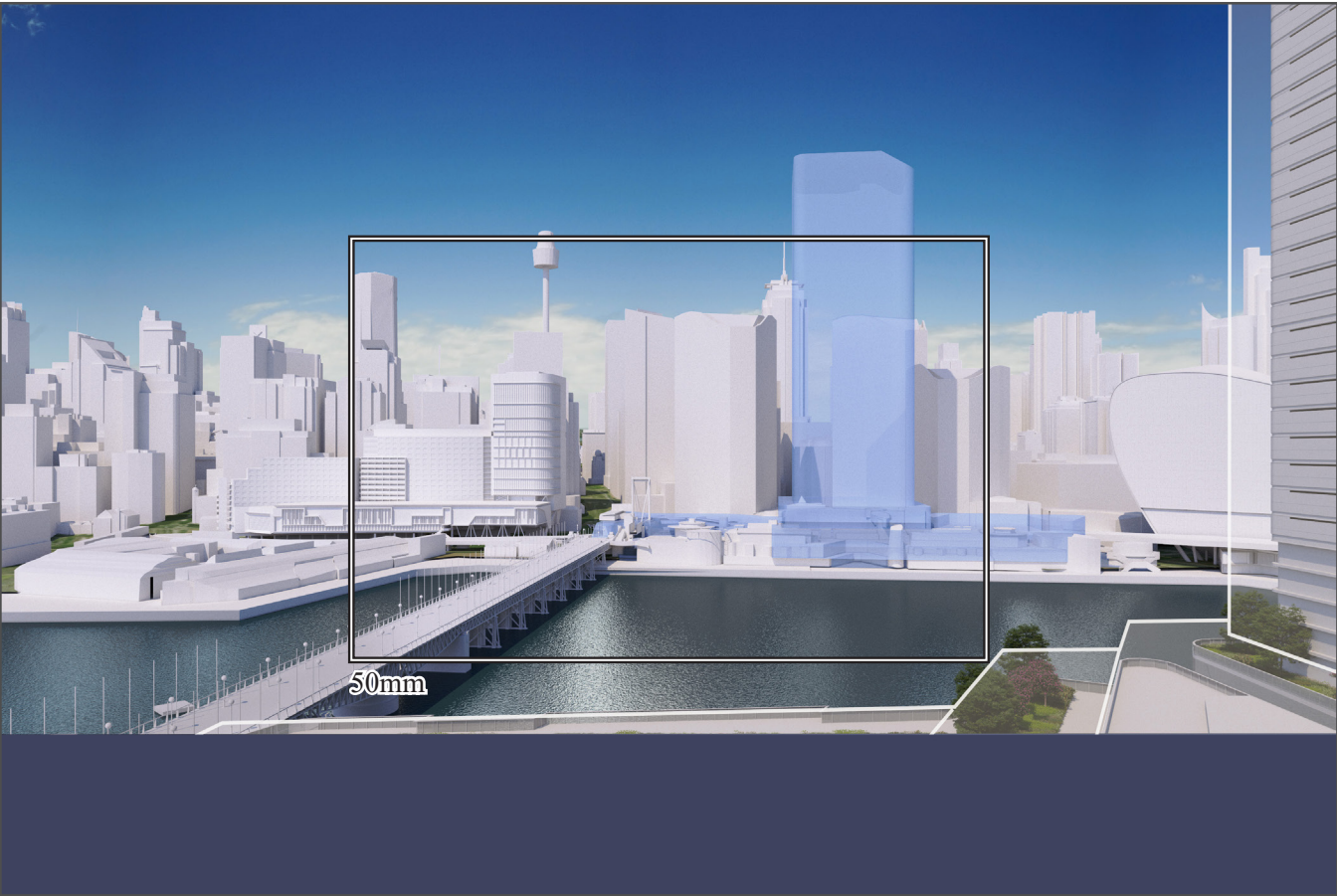
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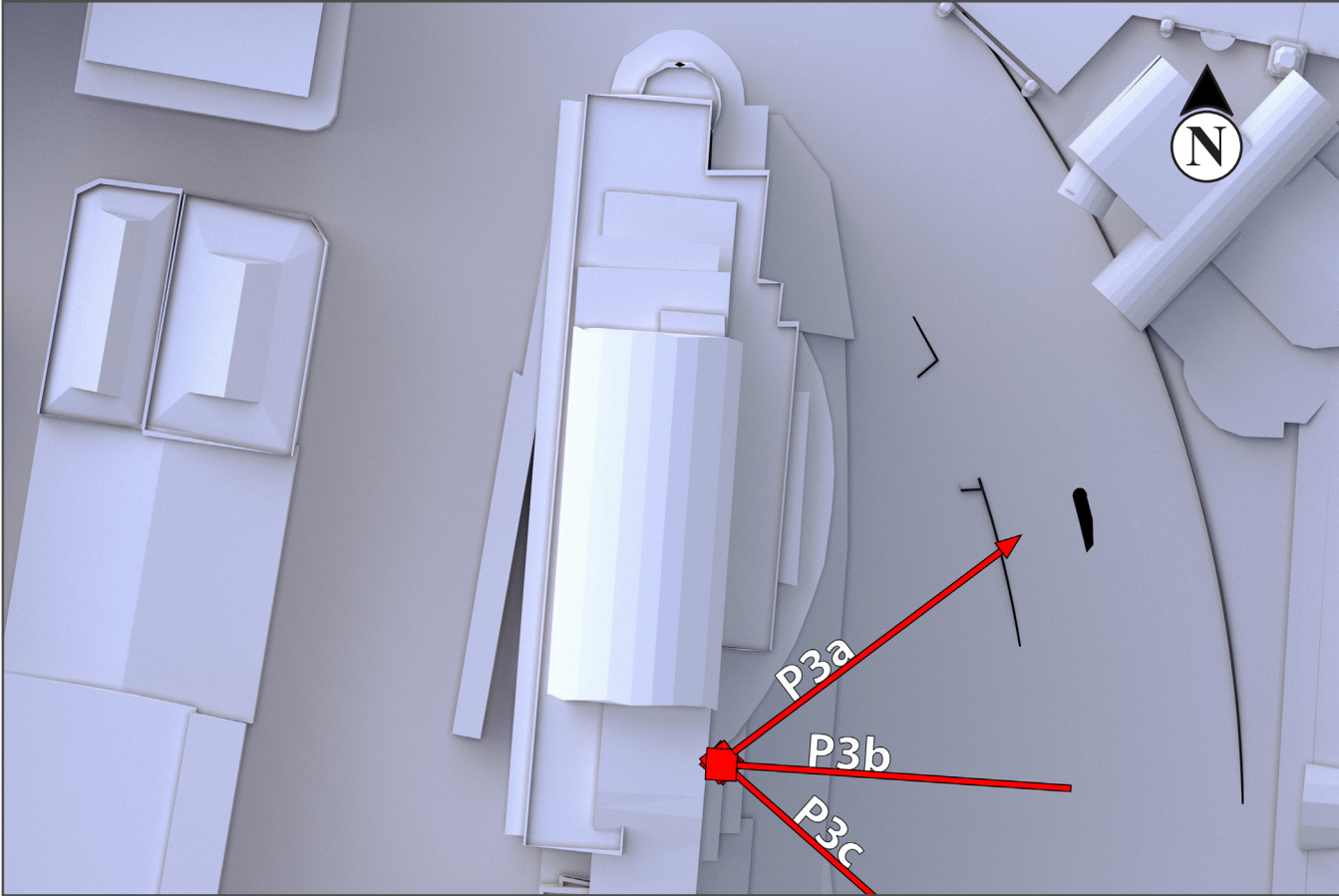


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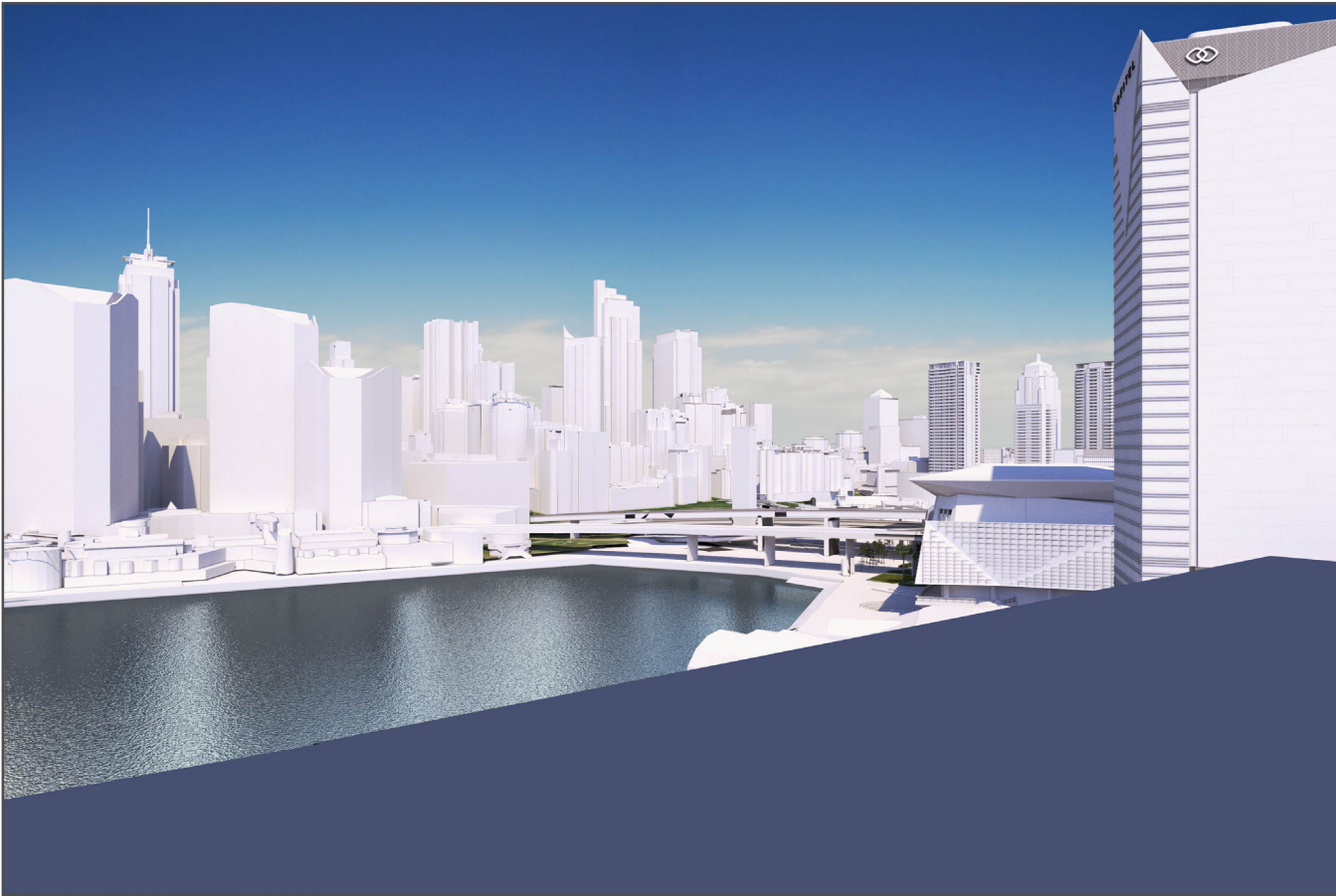


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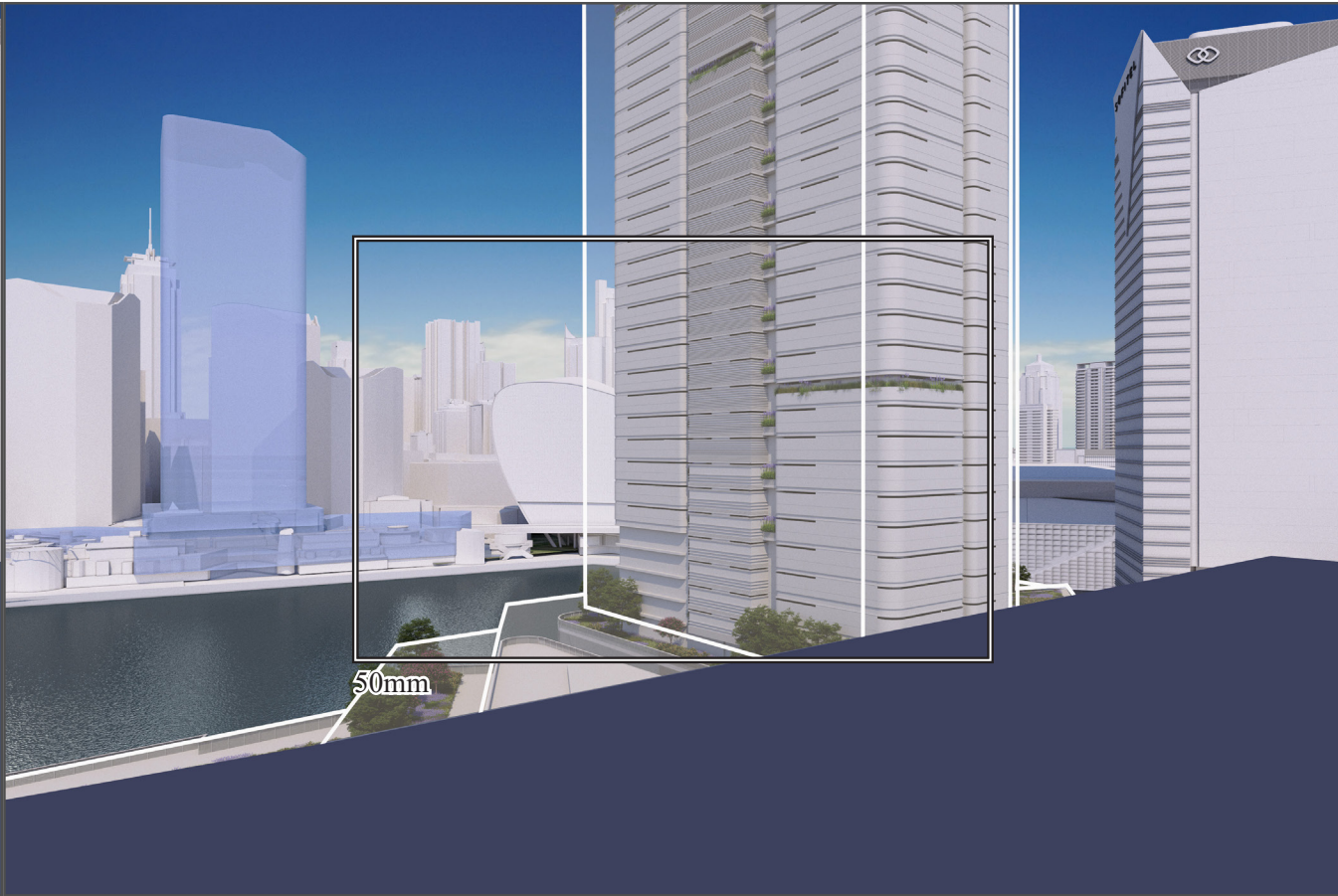


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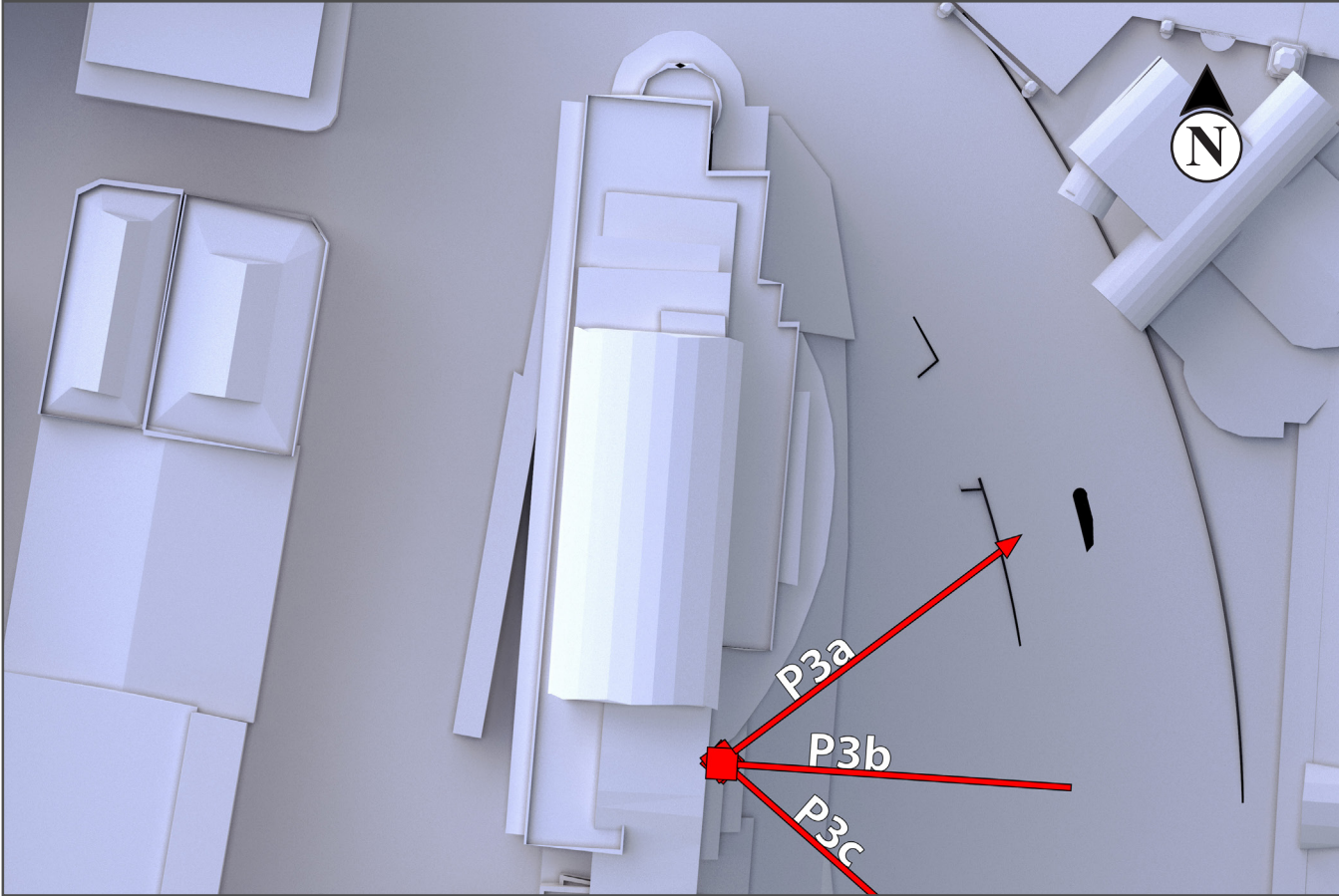


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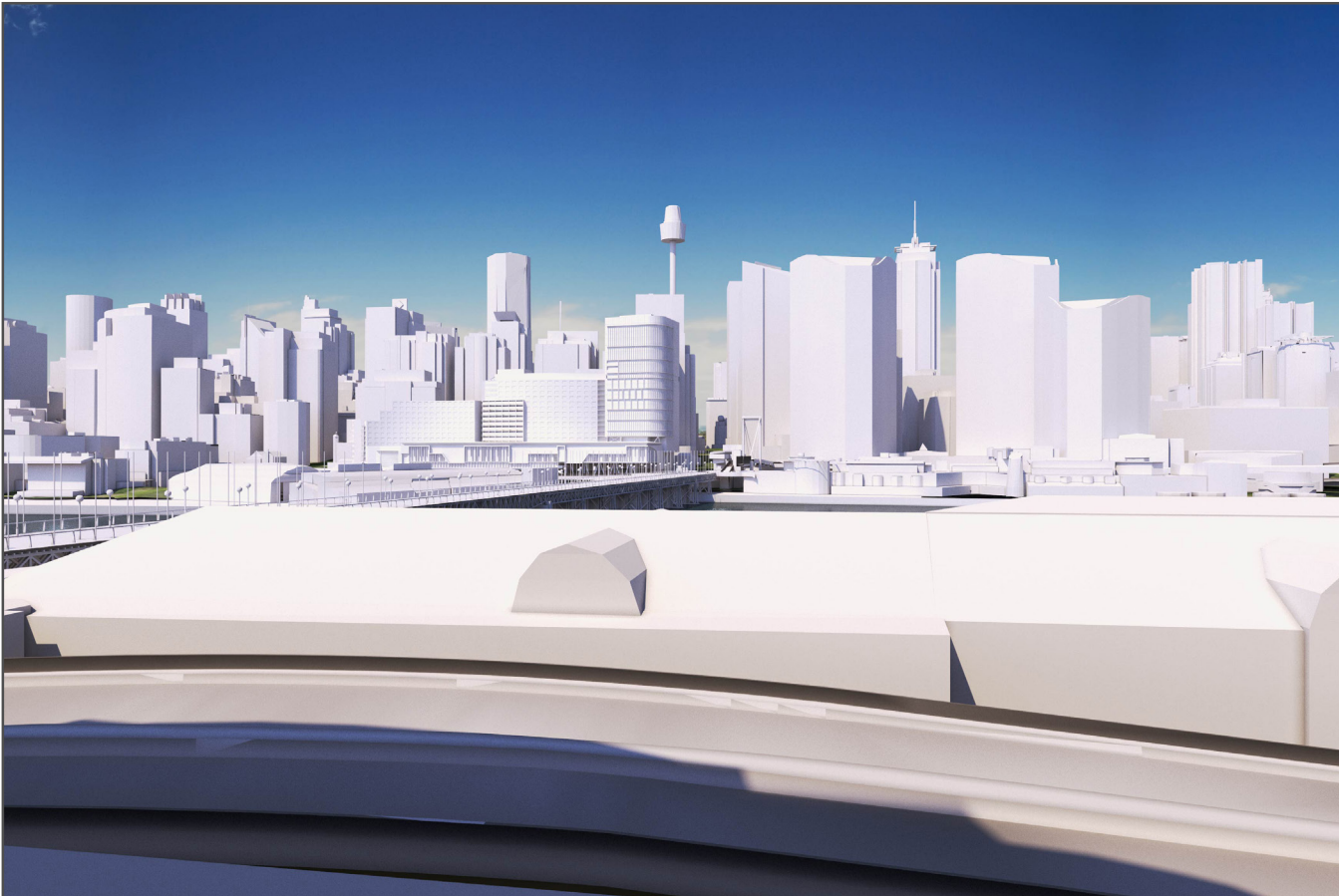


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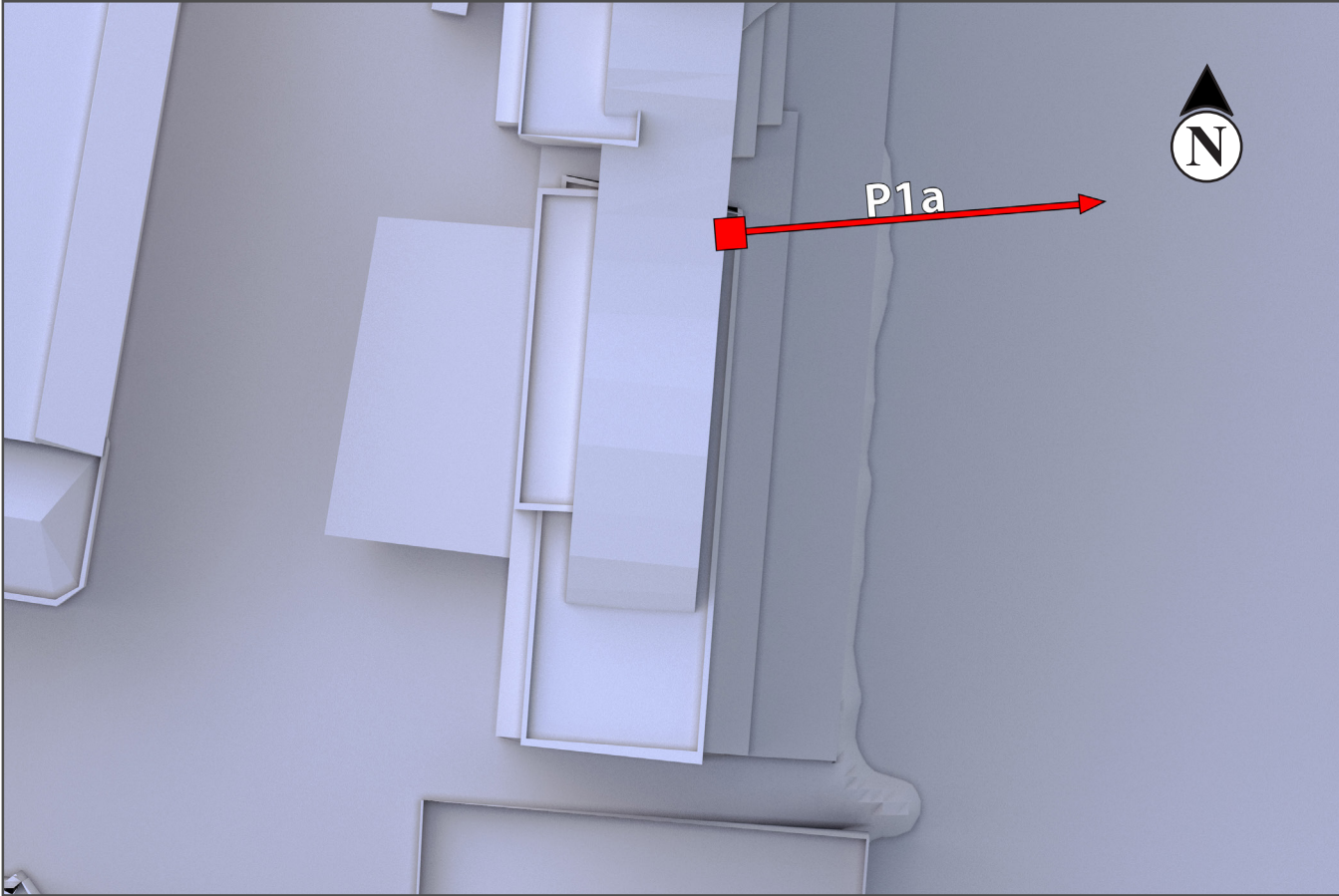


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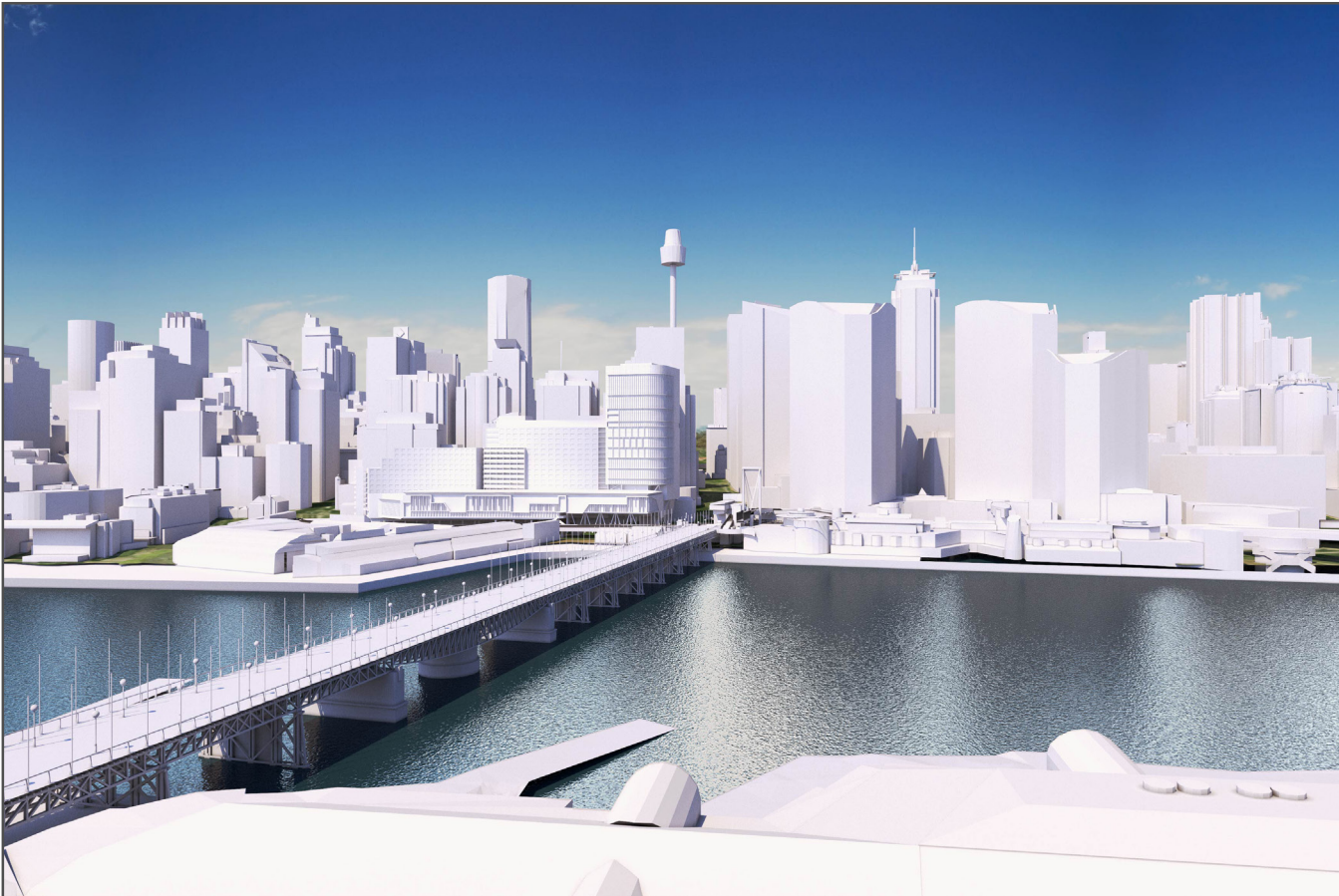
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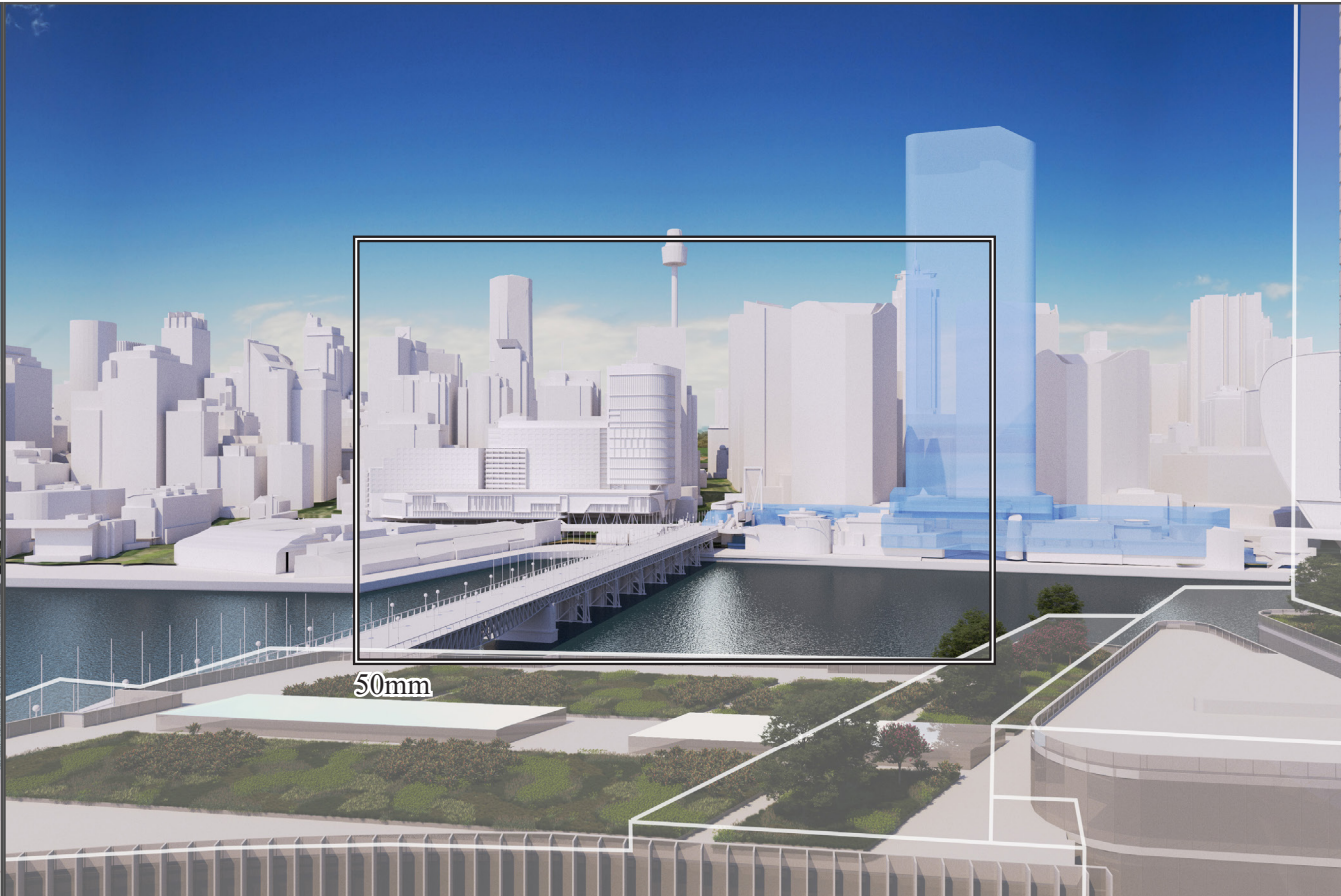
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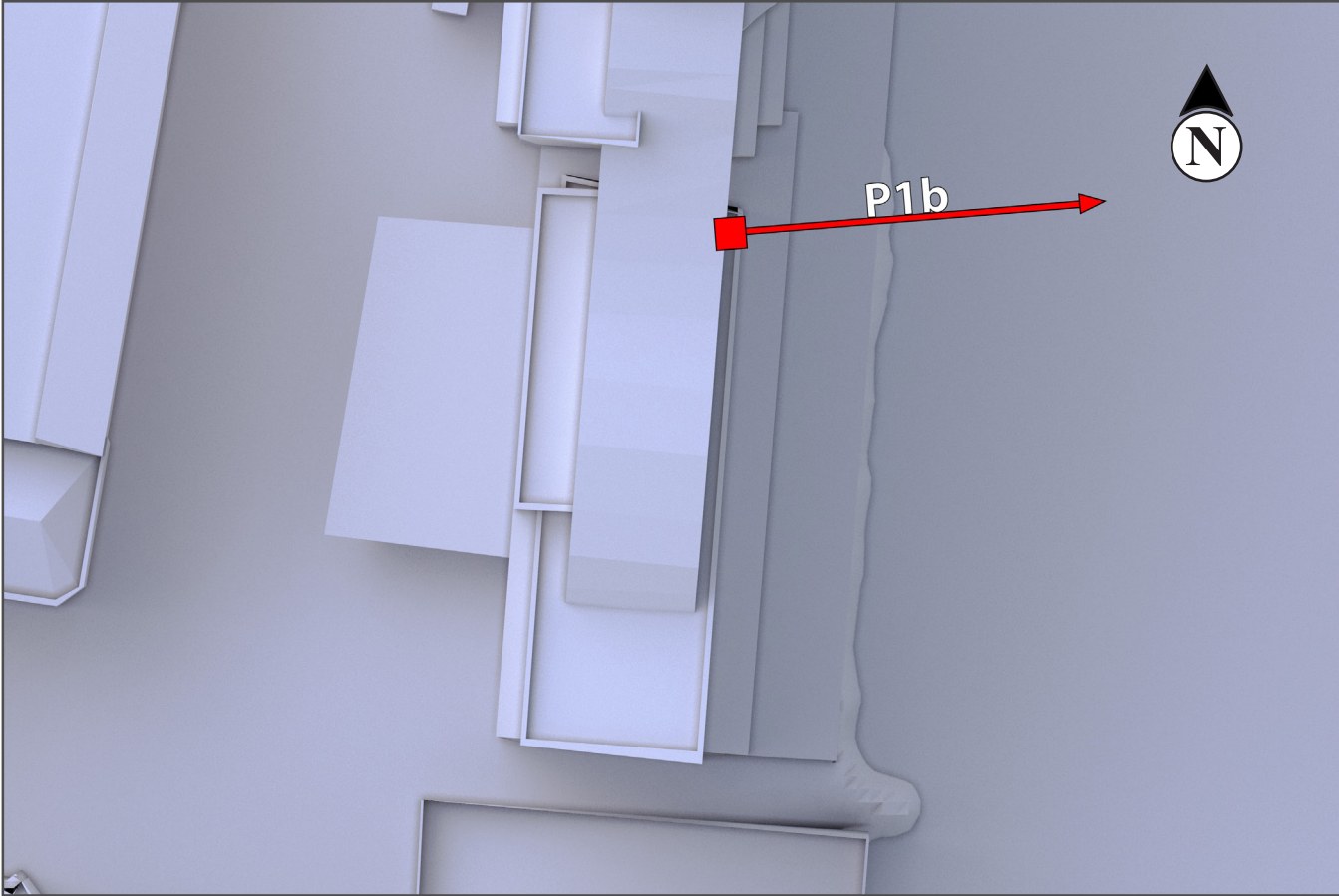


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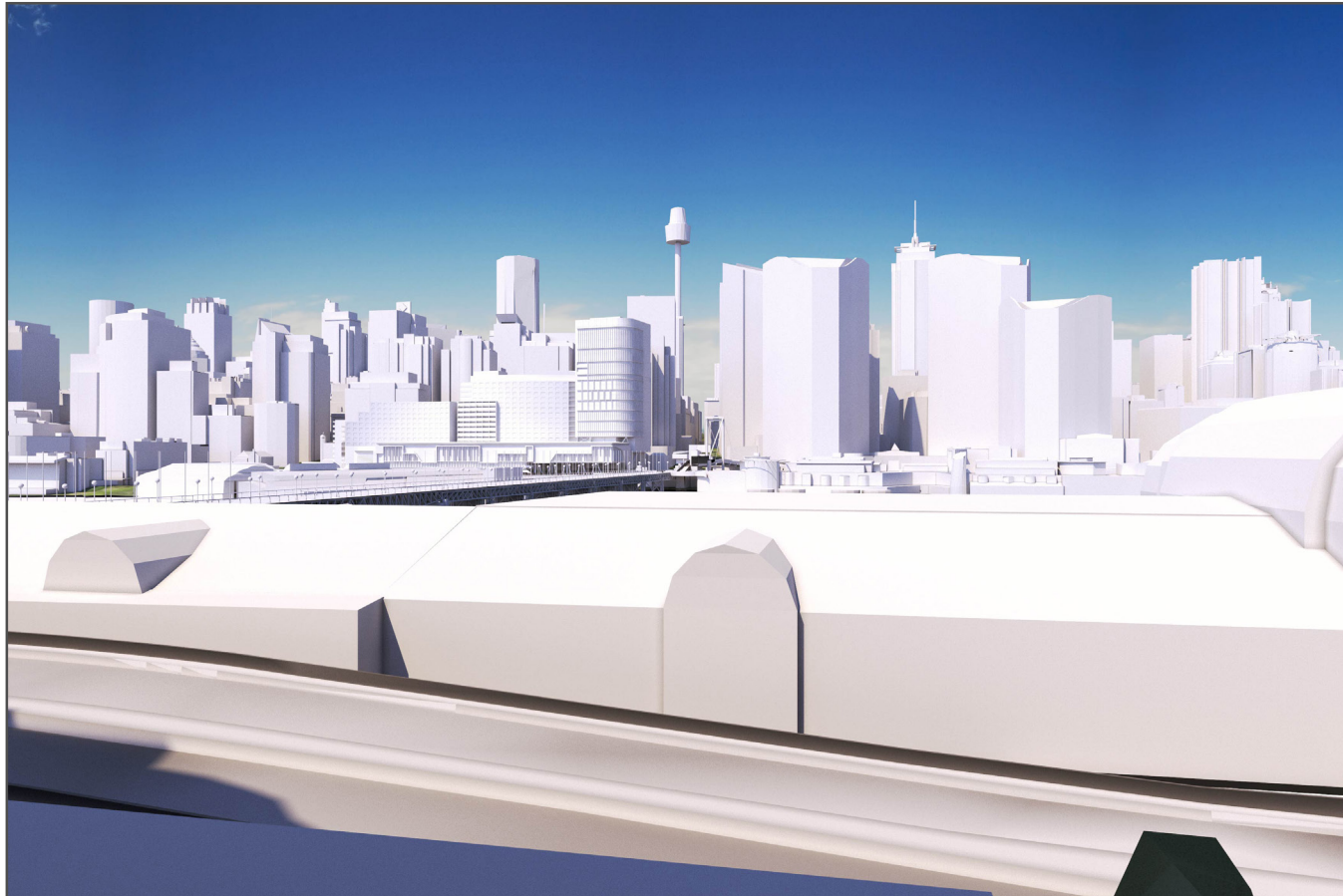


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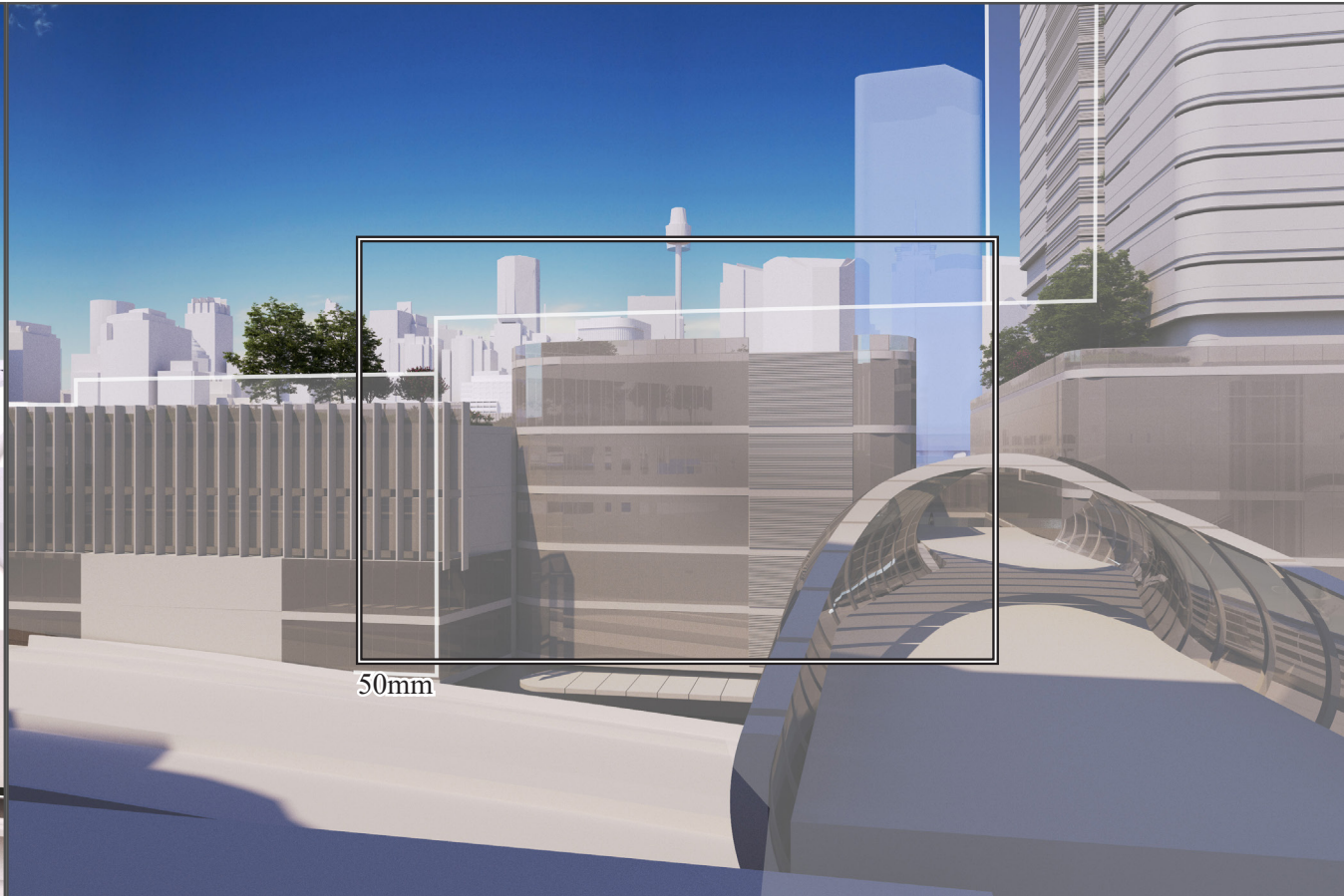


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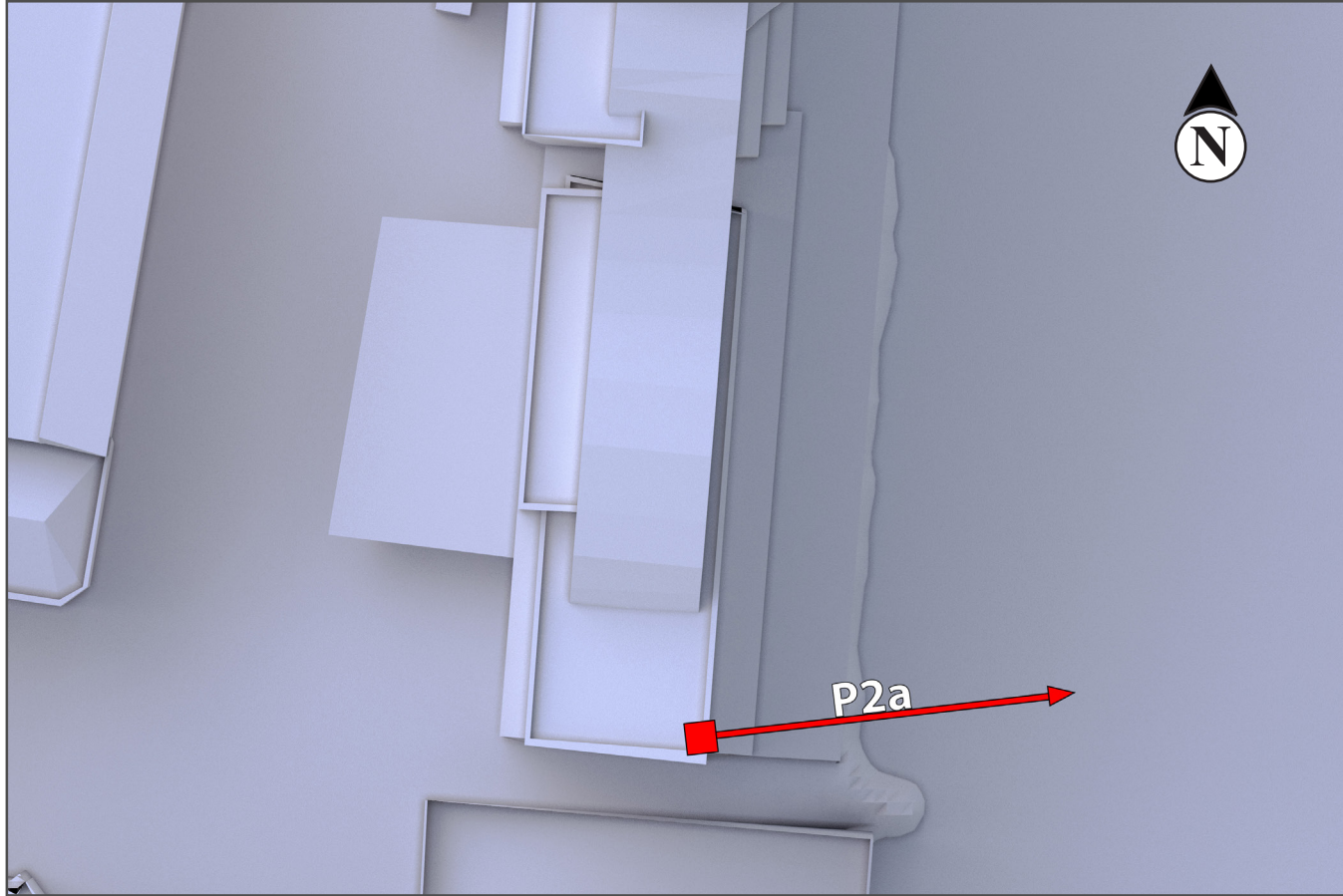


Existing View - 24mm



Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



Plan (Existing Conditions)



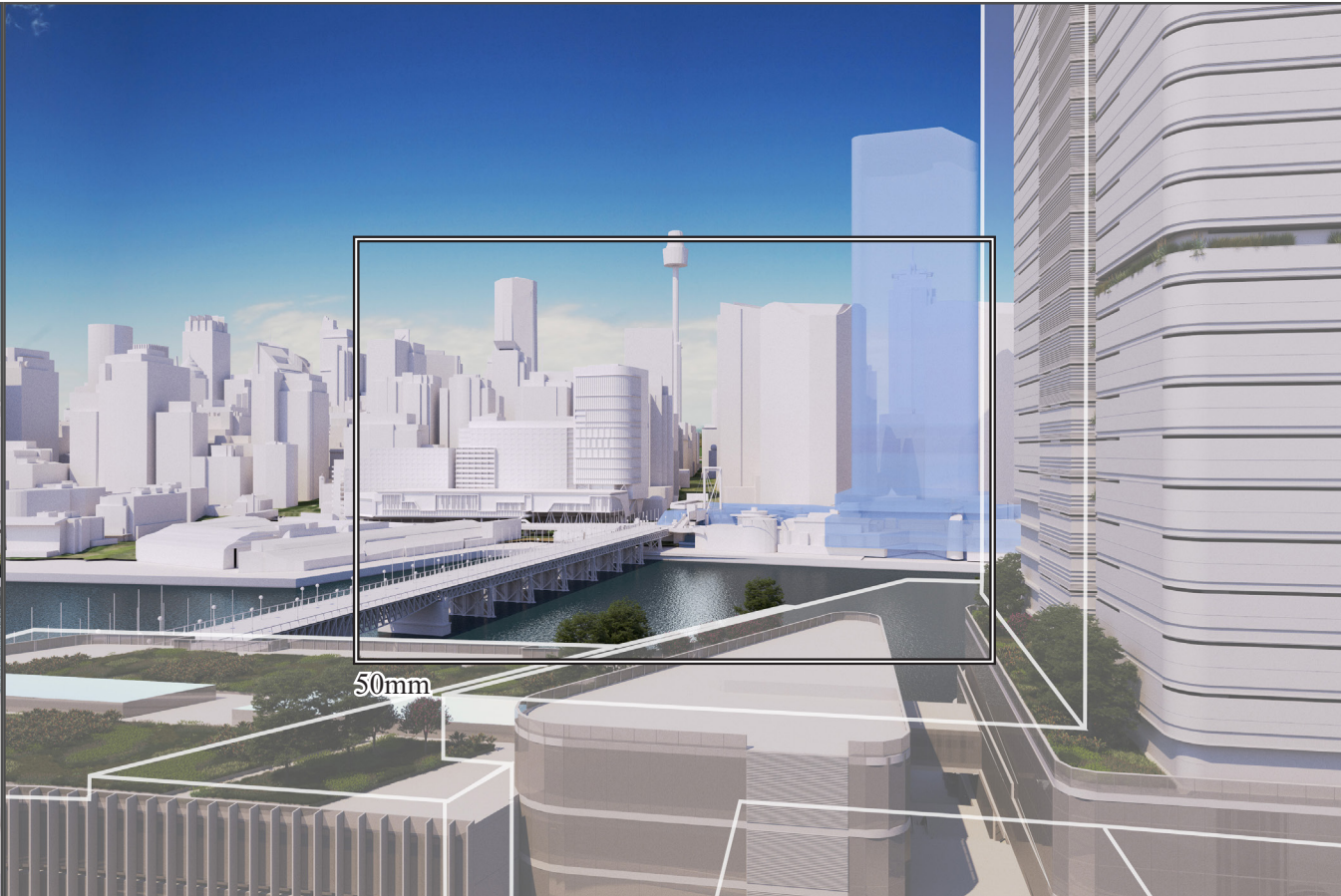
Western Elevation (Existing Conditions)

NOTE:

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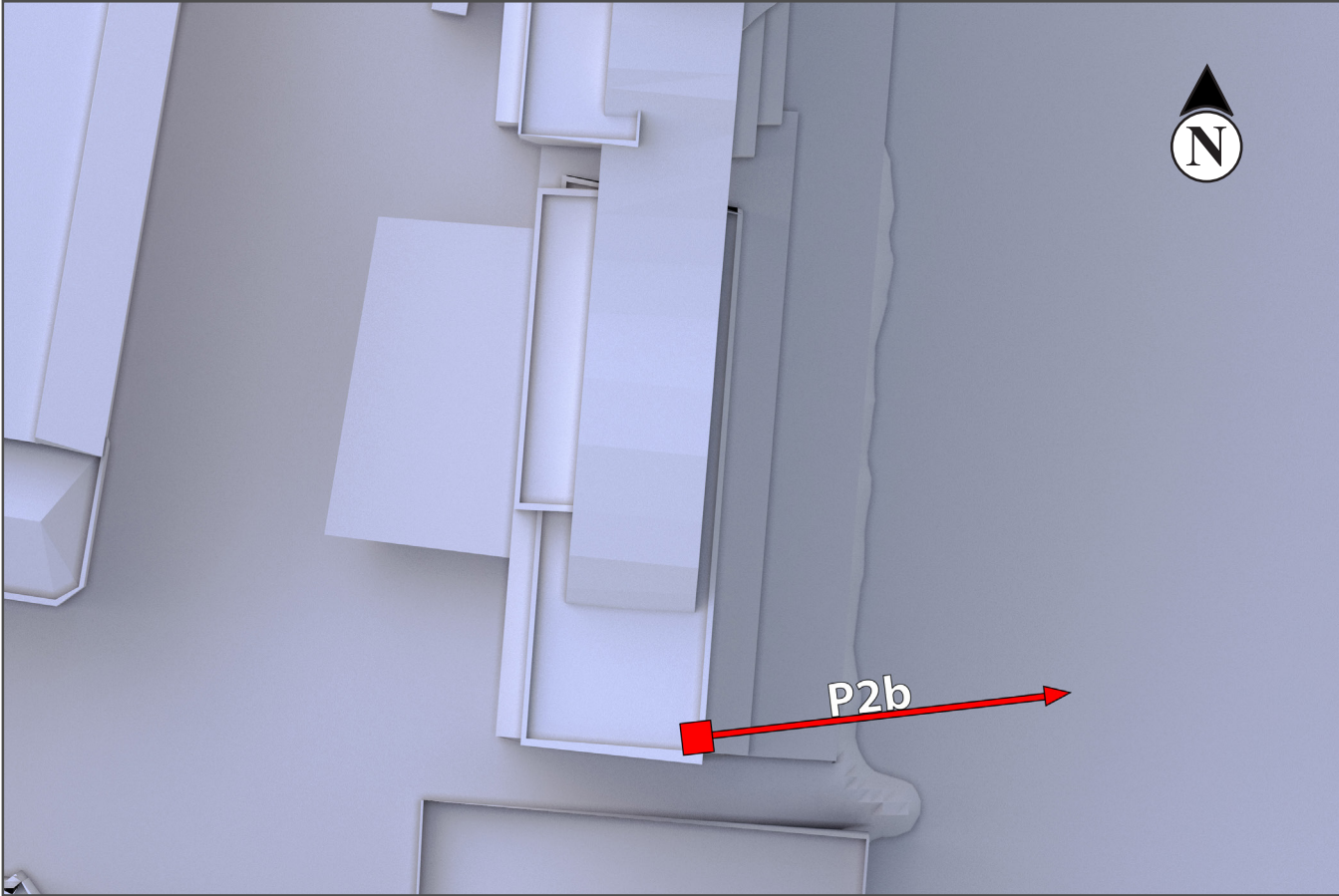


Existing View - 24mm



Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



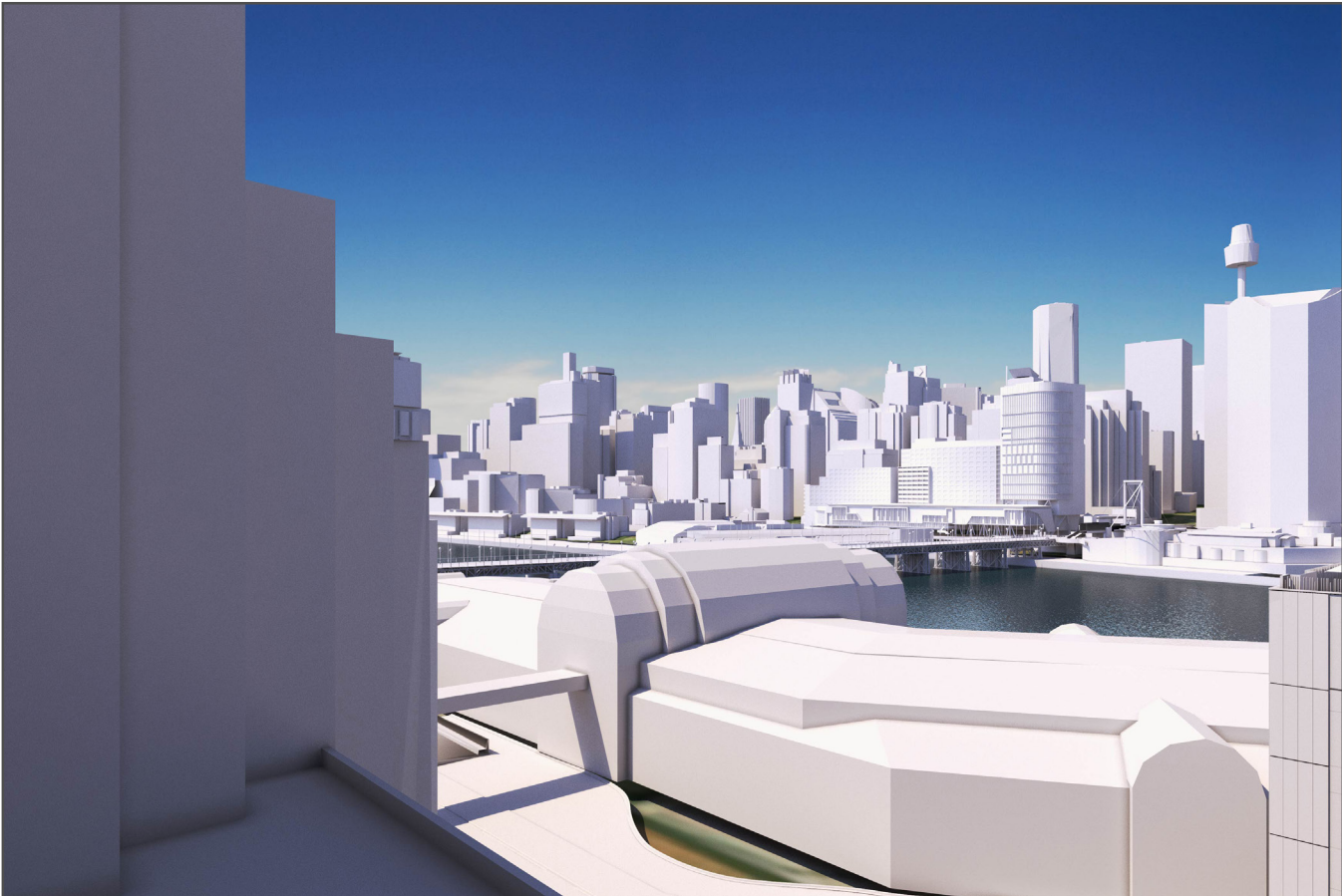
Plan (Existing Conditions)



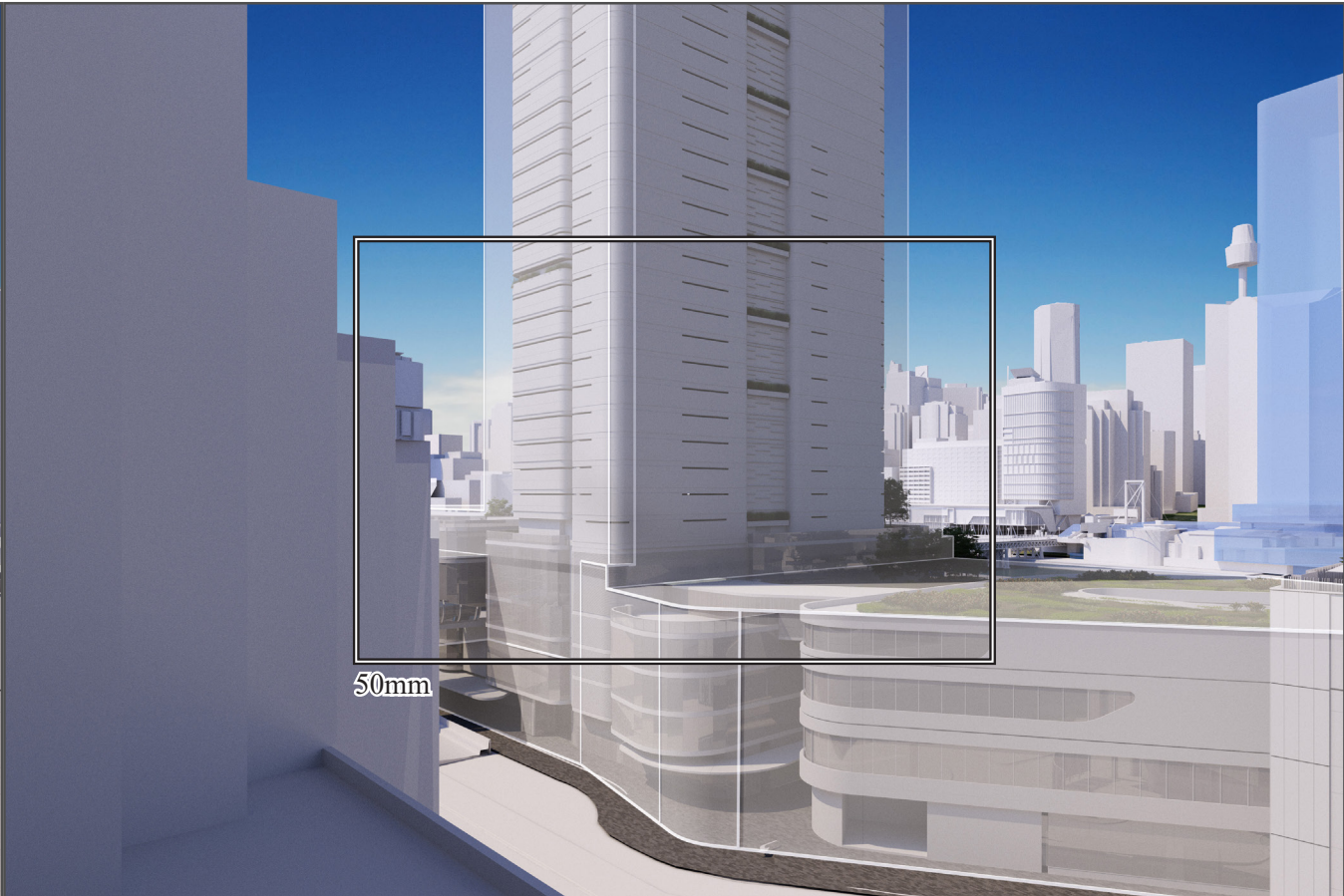
Western Elevation (Existing Conditions)

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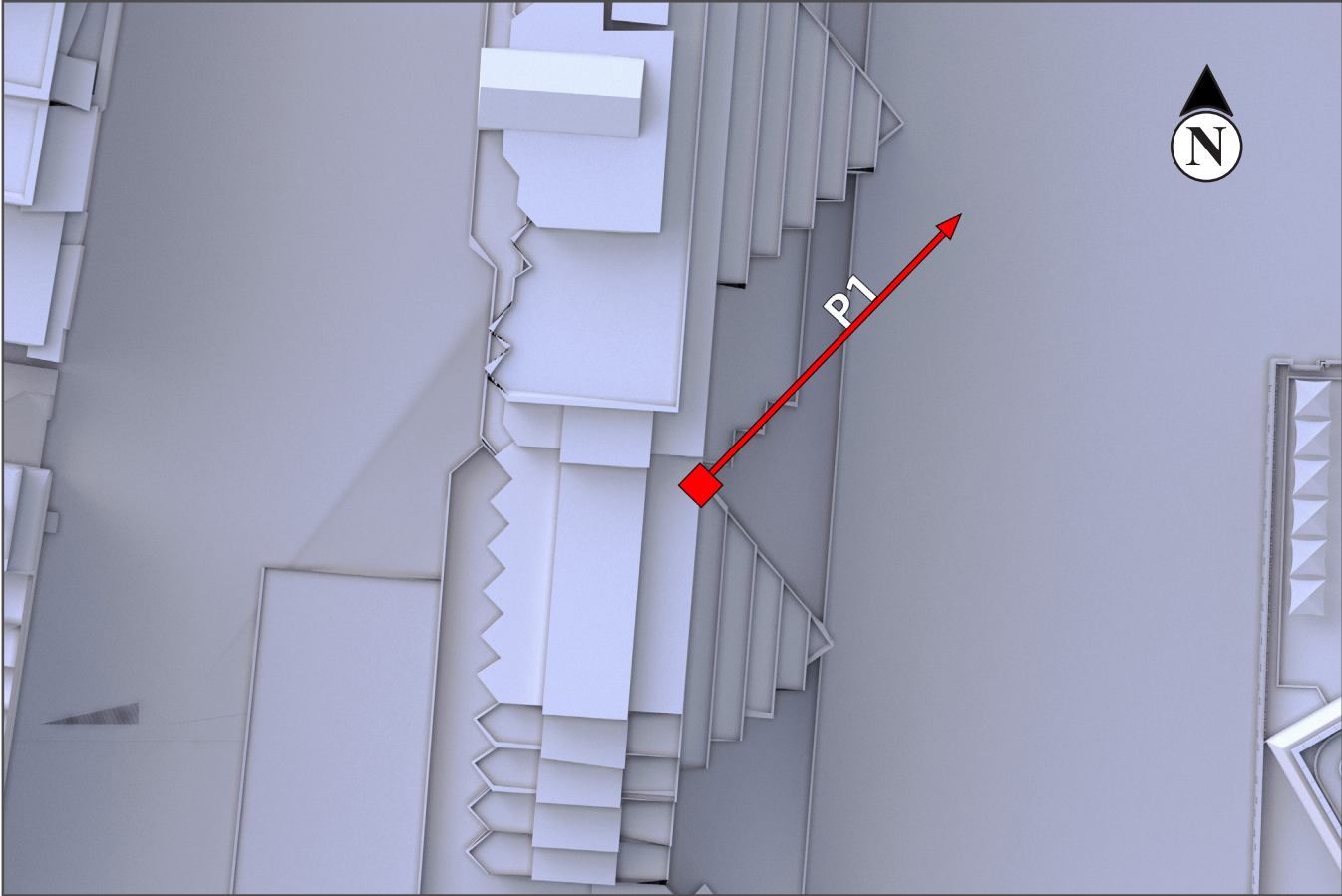


Existing View - 24mm



Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



Plan (Existing Conditions)



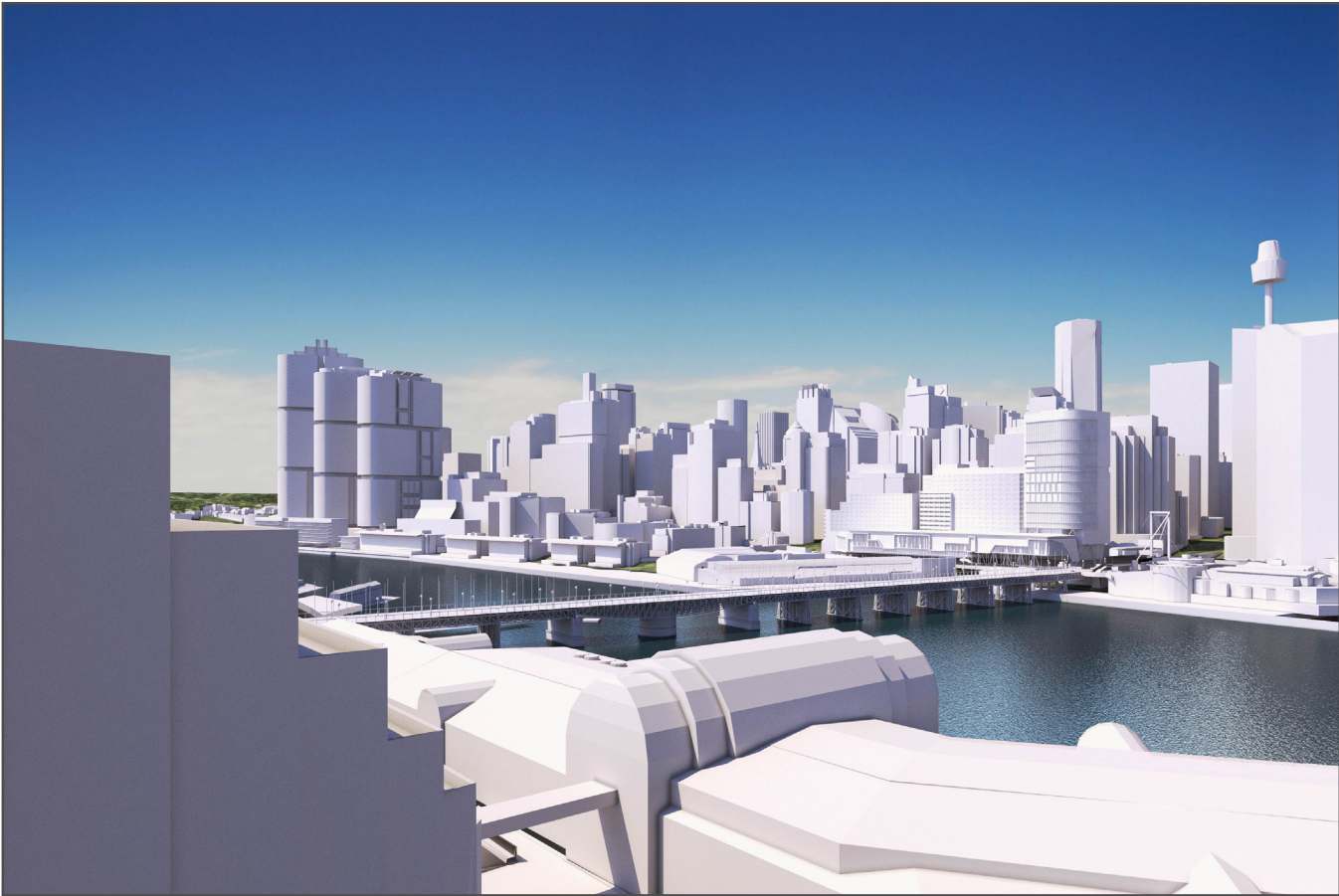
Western Elevation (Existing Conditions)

NOTE:

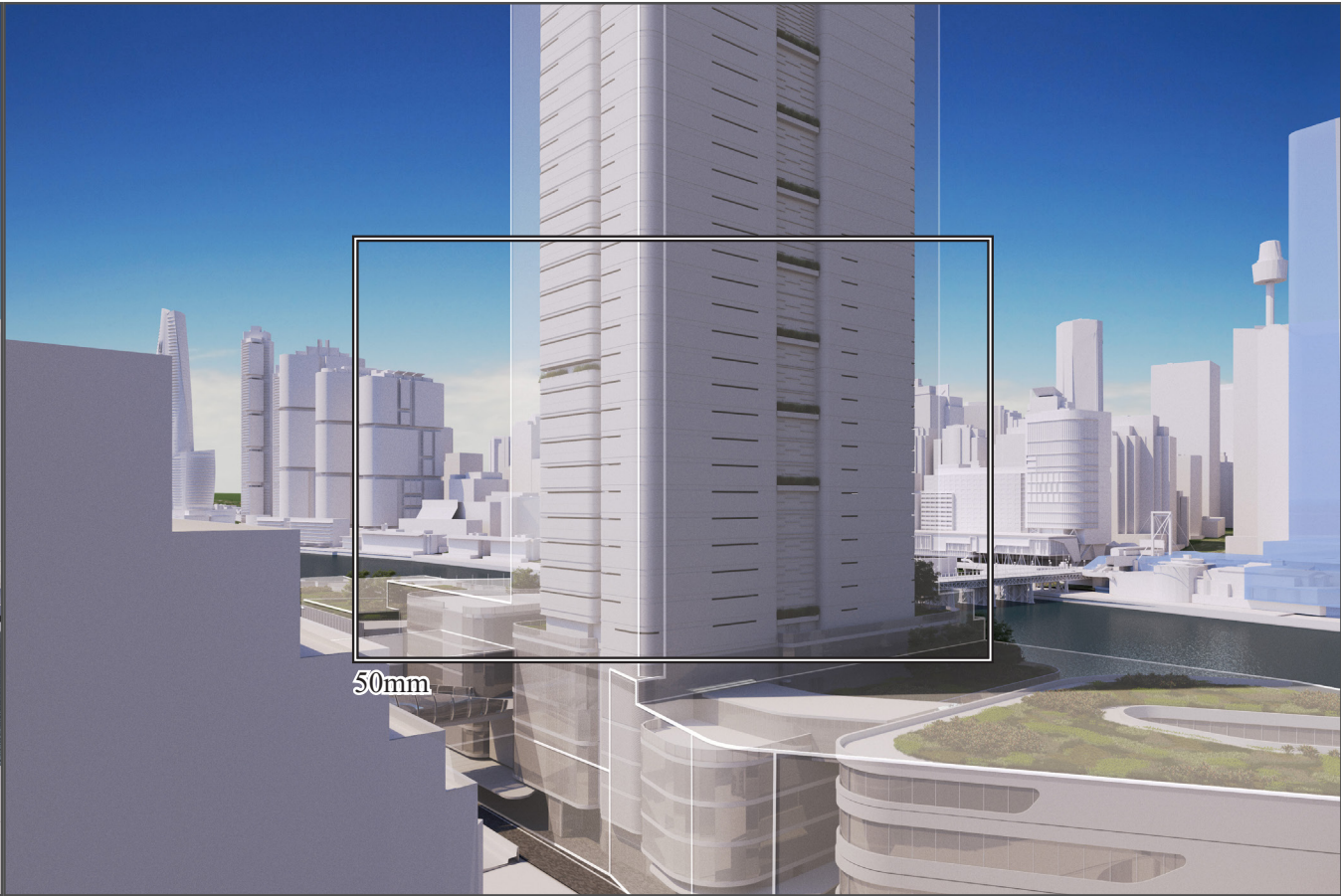
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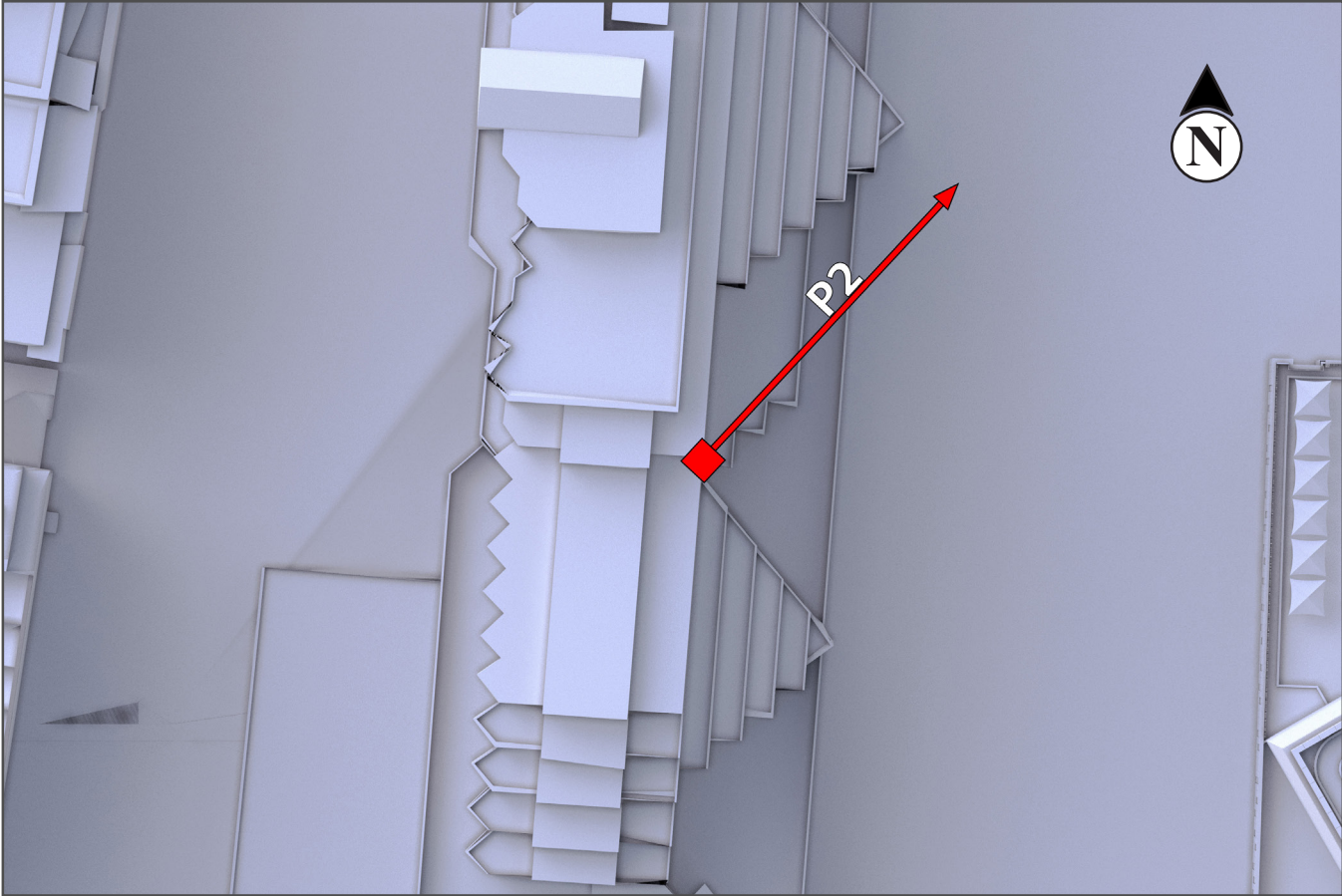


Existing View - 24mm

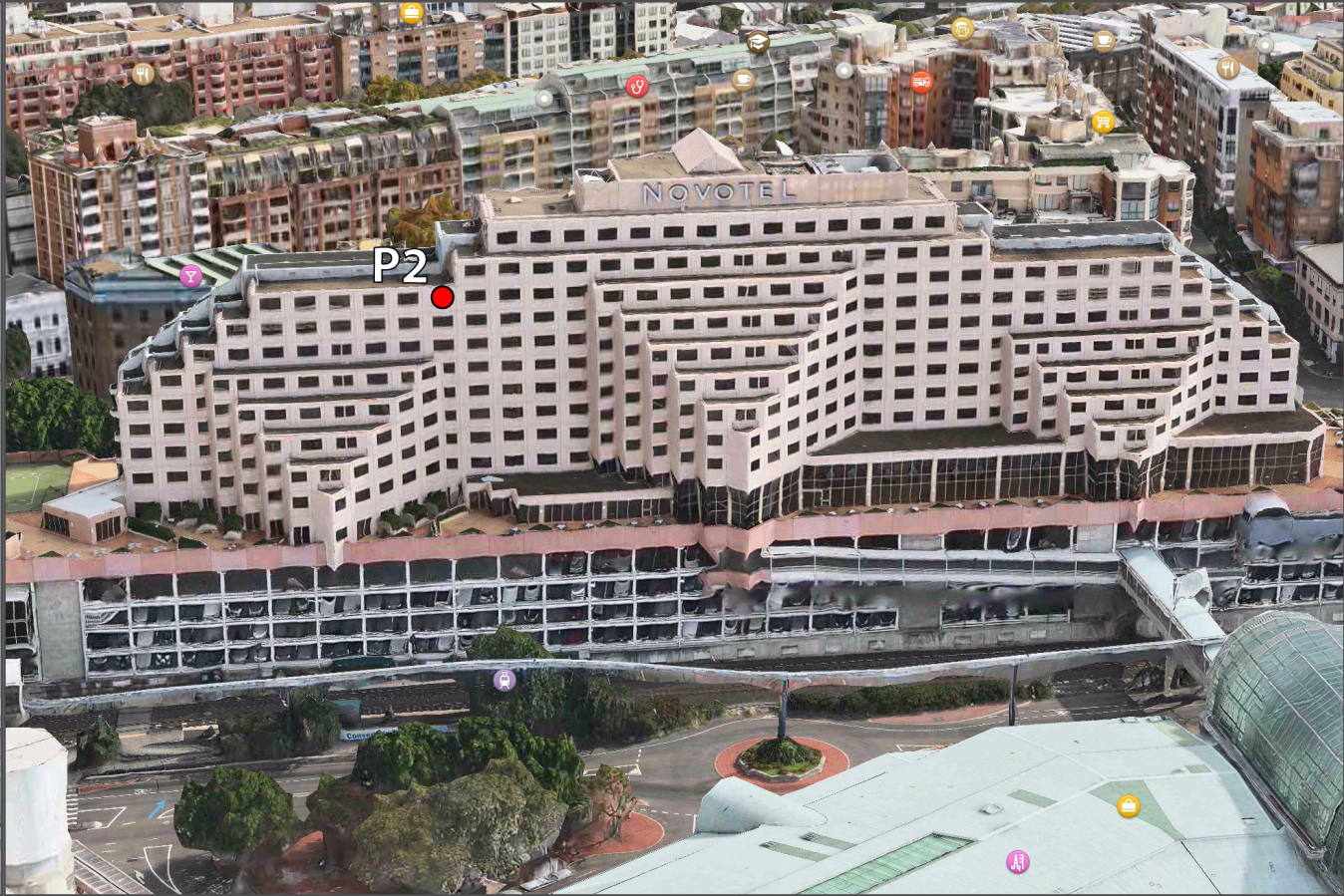


Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



Plan (Existing Conditions)



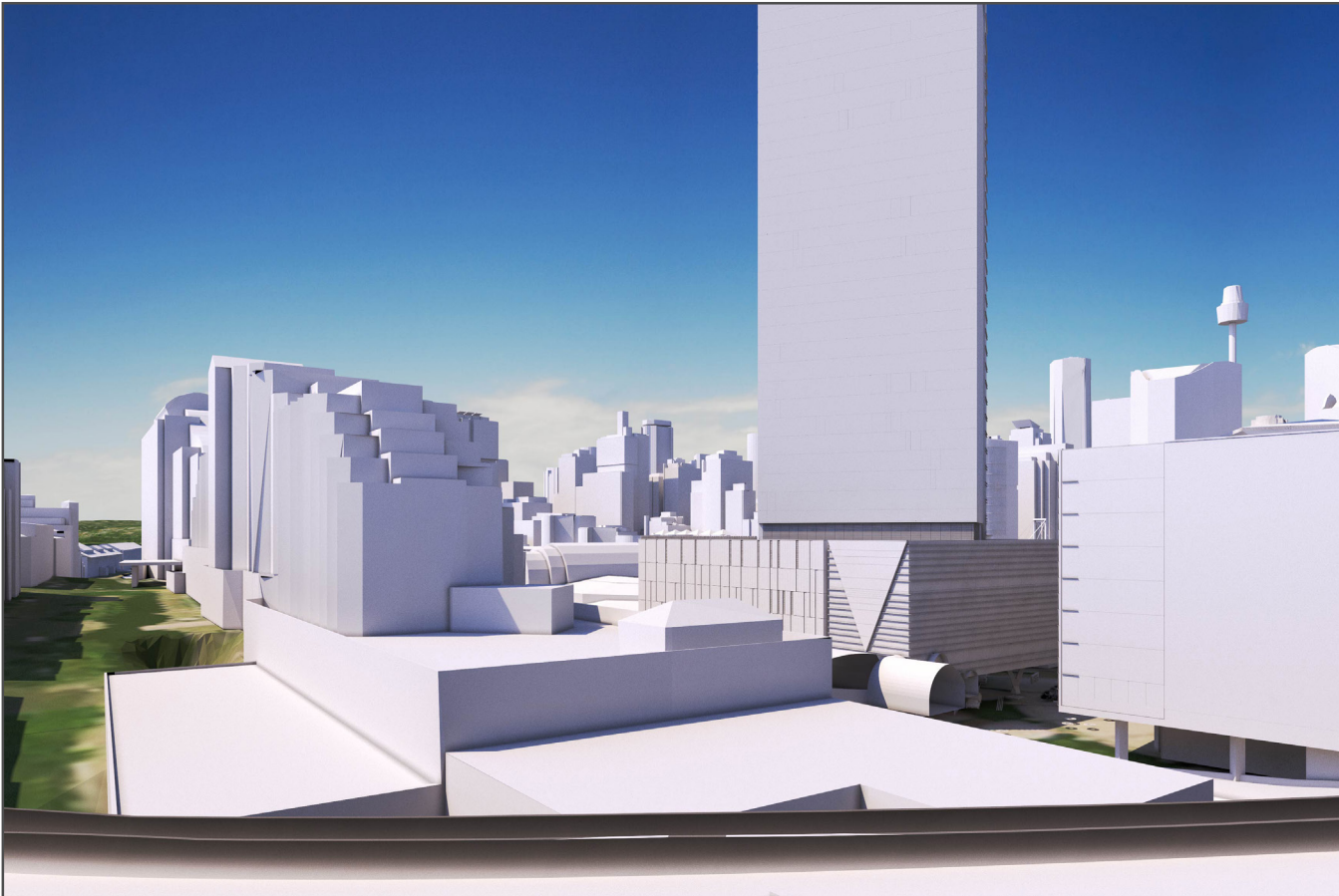
Western Elevation (Existing Conditions)

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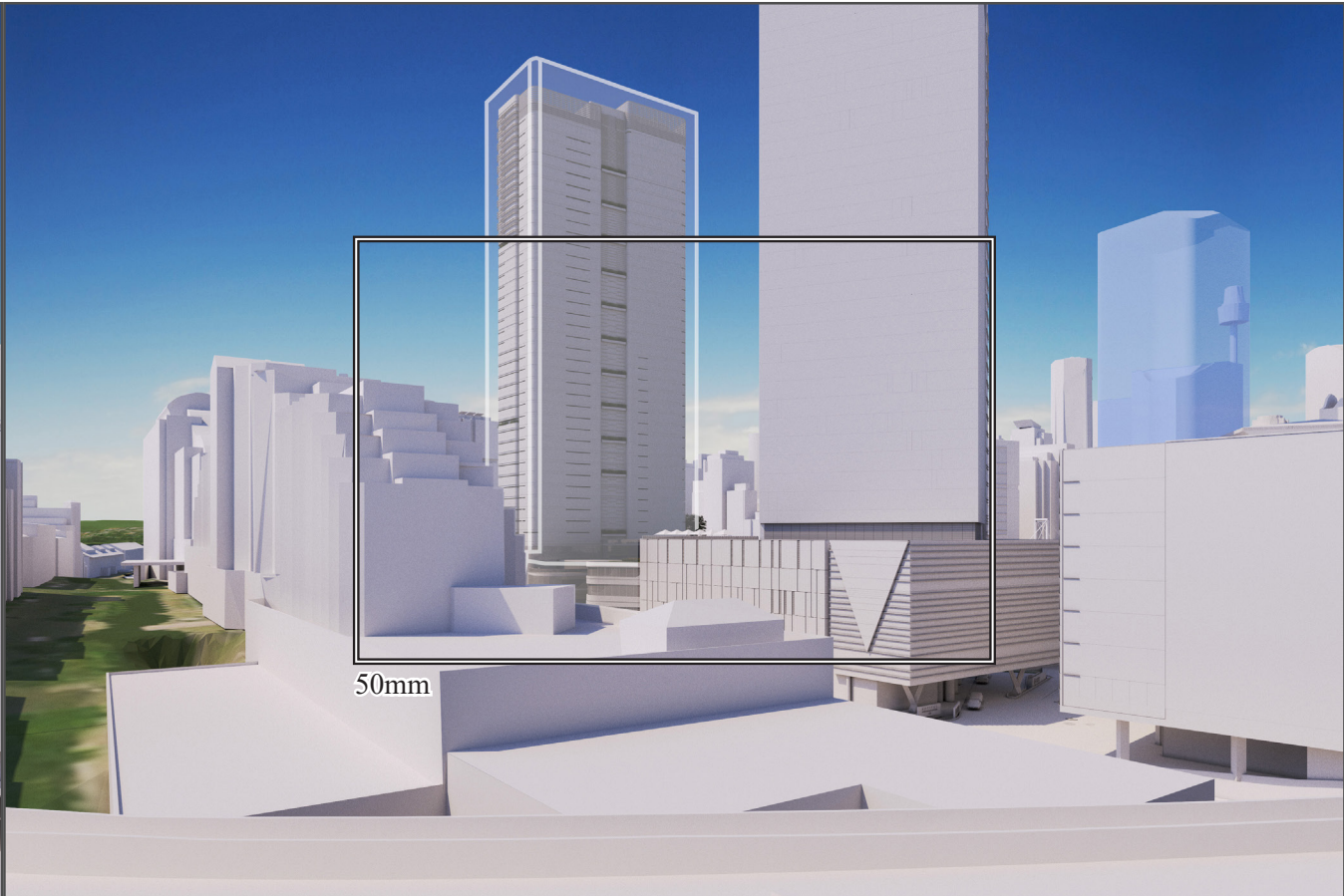
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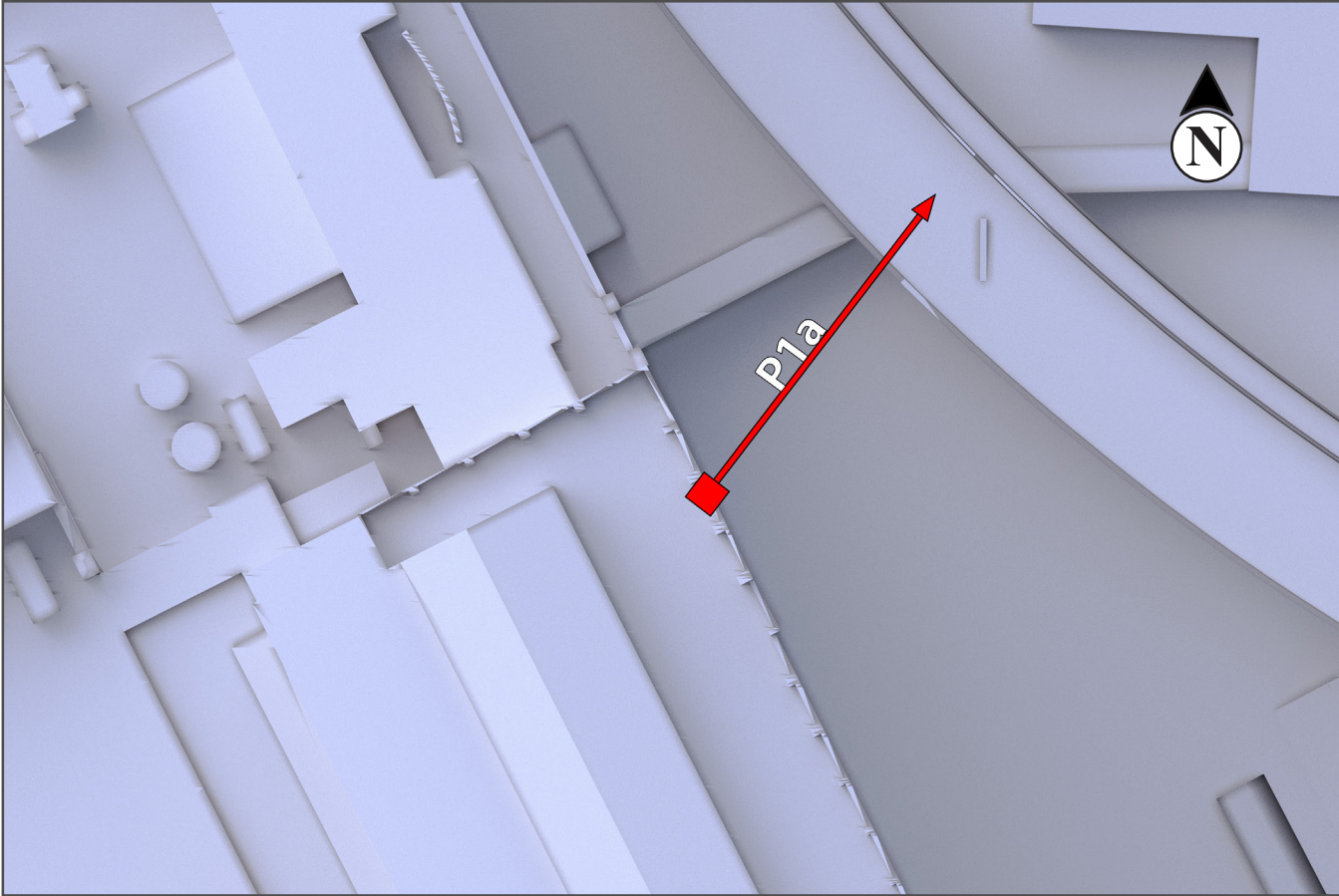


Existing View - 24mm

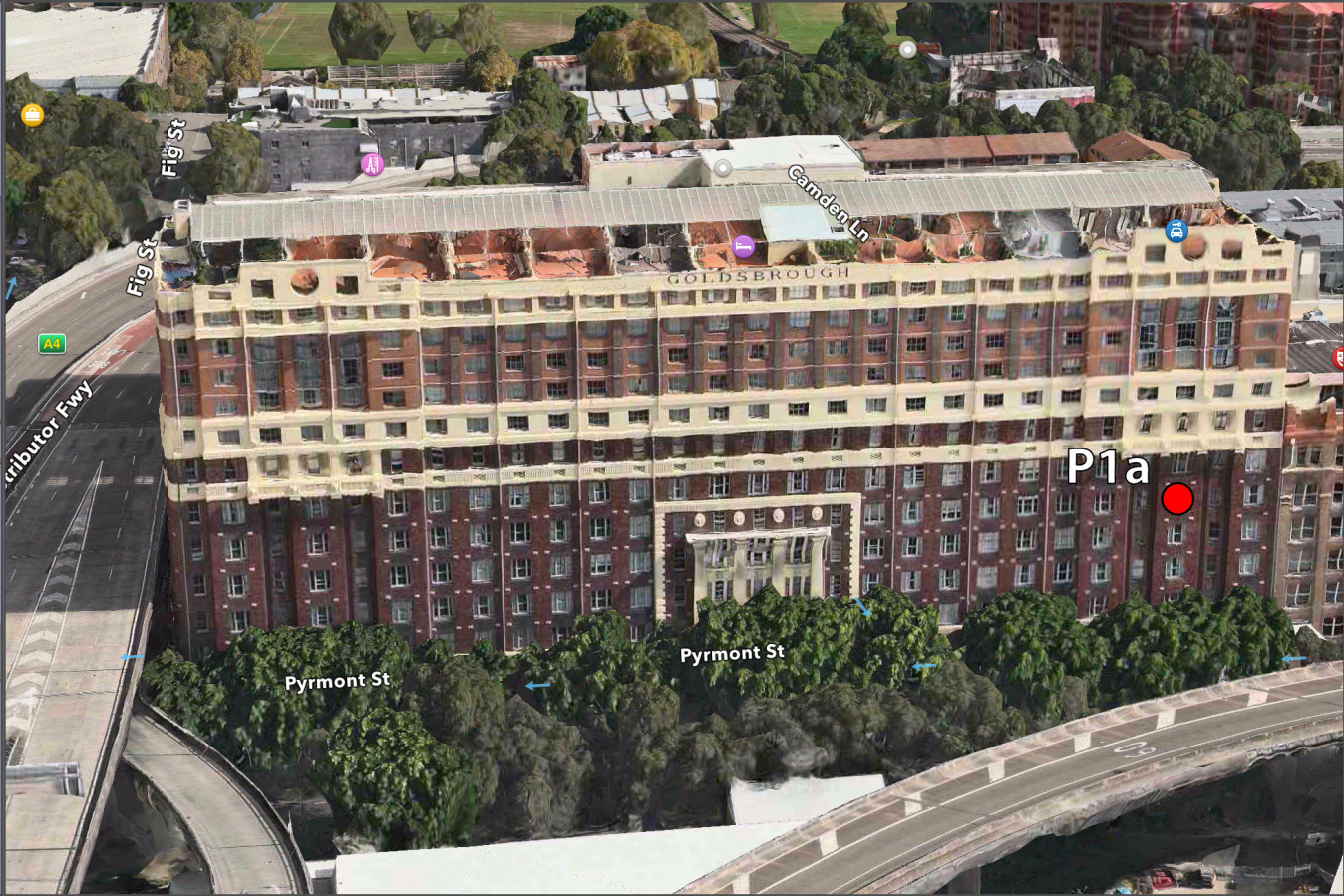


Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



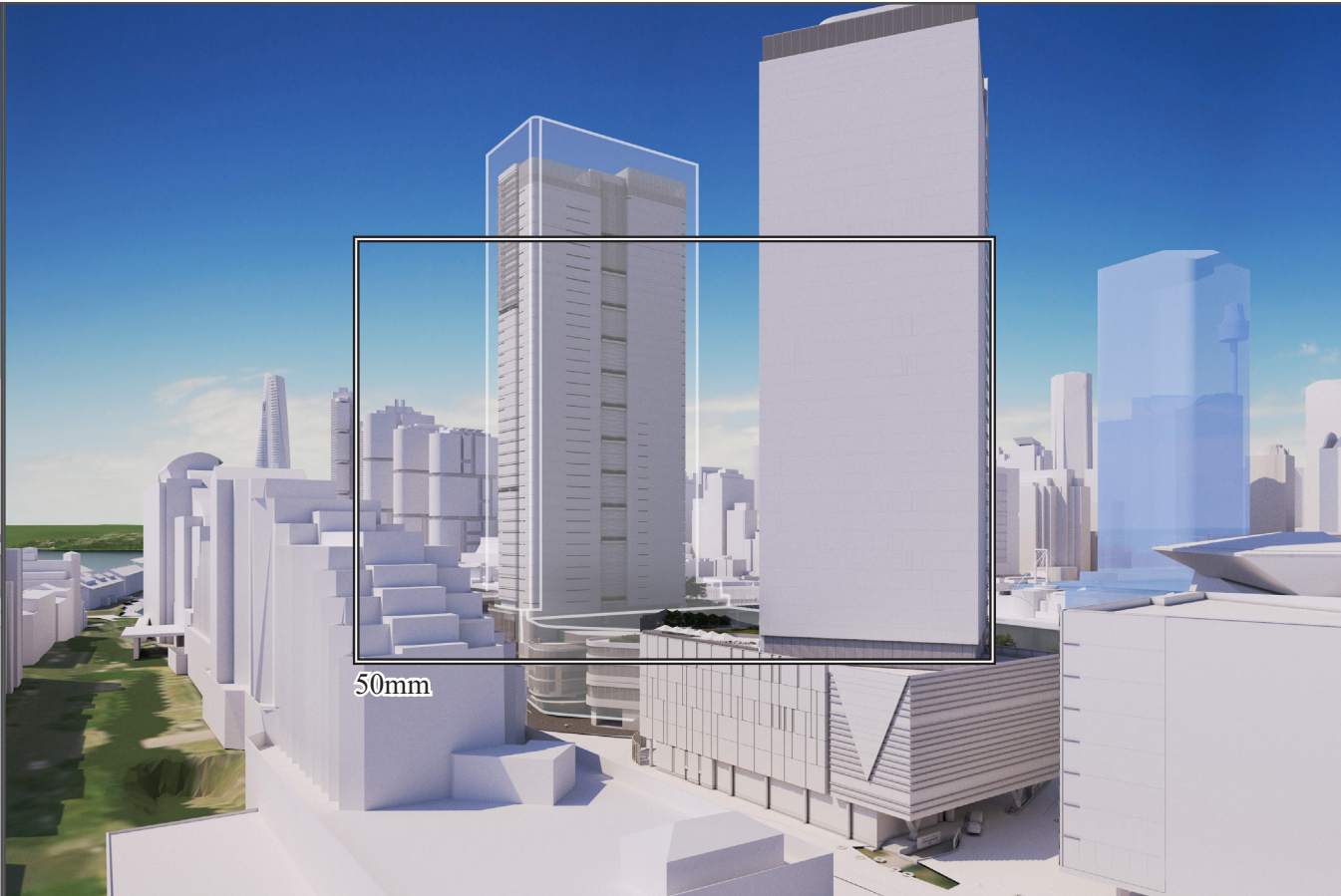
Plan (Existing Conditions)



Western Elevation (Existing Conditions)

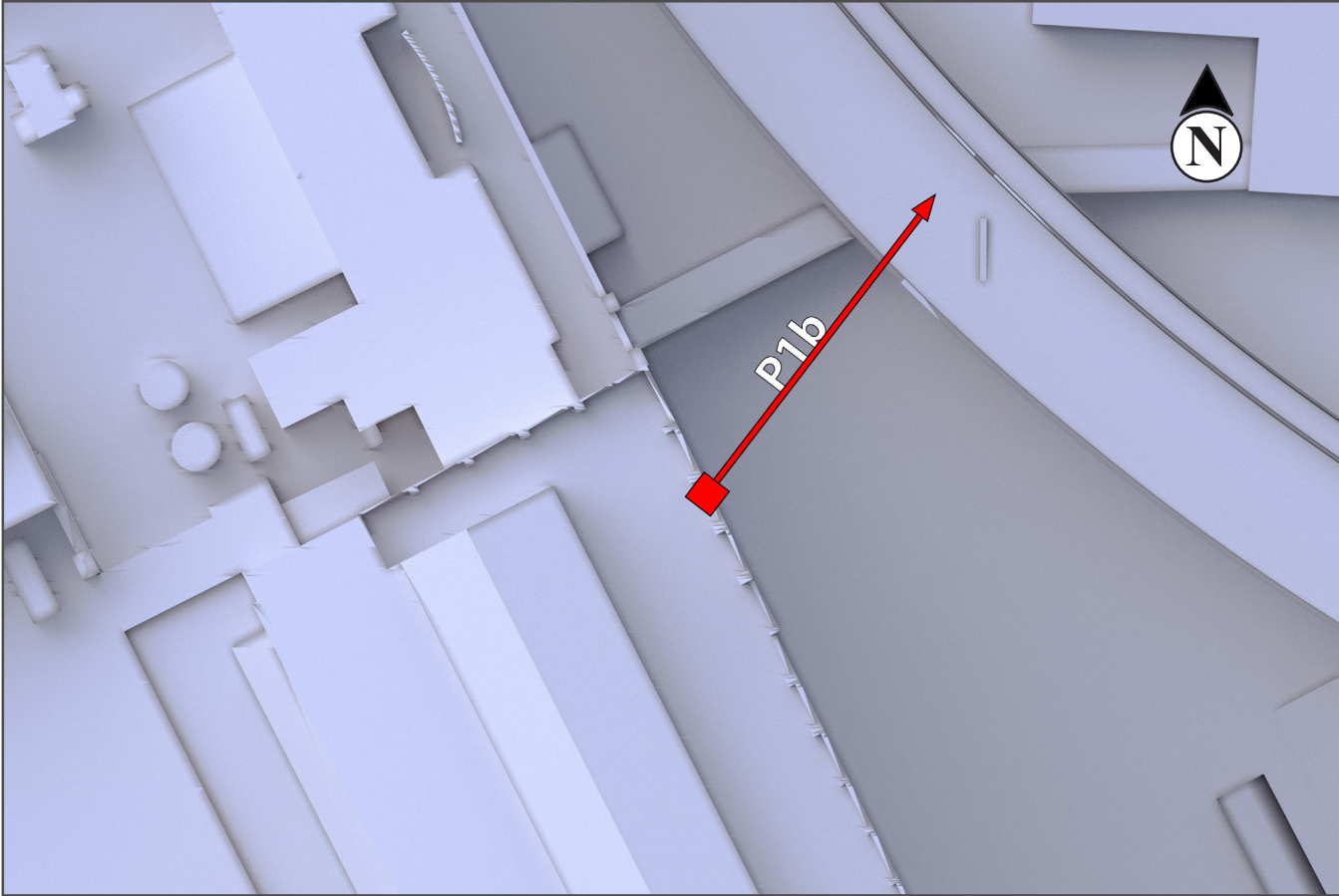


Existing View - 24mm

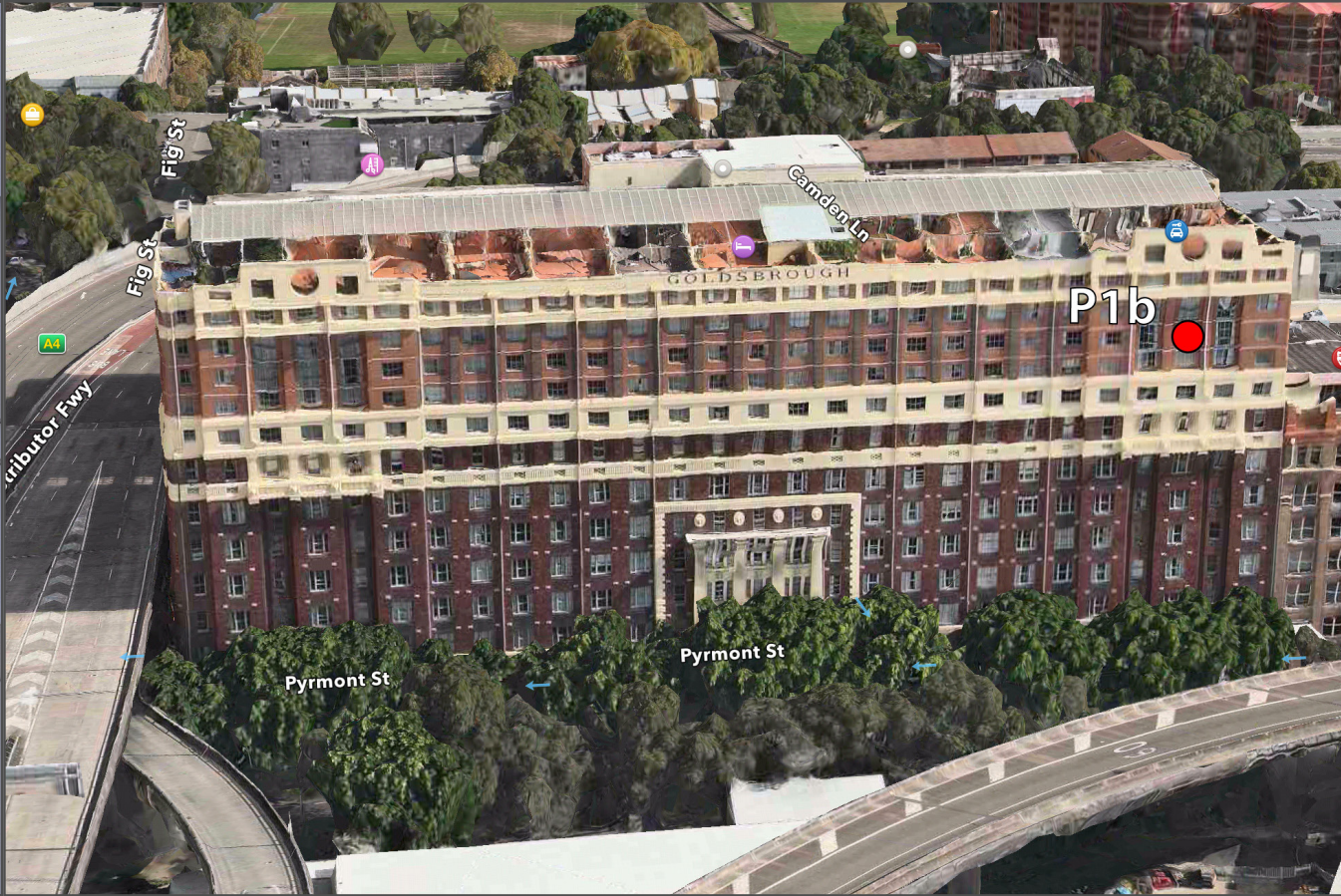


Proposed View - 24mm

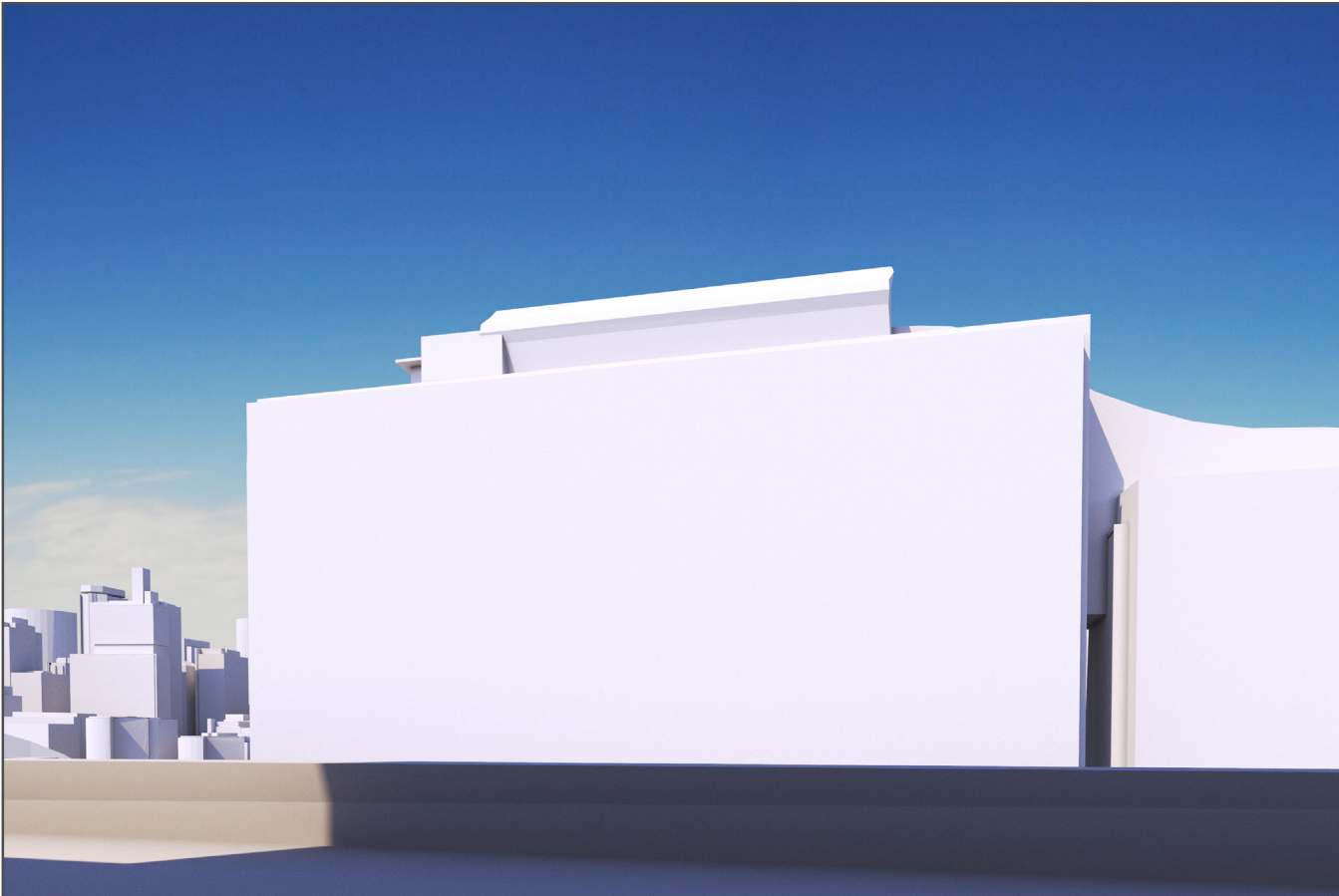
NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



Plan (Existing Conditions)



Western Elevation (Existing Conditions)

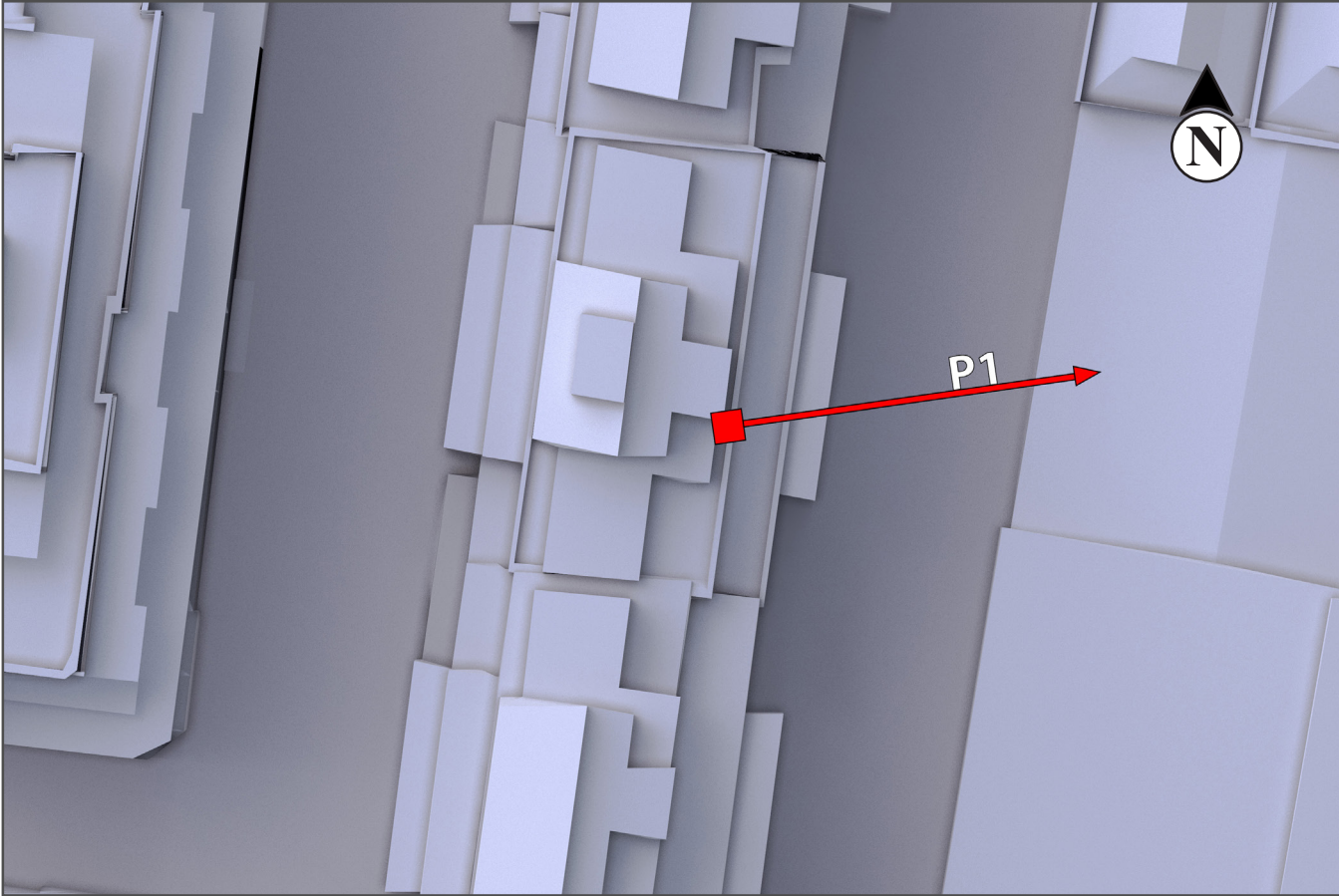


Existing View - 24mm



Proposed View - 24mm

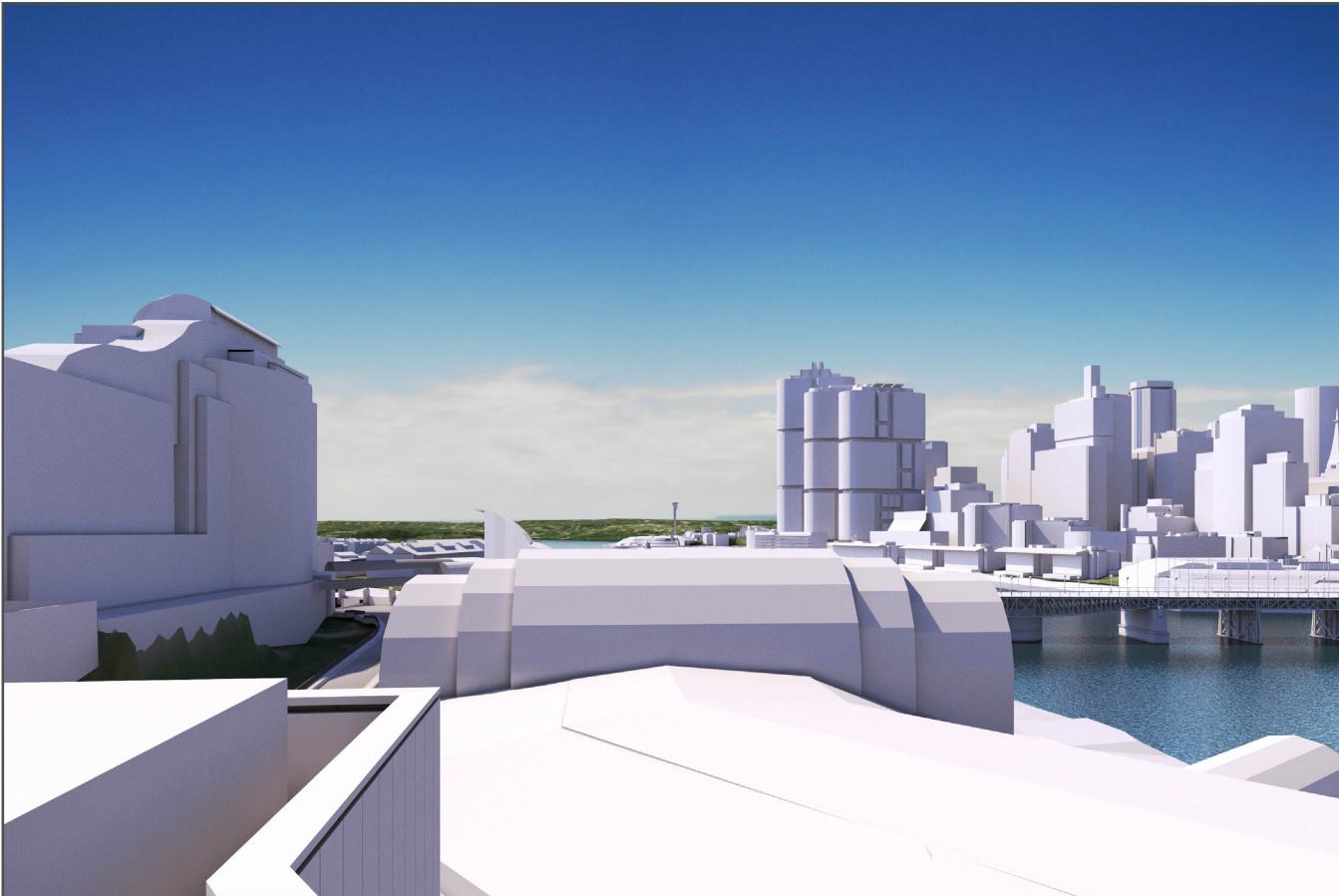
NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.
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Plan (Existing Conditions)



Western Elevation (Existing Conditions)

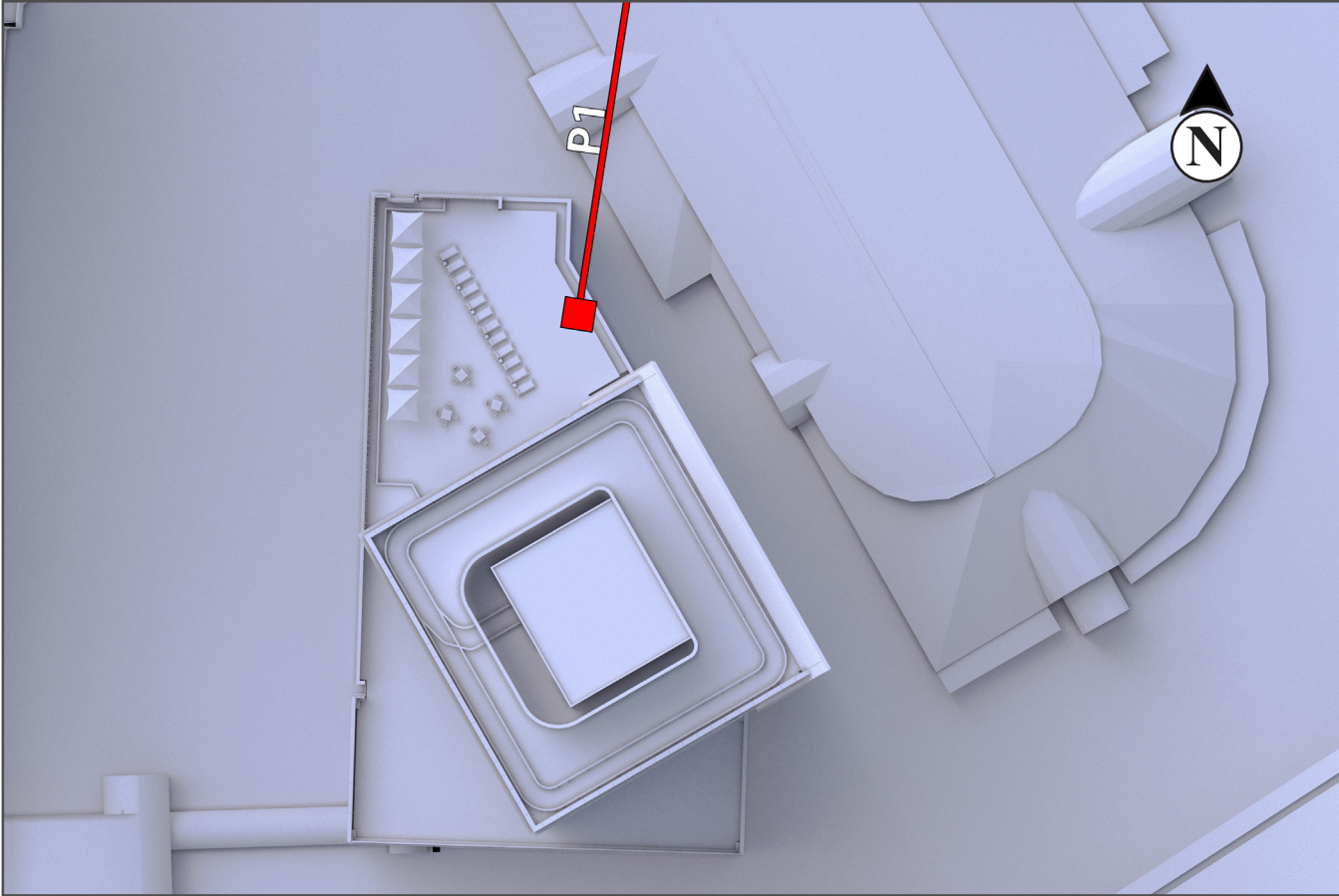


Existing View - 24mm



Proposed View - 24mm

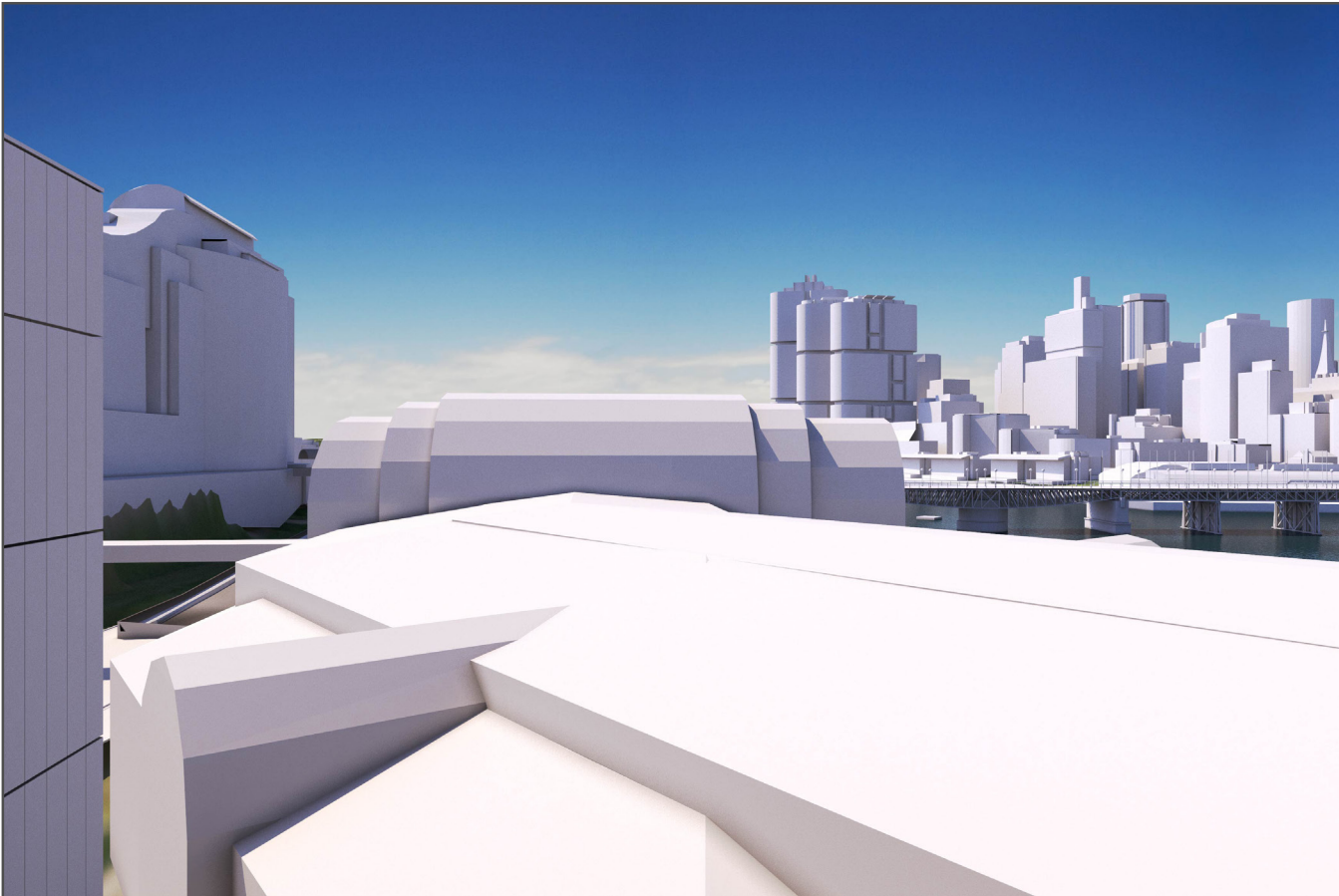
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Plan (Existing Conditions)



Western Elevation (Existing Conditions)

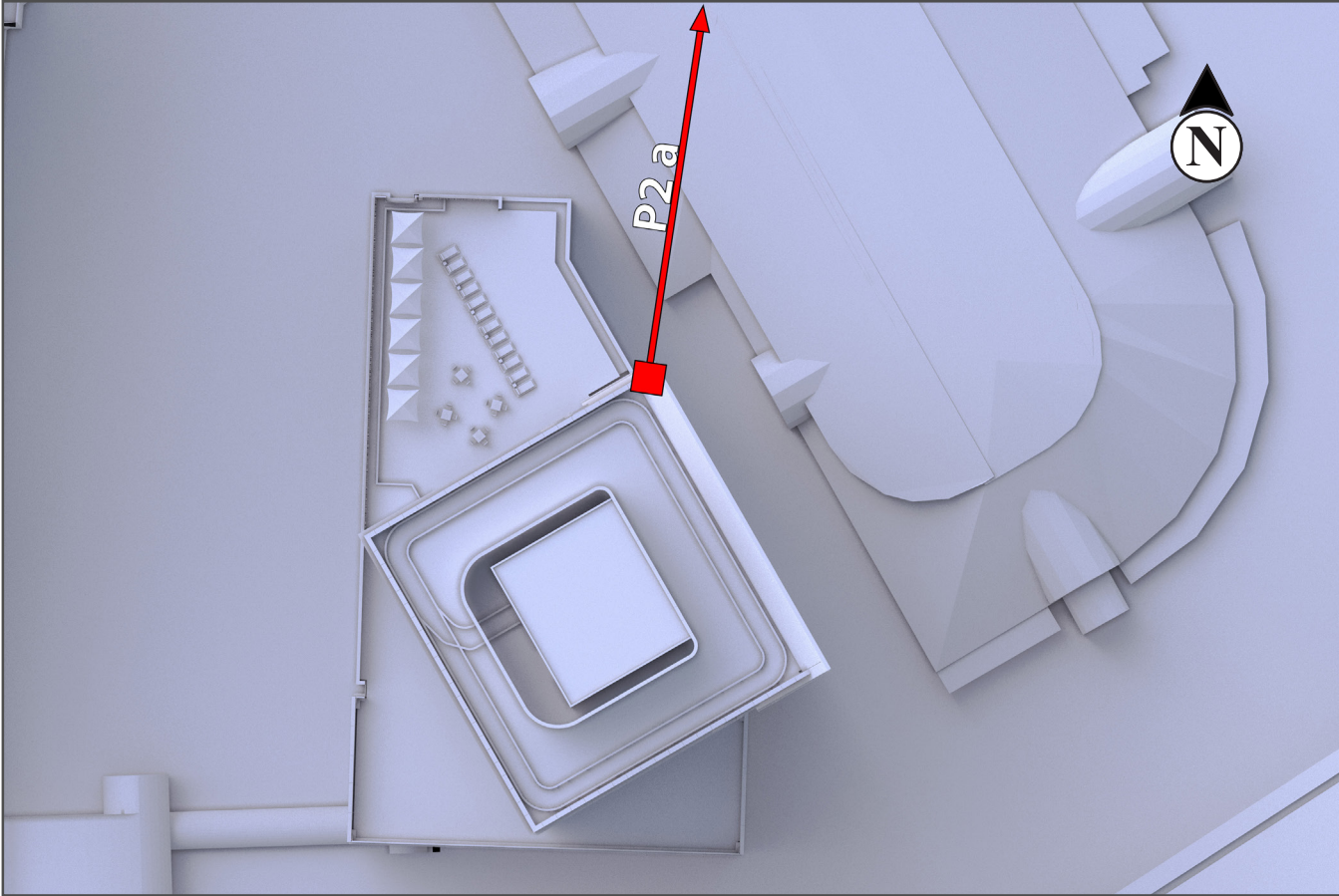


Existing View - 24mm



Proposed View - 24mm

NOTE: HARBOURSIDE BUILDING FORM IS INDICATIVE ONLY.



Plan (Existing Conditions)



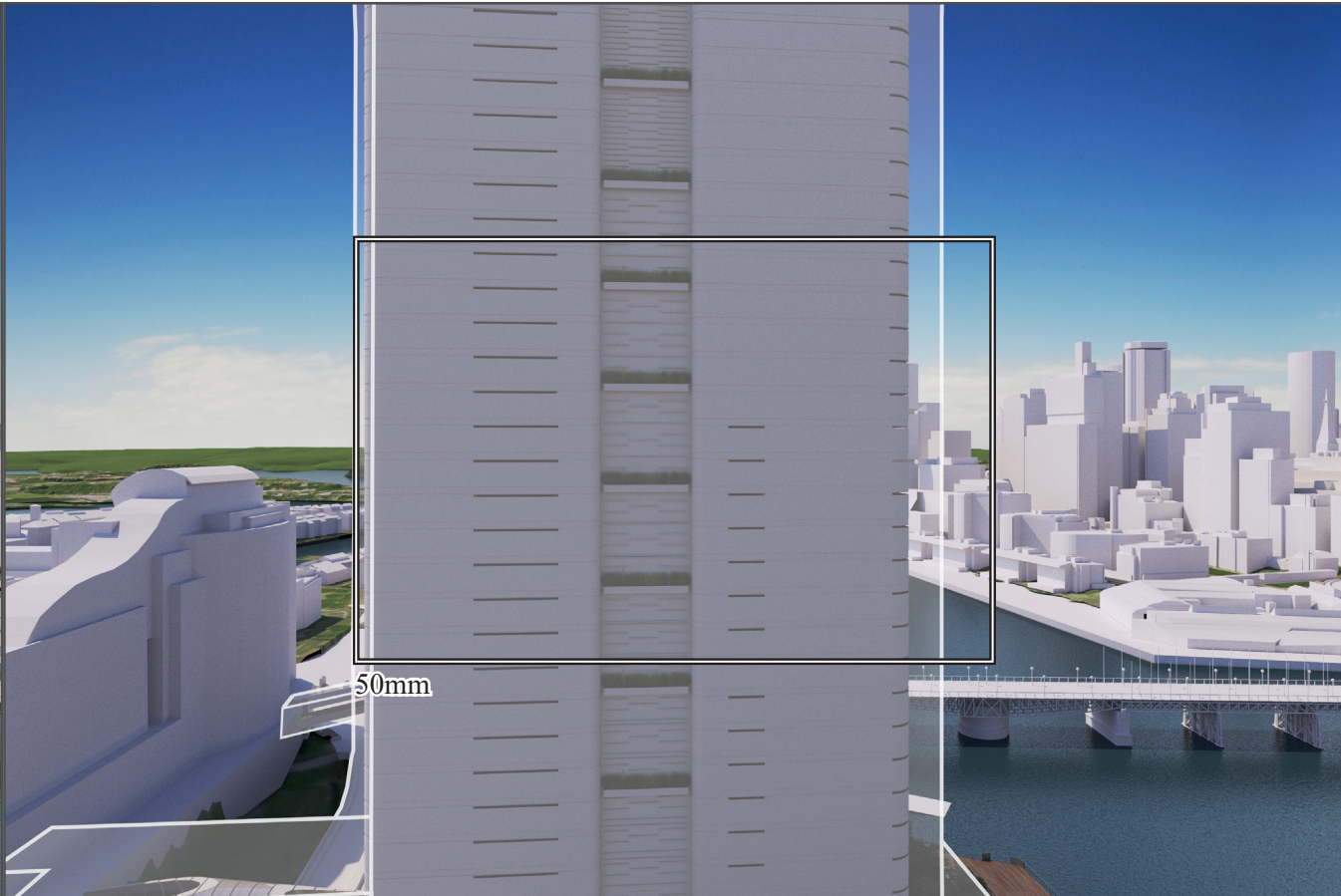
Western Elevation (Existing Conditions)

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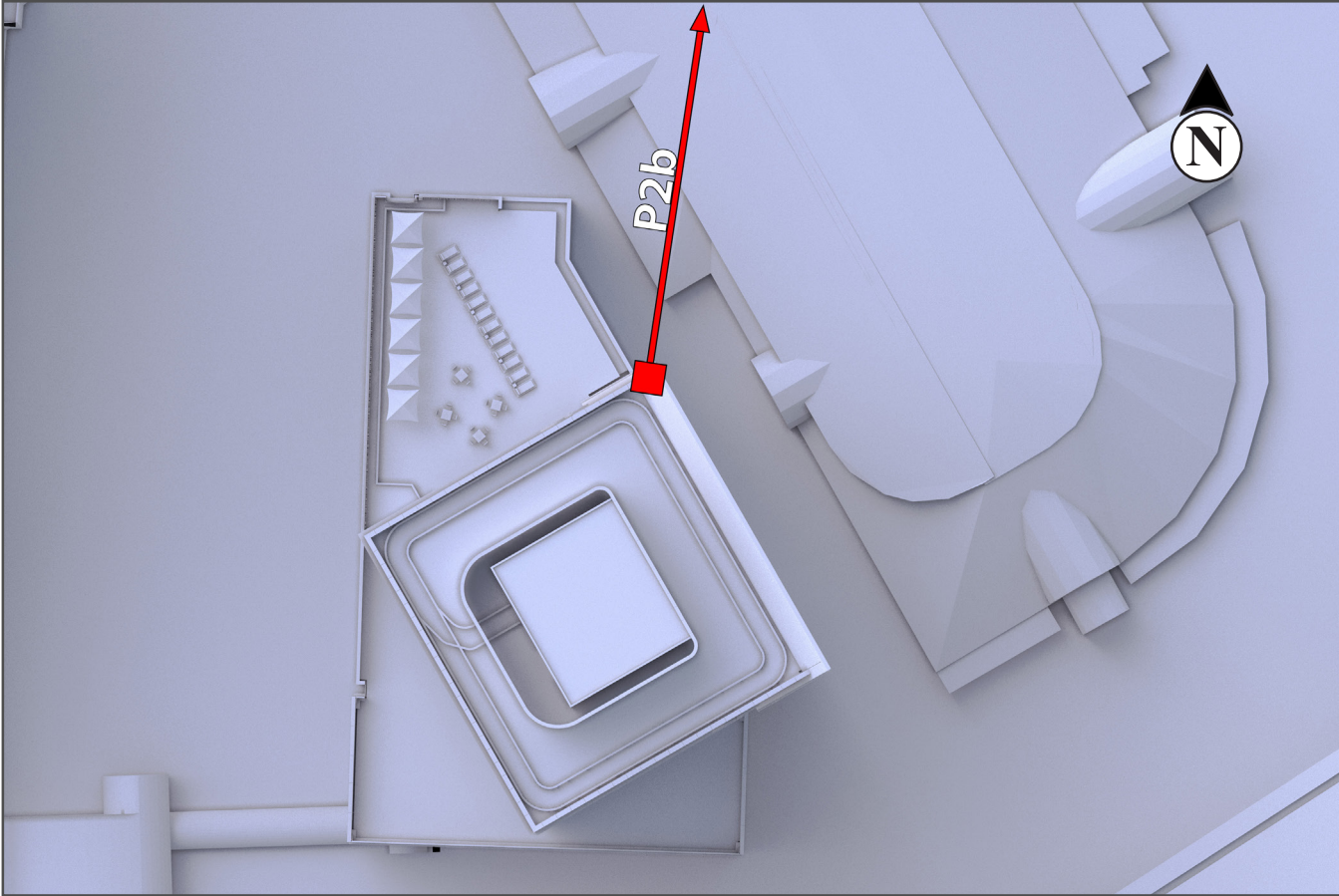


Existing View - 24mm



Proposed View - 24mm

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Plan (Existing Conditions)



Western Elevation (Existing Conditions)

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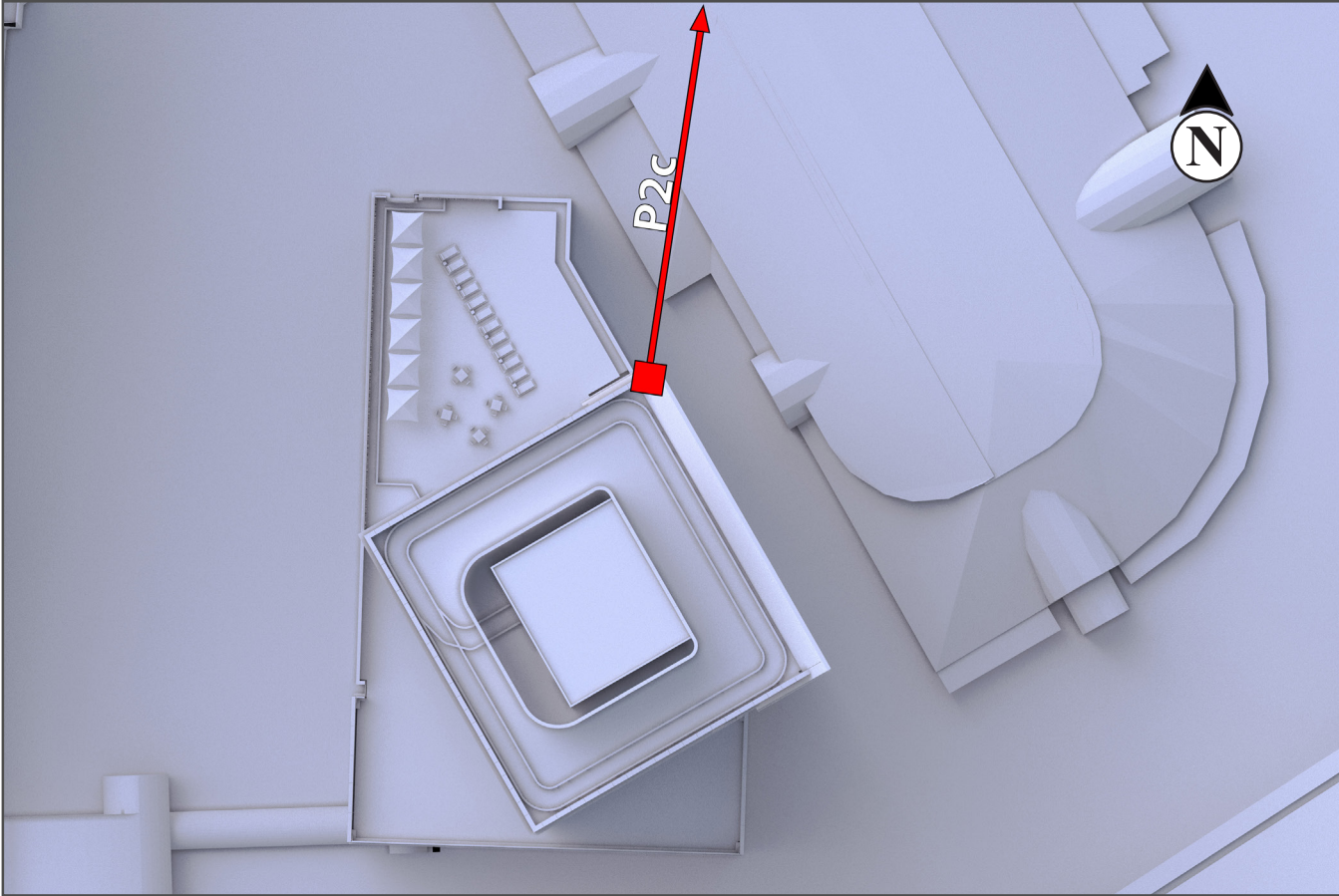


Existing View - 24mm



Proposed View - 24mm

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Plan (Existing Conditions)

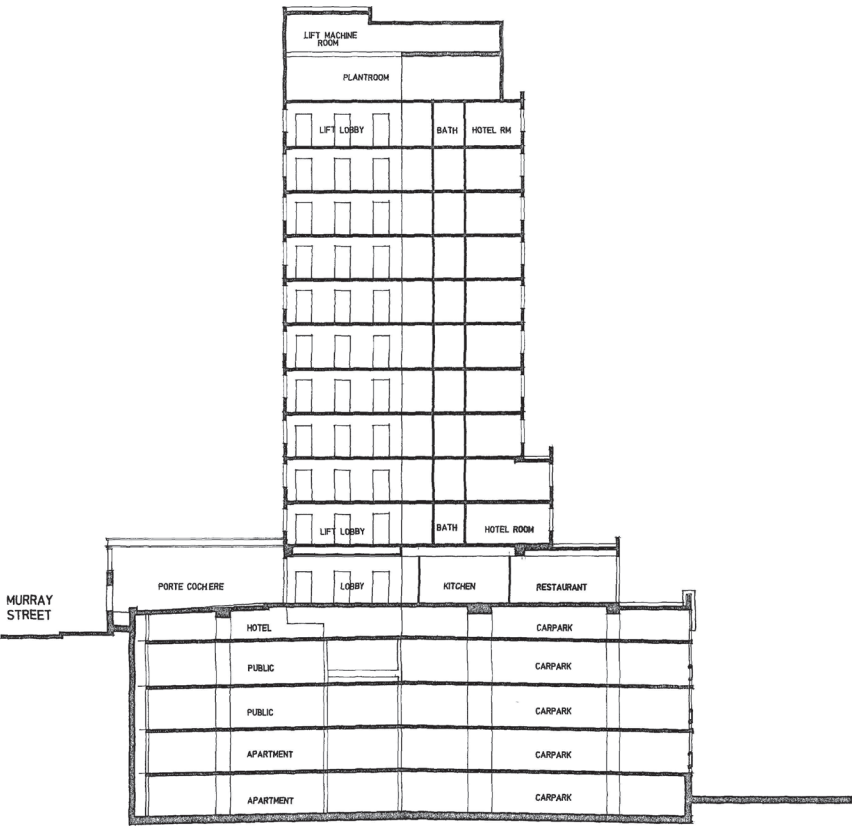


Western Elevation (Existing Conditions)

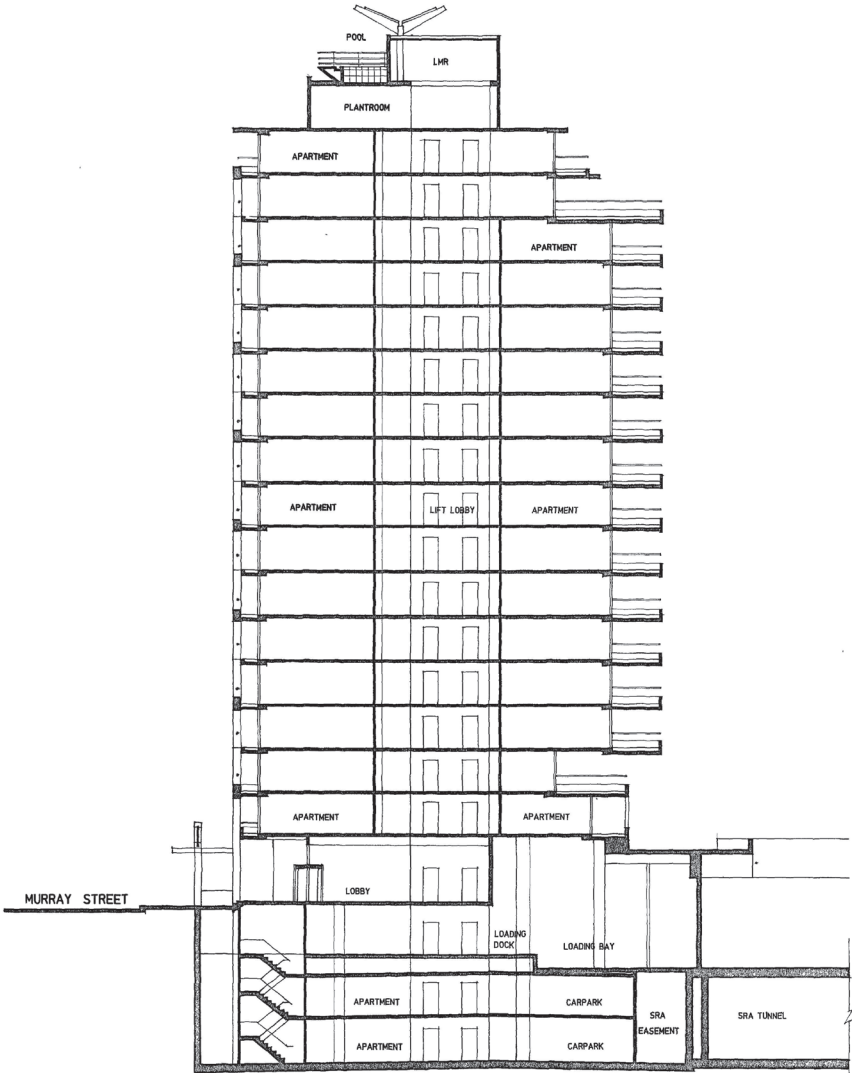
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L M R	RL 52.300
PLANTROOM FLOOR	RL 49.200
TENTH FLOOR	RL 46.200
NINTH FLOOR	RL 43.350
EIGHTH FLOOR	RL 40.500
SEVENTH FLOOR	RL 37.650
SIXTH FLOOR	RL 34.800
FIFTH FLOOR	RL 31.950
FOURTH FLOOR	RL 29.100
THIRD FLOOR	RL 26.250
SECOND FLOOR	RL 23.400
FIRST FLOOR	RL 20.550
LOBBY	RL 16.750
CARPARK LEVEL 5	RL 14.300
CARPARK LEVEL 4	RL 11.400
CARPARK LEVEL 3	RL 8.600
CARPARK LEVEL 2	RL 5.800
CARPARK LEVEL 1	RL 3.000



Hotel Section



Apartment Section

L M R / POOL	RL 66.400
PLANTROOM FLOOR	RL 63.300
SIXTEENTH FLOOR	RL 60.450
FIFTEENTH FLOOR	RL 57.600
FOURTEENTH FLOOR	RL 54.750
THIRTEENTH FLOOR	RL 51.900
TWELFTH FLOOR	RL 49.050
ELEVENTH FLOOR	RL 46.200
TENTH FLOOR	RL 43.350
NINTH FLOOR	RL 40.500
EIGHTH FLOOR	RL 37.650
SEVENTH FLOOR	RL 34.800
SIXTH FLOOR	RL 31.950
FIFTH FLOOR	RL 29.100
FOURTH FLOOR	RL 26.250
THIRD FLOOR	RL 23.400
SECOND FLOOR	RL 20.550
FIRST FLOOR	RL 17.700
LOBBY	RL 13.300
LOADING DOCK	RL 9.900
CARPARK LEVEL 2	RL 5.800
CARPARK LEVEL 1	RL 3.000

INSTRUMENT NO. 366
DATE 24/11/92
DRAWN BY CA/COO2/DR

Architects in Association
Hoffer Reid & Coombs • Travis Partners

Level 10, 50 Park Street
SYDNEY NSW 2000
Ph. 261 5466 Fax. 267 2432

NORTHERN DEVELOPMENT
ON DARLING HARBOUR

PA 115
REV A

SCALE 1:200



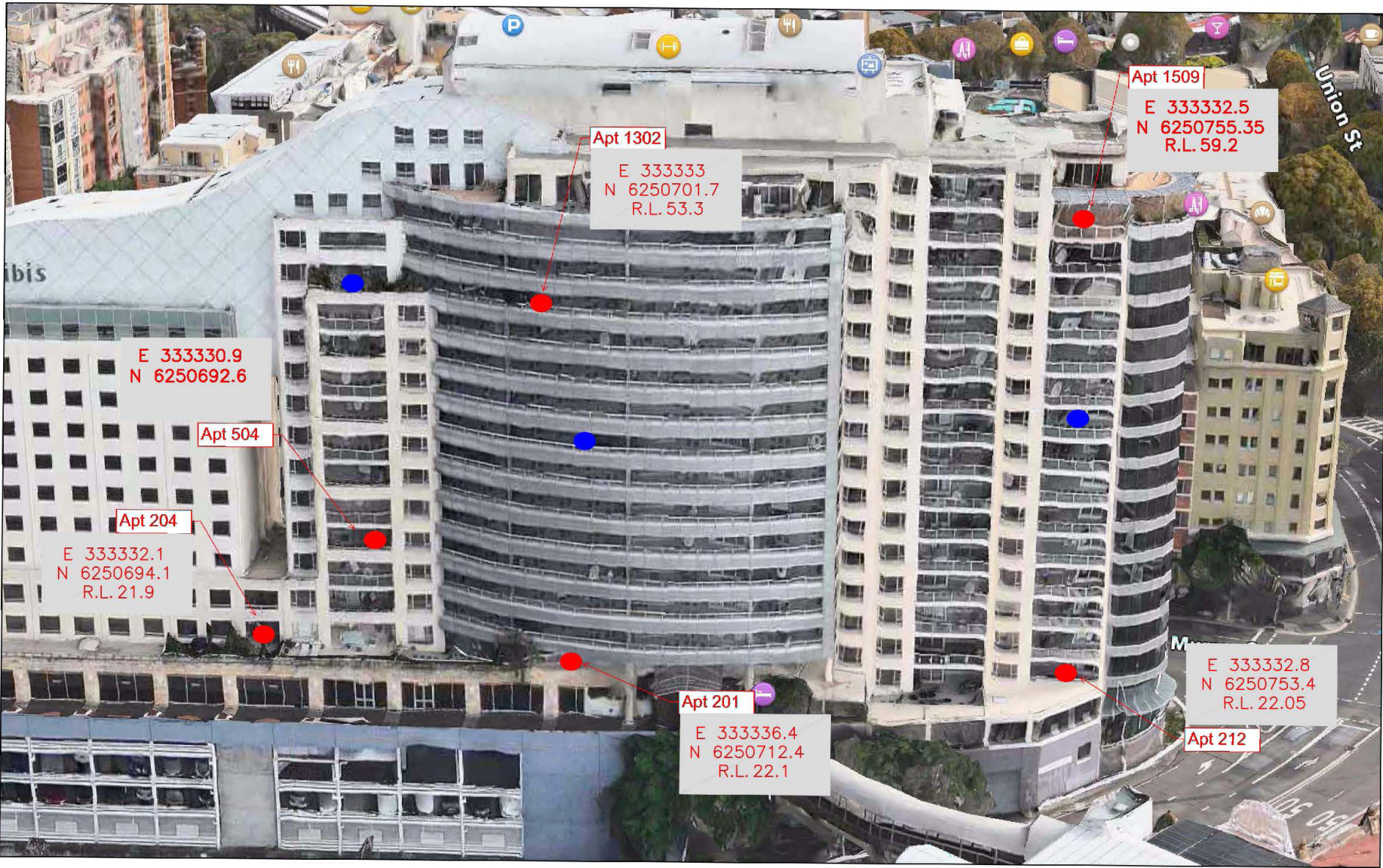
3rd NOVEMBER 1992

Garbett Pty Limited

Level 10, 60 Martin Place
SYDNEY NSW 2001
Ph 235 2199

PA / DA No 366
DARLING HARBOUR
Received Date 24 DEC 92



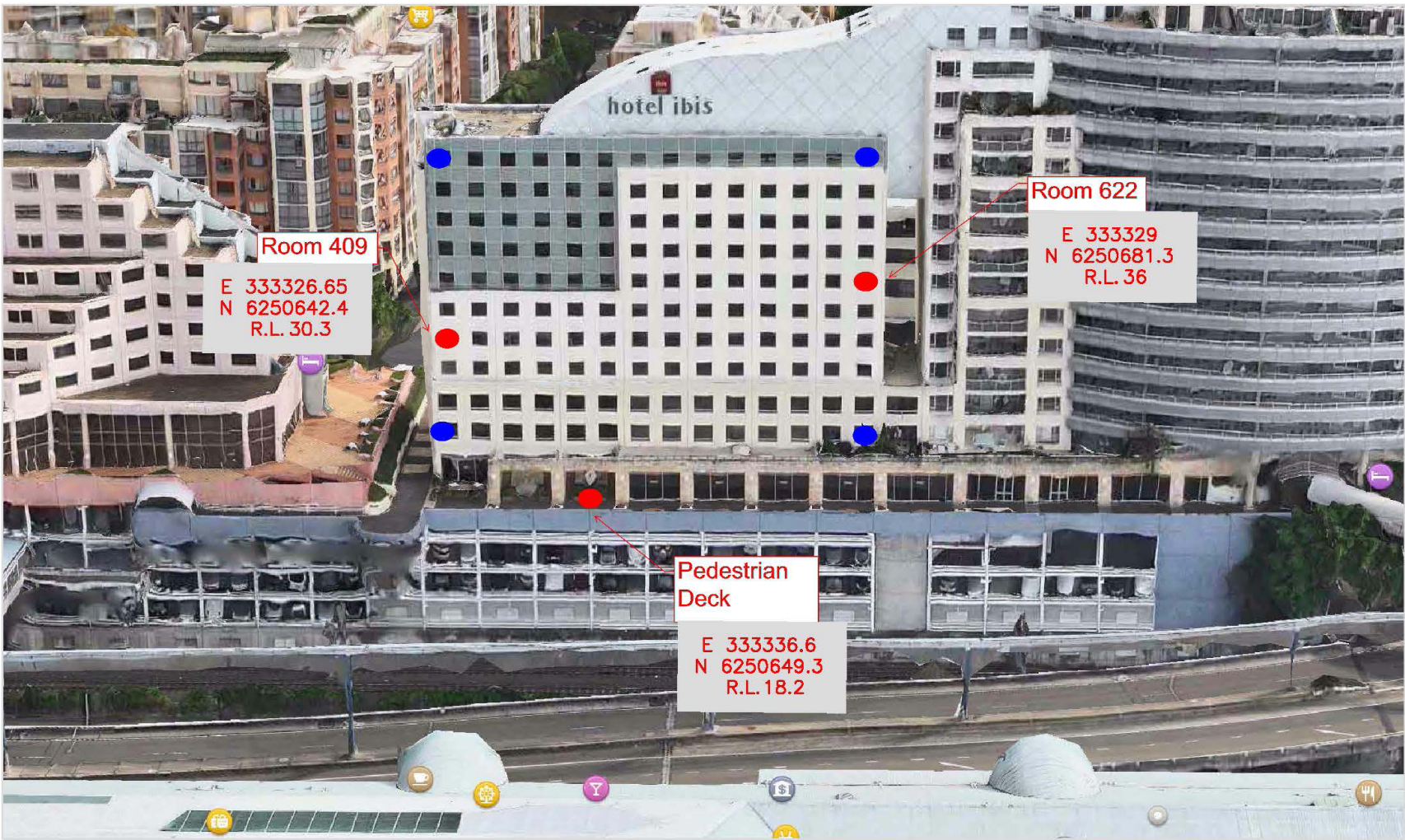


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SURVEYOR	DRAWN				CHECKED	APPROVED												
TM	TM				TM	TM												
					LOCALITY DARLING HARBOUR/SYDNEY	LGA CITY OF SYDNEY	REFERENCE No. 77319	PLAN No. 77319_AERIAL	DATE 27/09/2016	SHEET No. 4 OF 8 SHEETS								
B	30/08/2018	INCORRECT LABEL ON SHEET 4 AND 6 AMENDED																
A	17/10/2016	INCORRECT LABEL ON SHEET 3 AMENDED																
REV.	DATE	AMENDMENTS																



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DATE : AUSTRALIAN HEIGHT DATUM				SUBDIVISION STRATA PLANS STRATUM SUBDIVISION LEASE PLANS TOPOGRAPHIC SURVEYS GPS SURVEYS 3D MODELLING INFRASTRUCTURE DESIGN PROJECT MANAGEMENT BUILDING SURVEYS									
CONTIGUOUS INTERVAL : N/A				SURVEYOR TM				DRAWN TM					
ORIGIN OF LEVELS : CORRECT NSW				CHECKED TM				APPROVED TM					
REV.	DATE	AMENDMENTS	REFERENCE No. 77319		PLAN No. 77319_AERIAL			DATE 27/09/2016		SHEET No. 4 OF 8 SHEETS			

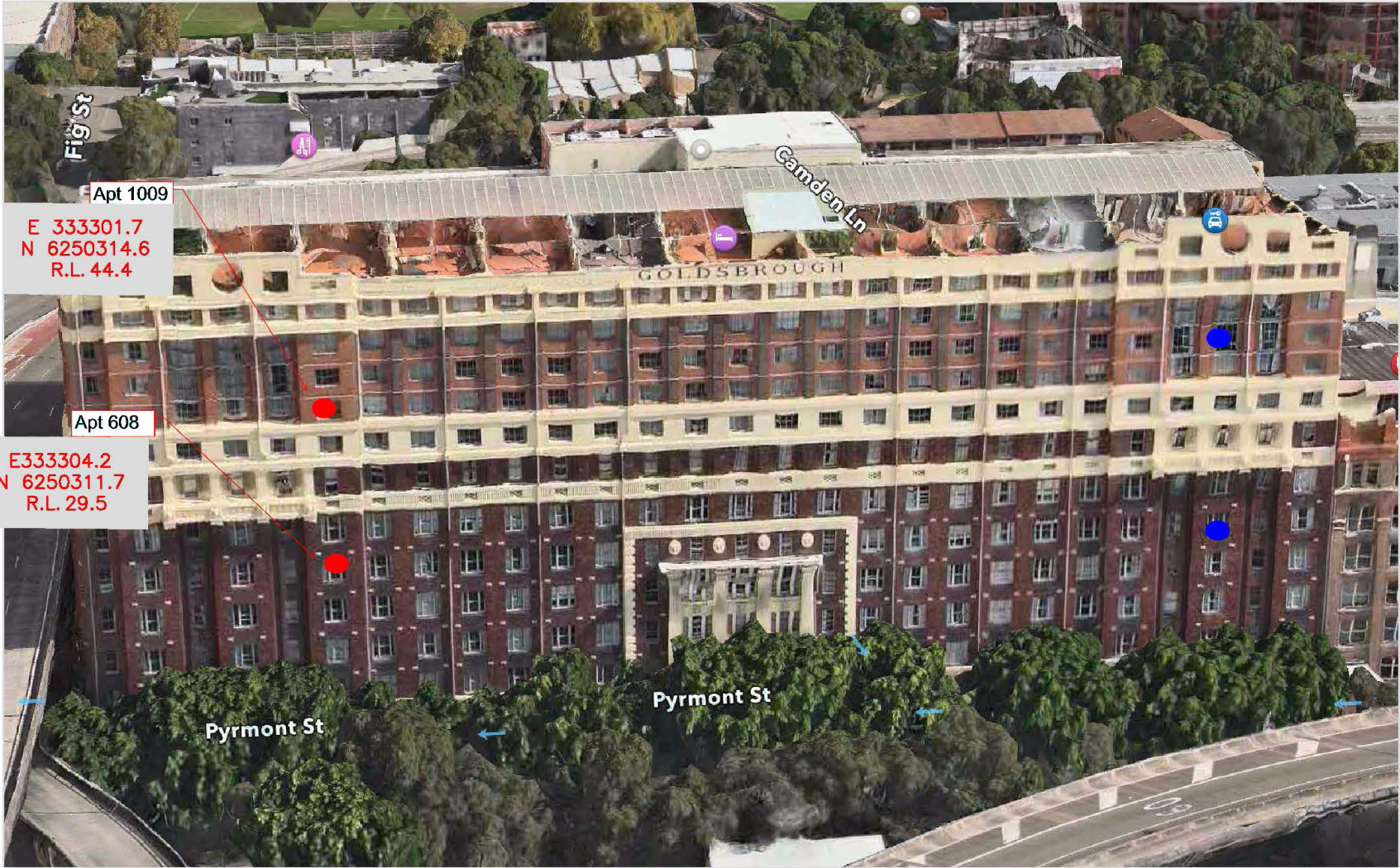


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REV.	DATE	AMENDMENTS				REFERENCE No.	PLAN No.	DATE	SHEET No.
						77319	77319_AERIAL	27/09/2016	5
									OF 8 SHEETS



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			DATUM : AUSTRALIAN HEIGHT DATUM CONTOUR INTERVAL : N/A ORIGIN OF LEVELS : CORNER NSW		SUBDIVISION STRATA NAME STRATUM SUBDIVISION BASE NAME TOPOGRAPHY SURVEY GPS SURVEY PHOTOGRAMMETRY PROJECT MANAGEMENT SURVEY MANAGEMENT SURVEY DESIGN SURVEY DATA SURVEY REPORT		SURVEYOR TM		DRAWN TM		CHECKED TM		APPROVED TM		LOCALITY DARLING HARBOUR/SYDNEY		L.S.A. CITY OF SYDNEY		REFERENCE No. 77319		PLAN No. 77319_AERIAL		DATE 27/09/2016		SHEET No. 7 OF 8 SHEETS	
REV.	DATE	AMENDMENTS																								

DIGITAL CAMERA LENSES FOR PHOTOMONTAGES AND VISUAL IMPACT ASSESSMENTS

The intention of a photomontage rendering is to visually communicate how proposed built form sits in respect to its surroundings. To achieve this, a digitally rendered image from a digital 3D model is superimposed into a digital photograph to provide an accurate representation in terms of light, material, scale, and form.

Camera lens selection also plays an important part in creating a photomontage that communicates visual impact. There are several things to consider with respect to lens selection.

Field of View of the Human Eye

The field of view of the human eye is a topic that varies depending on the source of information. In many cases, the field of view of the eye is stated to be 17mm. Other opinions claim a smaller field of view of around 22-24mm.

Whichever the case, it is accepted that the human eye has a wide field of view. When a person stands close to a subject - for instance a building - their field of vision can potentially read all of the top, sides and bottom of the building simultaneously in a single glance.

In addition to this, the human eye can change focus and target direction extremely rapidly, allowing a person to view a large structure in a very short period of time, effectively making the perceived field of view even larger.

The Perspective of the human eye

It is difficult to accurately reproduce what the human eye sees by the means of a printed image. The eye’s image sensor - the retina - is curved along the back surface of the eyeball, whereas the sensor on a camera is flat. Consequently, the perspective of a photograph can look quite different to how a person views a scene in the real world, especially when comparing to a photo captured with a wide camera lens.

In digital photography circles, it is widely accepted that using a longer lens (approximately 50mm) reduces the amount of perspective in an image and therefore more closely replicates what the human eye would see in reality. This, however, only addresses how the eye perceives perspective and does not consider the field of view of the eye.

If a photo is taken of a scene using a 50mm camera lens, printed out and then held up in front of the viewer against the actual view at the same location as the photo was taken, it is unmistakable that the human eye can see much more of the surrounding context than is captured within the photo.

DIGITAL CAMERA LENSES FOR PHOTOMONTAGES AND VISUAL IMPACT ASSESSMENTS

Changing the field of view on a digital camera

The main difference in using a longer lens vs a wider lens is the amount of information that is displayed at the edges of the subject. Changing the lens to a smaller FOV produces the same result as cropping in on the wide angle image, providing that the position and the angle of the camera remains constant while taking the photographs.

In short, a lens with a wider field of view does not create an image that has incorrect perspective, it simply means that the perspective is extended at the edges of the image showing more of the surrounds in the image.

Summary

With regards to visual assessment, there is no definitive solution for camera lens selection.

Longer lenses produce images that are more faithful to the perspective of the human eye, though the field of view is more limited, making it difficult to capture the entirety of a subject or enough of the surrounding context in which the subject resides.

Conversely, the perspective of wider camera lenses can make subjects appear further away than they would appear through the perspective of the human eye. This also limits a persons ability to accurately assess visual impact.

For these reasons, Virtual Ideas has taken the view that it is not possible to exactly replicate the real world view of the human eye in an image created with a camera and for visual impact photomontages, camera lenses are selected that strike a balance between these two considerations and can accurately display the built form in its surroundings.

The most effective way to accurately gauge visual impact and achieve a real world understanding of scale, is to take prints of the photomontages to the exact site photography locations and compare the prints with the scale of the existing built form.