



WATERLOO METRO QUARTER OVER STATION DEVELOPMENT

Environmental Impact Statement Appendix NN - Solar Access Report

SSD-10437 Southern Precinct

Detailed State Significant Development
Development Application

Prepared for **Waterloo Developer Pty Ltd**

30 September 2020

Reference	Description
Applicable SSD Applications	SSD-10437 Southern Precinct
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1. Glossary and abbreviations

Reference	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG	Apartment Design Guide
AHD	Australian height datum
AQIA	Air Quality Impact Assessment
BC Act	Biodiversity Conservation Act 2016
BCA	Building Code of Australia
BC Reg	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
CEEC	critically endangered ecological community
CIV	capital investment value
CMP	Construction Management Plan
Concept DA	A concept DA is a staged application often referred to as a 'Stage 1' DA. The subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act.
Council	City of Sydney Council
CPTED	Crime Prevention Through Environmental Design
CSSI approval	critical State significant infrastructure approval
CTMP	Construction Traffic Management Plan
DA	development application
DPIE	NSW Department of Planning, Industry and Environment
DRP	Design Review Panel
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPA Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	ecologically sustainable design

Reference	Description
GANSW	NSW Government Architect's Office
GFA	gross floor area
HIA	Heritage Impact Assessment
IAP	Interchange Access Plan
LGA	Local Government Area
NCC	National Construction Code
OSD	over station development
PIR	Preferred Infrastructure Report
POM	Plan of Management
PSI	Preliminary Site Investigation
RMS	Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP 55	State Environmental Planning Policy No 55—Remediation of Land
SEPP 65	State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2009
SREP Sydney Harbour	State Regional Environmental Plan (Sydney Harbour Catchment) 2005
SSD	State significant development
SSD DA	State significant development application
SLEP	Sydney Local Environmental Plan 2012
Transport for NSW	Transport for New South Wales
TIA	Traffic Impact Assessment
The proposal	The proposed development which is the subject of the detailed SSD DA
The site	The site which is the subject of the detailed SSD DA
VIA	Visual Impact Assessment

Reference	Description
WMQ	Waterloo Metro Quarter
WMP	Waste Management Plan
WSUD	water sensitive urban design

2. Executive summary

This Solar Access Report for planning has been prepared by RWDI Anemos Ltd. to accompany a detailed State significant development (SSD) development application (DA) for the Southern Precinct over station development (OSD) at the Waterloo Metro Quarter site.

This report has been prepared to address the relevant conditions of the concept SSD DA (SSD 9393) and the Secretary's Environmental Assessment Requirements (SEARs) issued for the detailed SSD DA (SSD 10437).

Simulations were performed to assess apartments' ability to access direct sunlight.

Over 73% of units were found to receive sufficient sunlight access to their living space windows and private outdoor space (POS) between 9:00 am and 3:00 pm on 21 June, in compliance with the Apartment Design Guide (ADG) found in Part 4 of the State Environmental Planning Policy 65 (SEPP65) guidelines. 11% of apartments were found to receive no direct sunlight of any size on their living space windows and POS when a window of 9:00 am to 3:45 pm, this increases to 21% between the hours of 9:00 am and 3:00 pm. The increase in time period enables the 7 western facing apartments to have access to solar direct sunlight.

Given these findings, the development is considered to enjoy a high level of solar access and be in accordance with the intent of the ADG and as such the Southern Precinct OSD warrants approval.

3. Introduction

This report has been prepared to accompany a detailed State significant development (SSD) development application (DA) for the Southern Precinct over station development (OSD) at the Waterloo Metro Quarter site. The detailed SSD DA is consistent with the concept approval (SSD 9393) granted for the maximum building envelope on the site, as proposed to be modified.

The Minister for Planning, or their delegate, is the consent authority for the SSD DA and this application is lodged with the NSW Department of Planning, Industry and Environment (DPIE) for assessment.

The detailed SSD DA seeks development consent for the design, construction and operation of:

Southern Precinct

- 25-storey residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 students
- 9-storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings
- ground level retail tenancies including Makerspace and gymnasium lobby, and loading facilities
- level 1 and level 2 gymnasium and student accommodation communal facilities
- landscaping and private and communal open space at podium and roof top levels to support the residential accommodation
- new public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington streets and public domain upgrades
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 April 2020 and issued for the detailed SSD DA. Specifically, this report has been prepared to respond to the SEARs requirements summarised below.

Item	Description of requirement	Section reference (this report)
6. Visual and Amenity Impacts	"provide a solar access and overshadowing analysis, comparing the overshadowing impacts of the proposal to the existing situation and the approved"	7, 8, 9, 10, 11

Table 1 - SEARs requirements

This report has also been prepared in response to the following conditions of consent issued for the concept SSD DA (SSD 9393) for the OSD as summarised in the table below.

Item	Description of requirement	Section reference (this report)
A14	<p>Waterloo Metro Quarter – Design and Amenity Guidelines</p> <p>Part 3, Section 3K “Built Form above the Podium”:</p> <p>Design Criteria 4: Design of residential mid-rise buildings and towers will need to be in accordance with the Apartment Design Guide</p>	7, 8, 9, 10, 11

Table 2 - Conditions of Concept Approval

4. The site

The site is located within the City of Sydney Local Government Area (LGA). The site is situated about 3.3 kilometres south of Sydney CBD and eight kilometres northeast of Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to Figure 1). The heritage-listed Waterloo Congregational Church at 103–105 Botany Road is within this street block but does not form a part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment with an overall site area of approximately 1.287 hectares.

The Waterloo Metro Quarter site comprises the following allotments and legal description at the date of this report. Following consolidation by Sydney Metro (the Principal) the land will be set out in deposited plan DP1257150.

- 1368 Raglan Street (Lot 4 DP 215751)
- 59 Botany Road (Lot 5 DP 215751)
- 65 Botany Road (Lot 1 DP 814205)
- 67 Botany Road (Lot 1 DP 228641)
- 124-128 Cope Street (Lot 2 DP 228641)
- 69-83 Botany Road (Lot 1, DP 1084919)
- 130-134 Cope Street (Lot 12 DP 399757)
- 136-144 Cope Street (Lots A-E DP 108312)
- 85 Botany Road (Lot 1 DP 27454)
- 87 Botany Road (Lot 2 DP 27454)
- 89-91 Botany Road (Lot 1 DP 996765)
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891)
- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831)
- 156-160 Cope Street (Lot 31 DP 805384)
- 107-117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116)
- 170-174 Cope Street (Lot 2 DP 205942).

The detailed SSD DA applies to the Southern Precinct (the site) of the Waterloo Metro Quarter site. The site has an area of approximately 4830sqm. The subject site comprises the following allotments and legal description at the date of this report.

Southern Precinct DA

- 130–134 Cope Street (Lot 12 DP 399757) (Part)
- 136–144 Cope Street (Lots A-E DP 108312) (Part)
- 93–101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891) (Part)
- 156–160 Cope Street (Lot 31 DP 805384)
- 107–117A Botany Road (Lot 32 DP 805384 and Lot A DP 408116)

- 119 Botany Road (Lot 1 DP 205942 and Lot 1 DP 436831)
- 170–174 Cope Street (Lot 2 DP 205942).

The boundaries of the overall site are identified at Figure 1, and the subject site of the detailed SSD DA is identified at Figures 2 and 3. The site is reasonably flat with a slight fall to the south.

The site previously included three to five storey commercial, light industrial and shop top housing buildings. All previous structures except for an office building at the corner of Botany Road and Wellington Street have been demolished to facilitate construction of the new Sydney Metro Waterloo station. As such the existing site is predominately vacant and being used as a construction site. Construction of the Sydney metro is currently underway on site in accordance with critical State significant infrastructure approval (CSSI 7400).



Figure 1 - Aerial image of the site
Source: Urbis

The area surrounding the site consists of commercial premises to the north, light industrial and mixed-use development to the south, residential development to the east and predominantly commercial and light industry uses to the west.

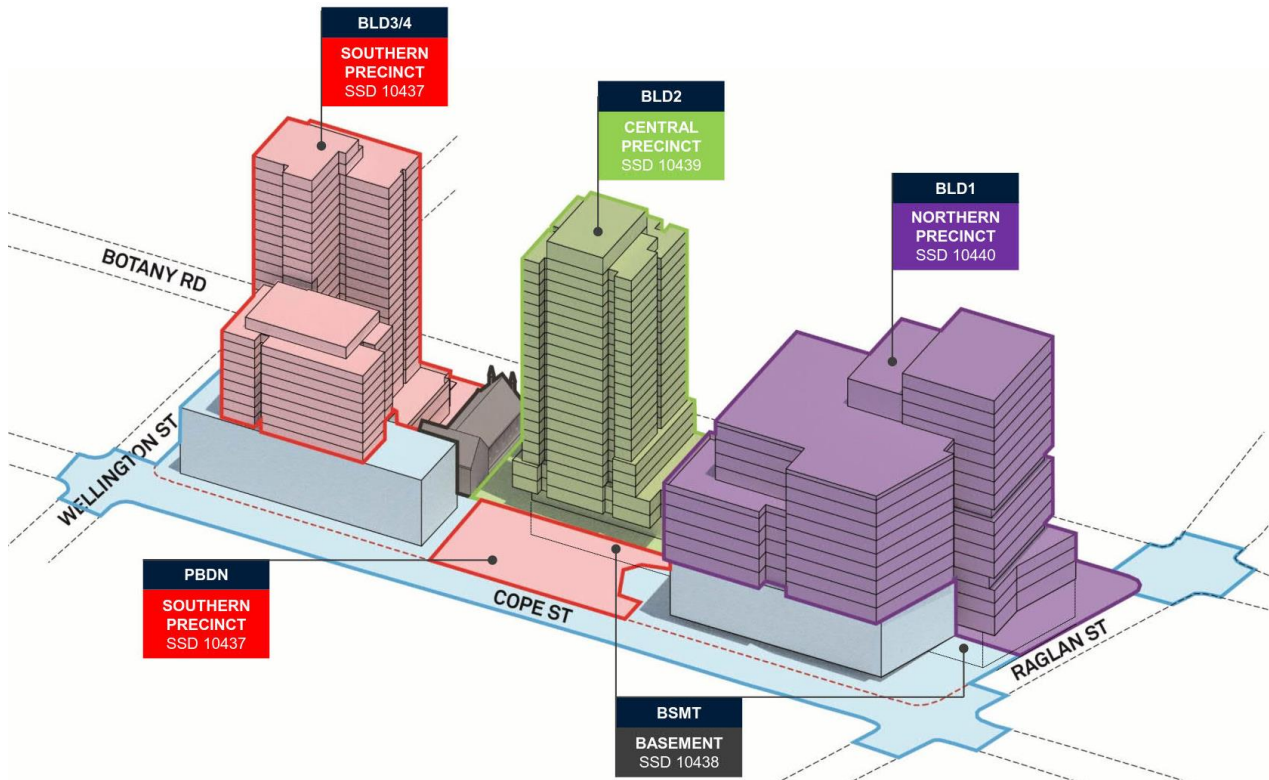


Figure 2 - Waterloo Metro Quarter site, with sub-precincts identified
Source: HASSELL

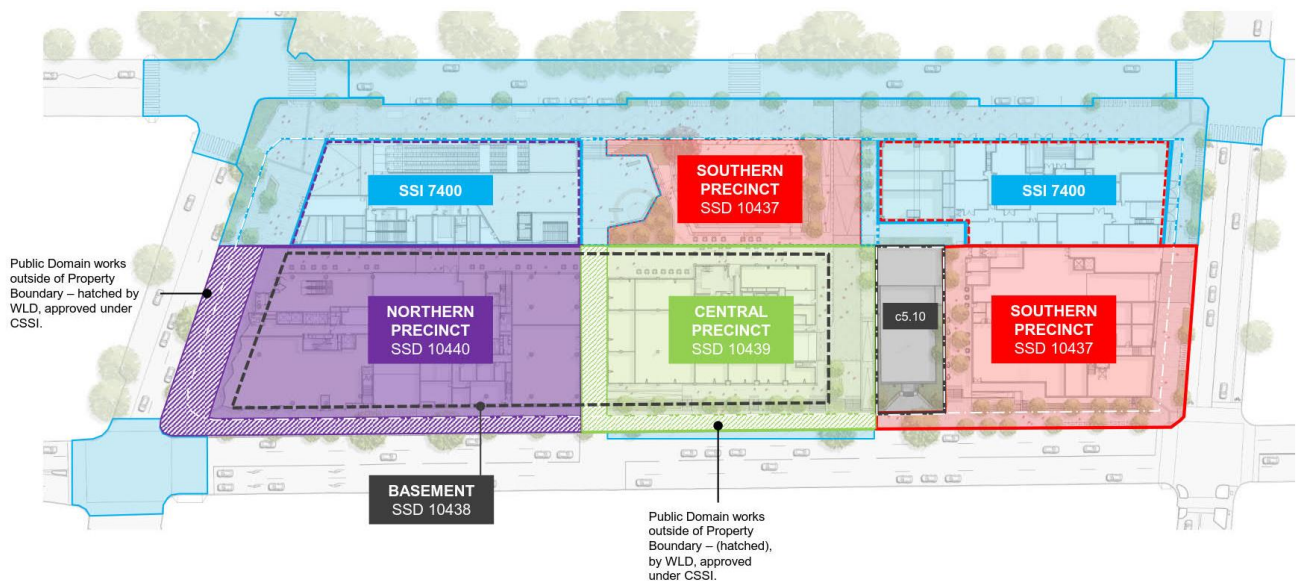


Figure 3 - Waterloo Metro Quarter site, with sub-precincts identified
Source: Waterloo Developer Pty Ltd

5. Background

5.1 About Sydney Metro

Sydney Metro is Australia's biggest public transport project. Services started in May 2019 in the city's North West with a train every four minutes in the peak. A new standalone railway, this 21st century network will revolutionise the way Sydney travels.

There are four core components:

5.1.1 Sydney Metro North West

This project is now complete and passenger services commenced in May 2019 between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and \$1 billion under budget.

5.1.2 Sydney Metro City & Southwest

Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of Metro Northwest at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition, it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

5.1.3 Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

5.1.4 Sydney Metro Greater West

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service.

The Australian and NSW governments are equal partners in the delivery of this new railway.

The Sydney Metro project is illustrated below.

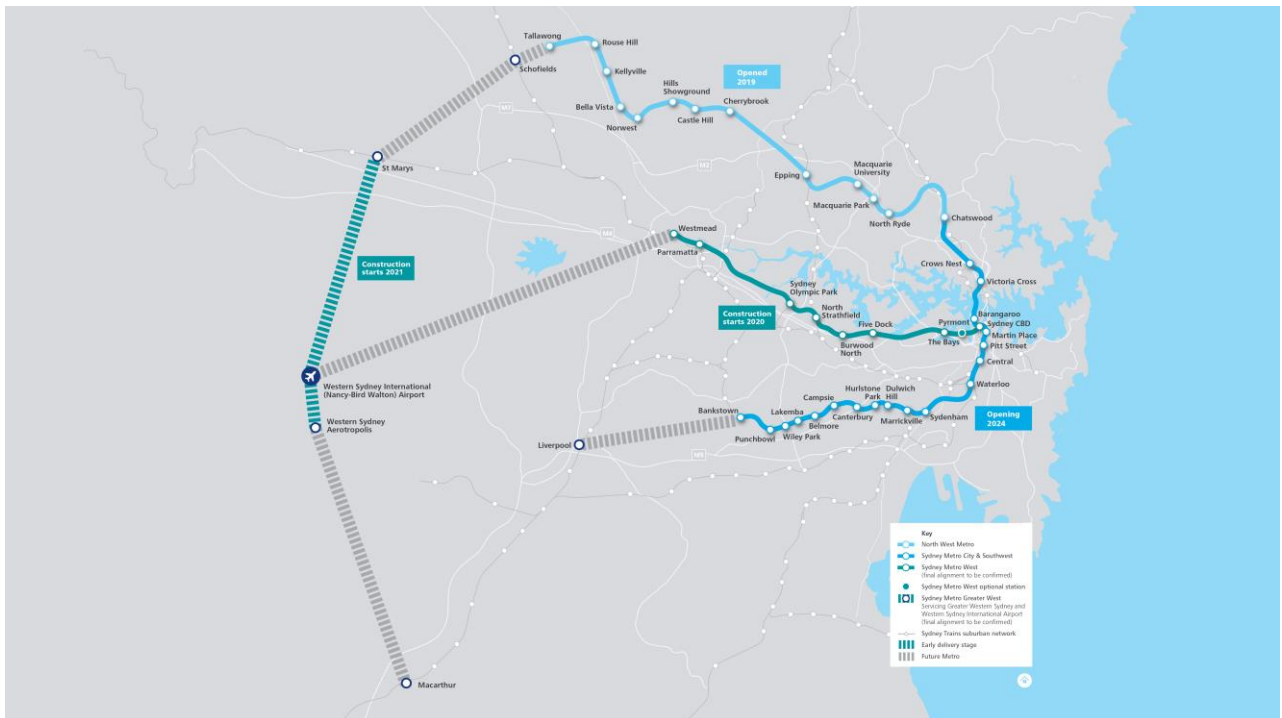


Figure 4 - Sydney Metro alignment map
Source: Sydney Metro

5.2 Sydney Metro CSSI Approval (SSI 7400)

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a critical State significant infrastructure (CSSI) project (reference SSI 7400) (CSSI approval). The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station. The CSSI approval also includes the construction of below and above ground works within the metro station structure for appropriate integration with the OSD.

With regards to CSSI related works, any changes to the 'metro station box' envelope and public domain will be pursued in satisfaction of the CSSI conditions of approval and do not form part of the scope of the concept SSD DA or detailed SSD DA for the OSD.

Except to the extent described in the EIS or Preferred Infrastructure Report (PIR) submitted with the CSSI application, any OSD buildings and uses do not form part of the CSSI approval and will be subject to the relevant assessment pathway prescribed by the EP&A Act.

The delineation between the approved Sydney Metro works, generally described as within the two 'metro station boxes' and surrounding public domain works, and the OSD elements are illustrated in Figure 5.

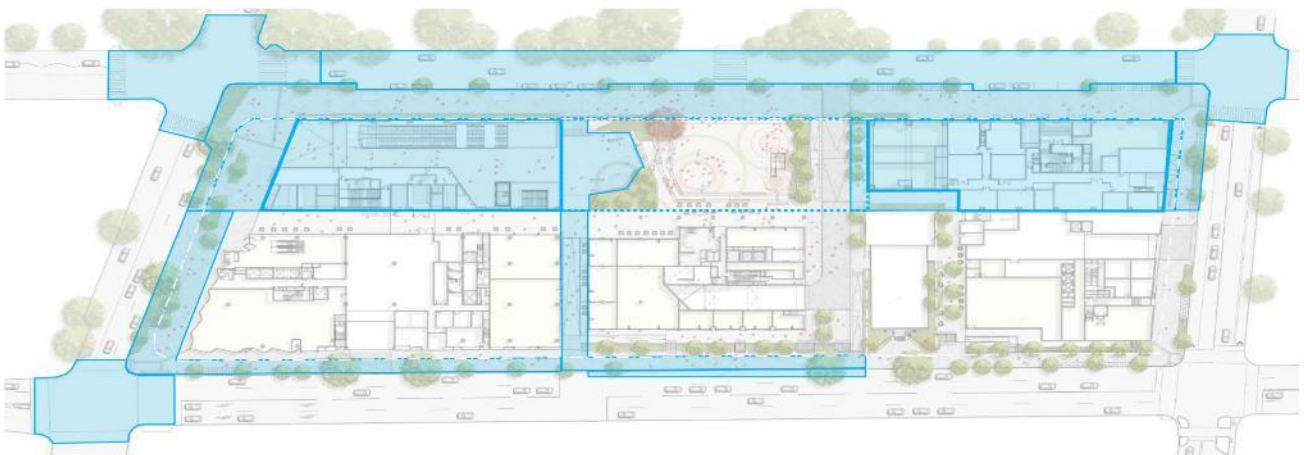


Figure 5 - CSSI Approval scope of works
Source: WL Developer Pty Ltd

5.3 Concept Approval (SSD 9393)

As per the requirements of clause 7.20 of the *Sydney Local Environmental Plan 2012* (SLEP), as the OSD exceeds a height of 25 metres above ground level (among other triggers), development consent is first required to be issued in a concept DA (formerly known as Stage 1 DA).

Development consent was granted on 10 December 2019 for the concept SSD DA (SSD 9393) for the Waterloo Metro Quarter OSD including:

- a maximum building envelope for podium, mid-rise and tower buildings
- a maximum gross floor area of 68,750sqm, excluding station floor space
- conceptual land use for non-residential and residential floor space
- minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities
- minimum 5% residential gross floor area as affordable housing dwellings
- 70 social housing dwellings
- basement car parking, motorcycle parking, bicycle parking, and service vehicle spaces.

The detailed SSD DA seeks development consent for the OSD located within the Southern Precinct of the site, consistent with the parameters of this concept approval. Separate SSD DAs have been prepared and will be submitted for the Central Precinct and Northern Precinct and Basement Car Park proposed across the Waterloo Metro Quarter site.

A concurrent amending concept SSD DA has been prepared and submitted to the DPIE which proposed to make modifications to the approved building envelopes at the northern precinct and central building. This amending concept SSD DA does not impact the proposed development within the southern precinct.

6. Proposed development

6.1 Waterloo Metro Quarter Development

The Waterloo Metro Quarter OSD comprises four separate buildings, a basement carpark and public domain works adjacent to the Waterloo Metro station.

Separate SSD DAs will be submitted concurrently for the design, construction and operation of each building in the precinct;

- Southern precinct SSD-10437,
- Basement Car Park SSD-10438,
- Central precinct SSD-10439, and
- Northern precinct-SSD-10440.

An overview of the Development is included below for context. This detailed SSD DA seeks development consent for the design, construction and operation of the Southern Precinct:

6.1.1 Southern Precinct [Subject DA]

The Southern Precinct comprises:

- 25-storey residential building (Building 3) comprising student accommodation, to be delivered as a mixture of studio and twin apartments with approximate capacity of 474 students
- 9 storey residential building (Building 4) above the southern station box to accommodate 70 social housing dwellings
- ground level retail tenancies including Makerspace and gymnasium lobby, and loading facilities
- level 1 and level 2 gymnasium and student accommodation communal facilities
- landscaping and private and communal open space at podium and roof top levels to support the residential accommodation
- new public open space including the delivery of the Cope Street Plaza, including vehicle access to the site via a shared way from Cope Street, expanded footpaths on Botany and Wellington Streets and public domain upgrades
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

6.1.2 Basement Car Park

The Basement Car Park comprises:

- 2-storey shared basement car park and associated excavation comprising
- Ground level structure
- Carparking for the Commercial Building 1, Residential Building 2, social housing Building 4, Waterloo Congregational Church and Sydney Metro
- Service vehicle bays
- commercial end of trip and bicycle storage facilities

- Retail end of trip and bicycle storage facilities
- residential storage facilities
- shared plant and services.

6.1.3 Central Precinct

The Central Precinct comprises:

- 24-storey residential building (Building 2) comprising approximately 126 market residential and 24 affordable housing apartments, to be delivered as a mixture of 1 bedroom, 2 bedroom and 3 bedroom apartments
- Ground level retail tenancies, community hub, precinct retail amenities and basement car park entry
- level 1 and level 2 community facilities (as defined in the SLEP) intended to be operated as a childcare centre
- landscaping and private and communal open space at roof top levels to support the residential accommodation
- new public open space including the delivery of the Church Square, including vehicle access to the basement via a shared way from Cope Street, expanded footpaths and public domain upgrades on Botany Road
- external licensed seating areas
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

6.1.4 Northern Precinct

The Northern Precinct comprises:

- 17-storey commercial building (Building 1) comprising Commercial floor space, with an approximate capacity of 4000 workers
- ground level retail tenancies, loading dock facilities serving the northern and central precinct including Waterloo metro station
- landscaping and private open space at podium and roof top levels to support the commercial tenants
- new public open space including the delivery of the Raglan Street Plaza, Raglan Walk and expanded footpaths on Raglan Street and Botany Road and public domain upgrades
- external licensed seating areas
- signage zone locations
- utilities and service provision
- stratum subdivision (staged).

7. Methodology

RWDI Anemos Ltd. (RWDI) was engaged to assess apartments' ability to access direct sunlight. The analysis was based on computational 3D modelling of the proposed development and its surrounding context combined with meteorological data for Sydney.

The screening analysis was conducted using RWDI's in-house proprietary Eclipse software, as per the steps outlined below:

- The assessment began with the development of a 3D model of the area of interest (as shown in Figure 6). The windows facing living areas and the floor level of any private open spaces (POS) were isolated and subdivided into many smaller triangular patches approximately 0.005m² in area (see Figure 7).
- At fifteen-minute increments from 9:00am to 3:00pm on June 21, the expected solar position was determined, and "virtual rays" were drawn from the sun to each triangular patch of the surfaces. Any rays which were not obstructed by a building are considered exposed to direct sunlight. This approach results in solar access durations which are accurate to within 15 minutes, and solar exposure areas accurate to within 0.005 m².
- The effects of overshadowing are presented using "sun view" diagrams at these same times. These are orthographic views of the proposed building from the location of the sun. As such, any locations in the images which are not visible would be in shadow.

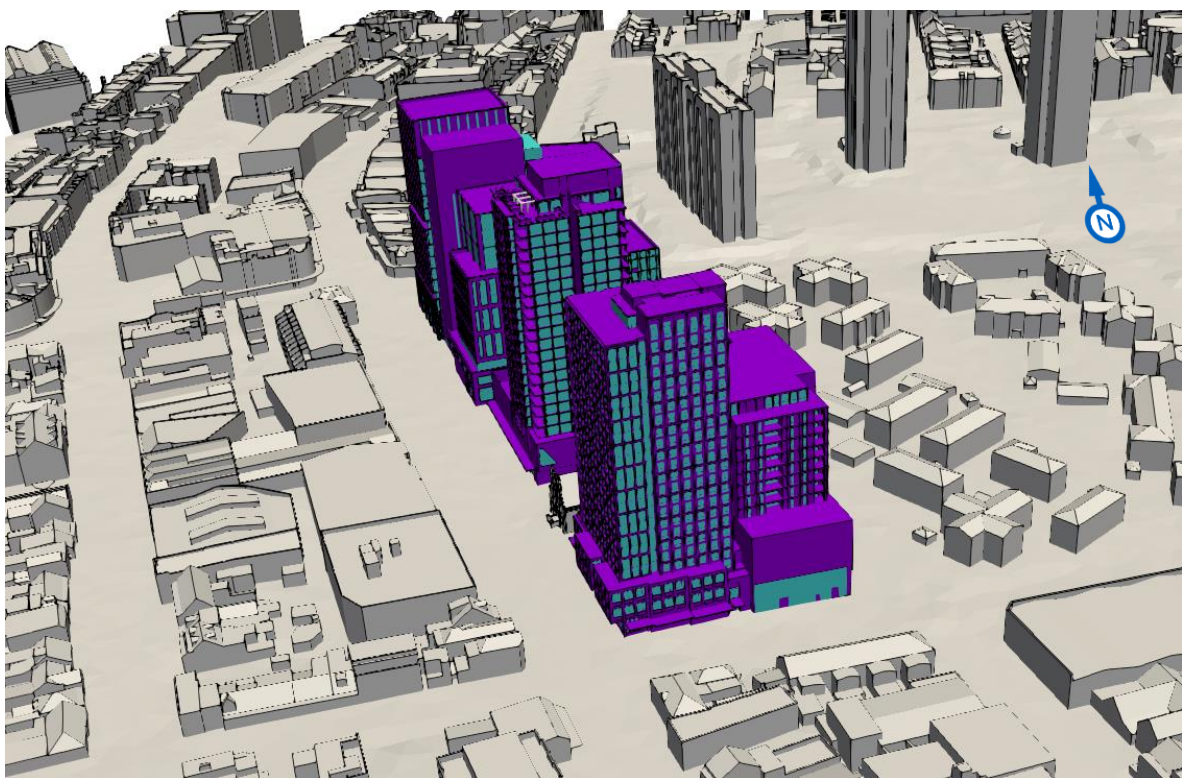


Figure 6 - 3D Computer Model of the Proposed Building (red) and Surrounding Urban Context (grey)

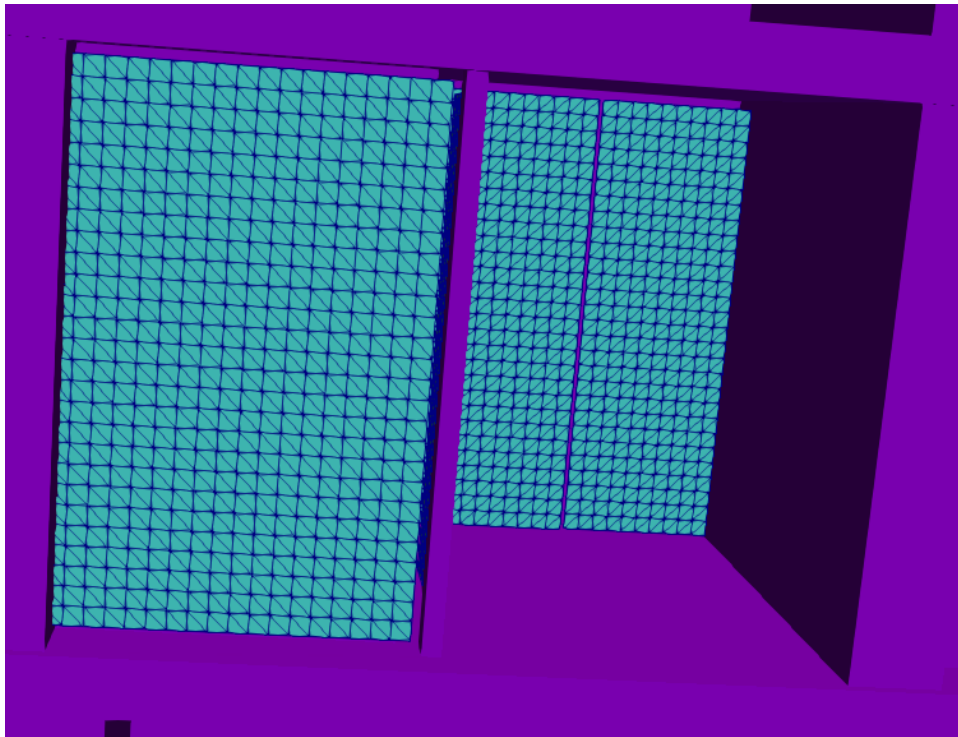


Figure 7 - Close-up of a Living Room Window Surface (white), Showing Surface Subdivision (black lines)

7.1 Assumptions and Limitations

Meteorological Data

This model has been geolocated to a reference latitude and longitude of (-33.898415, 151.202005)

Study Building and Surrounds Models

The analysis was conducted based on information provided by Bates Smart, Hassell, and Woods Bagot to RWDI as listed in Section 11 of this report. The surrounds and local topography were developed using a combination of survey and other data provided to RWDI by the design team, and confirmed with LIDAR data. All data which was provided in MGA coordinates have been corrected to true north for the purposes of this study.

For the purposes of this analysis, all elements of the proposed building have been treated as fully opaque to light and any shading provided by vegetation (i.e., trees) was neglected.

For any private open spaces that are enclosed by glazing, this analysis assumes that the glazing units do not drastically attenuate direct sunlight. In other words, this study assumes direct sun passing through glazing on its way to the finished floor of a POS counts equally to truly direct sunlight in the assessment.

Applicability of Results

The results presented in this report are highly dependent on the form of the proposed development. Should there be any substantial changes to the design of the building, it is recommended that RWDI be contacted and requested to review their potential effects on the findings of this report.

7.2 Direct Solar Access Criteria

The Apartment Design Guide (ADG) found in Part 4 of the State Environmental Planning Policy 65 (SEPP65) notes the for Solar and Daylight Access that the objective (4A-1) is “to optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space”. A design criteria of at least 70% of residential apartments in a development receive at least 2 hours of direct solar access to the window(s) of the main living area and to the private open space (POS) associated with that living space between 9:00 am and 3:00 pm on 21 June (mid-winter).

SEPP65 does not specify a minimum area which needs to be exposed to direct sunlight in order to be considered sufficiently exposed. However, a supplemental document published by the NSW Department of Planning and Environment suggests that 1m² is an appropriate threshold for the POS surface but does not provide a specific threshold for windows. This document also provides a guide under the objective for Solar and Daylight Access that at most 15% of the apartments should receive no direct sunlight between 9:00 am and 3:00 pm on 21 June.

Sydney DCP 2012 section 4.1.3.1 contains similar requirements to those noted above, however it suggests that the appropriate threshold for a POS is 50% of its area, and applies the 1 m² threshold to living space windows. It makes no mention of a target percentage of apartments that should meet the criteria.

8. Assessment and findings

The results of the analysis of Building 4 are summarised below assuming no area based requirements for the exposure per SEPP65. The included Solar Access Tally Sheet includes details of this assessment as well as the results when the area based criteria of the NSW Department of Planning and Environment supplemental document and the City of Sydney's DCP 2012 are applied.

We have also analysed a scenario where the time period of interest runs from 8:00 am to 4:00 pm in order to understand if any spaces only marginally fail to comply with SEPP65/Sydney DCP 2012 requirements. Sun-view diagrams are presented in Appendix 1.

- 73% (51 out of 70) of apartments on Building 4 receive sufficient sunlight access to their living space windows and POS (if applicable) between 9:00 am and 3:00 pm on 21 June, when no area threshold is applied.
- 11% (8 out of 70) of the apartments will have no direct sunlight of any size on their living space windows and POS between the hours of 9:00 am and 3:45 pm. The apartments on the western aspect (unit type 09) will start to have access to sunlight from 3:30 pm due to overshadowing from other buildings.
- 21% of apartments (15 out of 70) on Building 4 received no direct sunlight of any size on their living space windows and POS (if applicable) between 9:00 am and 3:00 pm.
- The majority of the windows and public open spaces which do not receive any sunlight are on the southern aspect.
- Further details are provided in full for each space type in Appendix 2 for the 9:00 am to 3:00 pm timeframe, and in Appendix 3 for the 8:00 am to 4:00 pm timeframe.

9. Conclusion

73% of units were found to receive sufficient sunlight access to their living space windows and POS (if applicable) between 9:00 am and 3:00 pm on 21 June, in compliance with the Apartment Design Guide (ADG) found in Part 4 of the State Environmental Planning Policy 65 (SEPP65) requirements. 21% of apartments were found to receive no direct sunlight of any size on their living space windows and POS when a window of 9:00 am to 3:30 pm. However an additional 7 apartments (10%) receive 15mins of access to sunlight to the living space glazing by 3:30pm and the private outdoor areas by 3:45pm. This demonstrates that the increase in time period to 3:45 pm will enable an appropriate level of solar access to the 7 western aspect apartments.

Given these findings, the development is considered to enjoy a high level of solar access and be in accordance with the intent of the ADG and as such warrant approval.

10. Applicability of Results

The drawings and information listed below were received from Woods Bagot, Hassell, and Bates Smart. The findings presented in this report pertain to the proposed design as detailed in the architectural design drawings listed in the table below. Should there be any design changes that deviate from this list of drawings, the predictions presented may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted.

File Name	File Type	Date Received (dd/mm/yyyy)
Building 1 (Woods Bagot)		
WMQ-SITE-HAS-UD-MDL-0005	DWG	12/06/2020
WMQ-BLD1-WBG-AR-DRG-DA001-dwg[B]	DWG	28/07/2020
WMQ-BLD1-WBG-AR-DRG-DA002-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA003-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA091-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA092-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA100-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA100M-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA101-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA102-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA103-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA104-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA105-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA108-dwg[B]		
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WMQ-BLD1-WBG-AR-DRG-DA132-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA133-dwg[B]		

File Name	File Type	Date Received (dd/mm/yyyy)
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WMQ-BLD1-WBG-AR-DRG-DA142-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA143-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA144-dwg[B]		
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WMQ-BLD1-WBG-AR-DRG-DA147-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA148-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA149-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA190-dwg[B]		
WMQ-BLD1-WBG-AR-DRG-DA191-dwg[B]		
Building 2 (Hassell)		
WMQ-SITE-HAS-UD-MDL-0005	DWG	12/06/2020
WMQ-BLD2-HAS-AR-DRG-DA001	DWG	29/07/2020
WMQ-BLD2-HAS-AR-DRG-DA002		
WMQ-BLD2-HAS-AR-DRG-DA010		
WMQ-BLD2-HAS-AR-DRG-DA011		
WMQ-BLD2-HAS-AR-DRG-DA012		
WMQ-BLD2-HAS-AR-DRG-DA013		
WMQ-BLD2-HAS-AR-DRG-DA014		
WMQ-BLD2-HAS-AR-DRG-DA015		
WMQ-BLD2-HAS-AR-DRG-DA016		
WMQ-BLD2-HAS-AR-DRG-DA017		
WMQ-BLD2-HAS-AR-DRG-DA018		
WMQ-BLD2-HAS-AR-DRG-DA019		
WMQ-BLD2-HAS-AR-DRG-DA020		
WMQ-BLD2-HAS-AR-DRG-DA021		
WMQ-BLD2-HAS-AR-DRG-DA022		
WMQ-BLD2-HAS-AR-DRG-DA023		
WMQ-BLD2-HAS-AR-DRG-DA024		
WMQ-BLD2-HAS-AR-DRG-DA025		
WMQ-BLD2-HAS-AR-DRG-DA026		
WMQ-BLD2-HAS-AR-DRG-DA027		

File Name	File Type	Date Received (dd/mm/yyyy)
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WMQ-BLD2-HAS-AR-DRG-DA034		
WMQ-BLD2-HAS-AR-DRG-DA035		
WMQ-BLD2-HAS-AR-DRG-DA101		
WMQ-BLD2-HAS-AR-DRG-DA102		
WMQ-BLD2-HAS-AR-DRG-DA103		
WMQ-BLD2-HAS-AR-DRG-DA201		
WMQ-BLD2-HAS-AR-DRG-DA202		
WMQ-BLD2-HAS-AR-DRG-DA301		
WMQ-BLD2-HAS-AR-DRG-DA302		
WMQ-BLD2-HAS-AR-DRG-DA303		
WMQ-BLD2-HAS-AR-DRG-DA304		
WMQ-BLD2-HAS-AR-DRG-DA401		
WMQ-BLD2-HAS-AR-DRG-DA402		
WMQ-BLD2-HAS-AR-DRG-DA501		
WMQ-BLD2-HAS-AR-DRG-DA502		
WMQ-BLD2-HAS-AR-DRG-DA503		
WMQ-BLD2-HAS-AR-DRG-DA601		
WMQ-BLD2-HAS-AR-DRG-DA701		
WMQ-BLD2-HAS-AR-DRG-DA801		
WMQ-BLD2-HAS-AR-DRG-DA901		
WMQ-BLD2-HAS-AR-DRG-DA902		
Building 3 (Bates Smart)		
WMQ-SITE-HAS-UD-MDL-0005	DWG	12/06/2020
WMQ-BLD3-BSA-AR-DRG-DA100-dwg_G	DWG	28/07/2020
WMQ-BLD3-BSA-AR-DRG-DA100M-dwg_F		
WMQ-BLD3-BSA-AR-DRG-DA101-dwg_F		
WMQ-BLD3-BSA-AR-DRG-DA102-dwg_F		
WMQ-BLD3-BSA-AR-DRG-DA103-dwg_F		

File Name	File Type	Date Received (dd/mm/yyyy)
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WMQ-BLD3-BSA-AR-DRG-DA140-dwg_C WMQ-BLD3-BSA-AR-DRG-DA141-dwg_C WMQ-BLD3-BSA-AR-DRG-DA142-dwg_C WMQ-BLD3-BSA-AR-DRG-DA143-dwg_C WMQ-BLD3-BSA-AR-DRG-DA150-dwg_E WMQ-BLD3-BSA-AR-DRG-DA151-dwg_F	DWG	29/07/2020
Building 4 (Bates Smart)		
WMQ-SITE-HAS-UD-MDL-0005	DWG	12/06/2020
WMQ-BLD4-BSA-AR-DRG-DA101-dwg_I WMQ-BLD4-BSA-AR-DRG-DA102-dwg_D WMQ-BLD4-BSA-AR-DRG-DA103-dwg_I WMQ-BLD4-BSA-AR-DRG-DA108-dwg_H WMQ-BLD4-BSA-AR-DRG-DA109-dwg_H WMQ-BLD4-BSA-AR-DRG-DA110-dwg_G	DWG	28/07/2020
WMQ-BLD4-BSA-AR-DRG-DA140-dwg_D WMQ-BLD4-BSA-AR-DRG-DA141-dwg_D WMQ-BLD4-BSA-AR-DRG-DA142-dwg_D WMQ-BLD4-BSA-AR-DRG-DA143-dwg_D WMQ-BLD4-BSA-AR-DRG-DA150-dwg_H WMQ-BLD4-BSA-AR-DRG-DA151-dwg_B WMQ-BLD4-BSA-AR-DRG-DA160-dwg_E WMQ-BLD4-BSA-AR-DRG-DA161-dwg_E WMQ-BLD4-BSA-AR-DRG-DA162-dwg_E WMQ-BLD4-BSA-AR-DRG-DA163-dwg_E	DWG	29/07/2020

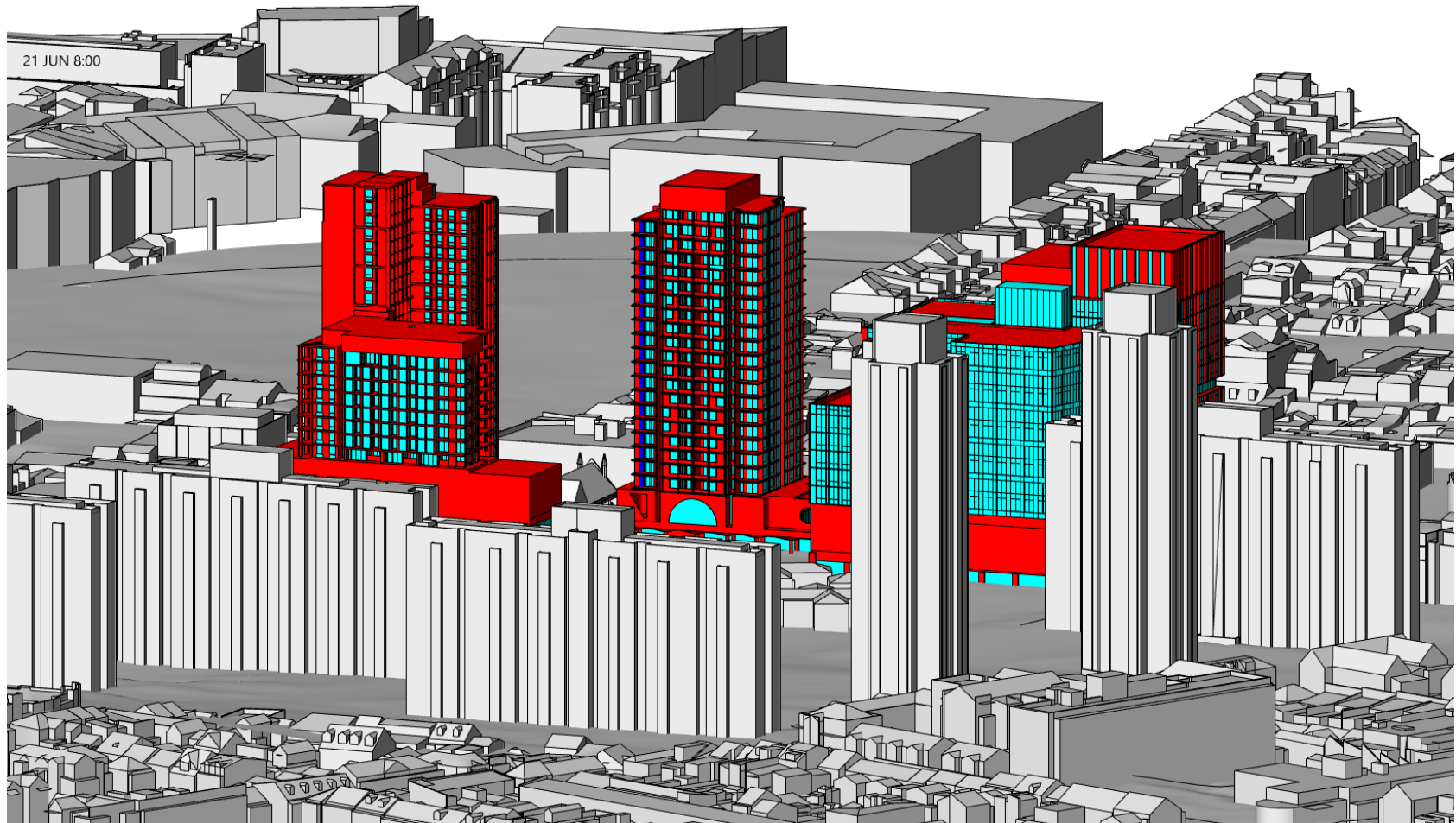
11. Appendices

11.1 Appendix 1 – Sun View Diagrams

SUN VIEW DIAGRAM



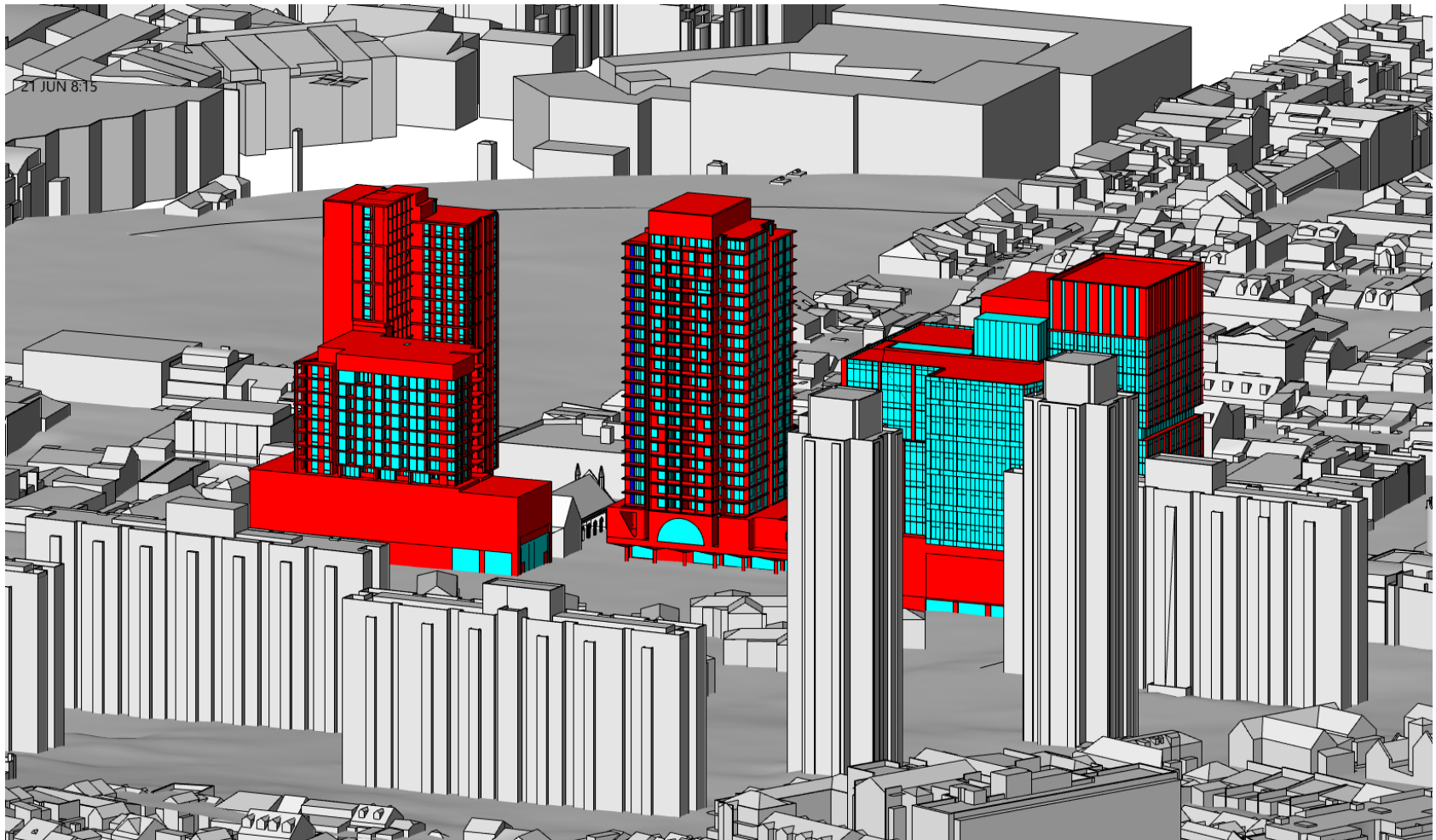
Jun 21 - 08:00 AEST



SUN VIEW DIAGRAM



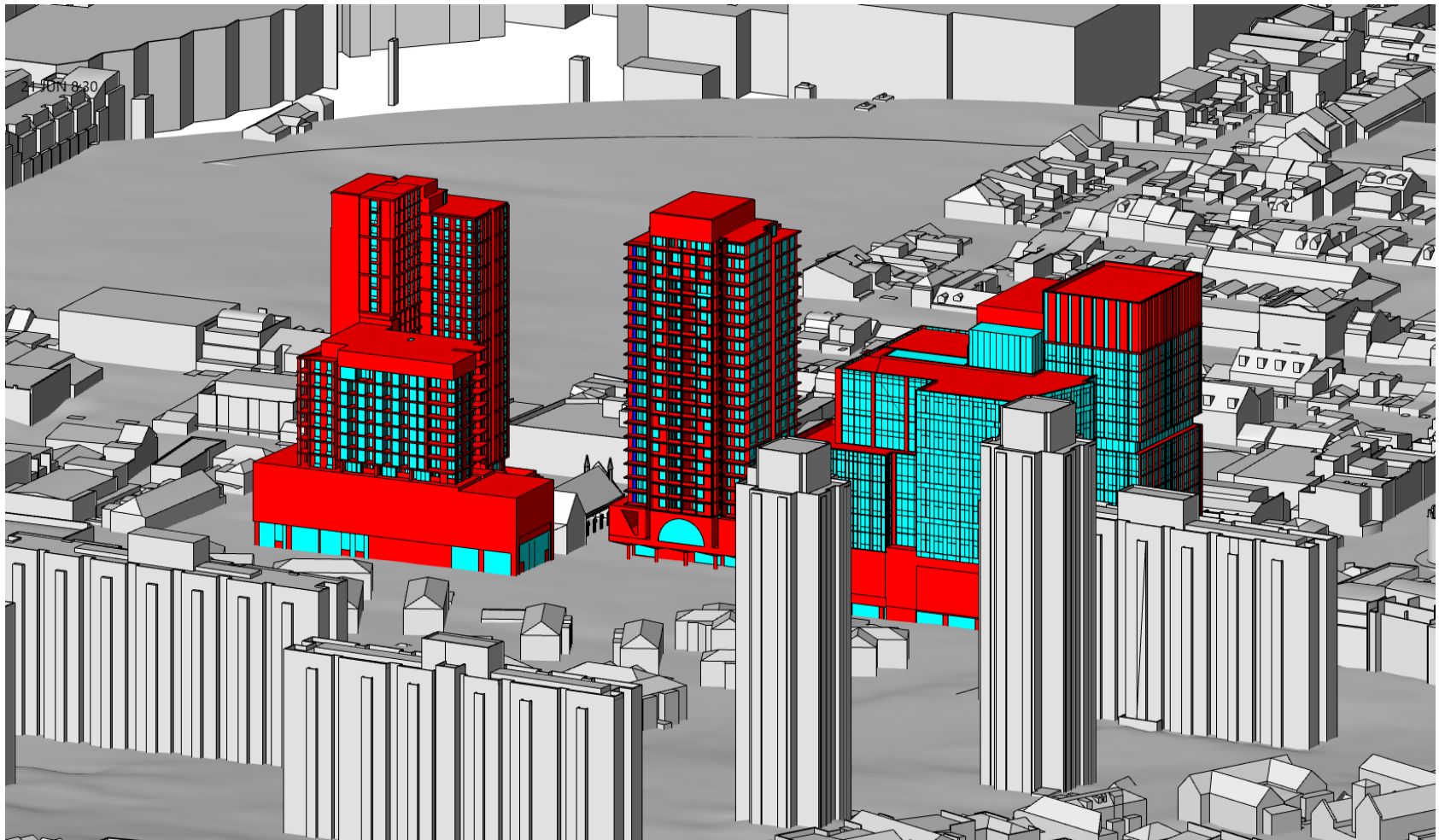
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SUN VIEW DIAGRAM



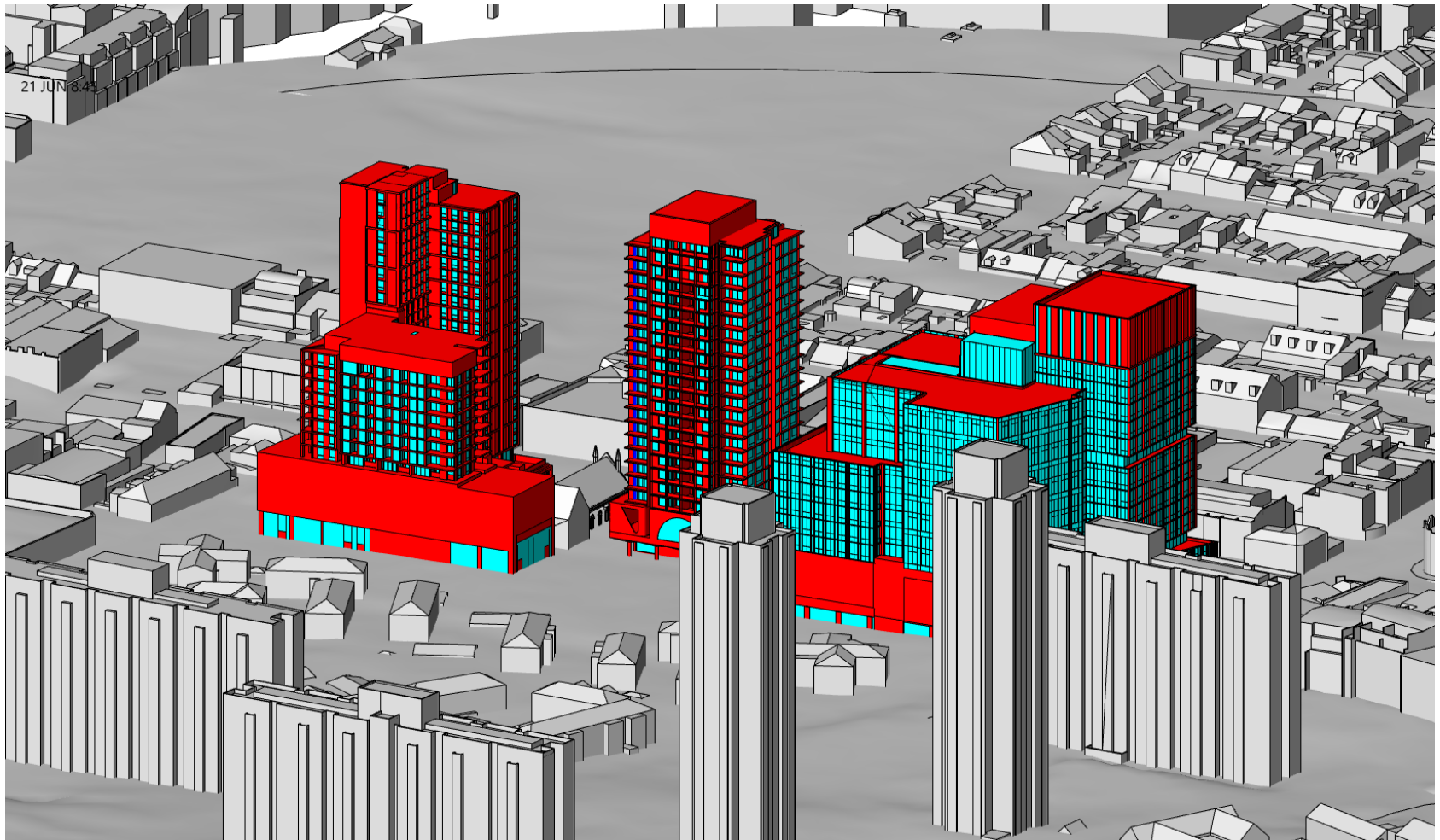
Jun 21 - 08:30 AEST



SUN VIEW DIAGRAM



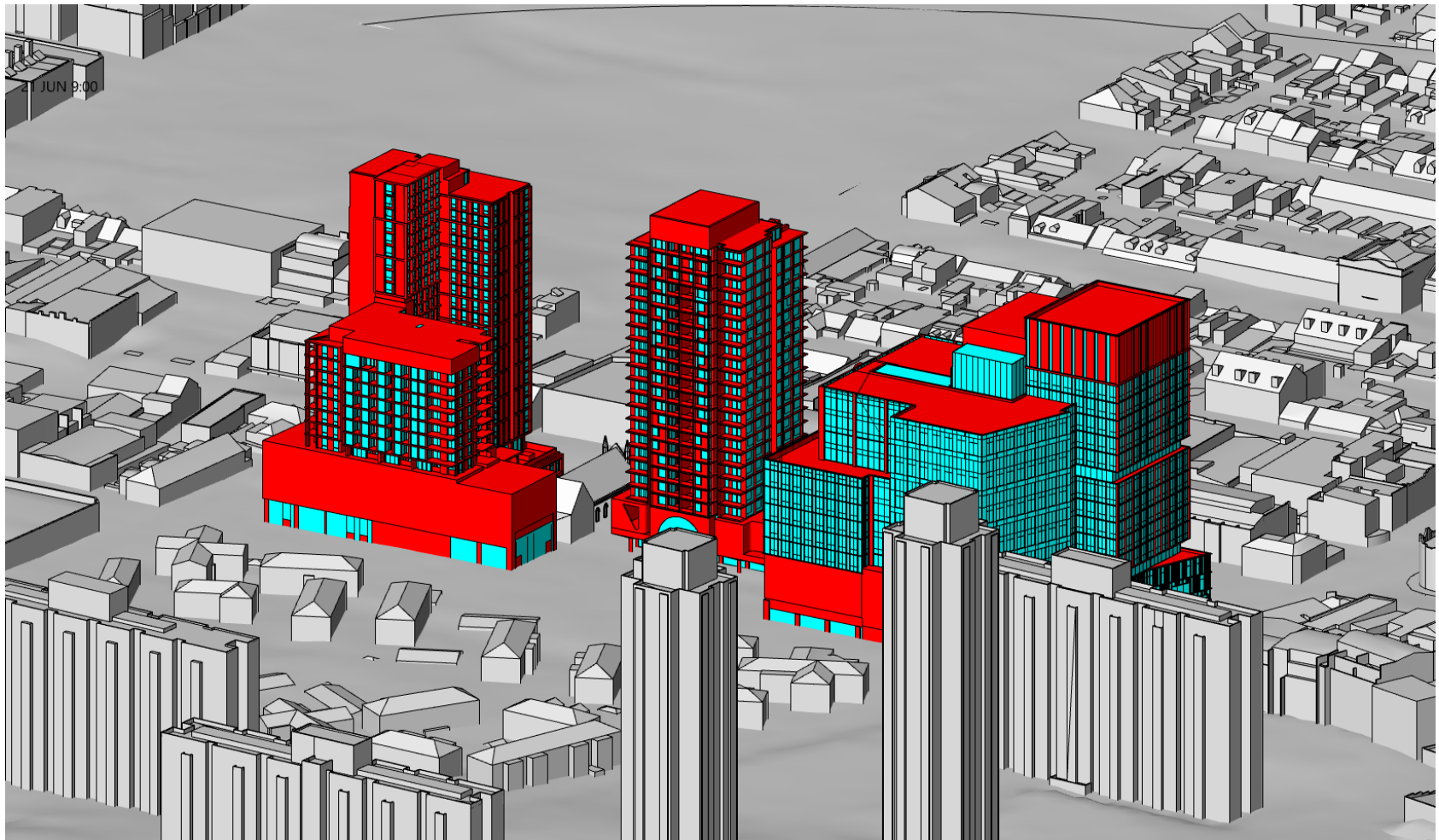
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SUN VIEW DIAGRAM



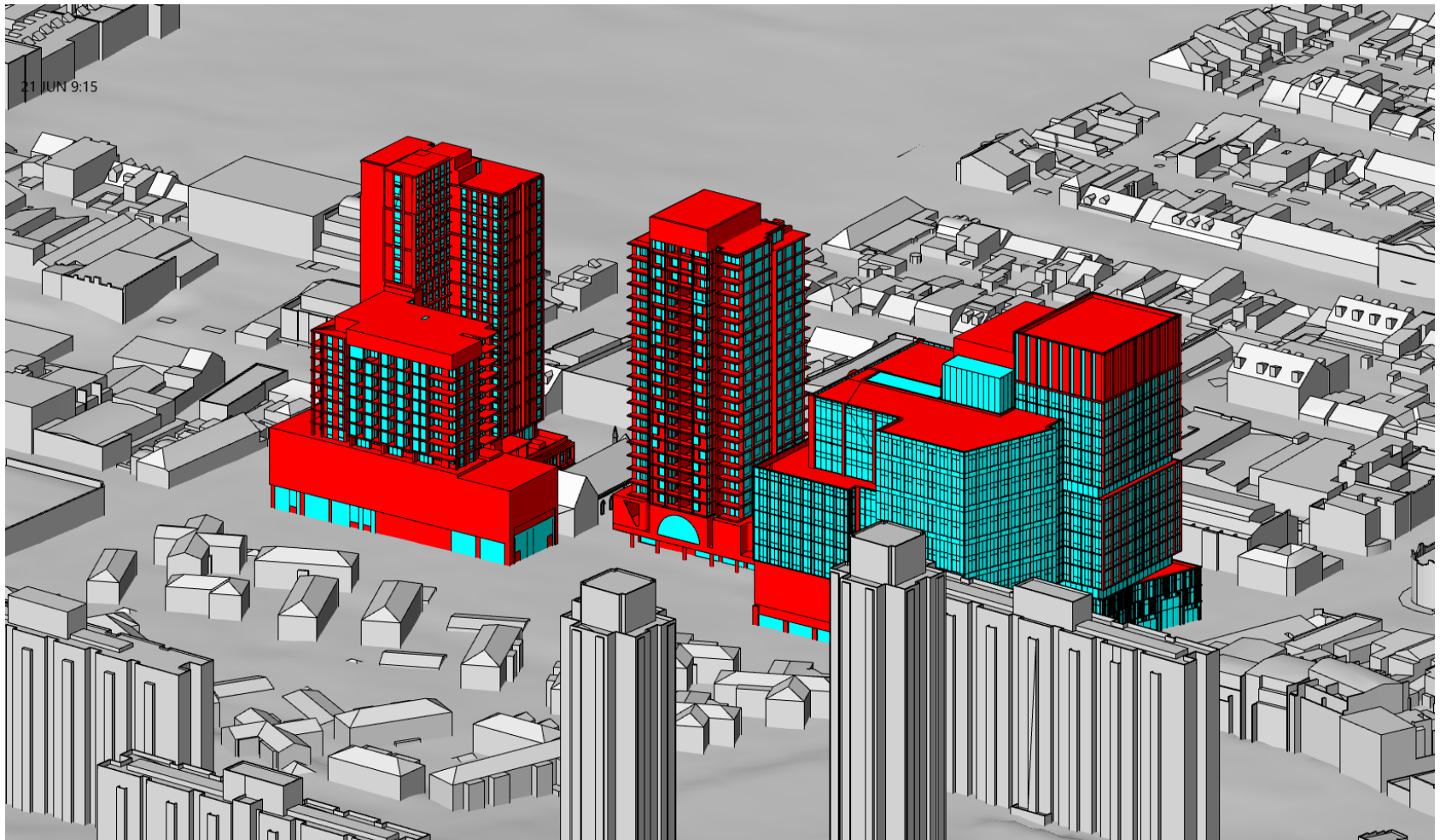
Jun 21 - 09:00 AEST



SUN VIEW DIAGRAM



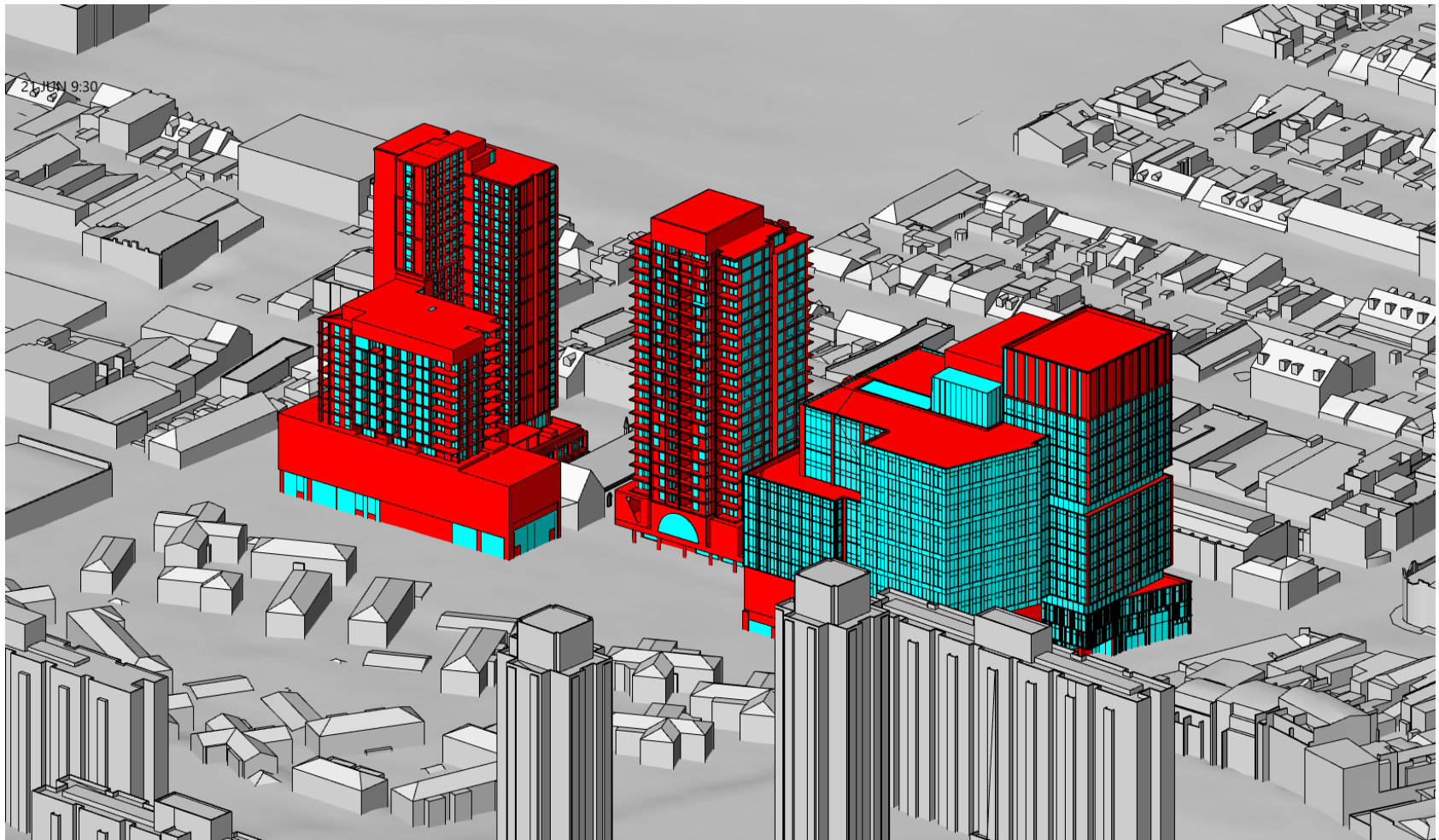
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SUN VIEW DIAGRAM



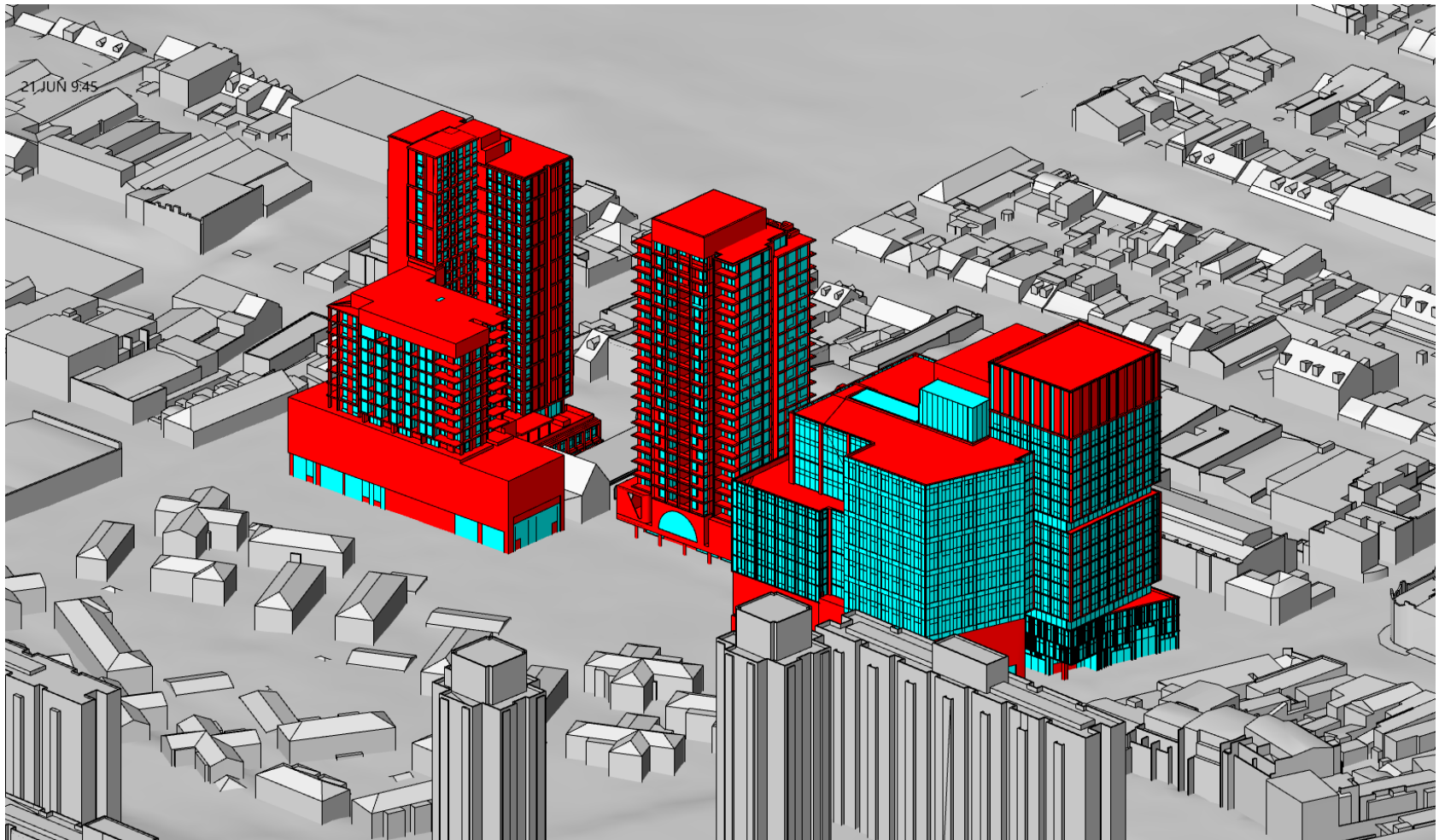
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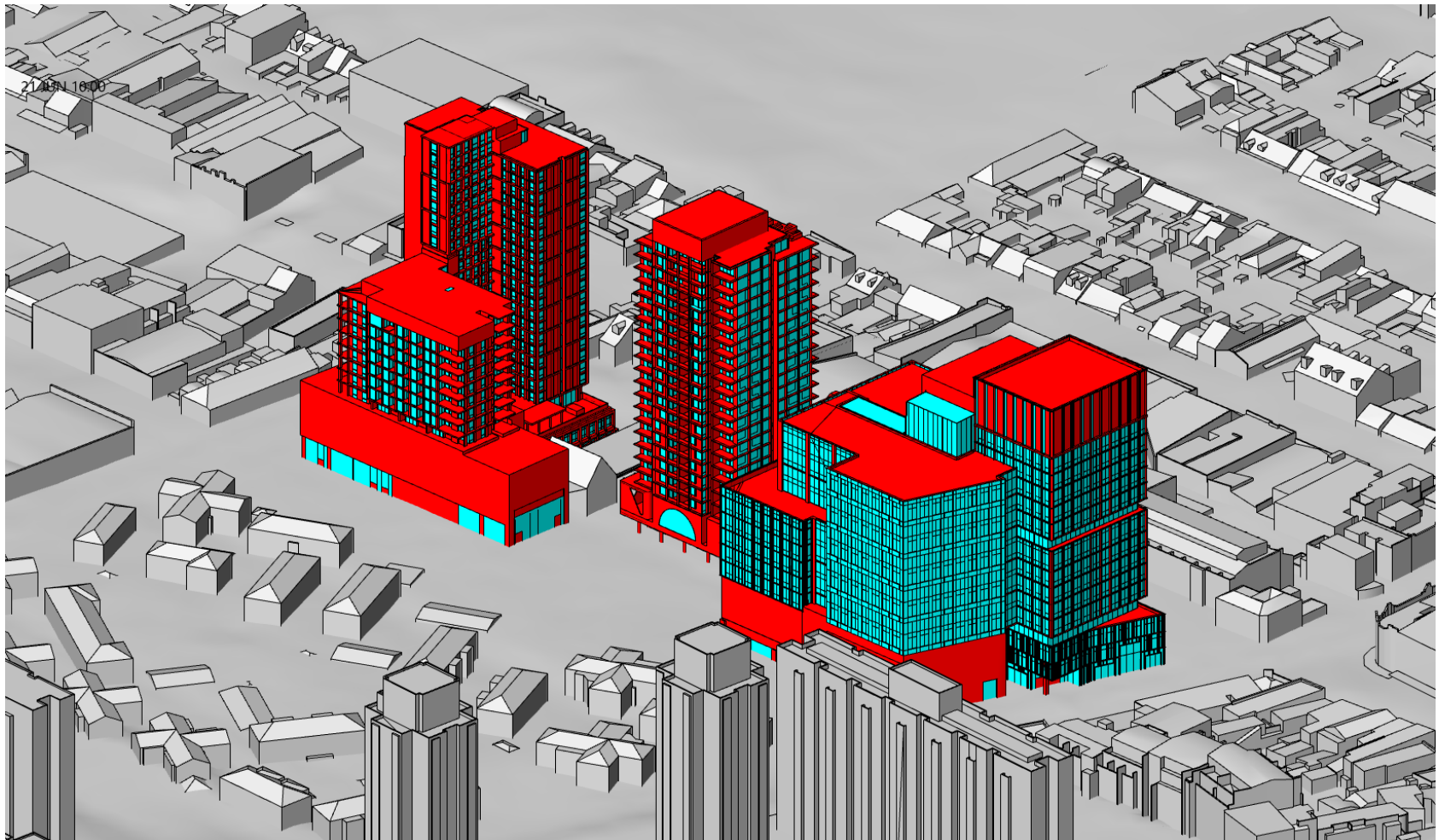
Jun 21 - 09:45 AEST



SUN VIEW DIAGRAM



Jun 21 - 10:00 AEST



SUN VIEW DIAGRAM



Jun 21 - 10:15 AEST



SUN VIEW DIAGRAM



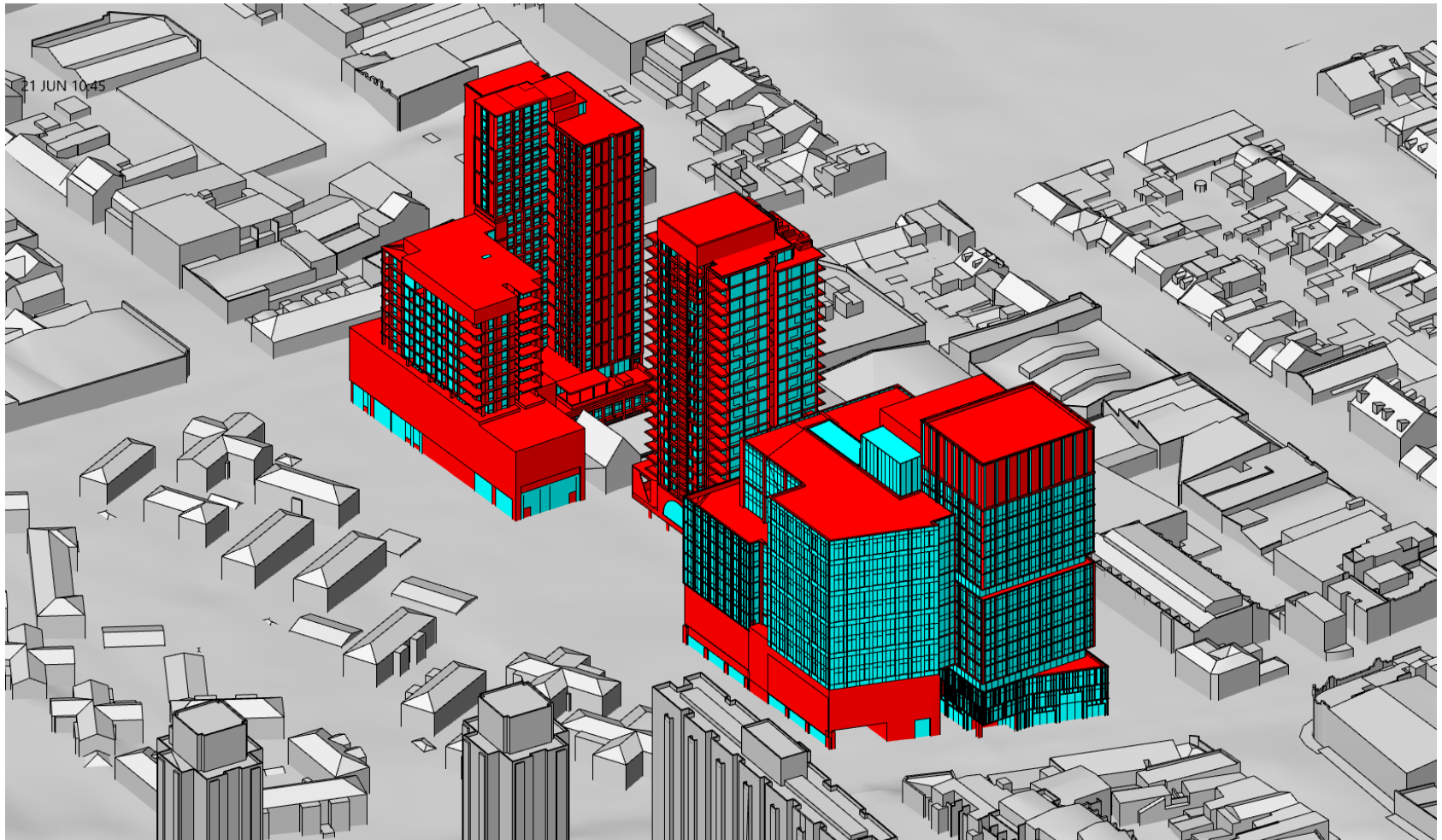
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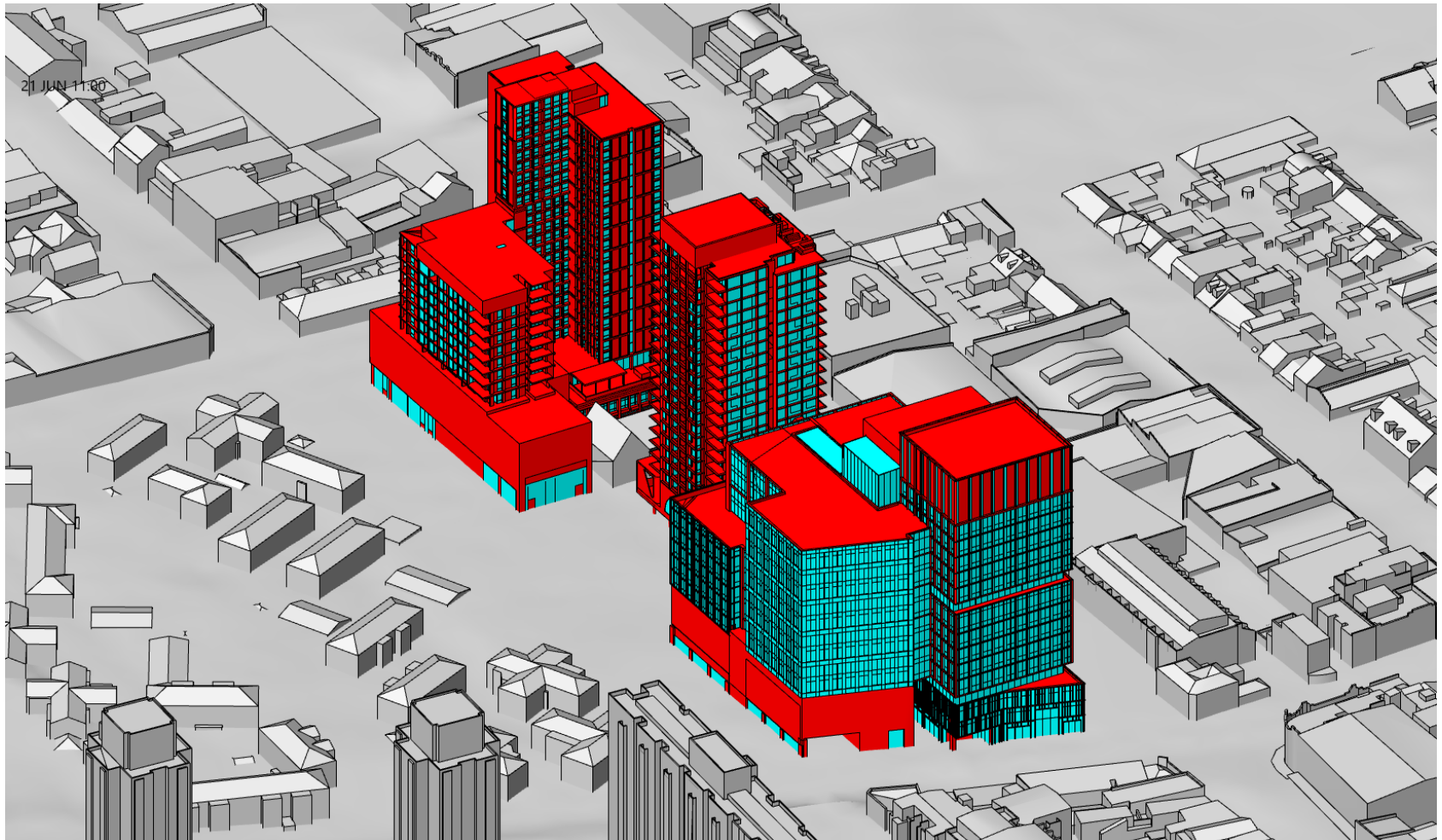
Jun 21 - 10:45 AEST



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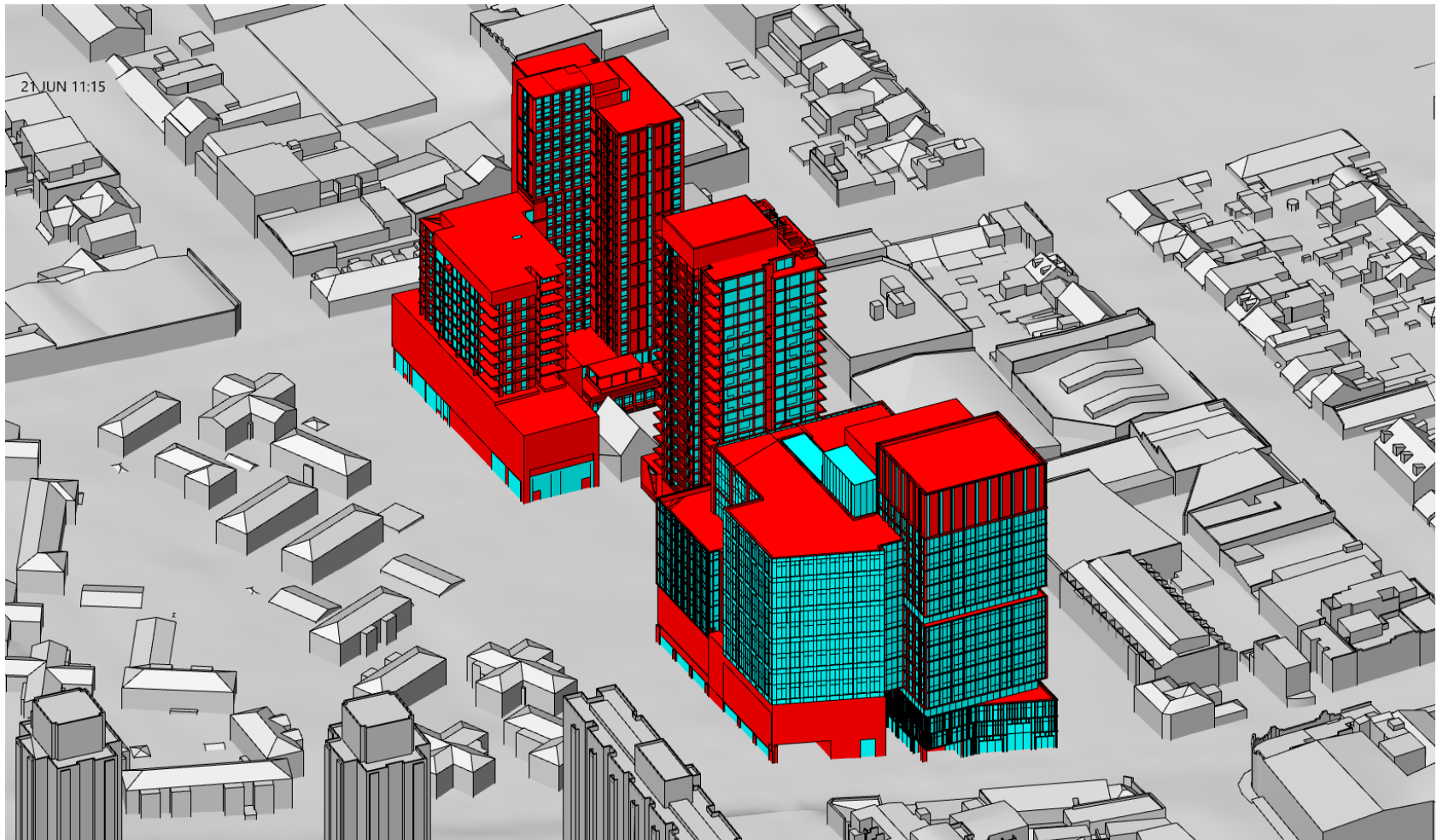
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SUN VIEW DIAGRAM



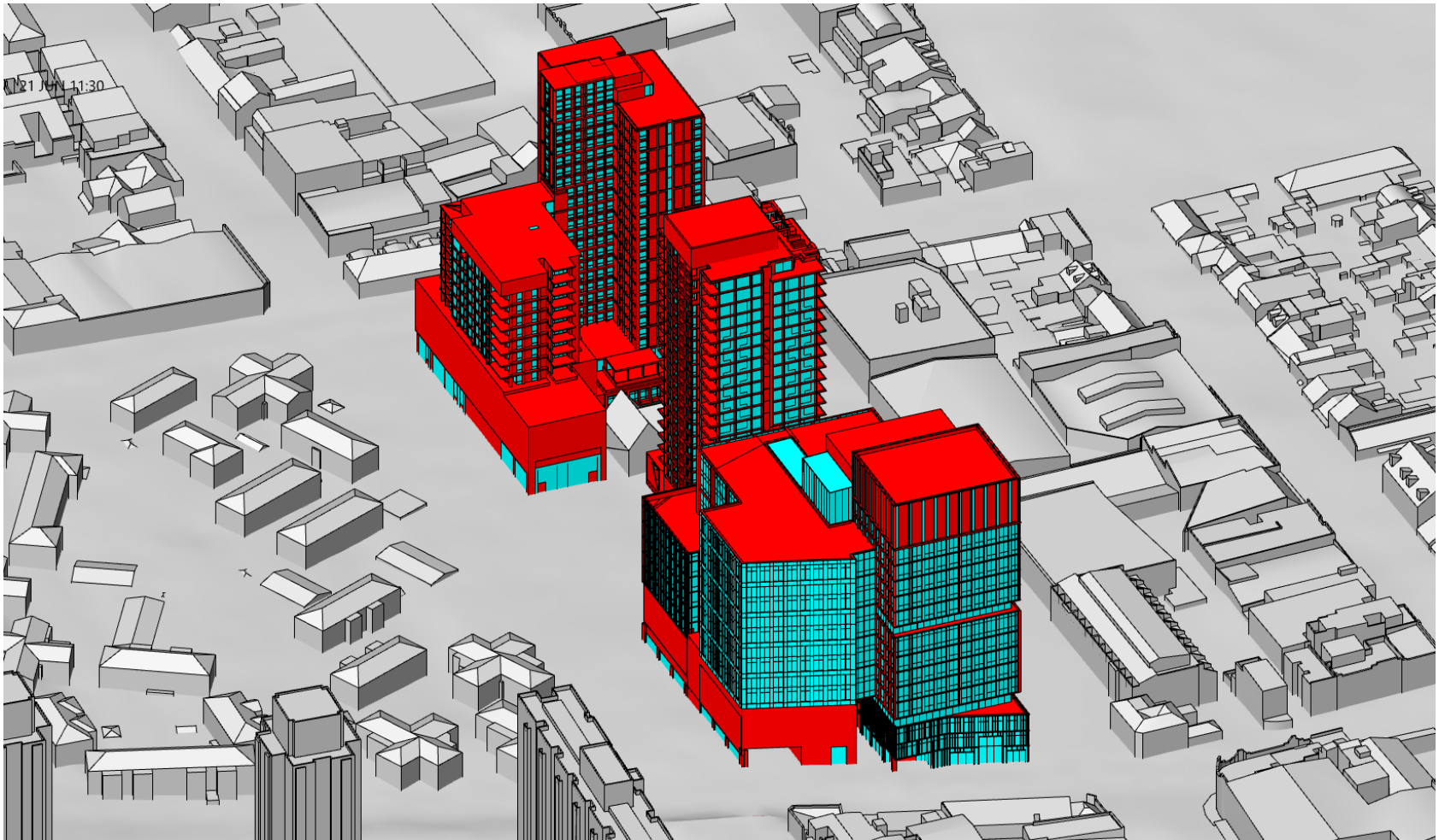
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SUN VIEW DIAGRAM



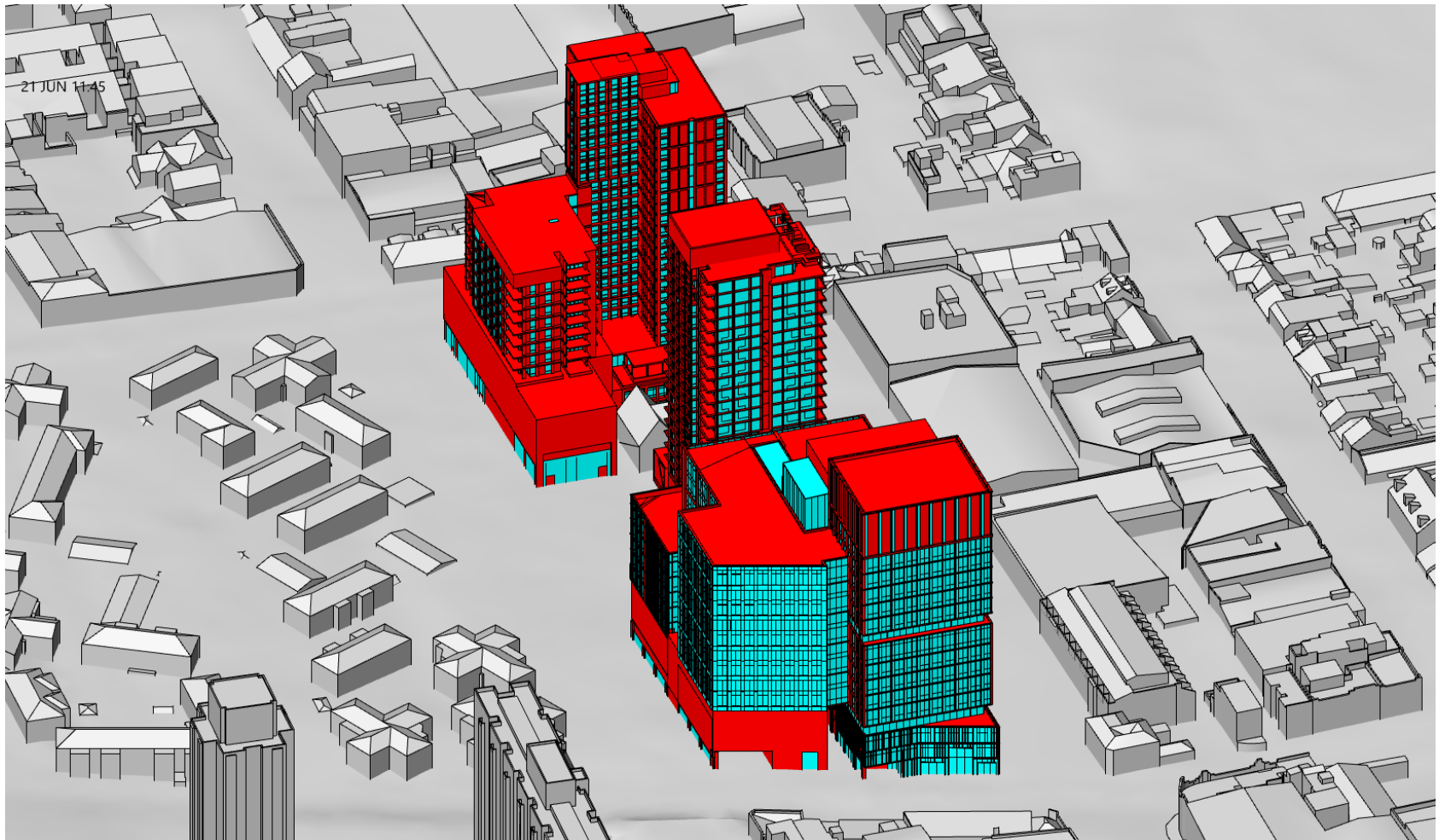
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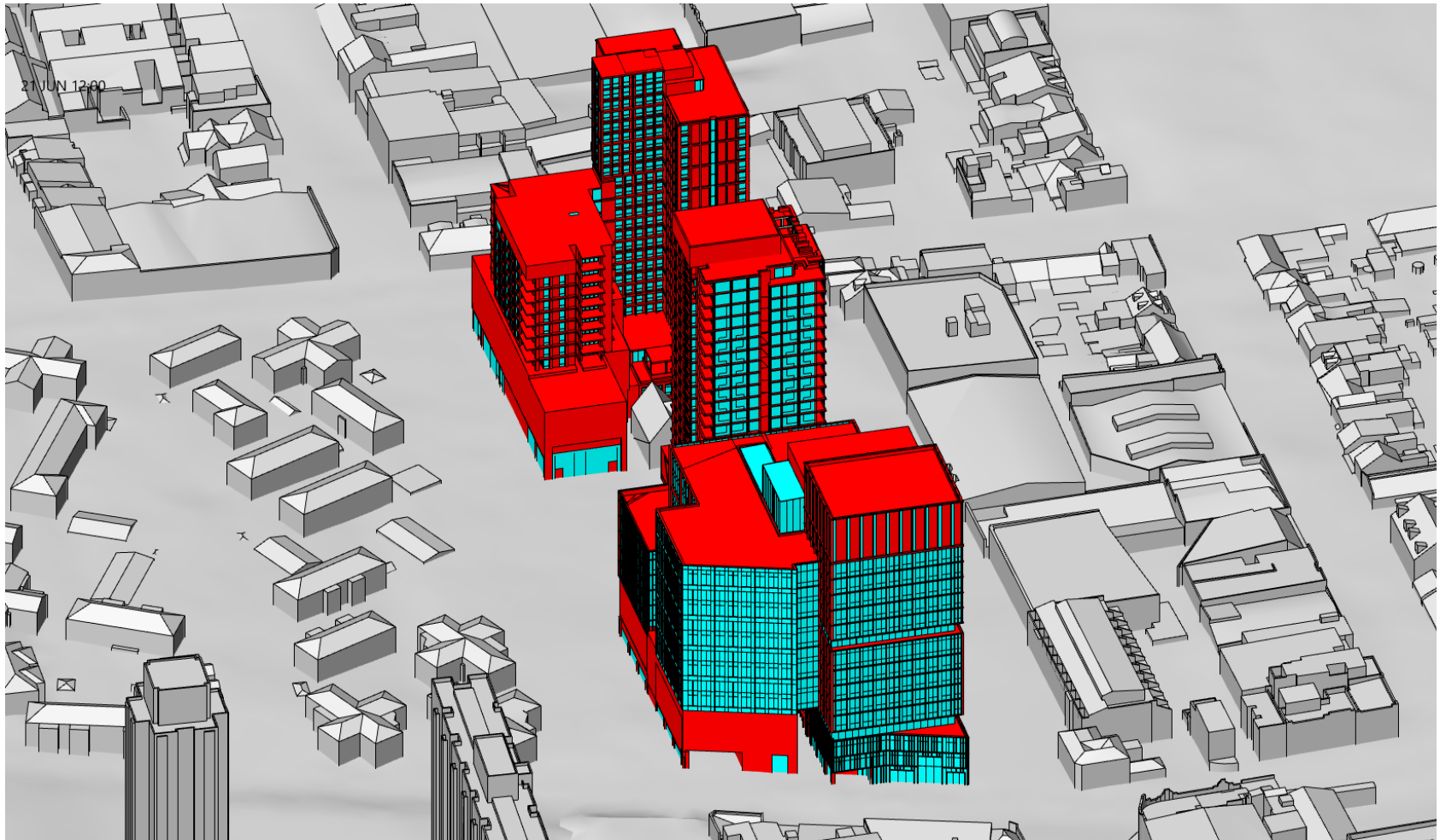
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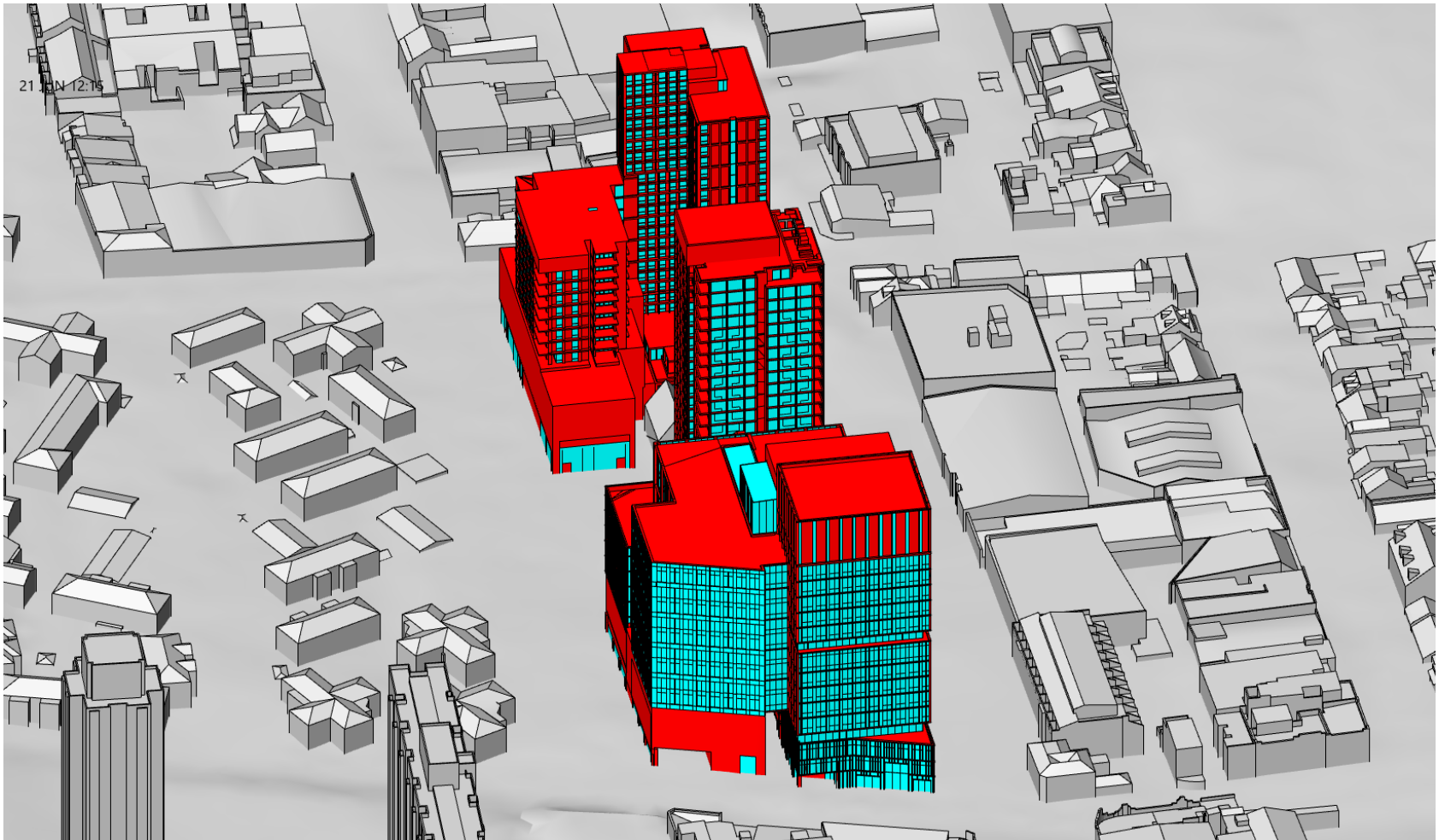
Jun 21 - 12:00 AEST



SUN VIEW DIAGRAM



Jun 21 - 12:15 AEST



SUN VIEW DIAGRAM



Jun 21 - 12:30 AEST



SUN VIEW DIAGRAM



Jun 21 - 12:45 AEST



SUN VIEW DIAGRAM



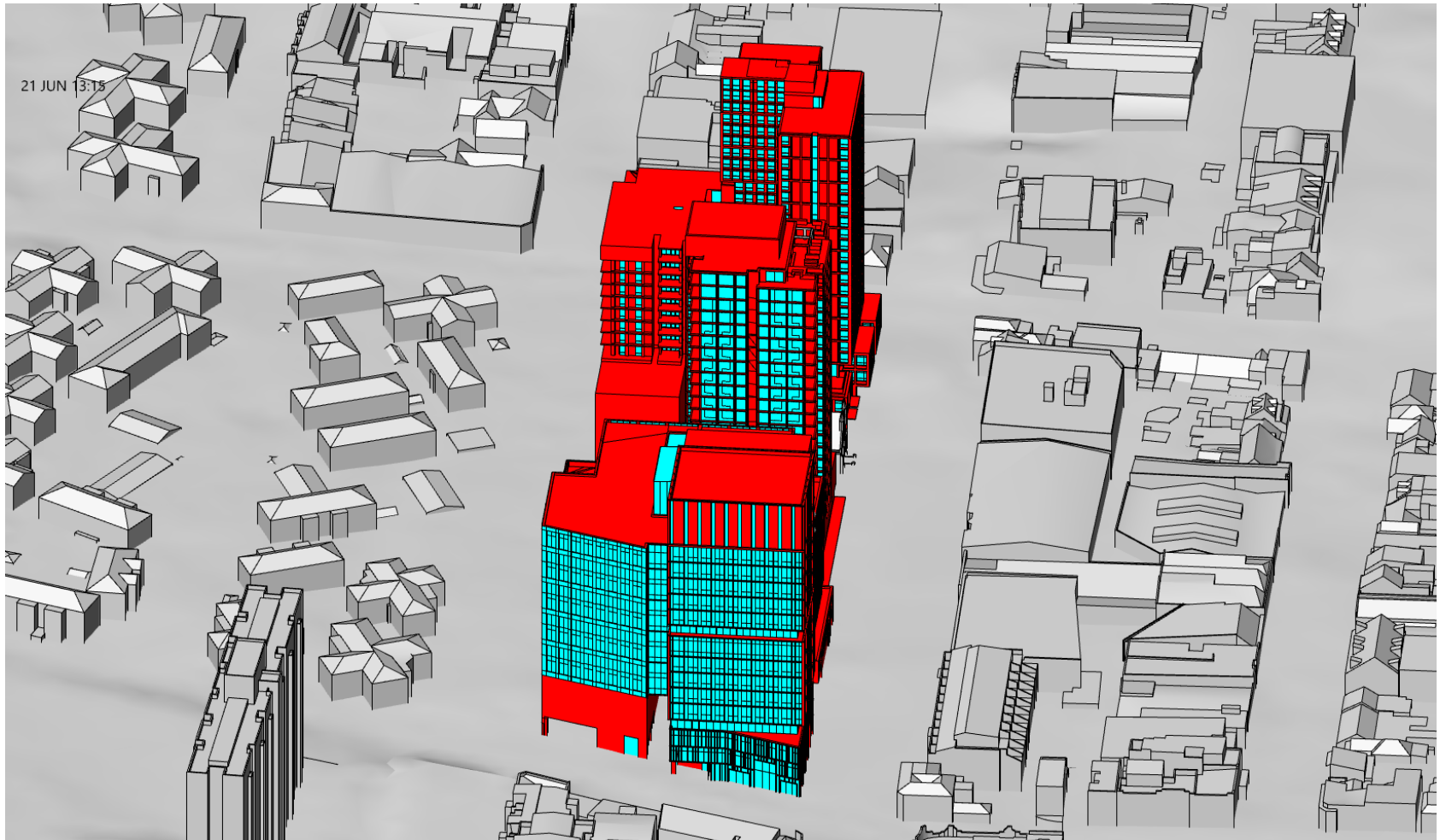
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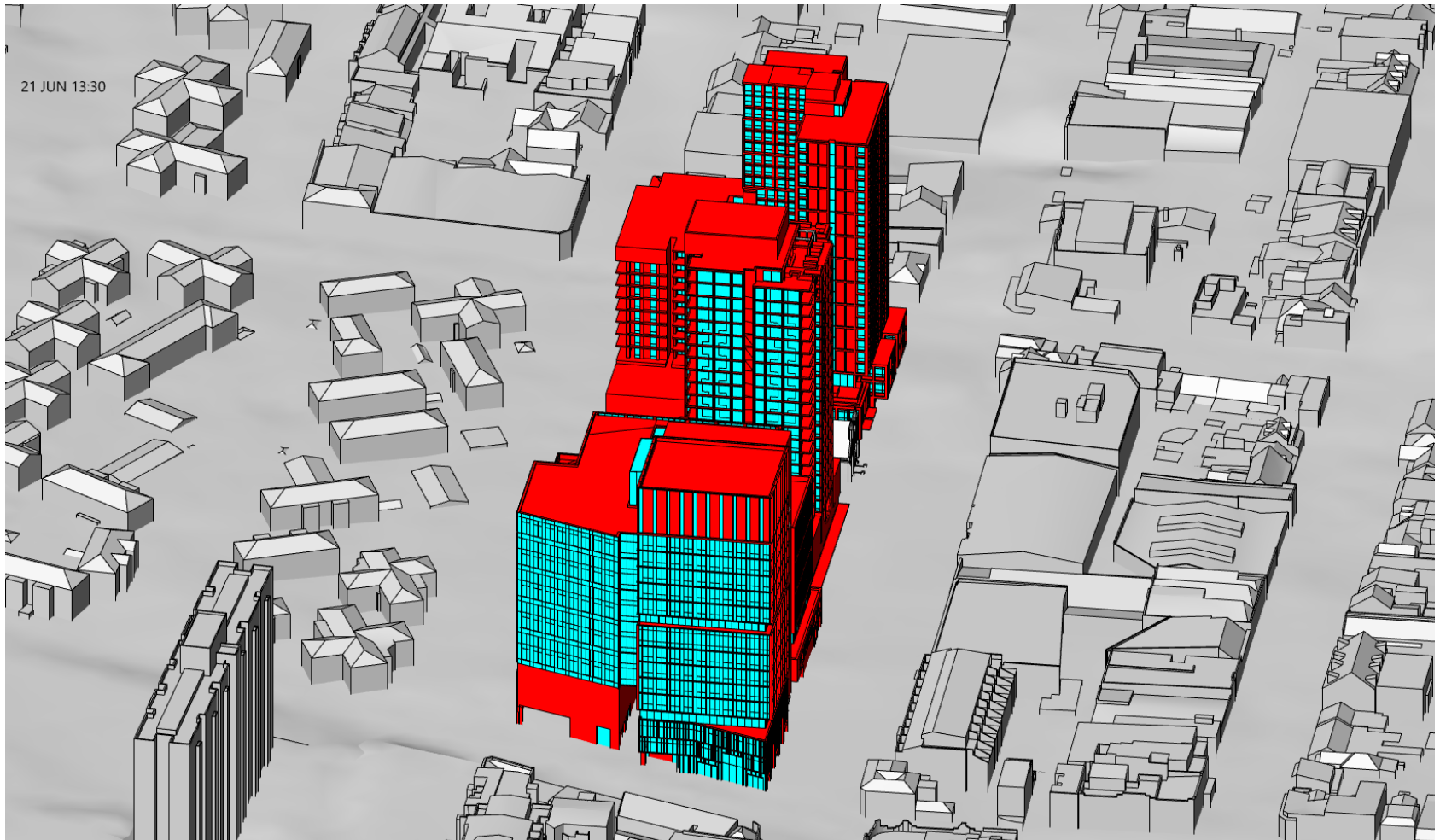
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SUN VIEW DIAGRAM



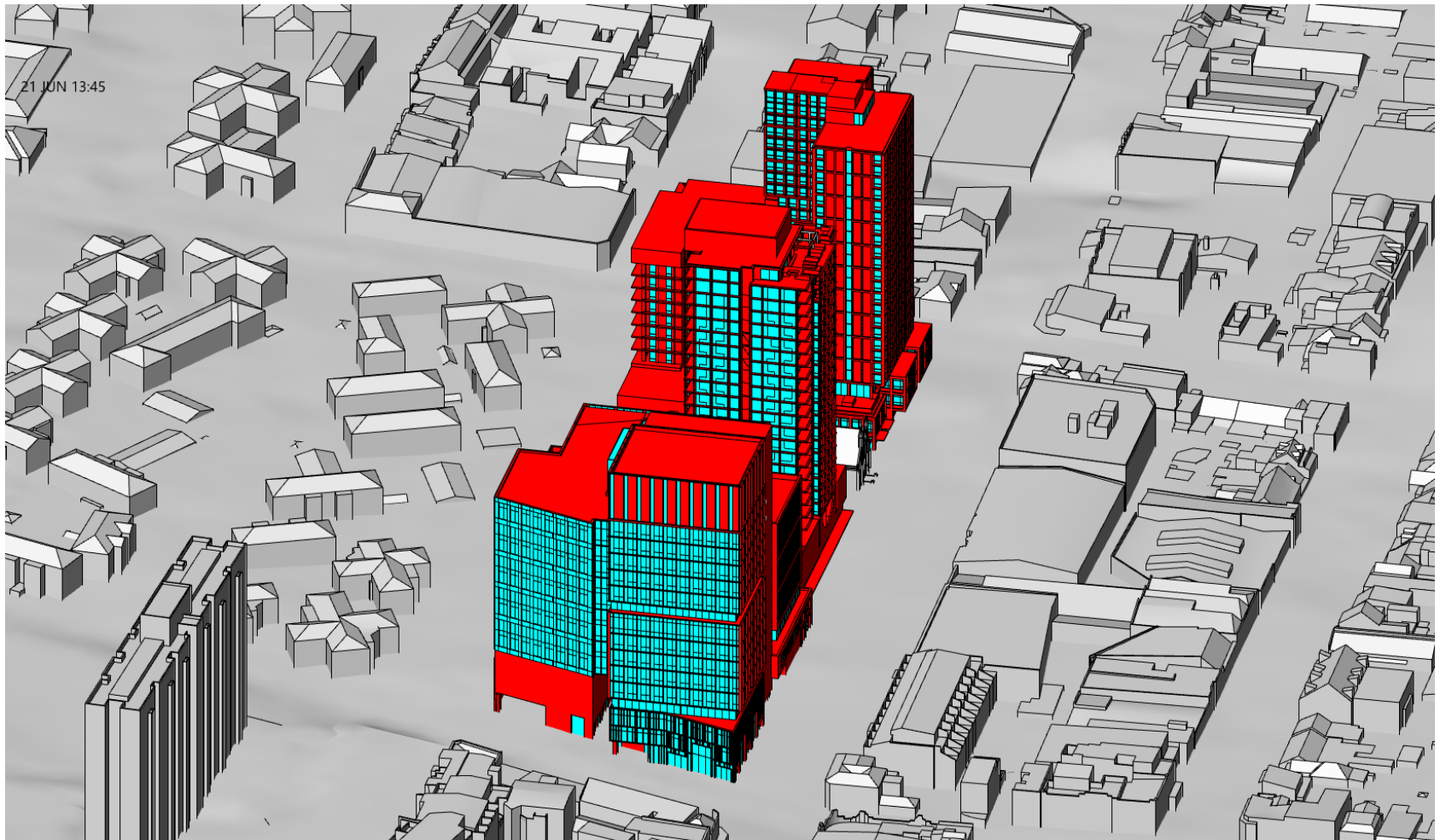
Jun 21 - 13:30 AEST



SUN VIEW DIAGRAM



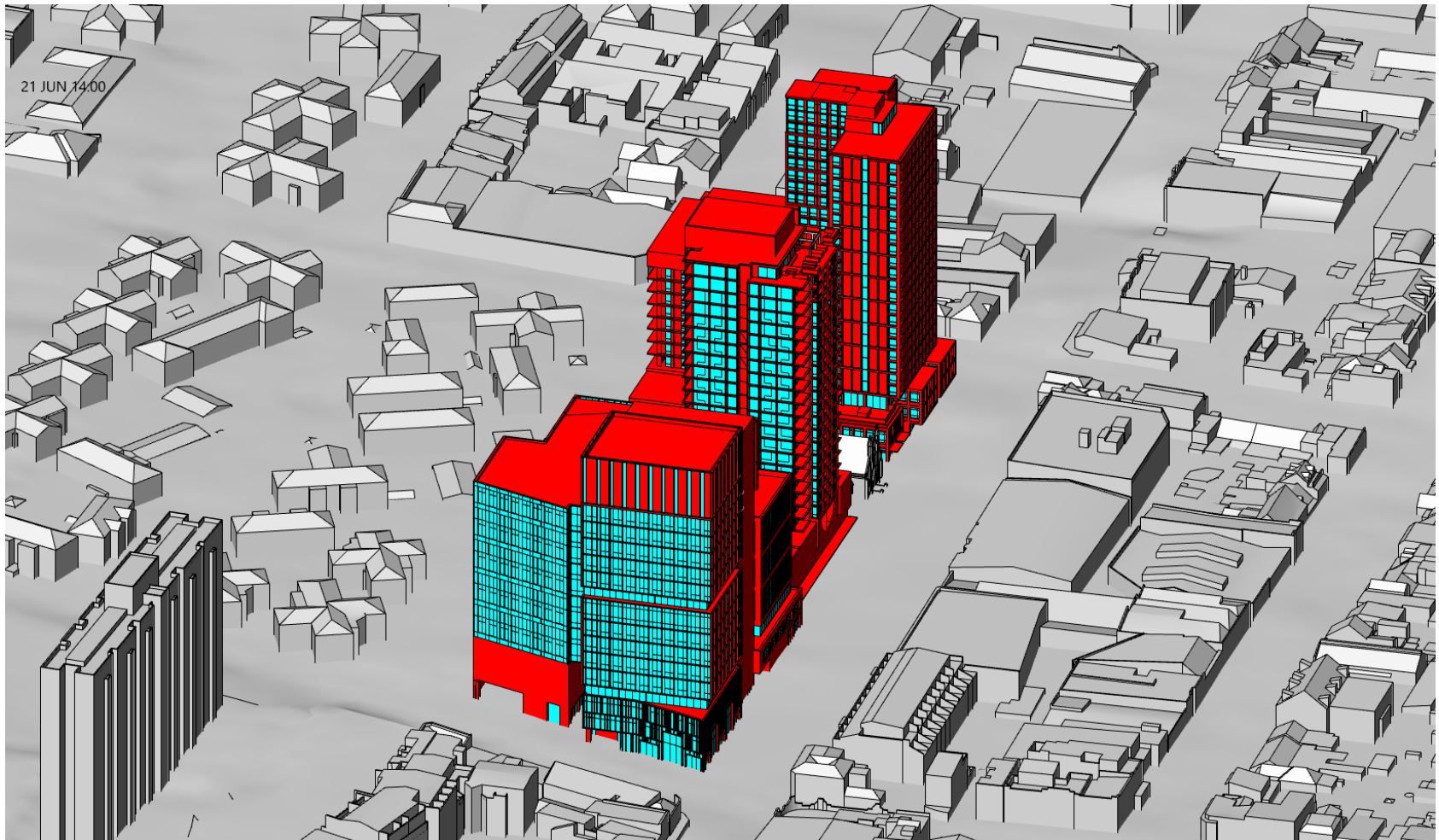
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SUN VIEW DIAGRAM



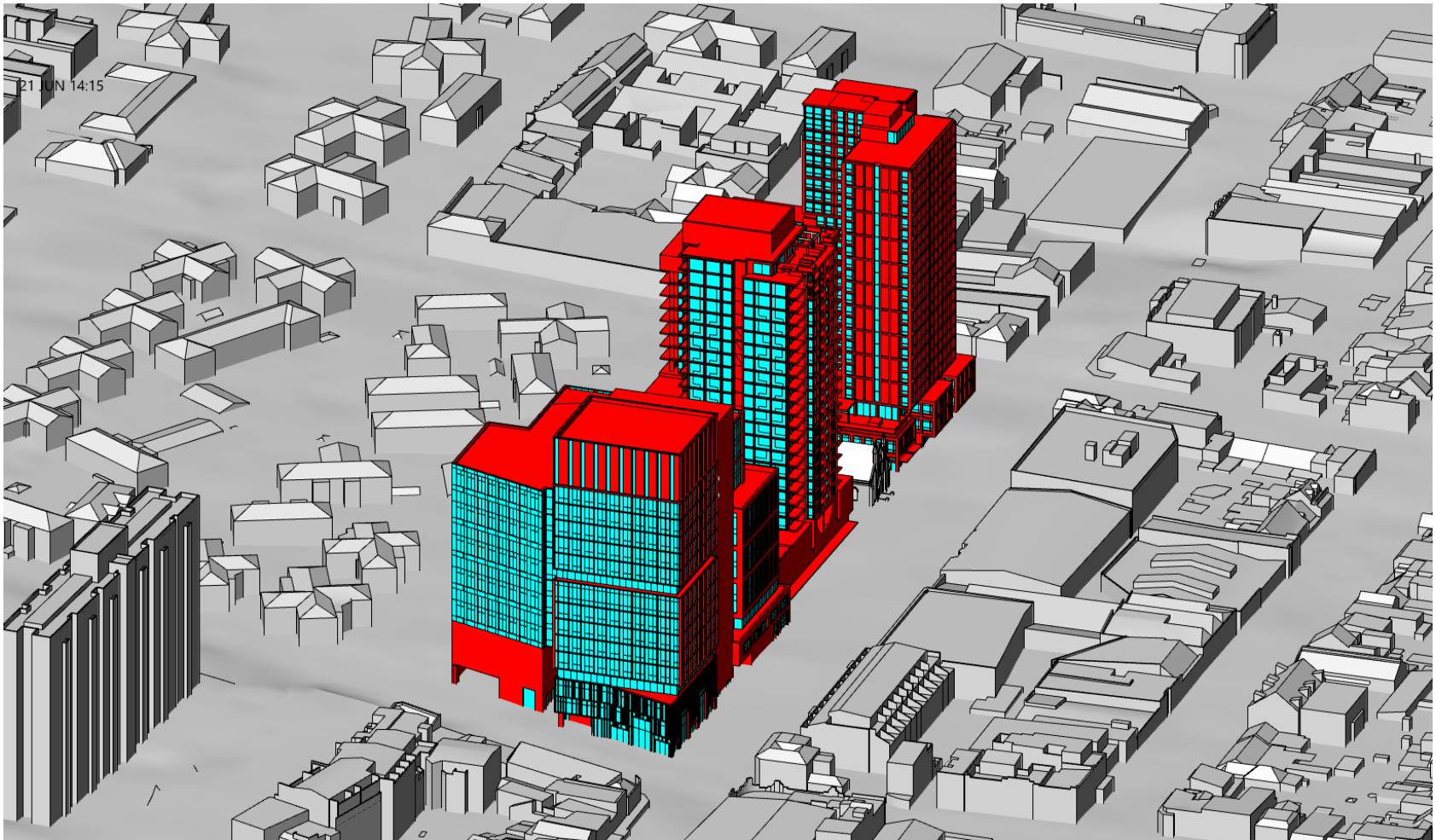
Jun 21 - 14:00 AEST



SUN VIEW DIAGRAM



Jun 21 - 14:15 AEST



SUN VIEW DIAGRAM



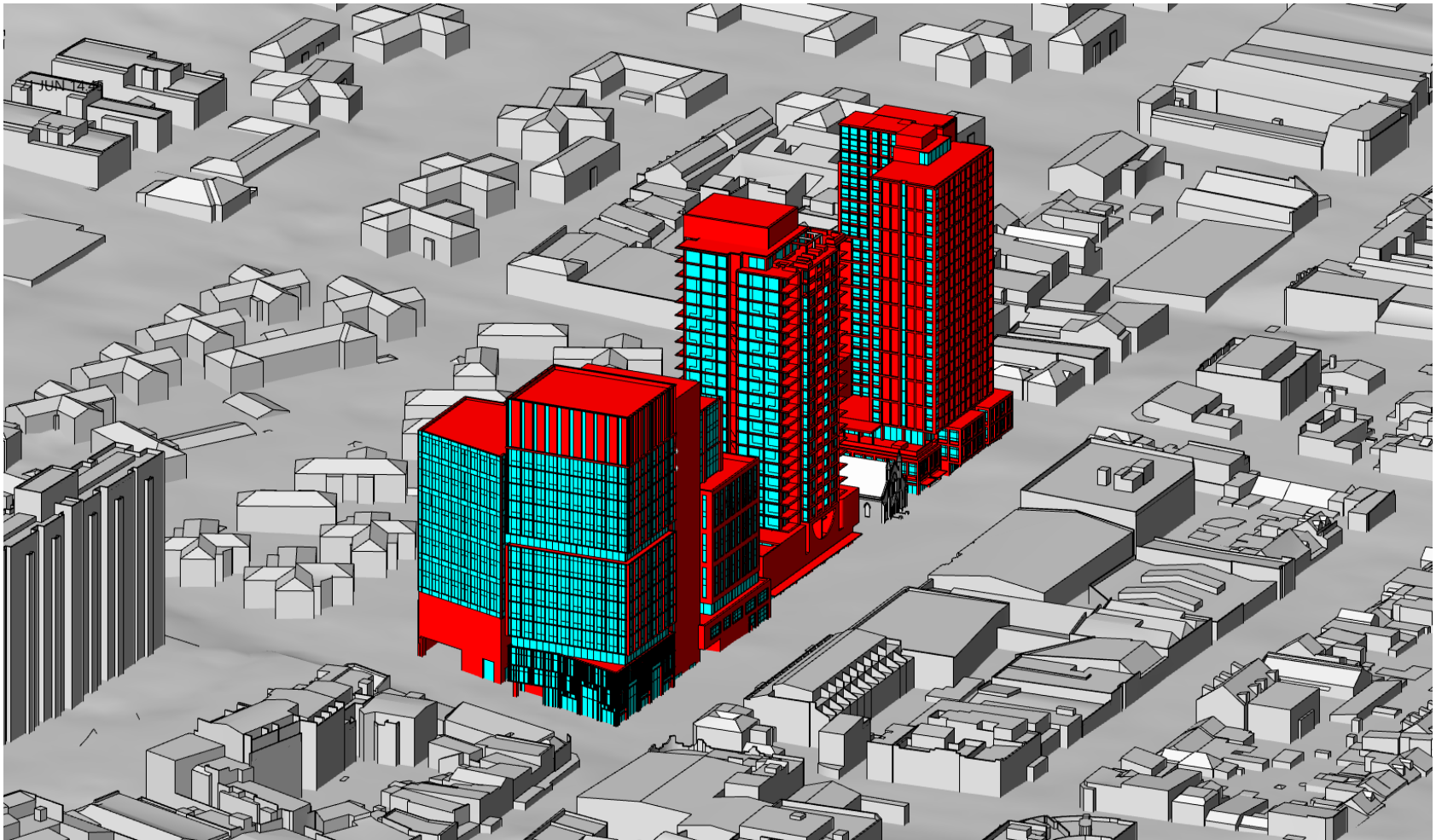
Jun 21 - 14:30 AEST



SUN VIEW DIAGRAM



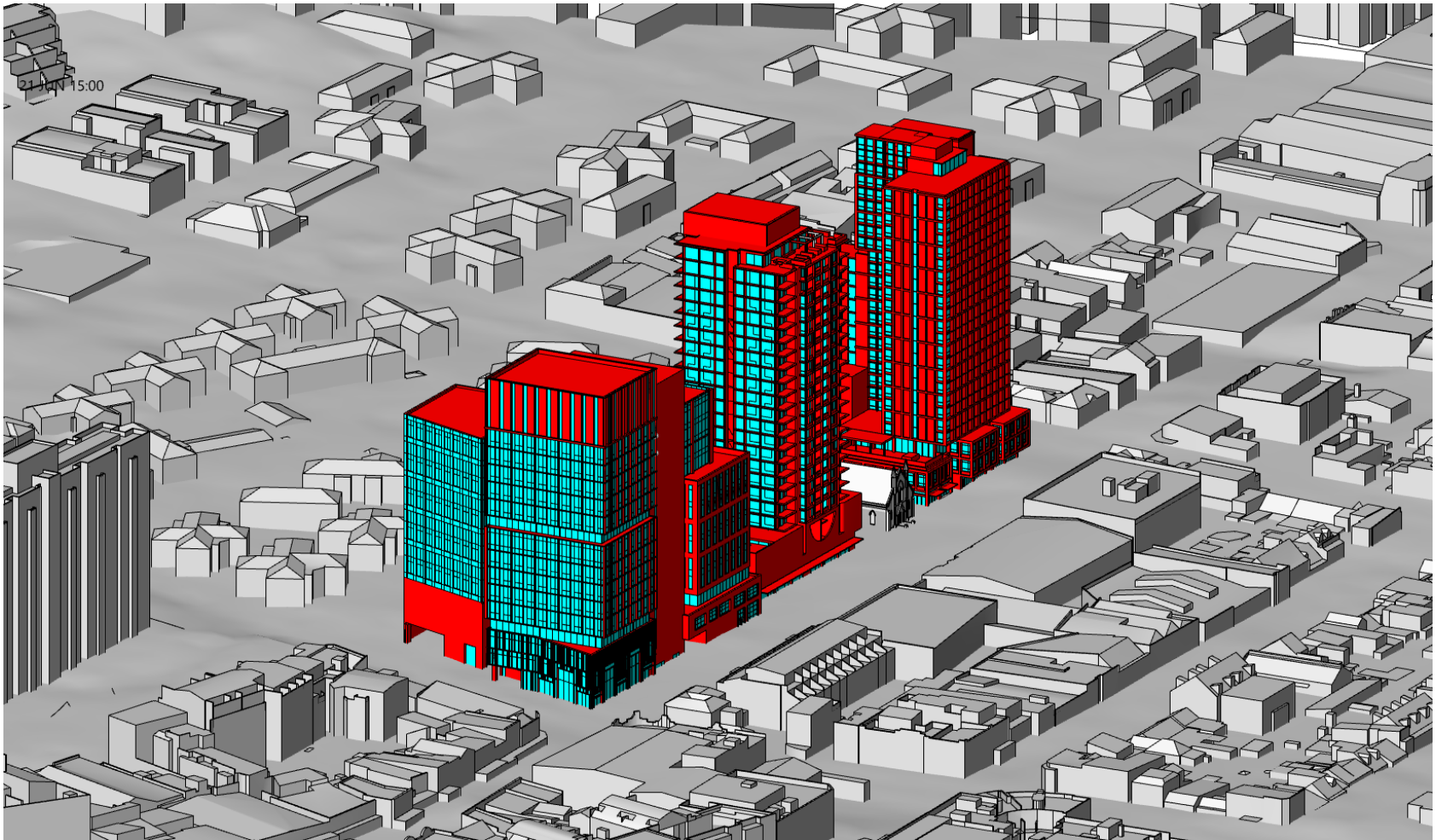
Jun 21 - 14:45 AEST



SUN VIEW DIAGRAM



Jun 21 - 15:00 AEST



SUN VIEW DIAGRAM



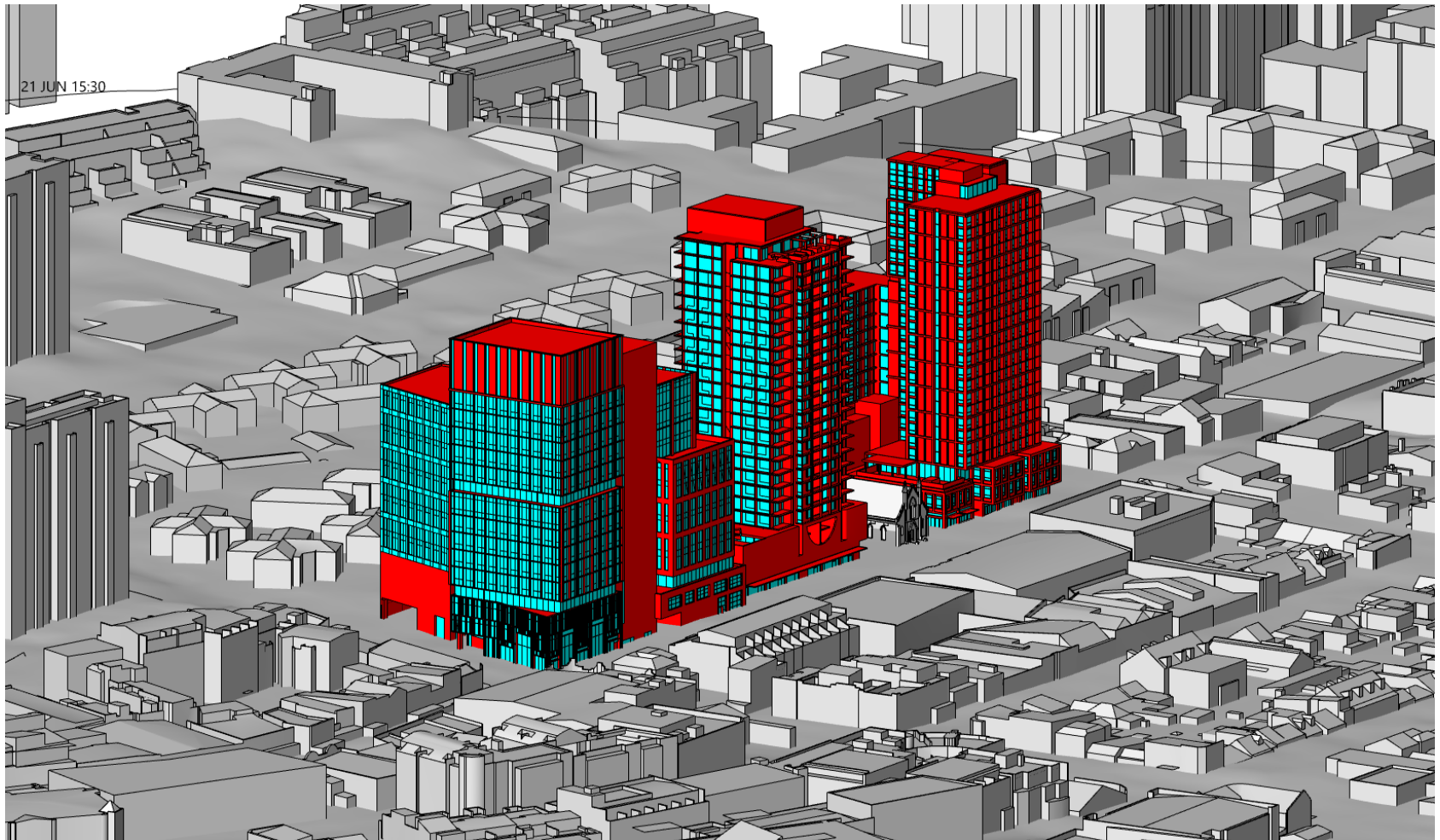
Jun 21 - 15:15 AEST



SUN VIEW DIAGRAM



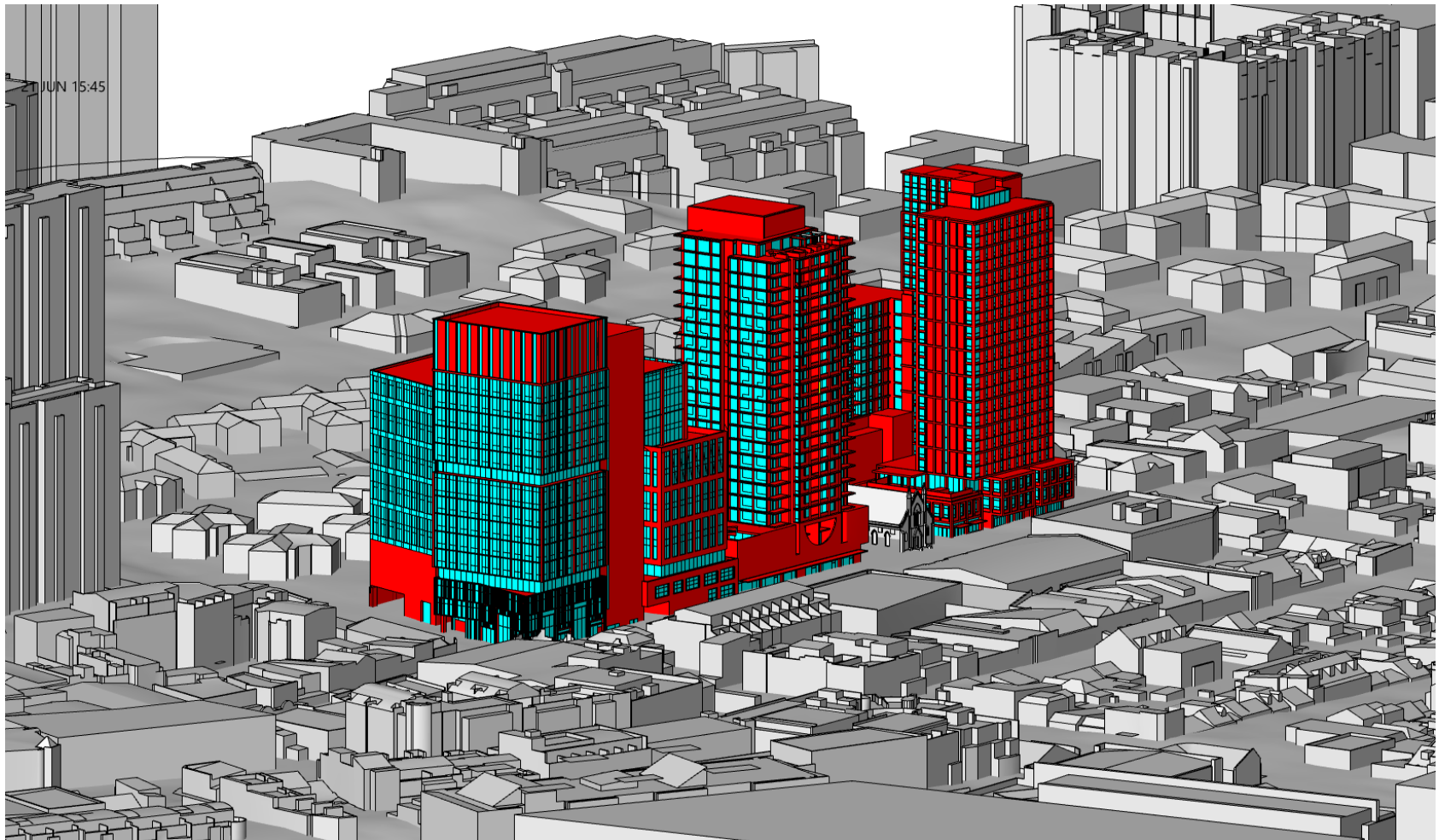
Jun 21 - 15:30 AEST



SUN VIEW DIAGRAM



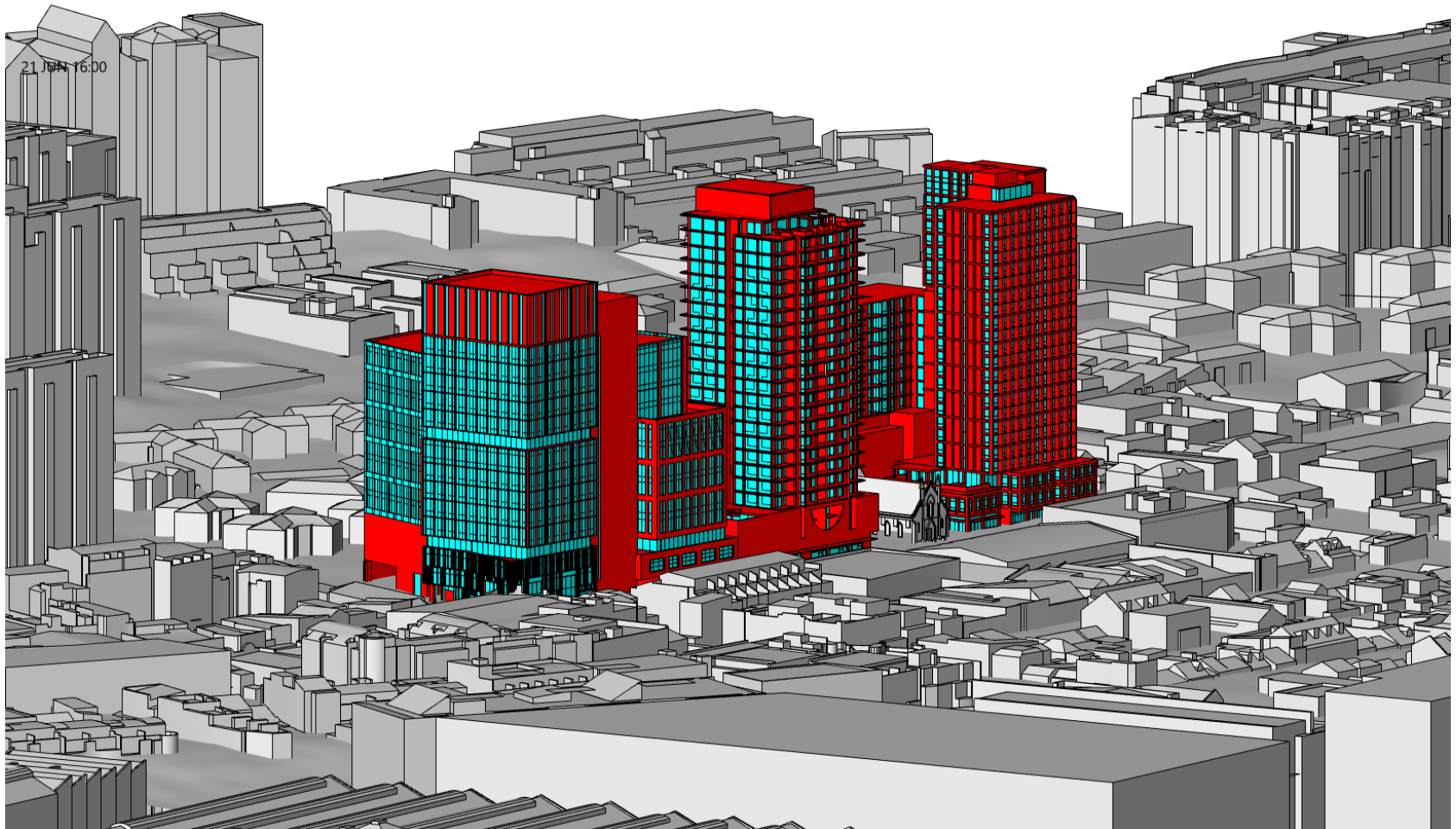
Jun 21 - 15:45 AEST



SUN VIEW DIAGRAM



Jun 21 - 16:00 AEST



11.2 Appendix 2 – Tabular Results of the Direct Solar Access Study (9:00 am to 3: 00 pm)

Table B1: Direct Solar Access Results for Living Space Windows (June 21, 9:00 am - 3:00 pm)

Apartment Number	Any Sunlight		1m ² Area	
	Number Of Hours	Time(s)	Number Of Hours	Time(s)
101	0.00	No Solar Access	0.00	No Solar Access
102	2.50	09:00-11:30	2.50	09:00-11:30
103	2.00	09:00-11:00	1.75	09:00-10:45
104	2.00	09:00-11:00	1.75	09:00-10:45
105	2.00	09:00-11:00	1.75	09:00-10:45
106	4.50	09:00-13:30	1.75	09:15-09:45 and 12:15-13:30
201	0.00	No Solar Access	0.00	No Solar Access
202	2.50	09:00-11:30	2.50	09:00-11:30
203	3.50	09:00-12:30	3.50	09:00-12:30
204	3.50	09:00-12:30	3.50	09:00-12:30
205	3.50	09:00-12:30	3.50	09:00-12:30
206	3.50	09:00-12:30	3.50	09:00-12:30
207	3.50	09:00-12:30	3.50	09:00-12:30
208	4.50	09:00-13:30	4.50	09:00-13:30
209	0.00	No Solar Access	0.00	No Solar Access
301	0.00	No Solar Access	0.00	No Solar Access
302	2.50	09:00-11:30	2.50	09:00-11:30
303	3.50	09:00-12:30	3.50	09:00-12:30
304	3.50	09:00-12:30	3.50	09:00-12:30
305	3.50	09:00-12:30	3.50	09:00-12:30
306	3.50	09:00-12:30	3.50	09:00-12:30
307	3.50	09:00-12:30	3.50	09:00-12:30
308	4.50	09:00-13:30	4.50	09:00-13:30
309	0.00	No Solar Access	0.00	No Solar Access
401	0.00	No Solar Access	0.00	No Solar Access
402	2.50	09:00-11:30	2.50	09:00-11:30
403	3.50	09:00-12:30	3.50	09:00-12:30
404	3.50	09:00-12:30	3.50	09:00-12:30
405	3.50	09:00-12:30	3.50	09:00-12:30
406	3.50	09:00-12:30	3.50	09:00-12:30
407	3.50	09:00-12:30	3.50	09:00-12:30
408	4.50	09:00-13:30	4.50	09:00-13:30
409	0.00	No Solar Access	0.00	No Solar Access
501	0.00	No Solar Access	0.00	No Solar Access
502	2.50	09:00-11:30	2.50	09:00-11:30
503	3.50	09:00-12:30	3.50	09:00-12:30
504	3.50	09:00-12:30	3.50	09:00-12:30
505	3.50	09:00-12:30	3.50	09:00-12:30
506	3.50	09:00-12:30	3.50	09:00-12:30
507	3.50	09:00-12:30	3.50	09:00-12:30
508	4.50	09:00-13:30	4.50	09:00-13:30
509	0.00	No Solar Access	0.00	No Solar Access
601	0.00	No Solar Access	0.00	No Solar Access
602	2.50	09:00-11:30	2.50	09:00-11:30
603	3.50	09:00-12:30	3.50	09:00-12:30
604	3.50	09:00-12:30	3.50	09:00-12:30
605	3.50	09:00-12:30	3.50	09:00-12:30
606	3.50	09:00-12:30	3.50	09:00-12:30
607	3.50	09:00-12:30	3.50	09:00-12:30
608	4.50	09:00-13:30	4.50	09:00-13:30
609	0.00	No Solar Access	0.00	No Solar Access
701	0.00	No Solar Access	0.00	No Solar Access
702	2.50	09:00-11:30	2.50	09:00-11:30
703	3.50	09:00-12:30	3.50	09:00-12:30
704	3.50	09:00-12:30	3.50	09:00-12:30
705	3.50	09:00-12:30	3.50	09:00-12:30
706	3.50	09:00-12:30	3.50	09:00-12:30
707	3.50	09:00-12:30	3.50	09:00-12:30
708	4.50	09:00-13:30	4.50	09:00-13:30

Table B1: Direct Solar Access Results for Living Space Windows (June 21, 9:00 am - 3:00 pm)

Apartment Number	Any Sunlight		1m² Area	
	Number Of Hours	Time(s)	Number Of Hours	Time(s)
709	0.00	No Solar Access	0.00	No Solar Access
801	0.00	No Solar Access	0.00	No Solar Access
802	2.50	09:00-11:30	2.50	09:00-11:30
803	1.75	09:00-10:45	1.00	09:00-10:00
804	3.50	09:00-12:30	3.50	09:00-12:30
805	3.50	09:00-12:30	3.50	09:00-12:30
806	3.50	09:00-12:30	3.50	09:00-12:30
807	4.50	09:00-13:30	4.50	09:00-13:30
808	0.00	No Solar Access	0.00	No Solar Access
901	4.50	09:00-13:30	4.50	09:00-13:30
902	0.00	No Solar Access	0.00	No Solar Access

Table B2: Direct Solar Access Results for Private Open Spaces (June 21, 9:00 am - 3:00 pm)

Apartment Number	Any Sunlight		1m² Area		50% Floor Area	
	Number Of Hours	Time(s)	Number Of Hours	Time(s)	Number Of Hours	Time(s)
101	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
102	3.25	09:00-12:15	2.25	09:00-11:15	0.00	No Solar Access
103	0.50	09:00-09:30	0.25	09:00-09:15	0.00	No Solar Access
104	0.50	09:00-09:30	0.25	09:00-09:15	0.00	No Solar Access
105	5.25	09:00-14:15	3.25	09:00-09:30 and 11:30-14:15	0.00	No Solar Access
106	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
201	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
202	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
203	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
204	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
205	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
206	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
207	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
208	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
209	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
301	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
302	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
303	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
304	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
305	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
306	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
307	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
308	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
309	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
401	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
402	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
403	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
404	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
405	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
406	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
407	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
408	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
409	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
501	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
502	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
503	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
504	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
505	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
506	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
507	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
508	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
509	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
601	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
602	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
603	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
604	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
605	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
606	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
607	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
608	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
609	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
701	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
702	3.00	09:00-12:00	2.25	09:00-11:15	0.00	No Solar Access
703	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
704	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
705	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
706	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
707	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
708	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
709	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
801	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
802	3.50	09:00-12:30	2.25	09:00-11:15	0.00	No Solar Access
803	3.50	09:00-12:30	3.00	09:00-12:00	1.50	09:00-10:30
804	3.25	09:00-12:15	1.25	09:00-10:15	0.00	No Solar Access
805	3.25	09:00-12:15	1.50	09:00-10:30	0.50	09:00-09:30
806	5.50	09:00-14:30	5.50	09:00-14:30	2.50	09:00-11:30
807	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
808	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
901	4.50	09:00-13:30	4.50	09:00-13:30	4.25	09:00-13:15
902	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access

11.3 Appendix 3 – Tabular Results of the Direct Solar Access Study (8:00 am to 4: 00 pm)

Table A1: Direct Solar Access Results for Living Space Windows (June 21, 8:00 am - 4:00 pm)

Apartment Number	Any Sunlight		1m ² Area	
	Number Of Hours	Time(s)	Number Of Hours	Time(s)
101	0.00	No Solar Access	0.00	No Solar Access
102	3.50	08:00-11:30	3.50	08:00-11:30
103	3.00	08:00-11:00	2.75	08:00-10:45
104	3.00	08:00-11:00	2.75	08:00-10:45
105	3.00	08:00-11:00	2.75	08:00-10:45
106	5.00	08:30-13:30	1.75	09:15-09:45 and 12:15-13:30
201	0.00	No Solar Access	0.00	No Solar Access
202	3.50	08:00-11:30	3.50	08:00-11:30
203	4.50	08:00-12:30	4.50	08:00-12:30
204	4.50	08:00-12:30	4.50	08:00-12:30
205	4.50	08:00-12:30	4.50	08:00-12:30
206	4.50	08:00-12:30	4.50	08:00-12:30
207	4.50	08:00-12:30	4.50	08:00-12:30
208	5.25	08:15-13:30	5.00	08:30-13:30
209	0.50	15:30-16:00	0.50	15:30-16:00
301	0.00	No Solar Access	0.00	No Solar Access
302	3.50	08:00-11:30	3.50	08:00-11:30
303	4.50	08:00-12:30	4.50	08:00-12:30
304	4.50	08:00-12:30	4.50	08:00-12:30
305	4.50	08:00-12:30	4.50	08:00-12:30
306	4.50	08:00-12:30	4.50	08:00-12:30
307	4.50	08:00-12:30	4.50	08:00-12:30
308	5.25	08:15-13:30	5.00	08:30-13:30
309	0.50	15:30-16:00	0.50	15:30-16:00
401	0.00	No Solar Access	0.00	No Solar Access
402	3.50	08:00-11:30	3.50	08:00-11:30
403	4.50	08:00-12:30	4.50	08:00-12:30
404	4.50	08:00-12:30	4.50	08:00-12:30
405	4.50	08:00-12:30	4.50	08:00-12:30
406	4.50	08:00-12:30	4.50	08:00-12:30
407	4.50	08:00-12:30	4.50	08:00-12:30
408	5.25	08:15-13:30	5.00	08:30-13:30
409	0.50	15:30-16:00	0.50	15:30-16:00
501	0.00	No Solar Access	0.00	No Solar Access
502	3.50	08:00-11:30	3.50	08:00-11:30
503	4.50	08:00-12:30	4.50	08:00-12:30
504	4.50	08:00-12:30	4.50	08:00-12:30
505	4.50	08:00-12:30	4.50	08:00-12:30
506	4.50	08:00-12:30	4.50	08:00-12:30
507	4.50	08:00-12:30	4.50	08:00-12:30
508	5.25	08:15-13:30	5.00	08:30-13:30
509	0.50	15:30-16:00	0.50	15:30-16:00
601	0.00	No Solar Access	0.00	No Solar Access
602	3.50	08:00-11:30	3.50	08:00-11:30
603	4.50	08:00-12:30	4.50	08:00-12:30
604	4.50	08:00-12:30	4.50	08:00-12:30
605	4.50	08:00-12:30	4.50	08:00-12:30
606	4.50	08:00-12:30	4.50	08:00-12:30
607	4.50	08:00-12:30	4.50	08:00-12:30
608	5.25	08:15-13:30	5.00	08:30-13:30
609	0.50	15:30-16:00	0.50	15:30-16:00
701	0.00	No Solar Access	0.00	No Solar Access
702	3.50	08:00-11:30	3.50	08:00-11:30
703	4.50	08:00-12:30	4.50	08:00-12:30
704	4.50	08:00-12:30	4.50	08:00-12:30
705	4.50	08:00-12:30	4.50	08:00-12:30
706	4.50	08:00-12:30	4.50	08:00-12:30
707	4.50	08:00-12:30	4.50	08:00-12:30
708	5.25	08:15-13:30	5.00	08:30-13:30
709	0.50	15:30-16:00	0.50	15:30-16:00
801	0.00	No Solar Access	0.00	No Solar Access
802	3.50	08:00-11:30	3.50	08:00-11:30
803	2.75	08:00-10:45	2.00	08:00-10:00
804	4.50	08:00-12:30	4.50	08:00-12:30
805	4.50	08:00-12:30	4.50	08:00-12:30
806	4.50	08:00-12:30	4.50	08:00-12:30
807	5.25	08:15-13:30	4.75	08:45-13:30
808	0.50	15:30-16:00	0.50	15:30-16:00
901	5.25	08:15-13:30	4.50	09:00-13:30
902	0.50	15:30-16:00	0.50	15:30-16:00

Table A2: Direct Solar Access Results for Private Open Spaces (June 21, 8:00 am - 4:00 pm)

Apartment Number	Any Sunlight		1m² Area		50% Floor Area	
	Number Of Hours	Time(s)	Number Of Hours	Time(s)	Number Of Hours	Time(s)
101	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
102	4.25	08:00-12:15	3.25	08:00-11:15	0.50	08:00-08:30
103	1.50	08:00-09:30	1.25	08:00-09:15	0.00	No Solar Access
104	1.50	08:00-09:30	1.25	08:00-09:15	0.00	No Solar Access
105	6.25	08:00-14:15	4.25	08:00-09:30 and 11:30-14:15	0.00	No Solar Access
106	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
201	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
202	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
203	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
204	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
205	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
206	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
207	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
208	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
209	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
301	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
302	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
303	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
304	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
305	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
306	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
307	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
308	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
309	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
401	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
402	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
403	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
404	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
405	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
406	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
407	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
408	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
409	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
501	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
502	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
503	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
504	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
505	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
506	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
507	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
508	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
509	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
601	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
602	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
603	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
604	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
605	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
606	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
607	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
608	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
609	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
701	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
702	4.00	08:00-12:00	3.25	08:00-11:15	0.25	08:00-08:15
703	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
704	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
705	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
706	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
707	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
708	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
709	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
801	0.00	No Solar Access	0.00	No Solar Access	0.00	No Solar Access
802	4.50	08:00-12:30	3.25	08:00-11:15	0.25	08:00-08:15
803	4.50	08:00-12:30	4.00	08:00-12:00	2.50	08:00-10:30
804	4.25	08:00-12:15	2.25	08:00-10:15	1.00	08:00-09:00
805	4.25	08:00-12:15	2.50	08:00-10:30	1.50	08:00-09:30
806	6.50	08:00-14:30	6.50	08:00-14:30	3.50	08:00-11:30
807	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
808	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access
901	5.50	08:00-13:30	5.50	08:00-13:30	5.25	08:00-13:15
902	0.50	15:30-16:00	0.25	15:45-16:00	0.00	No Solar Access