



## **Appendix 4A – Additional Solar Information**



## 9ADDITIONAL SOLAR ANALYSIS

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Amendment to Parramatta Local Environmental Plan 2023 as it applies to Nos. 263-273 & 277-281 Pennant Hills Road, Carlingford, to rearrange the zoning, increase the maximum building height and floor space ratio development standards, change Clause 24 of Schedule 1 “Additional Permitted Use” and insert an additional clause under Part 6 Additional Local Provisions relating to the exclusion of enclosed balconies from gross floor area.

263-273 & 277-281 Pennant Hills Road, Carlingford

Prepared for: Meriton Group Pty Ltd

REF. M230004

Date: 27 November 2023



## 1. INTRODUCTION

This Additional Solar Analysis has been prepared on behalf of *Meriton Group Pty Ltd*, the applicant for the subject Planning Proposal, in response to the commentary raised by the Local Planning Panel as it relates to the solar access of Nos. 346-362 Pennant Hills Road to the south-east. As part of this response, the applicant has requested that Council source approved floor plans of this nearby property. This information has not yet been received and the analysis will be updated upon receipt of the additional information. The Local Planning Panel resolution is as follows:

*Further detailed modelling be undertaken to confirm the statement by the applicant's town planner at the panel meeting that overshadowing to the buildings on the other side of Pennant Hills Road (346-362 Pennant Hills Road) will not be increased by more than 17% as described in the Apartment Design Guide.*

Provided within this document is a solar analysis methodology, which is to be read in conjunction with the Solar Study prepared by *FK Australia* (Attachment A). The Solar Study includes shadow diagrams and analysis of the impact created by this proposal (including concept envelopes) onto the surrounding properties, namely, No. 346-362 Pennant Hills Road.

This proposal seeks to make various amendments to the planning controls which apply to the subject site, known as Nos. 263-273 & 277-281 Pennant Hills Road, Carlingford, including the rearrangement of zoning and increase to the maximum building height and floor space ratio development standards, amongst other things.

## 2. CURRENT PLANNING CONTROLS

The subject site is located within the R4 High Density Residential Zone which is anticipated to accommodate an increase in density in accordance with relevant development standards of the *Parramatta Local Environmental Plan 2023* (PLEP), including a 27m to 33m height limit and 2.3:1 FSR. The wider locality is similarly anticipated to accommodate an increase in density, reflective of the strategic location of Carlingford. Under the *Parramatta Development Control Plan 2023* (PDCP), the subject site is identified as a key site (Site 17) within the *Carlingford Precinct* and is earmarked for redevelopment. Numerous properties within proximity to the site are also identified as key sites or within the Carlingford Precinct.

It should also be noted that the site contains a previous approval subject to the current planning controls (DA1103/2011/JP).

## 3. PROPOSED PLANNING CONTROLS

This Planning Proposal will seek to amend the PLEP as follows:

- **Zoning:** Rearrange, consolidate and improve the location and relationship of the RE1 Public Recreation and R4 High Density Residential zones as they apply to the site;
- **Building Height:** Establish a maximum building height of 56m along Shirley Street and 110m building height along Pennant Hills Road;
- **Floor Space Ratio:** Increase the maximum FSR of the site to 3.53:1, where zoned R4 High Density Residential;
- **Schedule 1 Additional Permitted Uses:** Amend Clause 24 of Schedule 1 to allow for a maximum gross floor area of 2,600m<sup>2</sup> for parts of the building used for business premises, food and drink premises, recreation facilities (indoor) and shops; and
- **Clause 6.24 Development at 263-273 and 277-281 Pennant Hills Road, Carlingford:** Insert an additional Clause 6.24 under Part 6 Additional Local Provisions, which will exclude enclosed private balconies for the calculation of gross floor area, where impacted by aural intrusion from Pennant Hills Road.





## 4. SOLAR ANALYSIS METHODOLOGY

*FK Australia* have undertaken the following methodology to prepare the solar analysis as it relates to Nos. 346-362 Pennant Hills Road:

1. Obtain primary information, including detailed survey plans of the subject site and surrounding properties and external site inspections;
2. Obtain secondary information, including satellite imagery, planning applications, real estate information and any other imagery available online;
3. Utilising the abovementioned information and documentation, preparation of models and subsequent solar analysis for Nos. 346-362 Pennant Hills Road. This includes floor plans and layouts obtained from satellite imagery and real estate information. Finished floor levels are based on approximate levels estimated from natural contours mapping and generic floor to floor dimensions; and
4. Following modelling of the above, analysis of each living area and open space was undertaken based on the approved development on the subject site (DA1103/2011/JP) in comparison to the concept envelopes proposed as part of this Planning Proposal.

## 5. SOLAR ANALYSIS

As detailed, this analysis is to be read in conjunction with the Solar Study prepared by *FK Australia*.

### NOS. 346-362 PENNANT HILLS ROAD

To the south-east on the opposite side of Pennant Hills Road is Nos. 346-362 Pennant Hills Road, which contains a series of four storey residential flat buildings which are 30 to 40 years old. As outlined above and for the purposes of this analysis, information has been obtained from satellite imagery, real estate websites and via an external site inspection. It has been anticipated that living areas and private open spaces of the property at Nos. 346-362 Pennant Hills Road are orientated towards the roadway, opposing the subject site, as a worst-case scenario. As detailed, the approved floor plans of Nos. 346-362 Pennant Hills Road have been requested from Council to ensure that the solar analysis is accurate. Upon receiving this information, the solar study and this analysis will be updated with further information.

In the current site arrangement, this property is not overshadowed. However, and in accordance with the approved development application (DA1103/2011/JP), 36 of 60 apartments (60%) achieve 2 hours of solar access during mid-winter, per the ADG. Importantly, DA1103/2011/JP does not include built forms on Nos. 263-273 Pennant Hills Road, which reduces the extent of solar impact to this neighbouring property created by the approved development. If a development were approved on the remaining sites (Nos. 263-273) under the current planning controls, it is likely that there would be an additional impact.

Notwithstanding this and as shown by the solar analysis, the proposed increase in density and subsequent concept envelopes will result in an additional impact to 10 apartments, resulting in a total reduction of 16.6% to the overall development when compared to that which is existing. This is consistent with Design Guidance under Objective 3B-2 of the Apartment Design Guide, where an adjoining property does not currently receive the required hours of solar access, the proposal should not reduce this by more than 20%.





Solar Calculations – 346-362 Pennant Hills Road			
	Solar Impact	Total	%
<b>Before</b>	36 apartments do not receive solar access pre-planning proposal	60	60%
<b>After</b>	46 apartments do not receive solar access post-planning proposal	60	76.6%
			16.6% increase of overshadowing to the total amount of apartments

Further to the above, it should also be noted that the neighbouring property at Nos. 346-362 Pennant Hills Road is heavily vegetated with a mixture of mature trees on the front boundary where they oppose the subject site and the roadway. Whilst these have not been considered in the solar study, it is reasonably anticipated that they cast a considerable amount of overshadowing onto the residential apartments, therefore negating in-part the impact created by the concept envelopes.



**Figure 1** Photograph of vegetation along front boundary of No. 346



As such, whilst resulting in an additional impact, this has been managed through appropriate separation of built forms and distribution of building floor space. Furthermore, it is also noted that the approved development application on-site results in a greater impact to these neighbouring properties from 9am to 11am during mid-winter, which is reduced under the concept scheme. In this regard, whilst there is an impact onto this neighbouring property, this will not result in a loss of greater than 20% to existing apartments and is therefore acceptable. It is also noted that this neighbouring property does not contain any roof top solar collectors.

## 6. CONCLUSION

This document has considered the solar impact to Nos. 346-362 Pennant Hills Road created by the concept envelopes, which form part of the subject Planning Proposal. It has been demonstrated that whilst there will be a solar impact from the subject Planning Proposal, this can be appropriately managed so that the neighbouring properties will receive a requisite amount of solar access during mid-winter in accordance with relevant planning considerations. In totality, the development will provide for an appropriate balance between providing for a transit orientated development, with numerous public benefits, whilst not adversely impacting the solar amenity of neighbouring properties.

This statement will be supplemented when additional information is made available from Council, however, the information available demonstrates that the Planning Proposal can be supported. It is also worth noting that this proposal is supported by a concept design and further consideration can be given during the more detailed development application process.

Yours faithfully,  
Planning Ingenuity Pty Ltd

Jeff Mead  
**MANAGING DIRECTOR**





FENDER KATSALIDIS

# CARLINGFORD APARTMENTS, MERITON 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD SYDNEY 2118

PROJECT NO: 20188

## PLANNING PROPOSAL

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NOTE: ROOF PLANT NOT SHOWN  
AS PART OF THIS STUDY

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-	PLANNING PROPOSAL	KB 25.08.2023

DRAWINGS ISSUED ON: 11.09.2023



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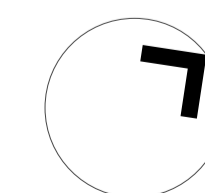
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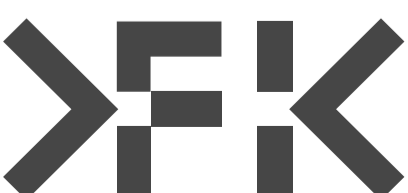


**PROJECT**  
CARLINGFORD APARTMENTS, MERITON  
263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
SYDNEY NSW 2118

**DRAWING TITLE**  
COVER

**FENDER KATSALIDIS**  
WWW.FKAUSTRALIA.COM  
L21, 259 GEORGE STREET, SYDNEY  
NEW SOUTH WALES 2000 AUSTRALIA  
TELEPHONE: +61 2 8216 3500  
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PP04.0





12 SHIRLEY STREET  
10 STOREYS  
72 APARTMENTS

8-10 SHIRLEY STREET  
10 STOREYS  
43 APARTMENTS

2-6 SHIRLEY STREET

346-362 PENNANT HILLS RD  
3 STOREYS  
18 APARTMENTS

346-362 PENNANT HILLS RD  
3 STOREYS  
12 APARTMENTS

346-362 PENNANT HILLS RD  
3 STOREYS  
12 APARTMENTS

346-362 PENNANT HILLS RD  
3 STOREYS  
18 APARTMENTS

NOTE: FOR PURPOSES OF THIS STUDY BUILDINGS AND APARTMENTS HAVE BEEN LOCATED VIA SATELITE IMAGERY ONLY NOT SURVEYED INFORMATION. THIS STUDY IS INDICATIVE AND SHOULD NOT BE RELIED ON FOR CONSTRUCTION.



EXISTING VEGETATION

342 - 362 PENNANT HILLS RD  
2 - 12 SHIRLEY STREET

PROPOSED SITE

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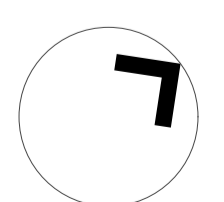


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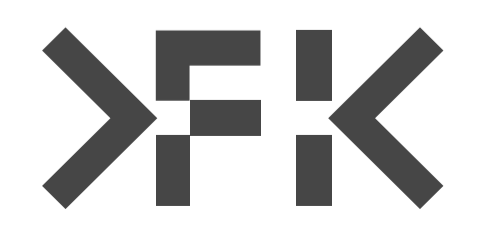


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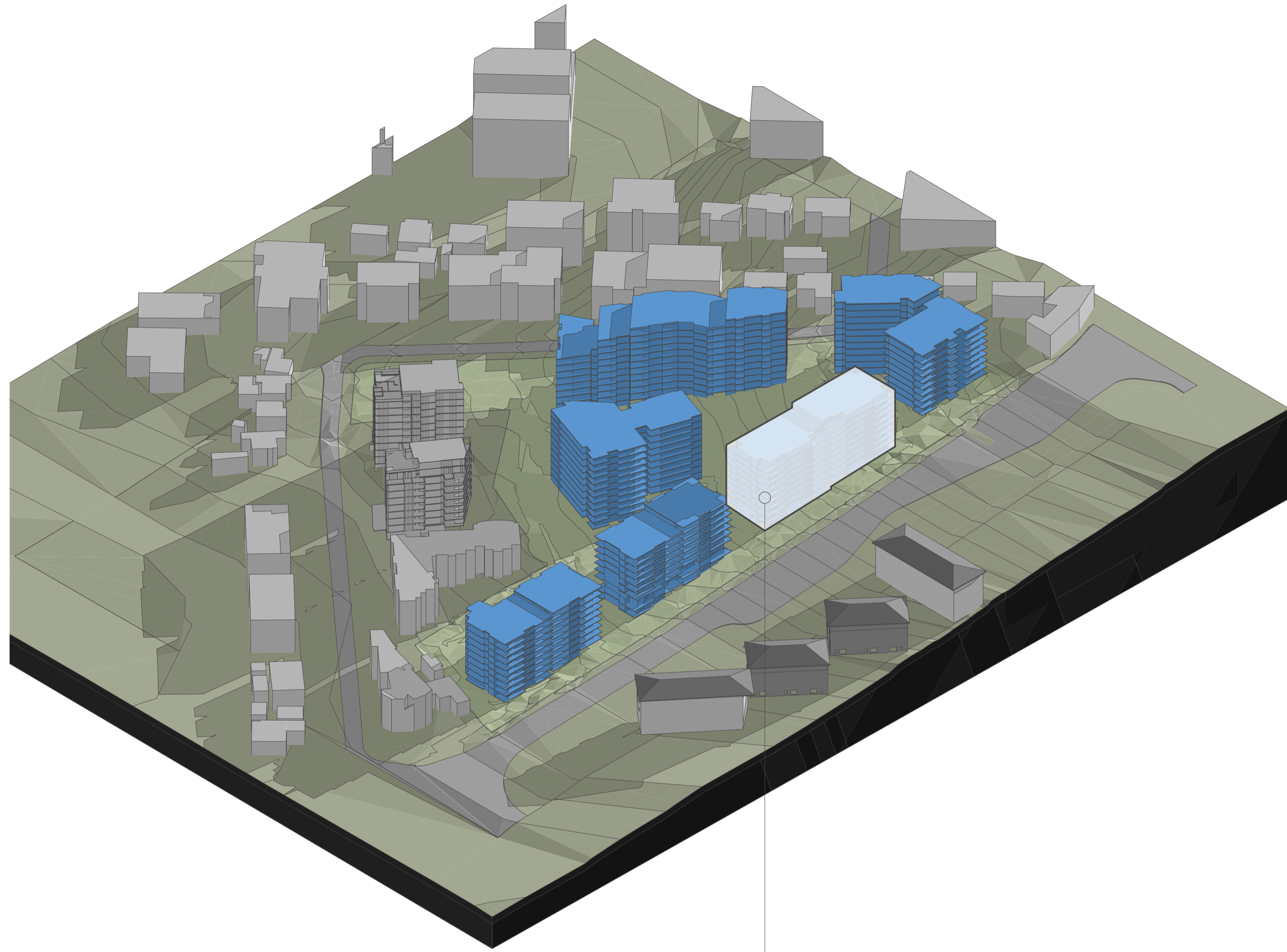
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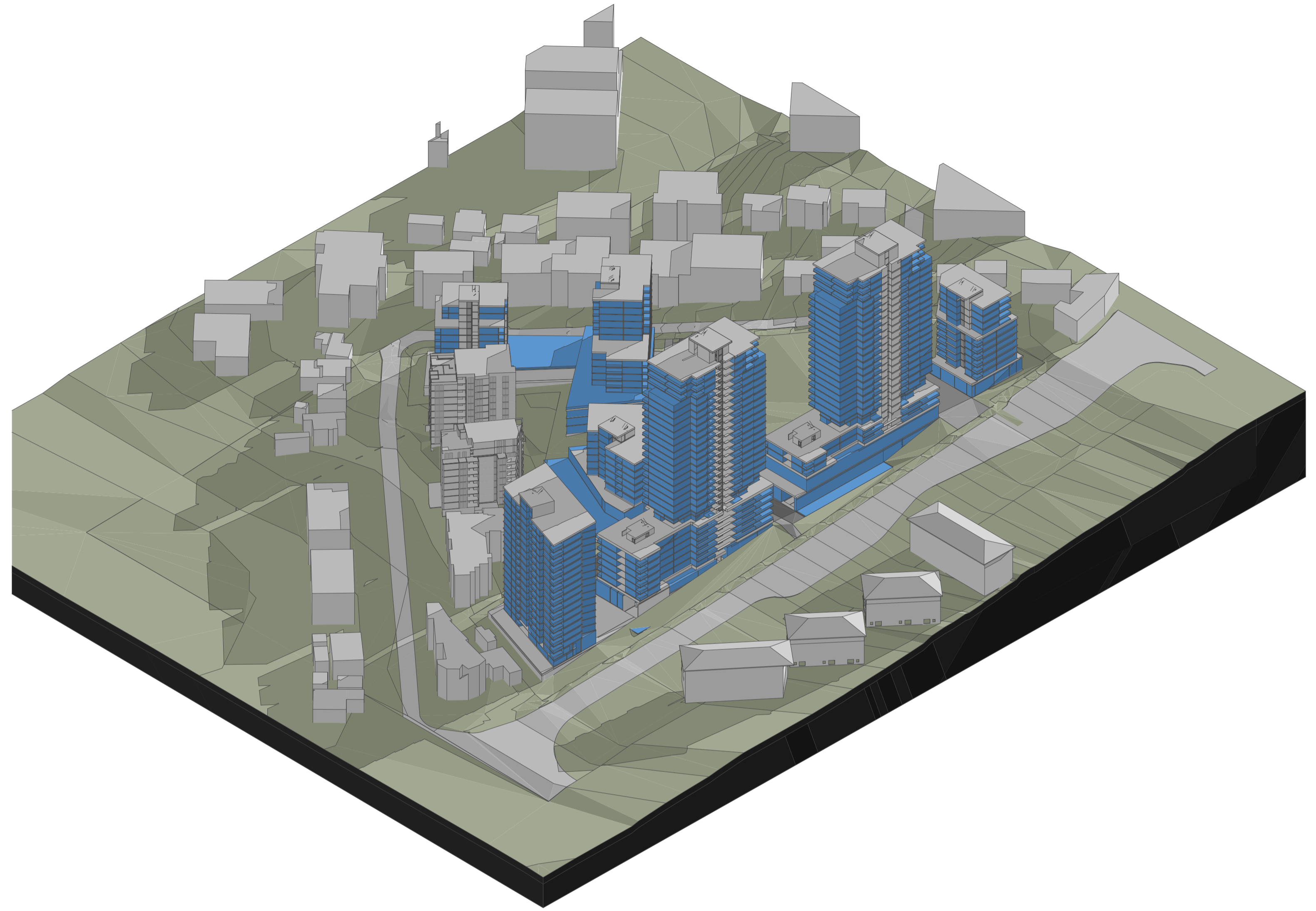


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1 EXISTING DA



2 PROPOSED DEVELOPMENT

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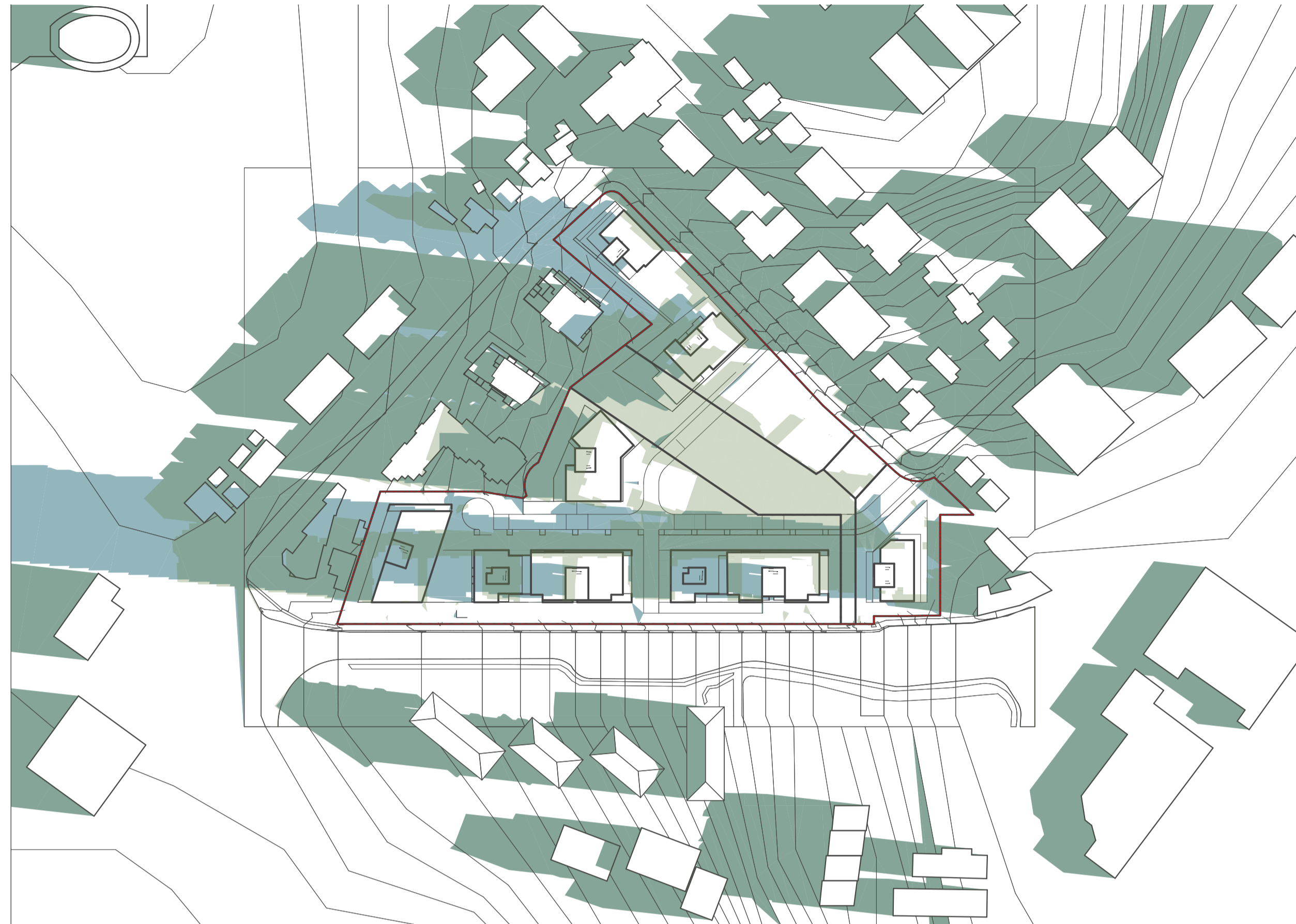
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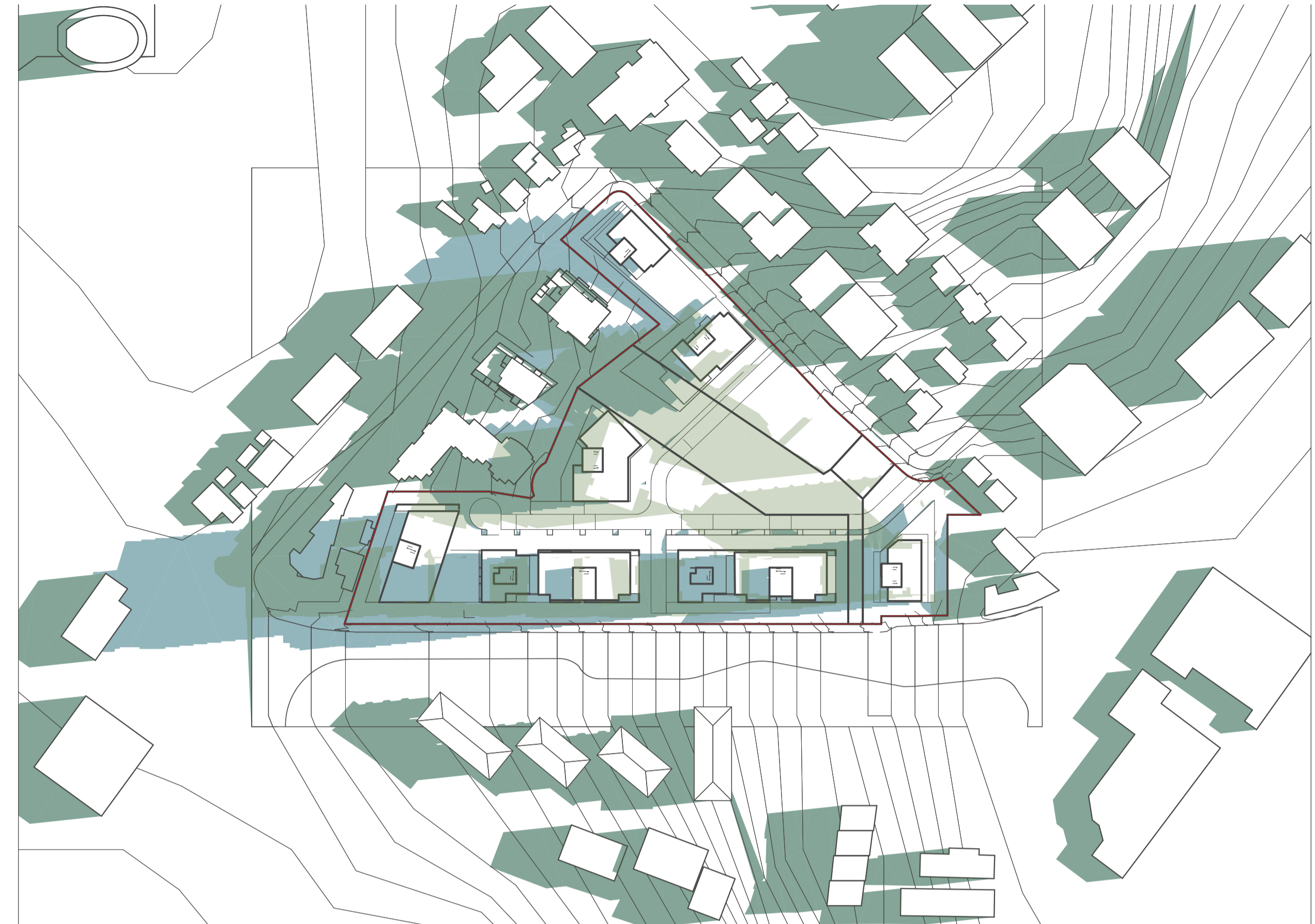
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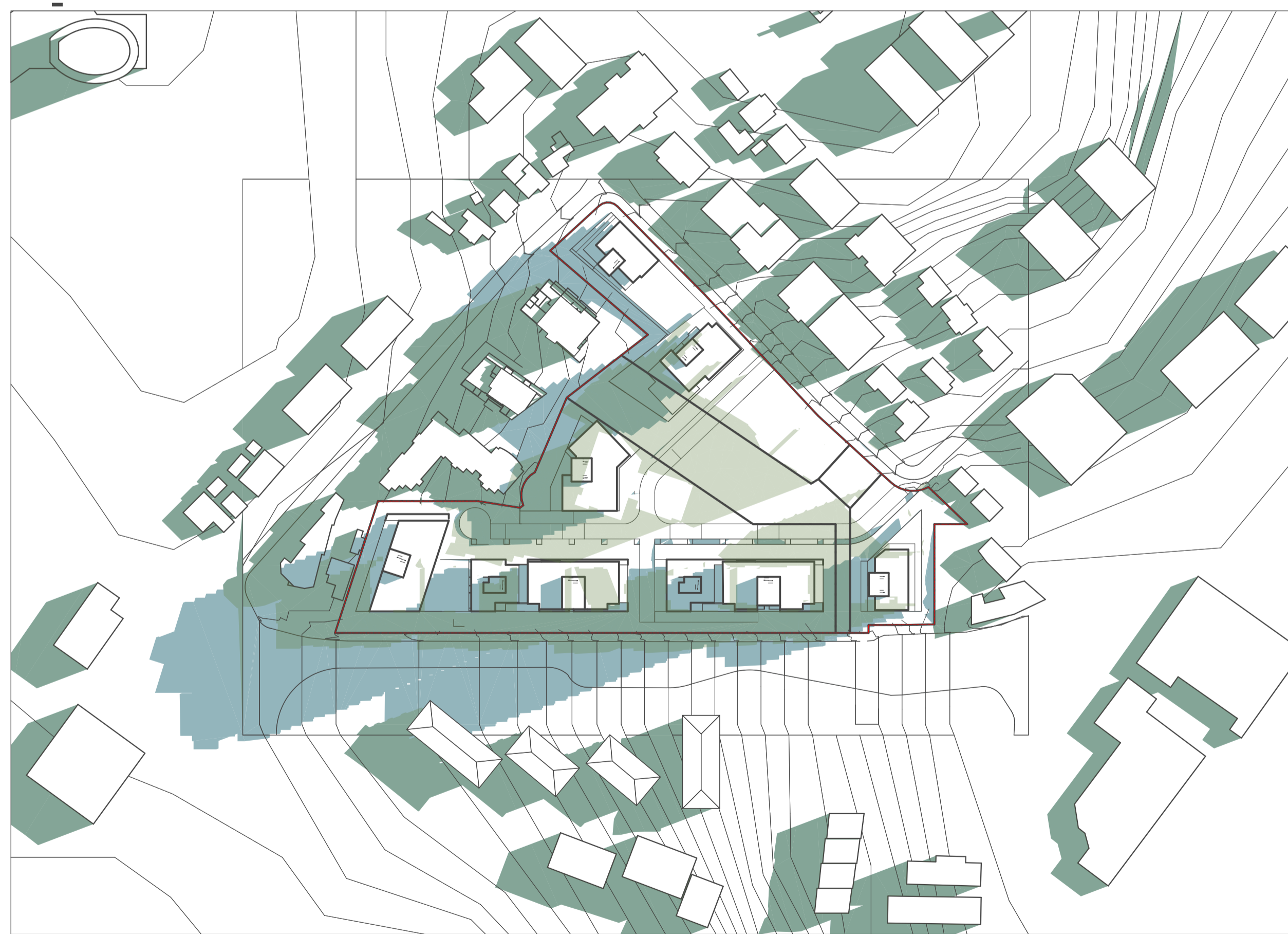
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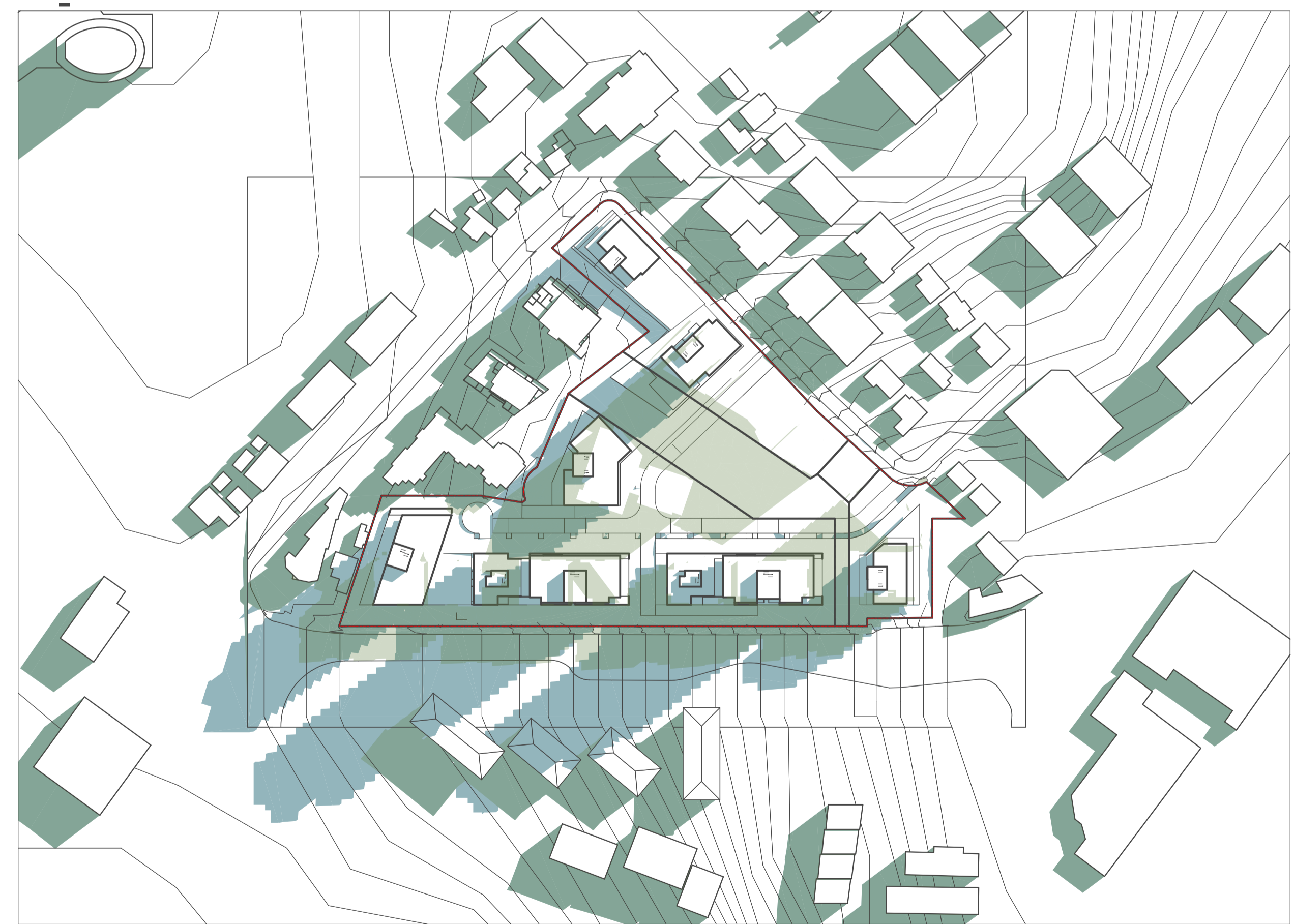
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JUNE 21



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JUNE 21



1200

JUNE 21

- SHADOW DIAGRAMS LEGEND**
- SHADOWS CAST BY EXISTING DA
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  - SHADOWS REDUCED FROM EXISTING DA
  - SITE BOUNDARY

NOTE: ROOF PLANT NOT SHOWN AS PART OF THIS STUDY

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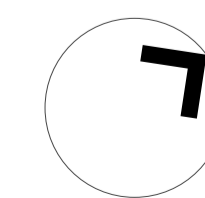
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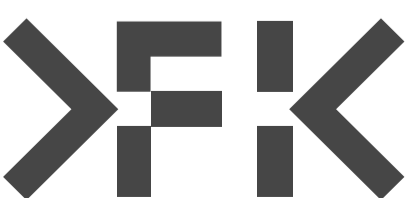


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 SHADOW DIAGRAM 1

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 WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
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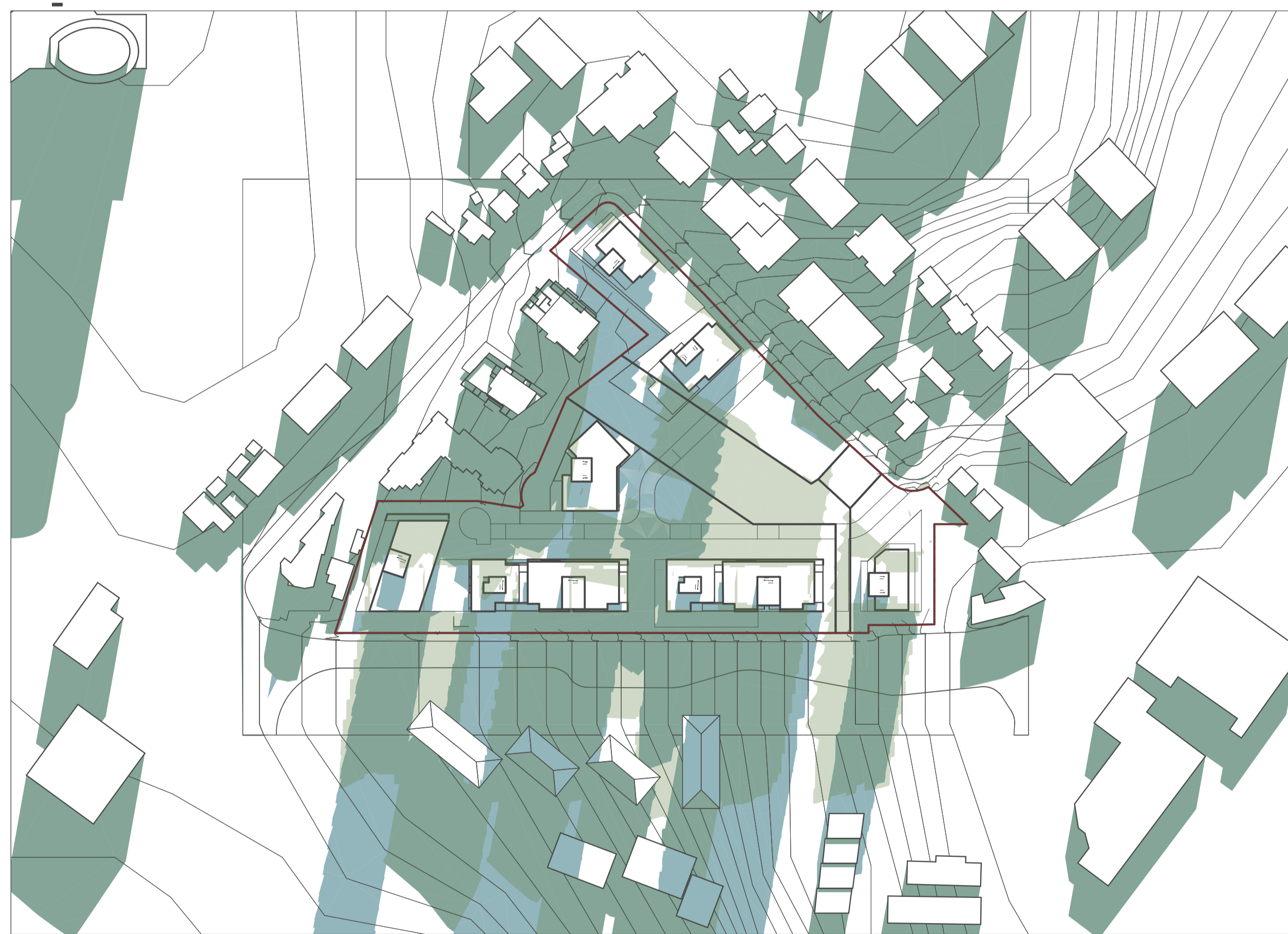
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JUNE 21



1400

JUNE 21



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JUNE 21

**SHADOW DIAGRAMS LEGEND**

- SHADOWS CAST BY EXISTING DA
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- SITE BOUNDARY

NOTE: ROOF PLANT NOT SHOWN AS PART OF THIS STUDY

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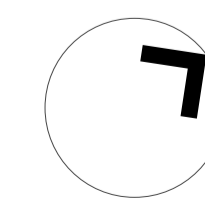
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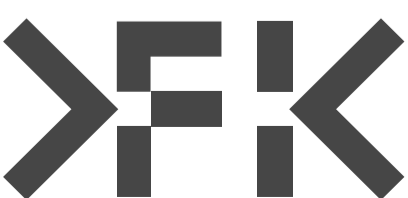


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 SHADOW DIAGRAM 2

**FENDER KATSALIDIS**  
 WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 943 032

**ISSUE PURPOSE**  
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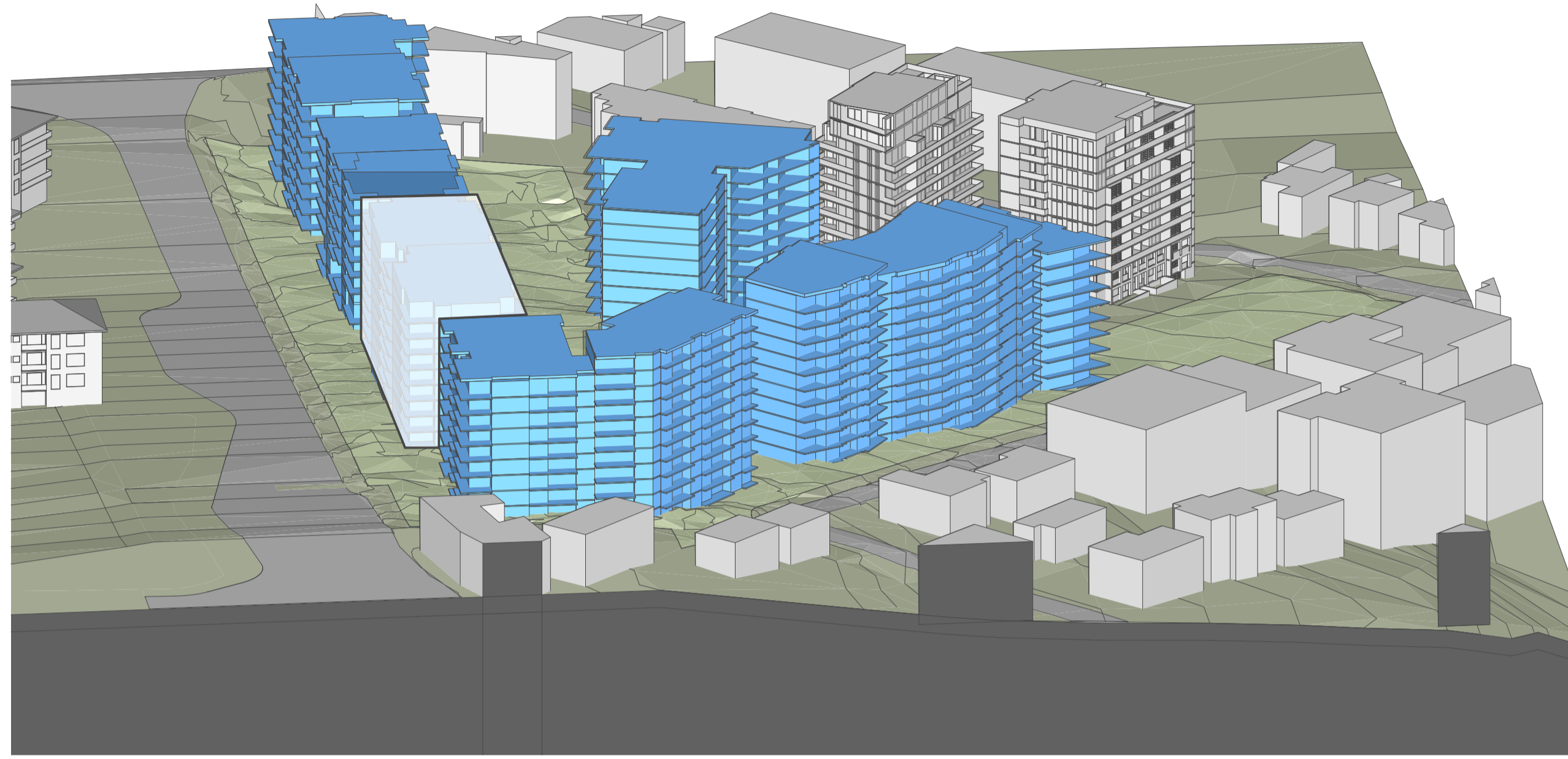


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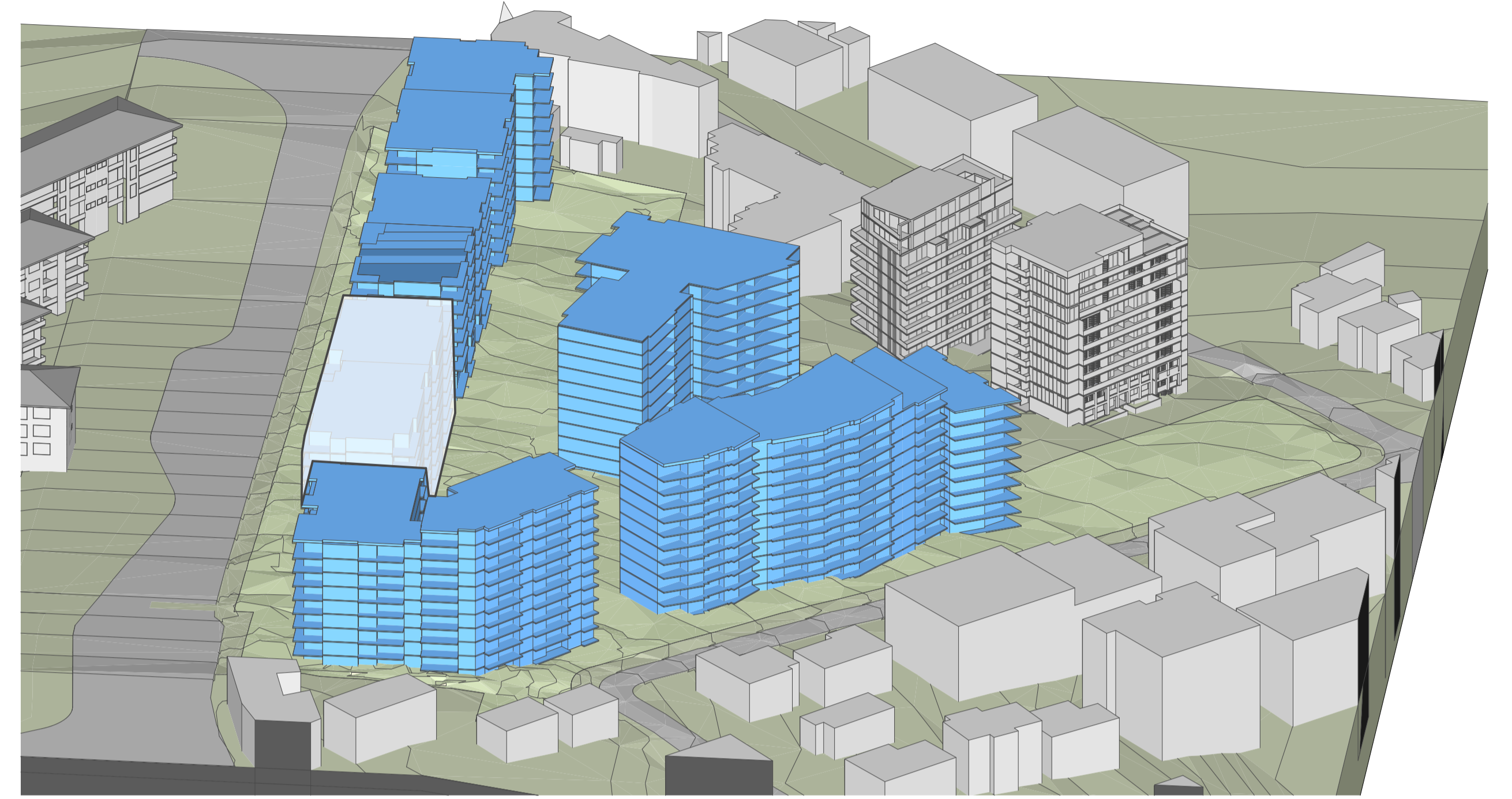
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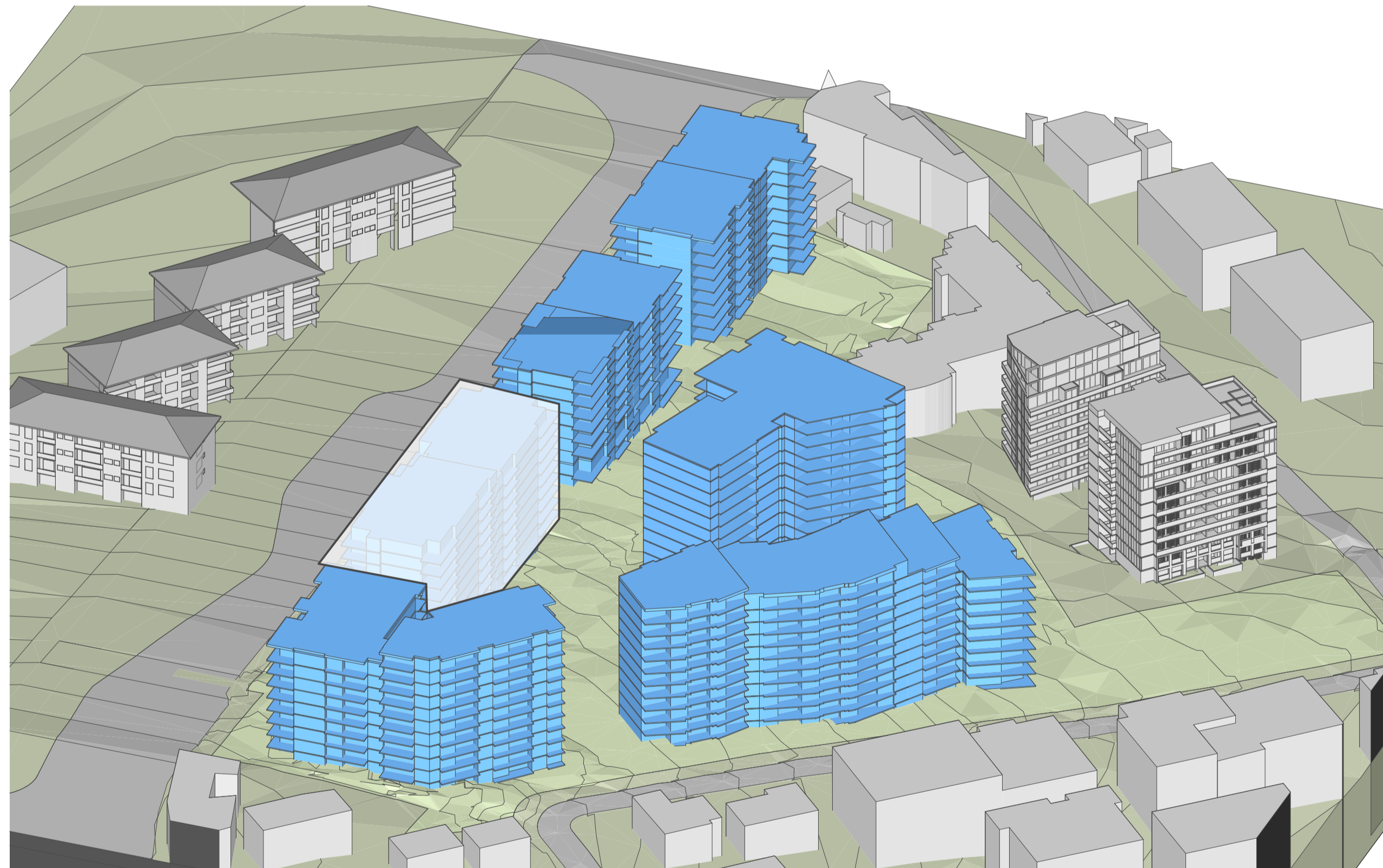
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JUNE 21



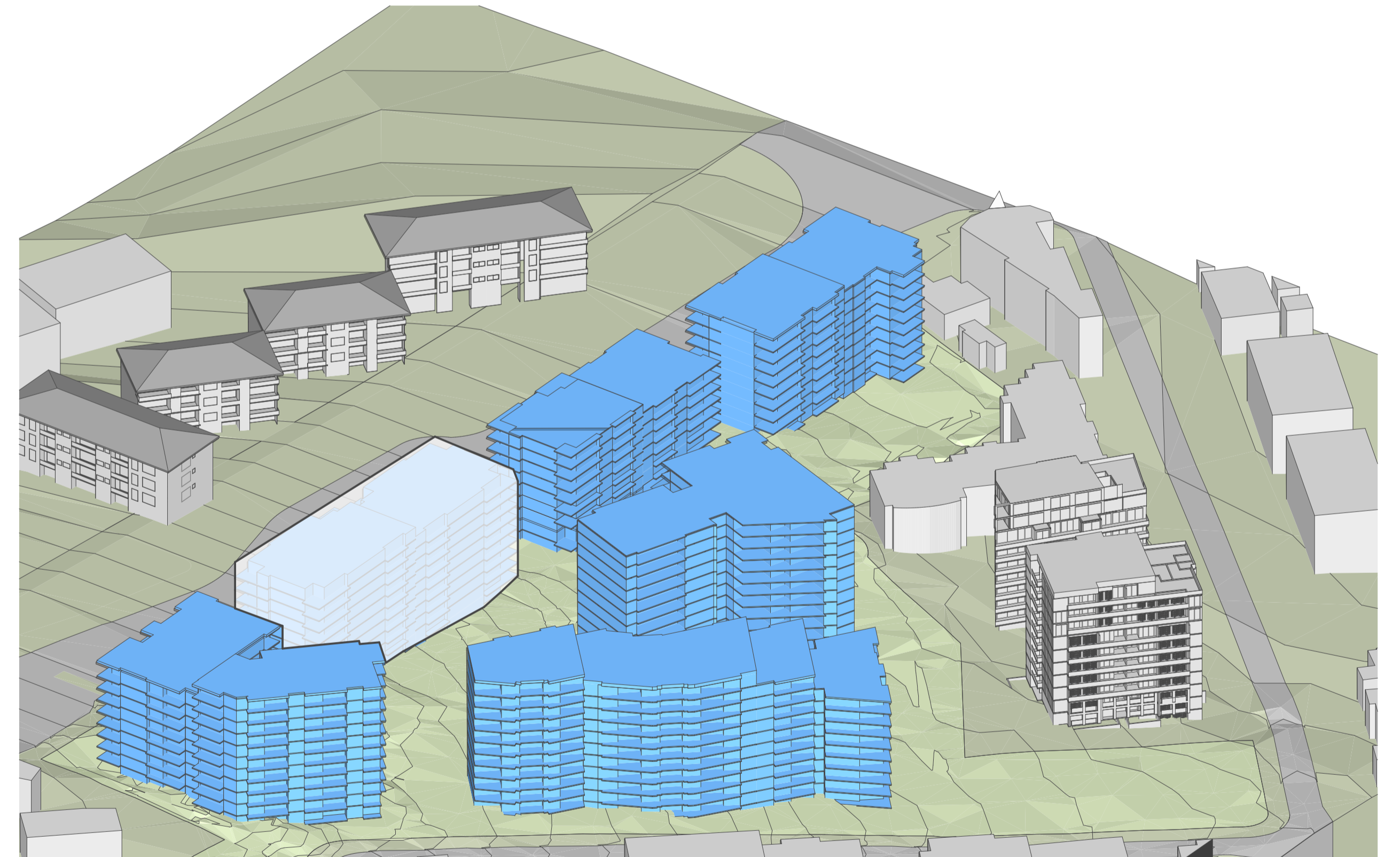
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JUNE 21



1100

JUNE 21



1200

JUNE 21

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REVISION	DATE	BY
-	25.08.2023	KB

REVISION



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DRAWN	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE
TA	25.08.2023	AV	11.09.2023	20188	N.T.S.@A1

**PROJECT**

CARLINGFORD APARTMENTS, MERITON  
 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
 SYDNEY NSW 2118

DRAWING TITLE  
 VIEWS FROM THE SUN - EXISTING DA 1

**FENDER KATSALIDIS**

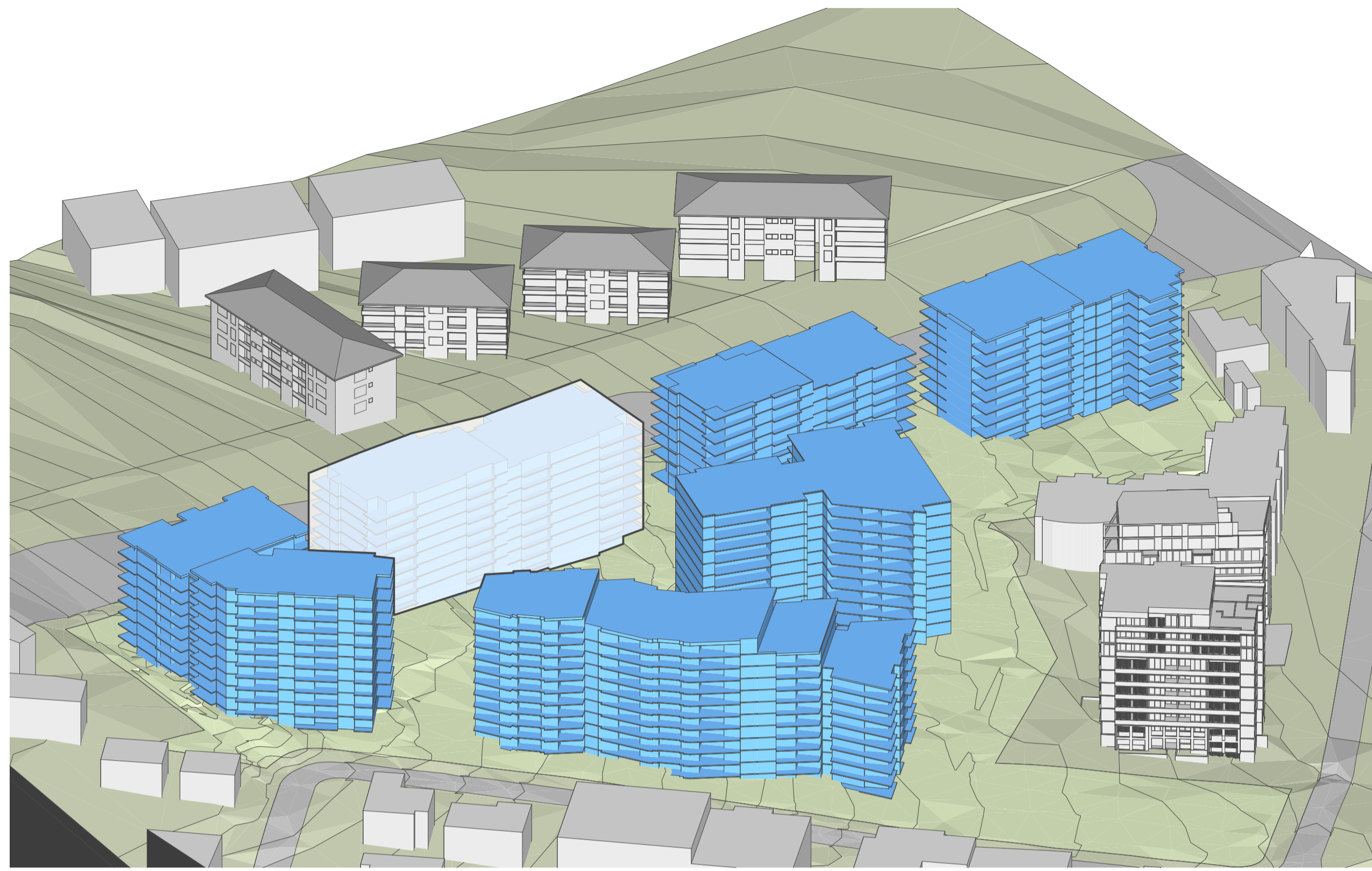
WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 943 032

ISSUE PURPOSE  
 PLANNING PROPOSAL



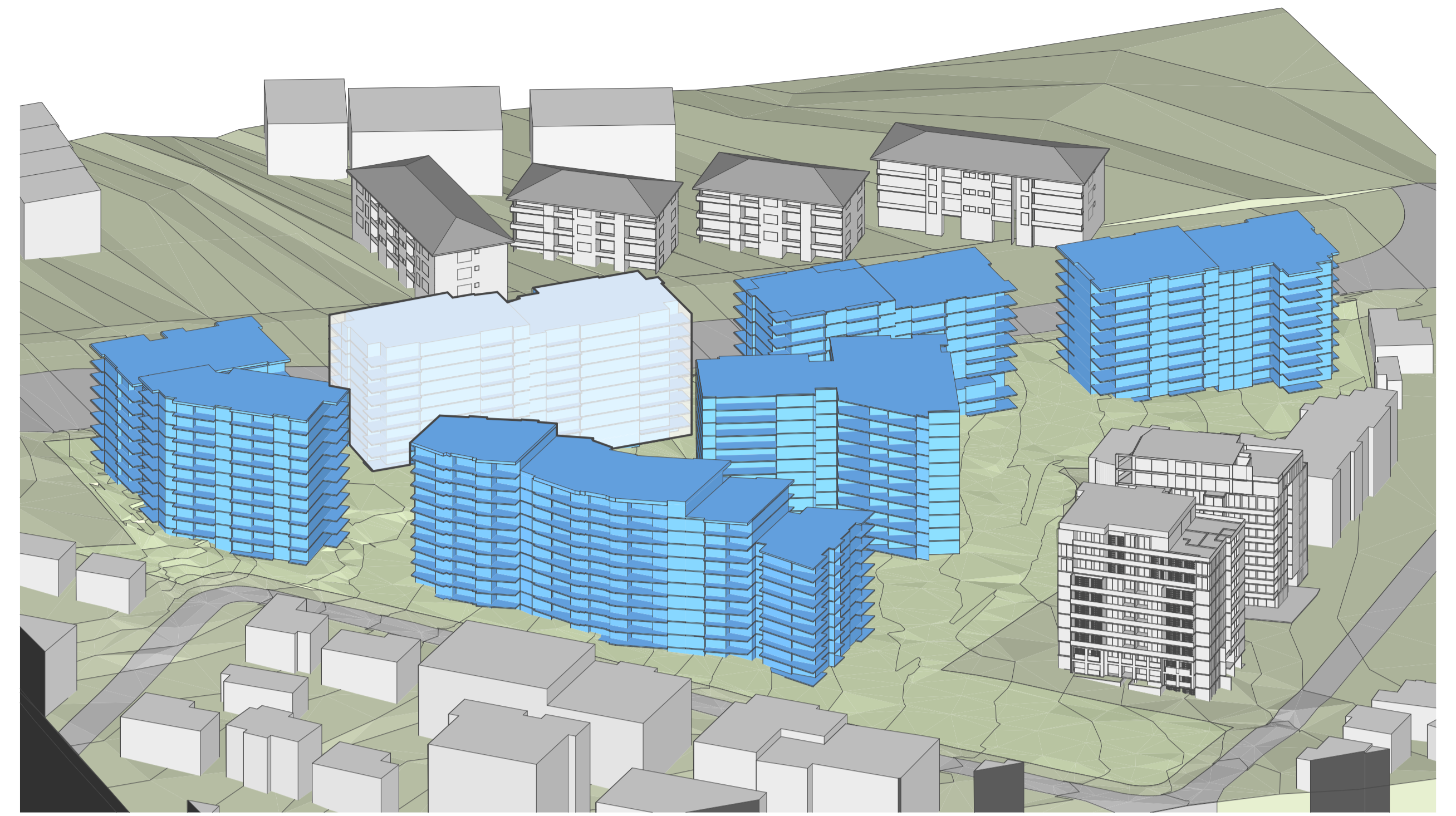
REV. DRAWING NO.  
 - PP04.5





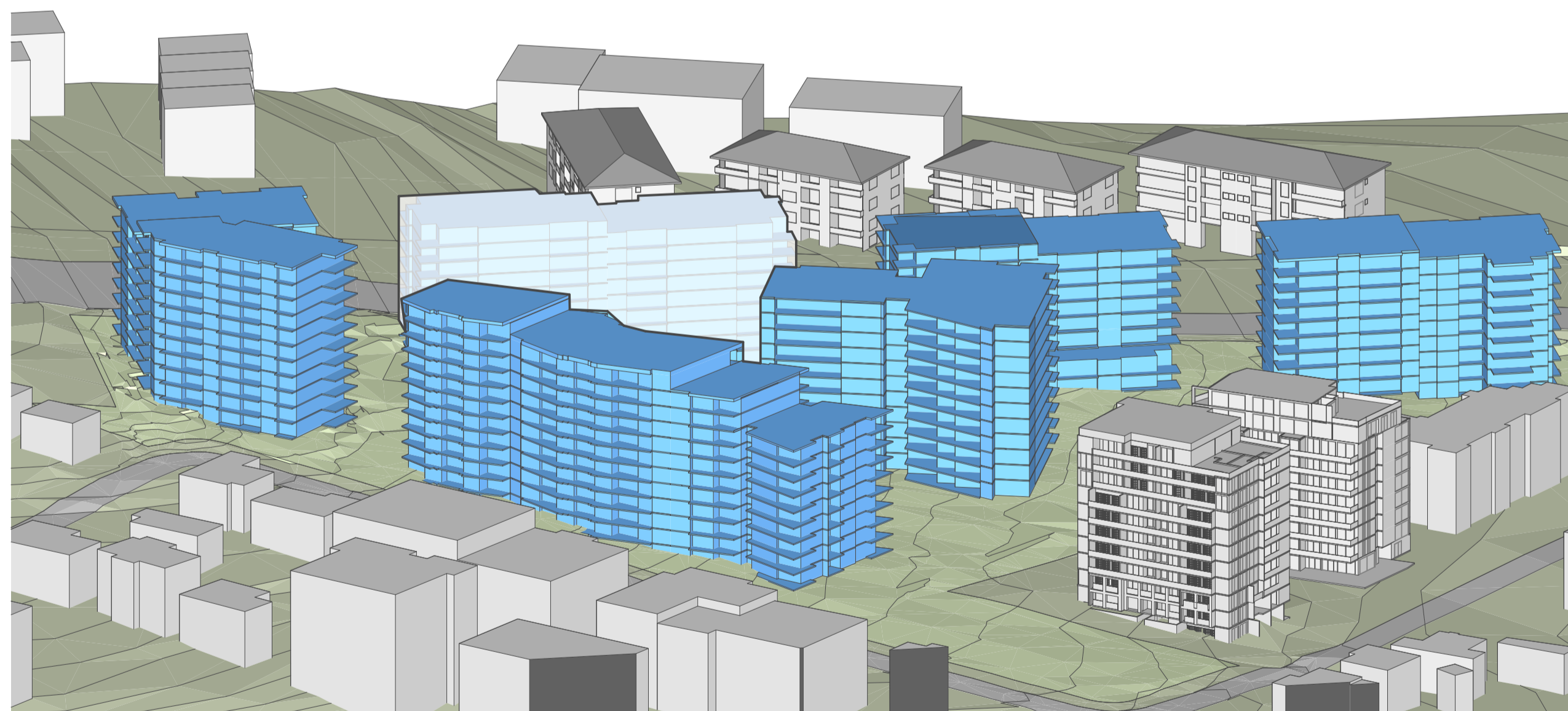
1300

JUNE 21



1400

JUNE 21



1500

JUNE 21

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REVISION	PLANNING PROPOSAL	KB	25.08.2023
-			

REVISION



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DRAWN	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE
TA	25.08.2023	AV	11.09.2023	20188	N.T.S.@A1

**PROJECT**

CARLINGFORD APARTMENTS, MERITON  
 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
 SYDNEY NSW 2118

**DRAWING TITLE**  
 VIEWS FROM THE SUN - EXISTING DA 2

**FENDER KATSALIDIS**

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 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 943 032

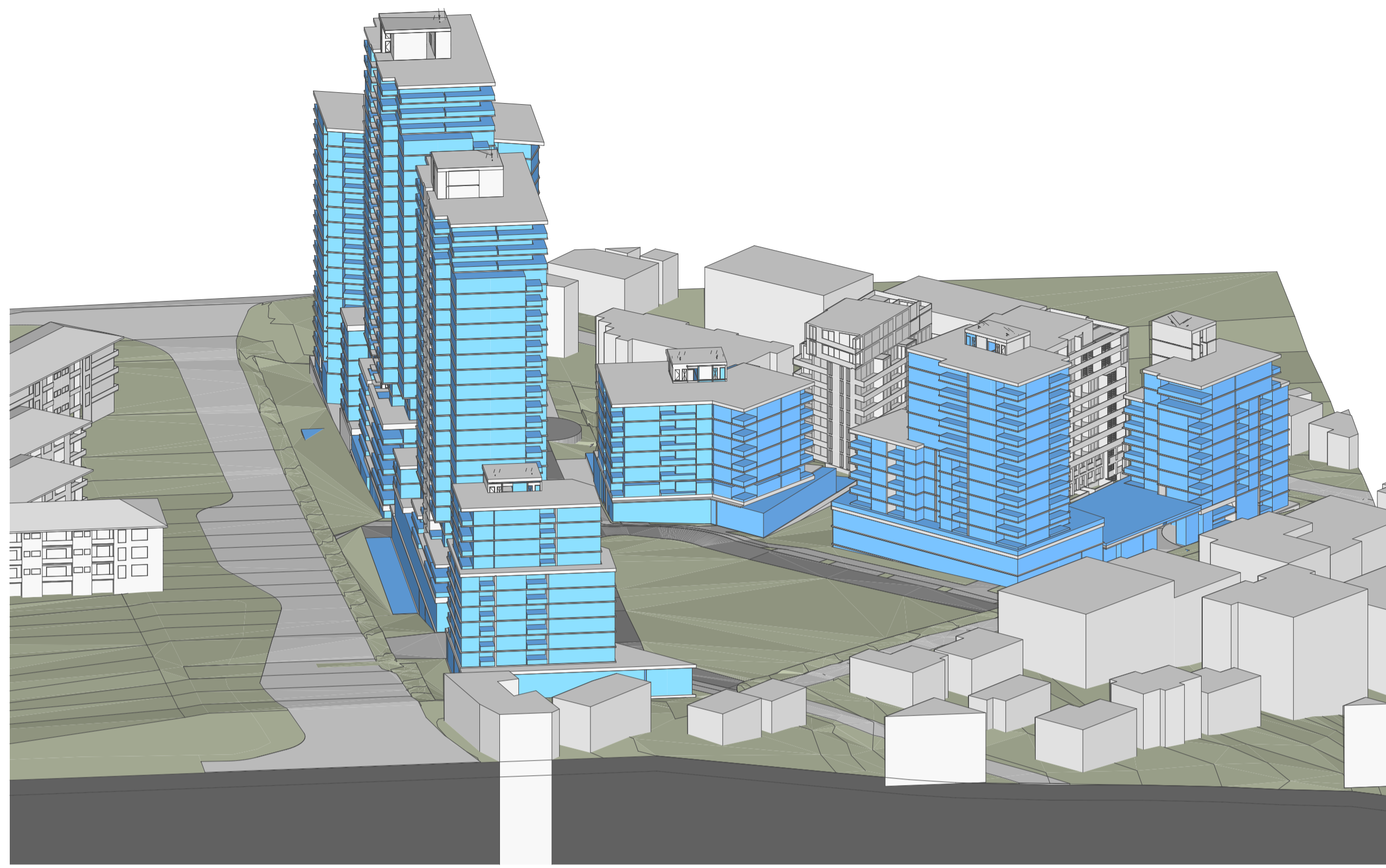
**ISSUE PURPOSE**  
 PLANNING PROPOSAL



**REV.**  
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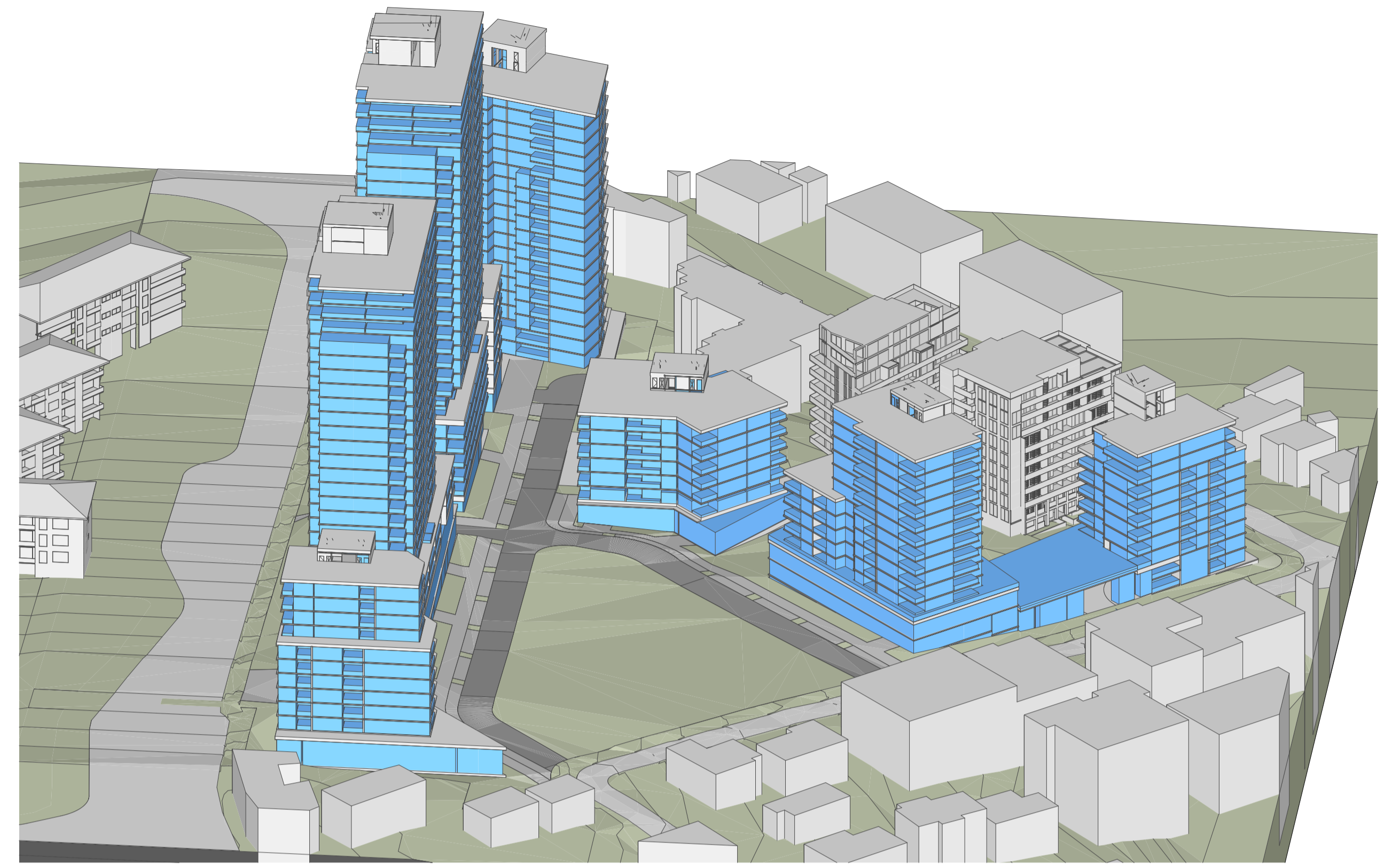
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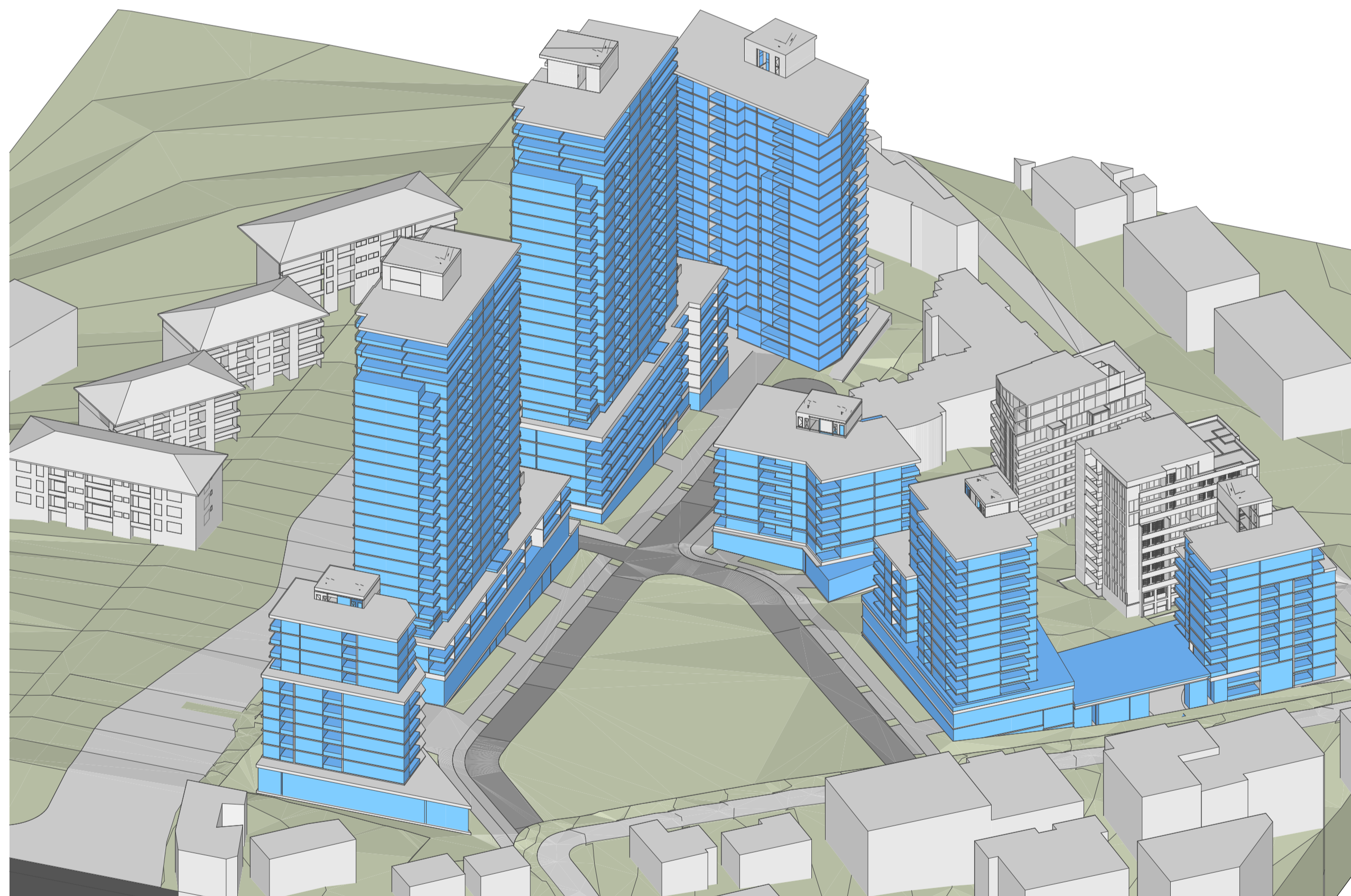
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JUNE 21



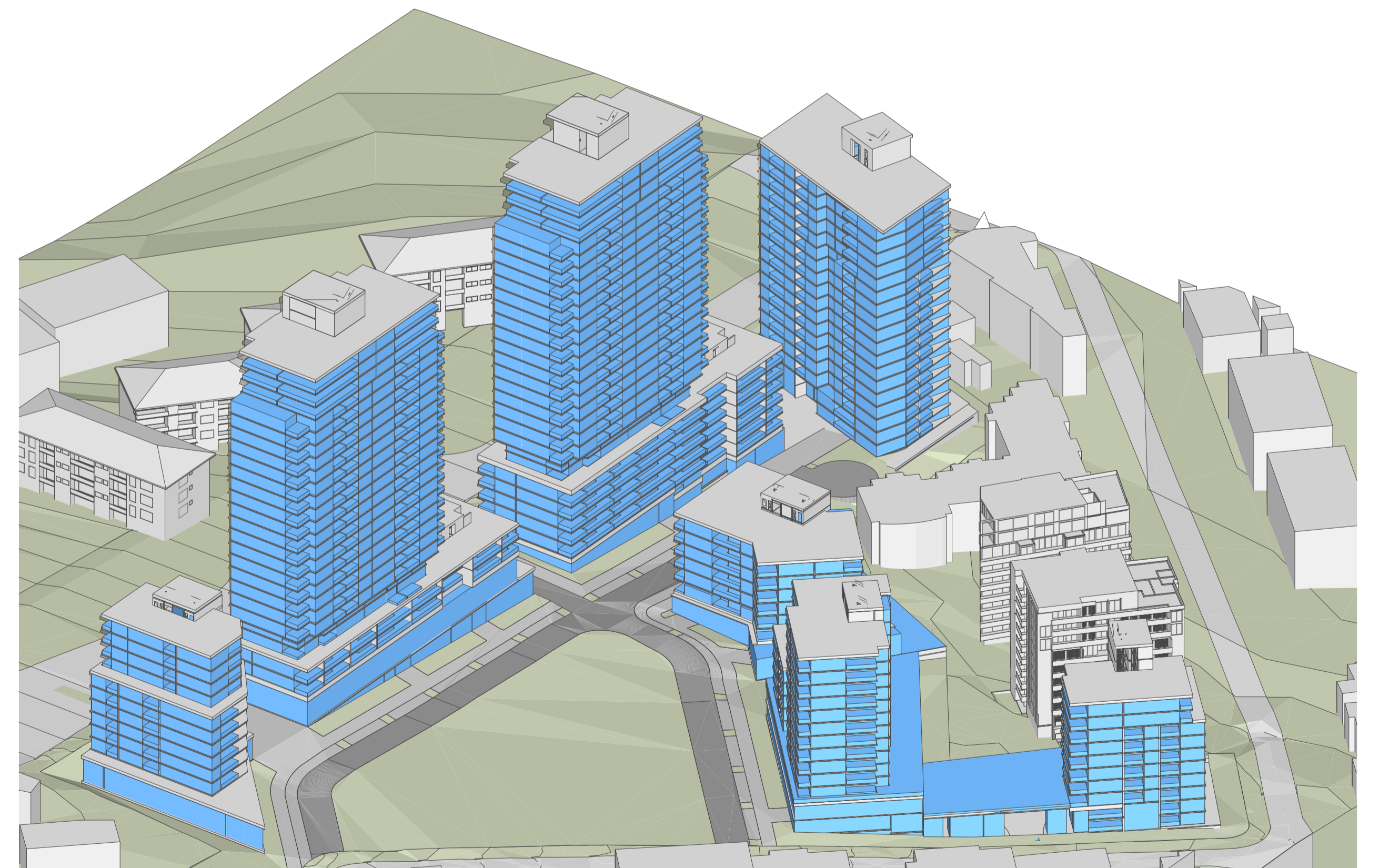
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JUNE 21



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JUNE 21

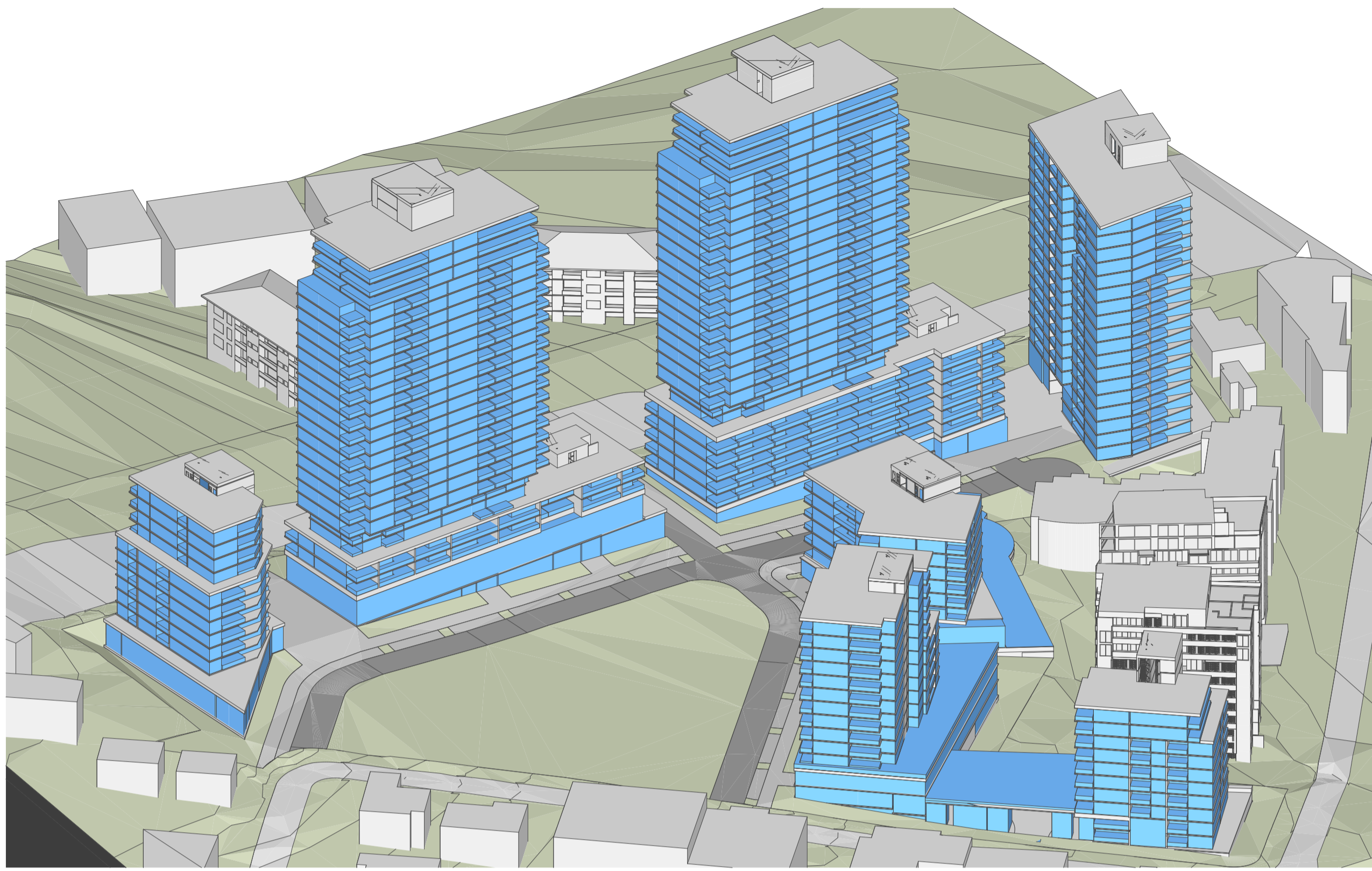


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JUNE 21



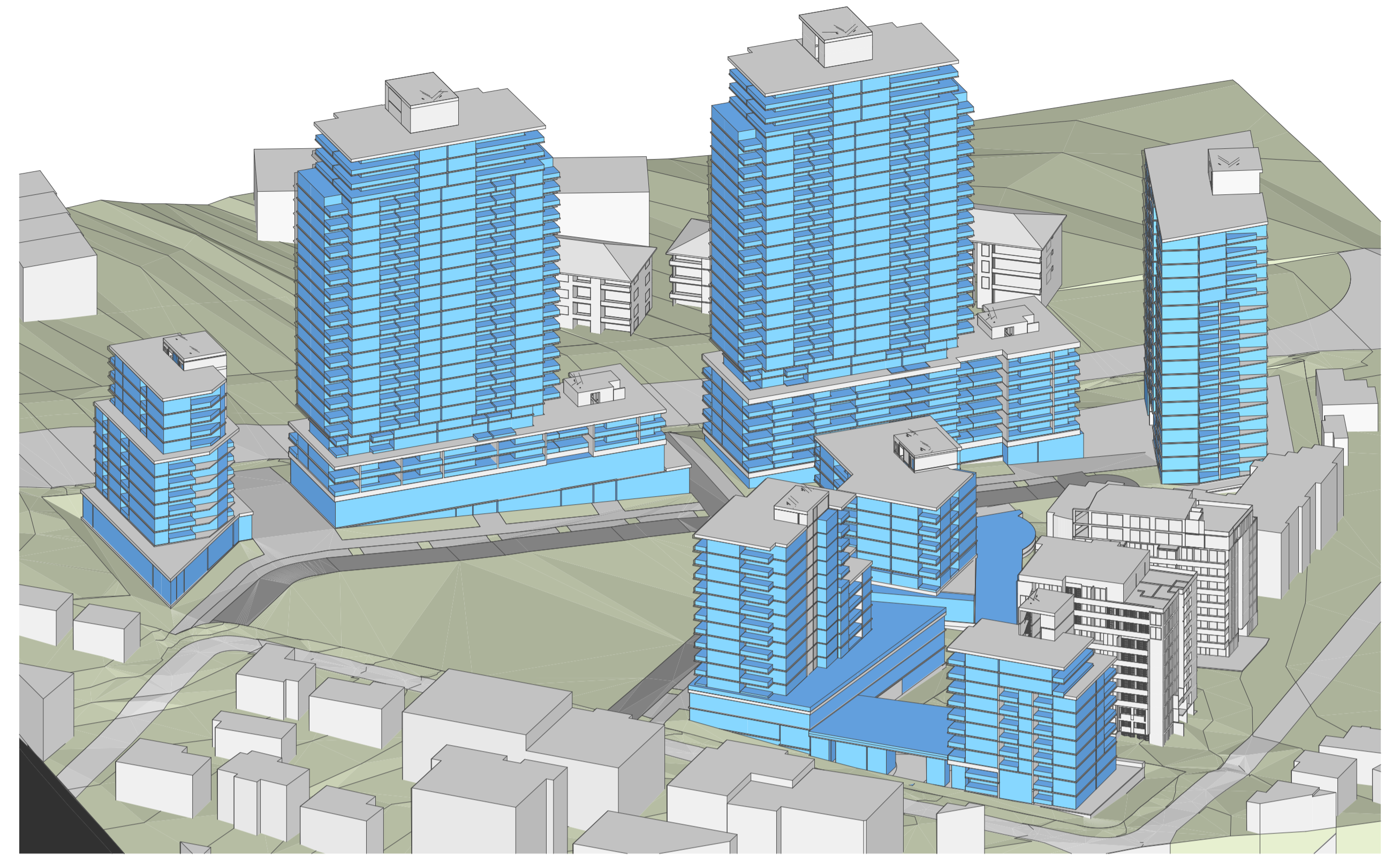




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JUNE 21

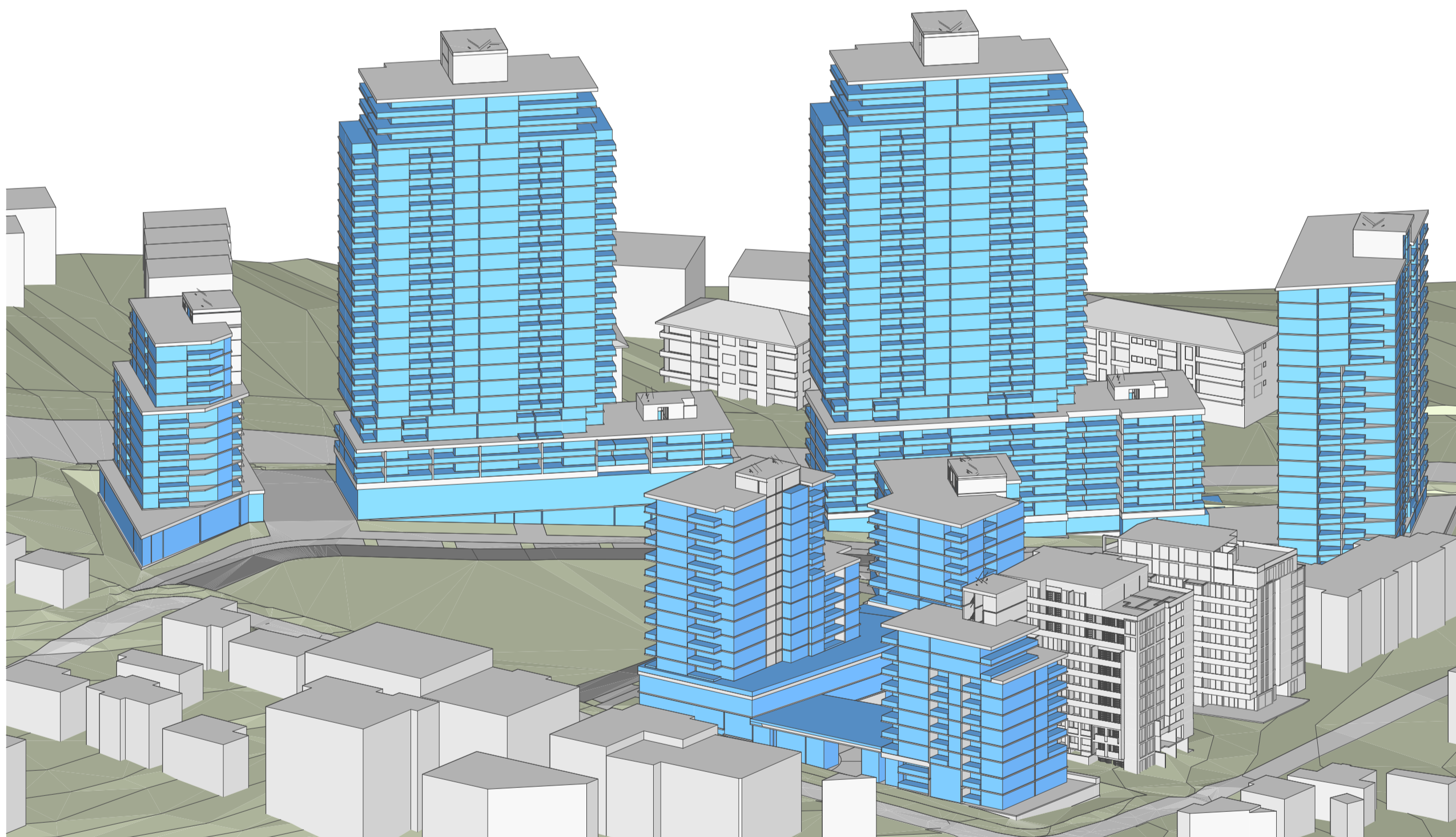
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1400

JUNE 21

-



1500

JUNE 21

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REVISION	DATE	BY
-	25.08.2023	KB

REVISION



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DRAWN	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE
TA	25.08.2023	AV	11.09.2023	20188	N.T.S.@A1

**PROJECT**

CARLINGFORD APARTMENTS, MERITON  
 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
 SYDNEY NSW 2118

**DRAWING TITLE**  
 VIEWS FROM THE SUN - PROPOSED DA 2

**FENDER KATSALIDIS**

WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 943 032

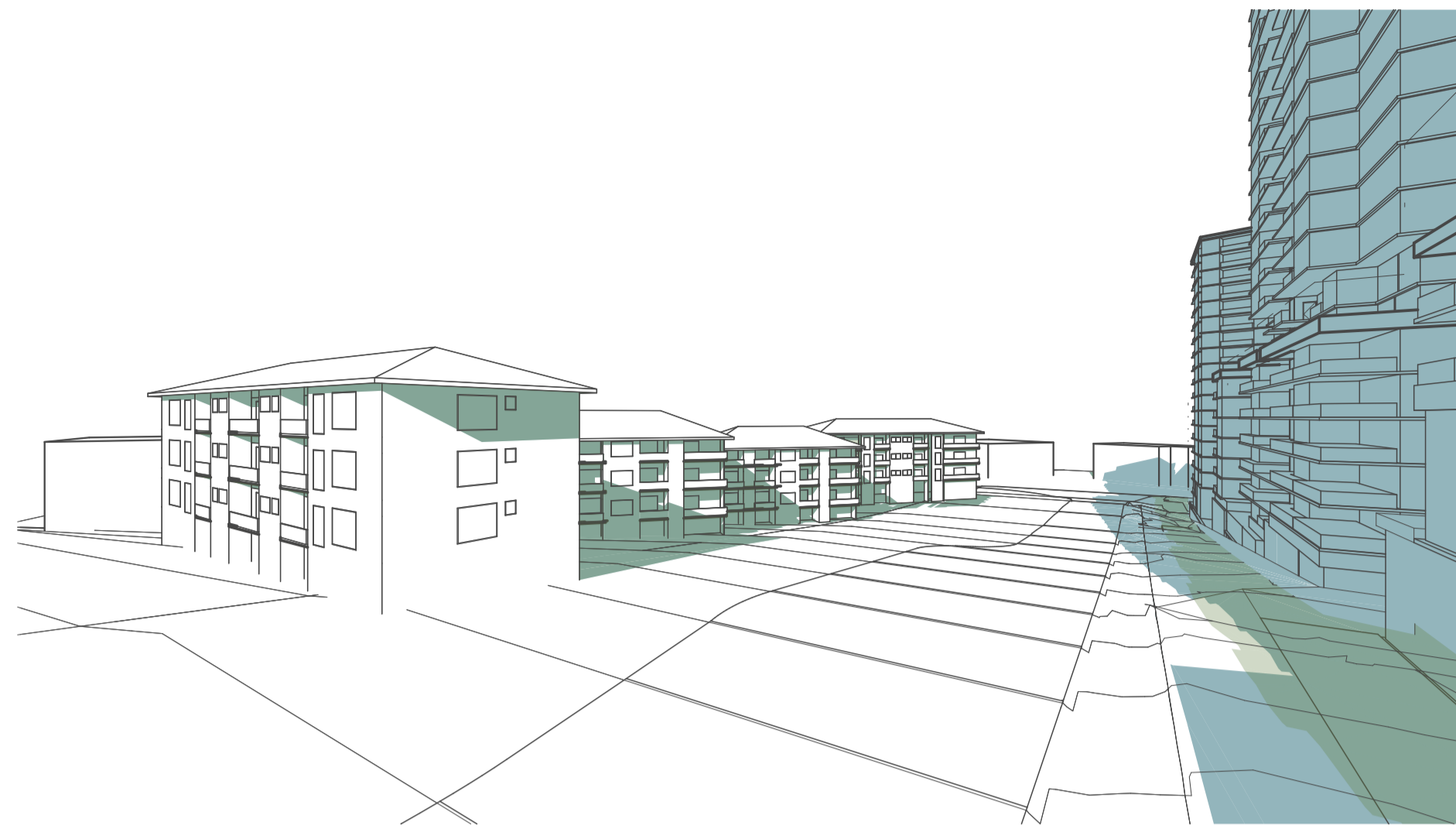
**ISSUE PURPOSE**  
 PLANNING PROPOSAL



**REV.**  
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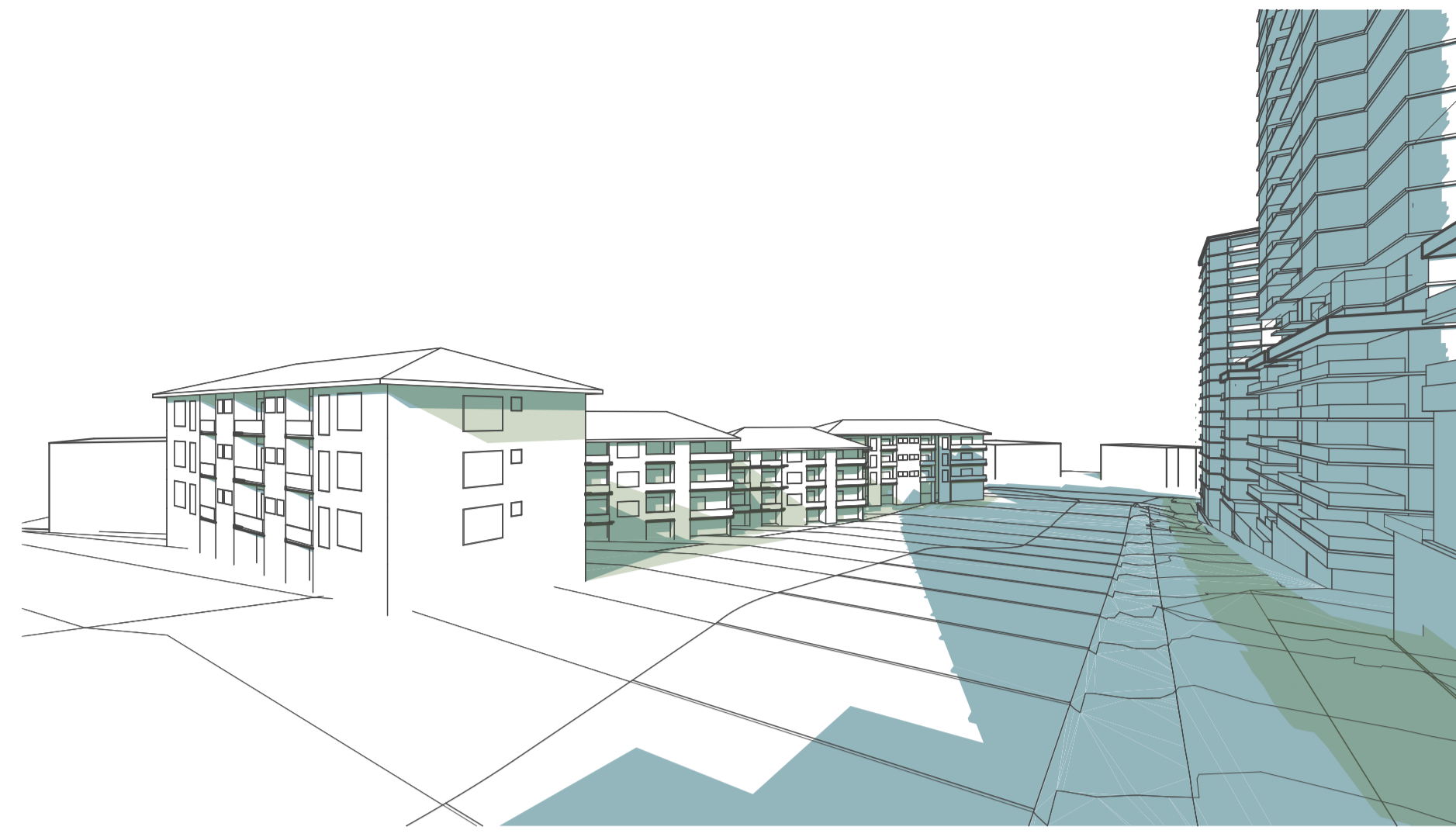
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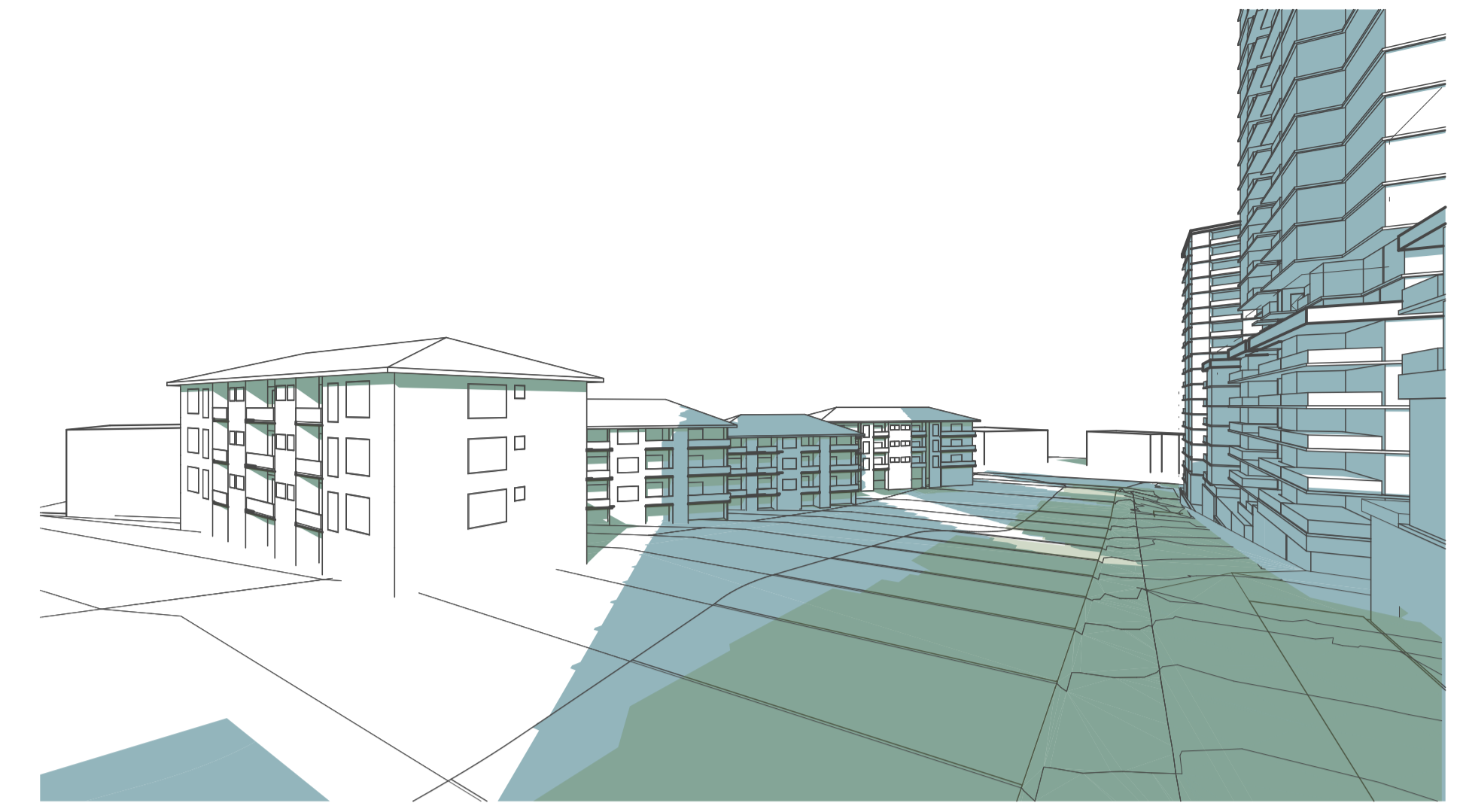
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JUNE 21



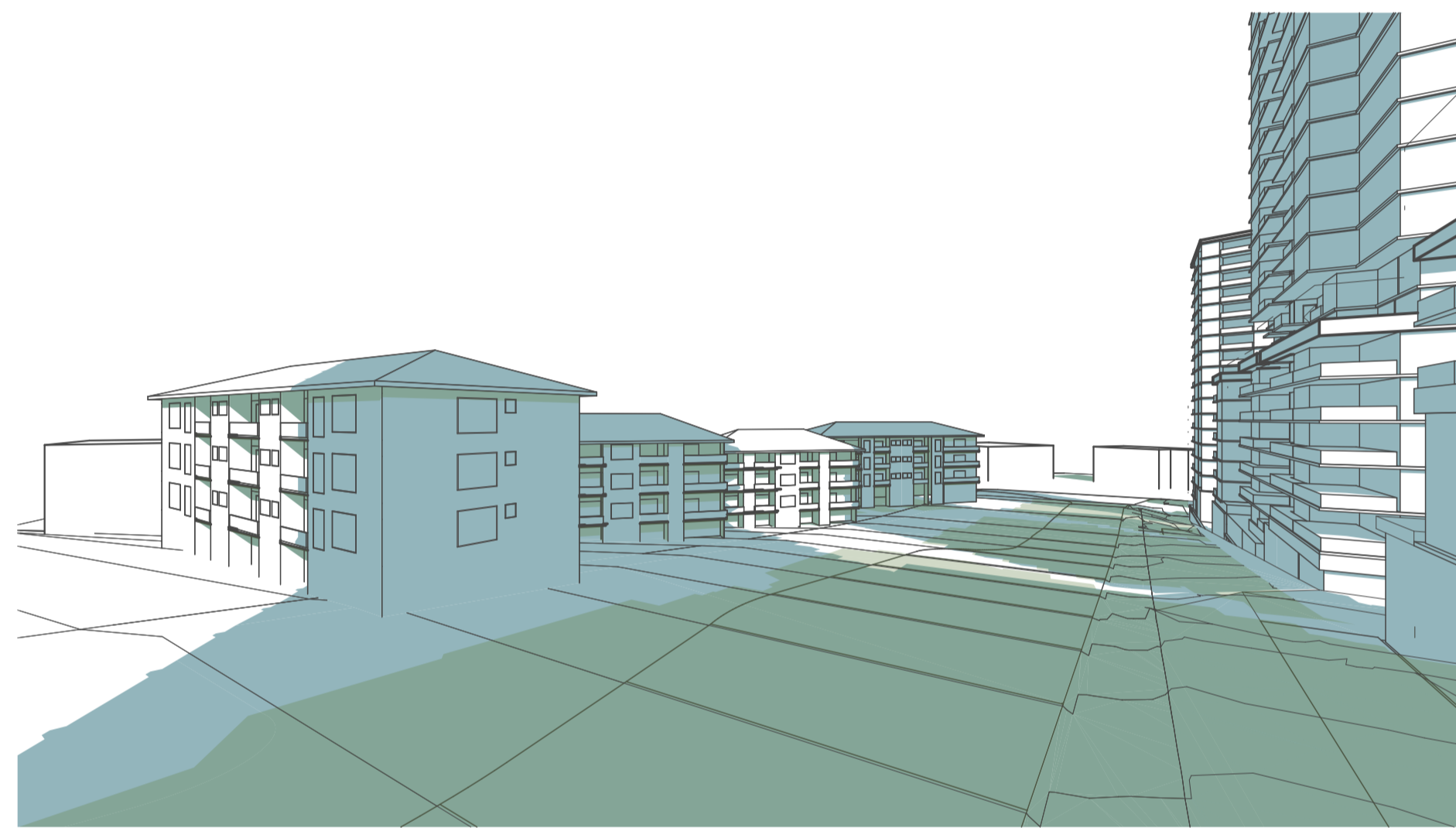
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JUNE 21



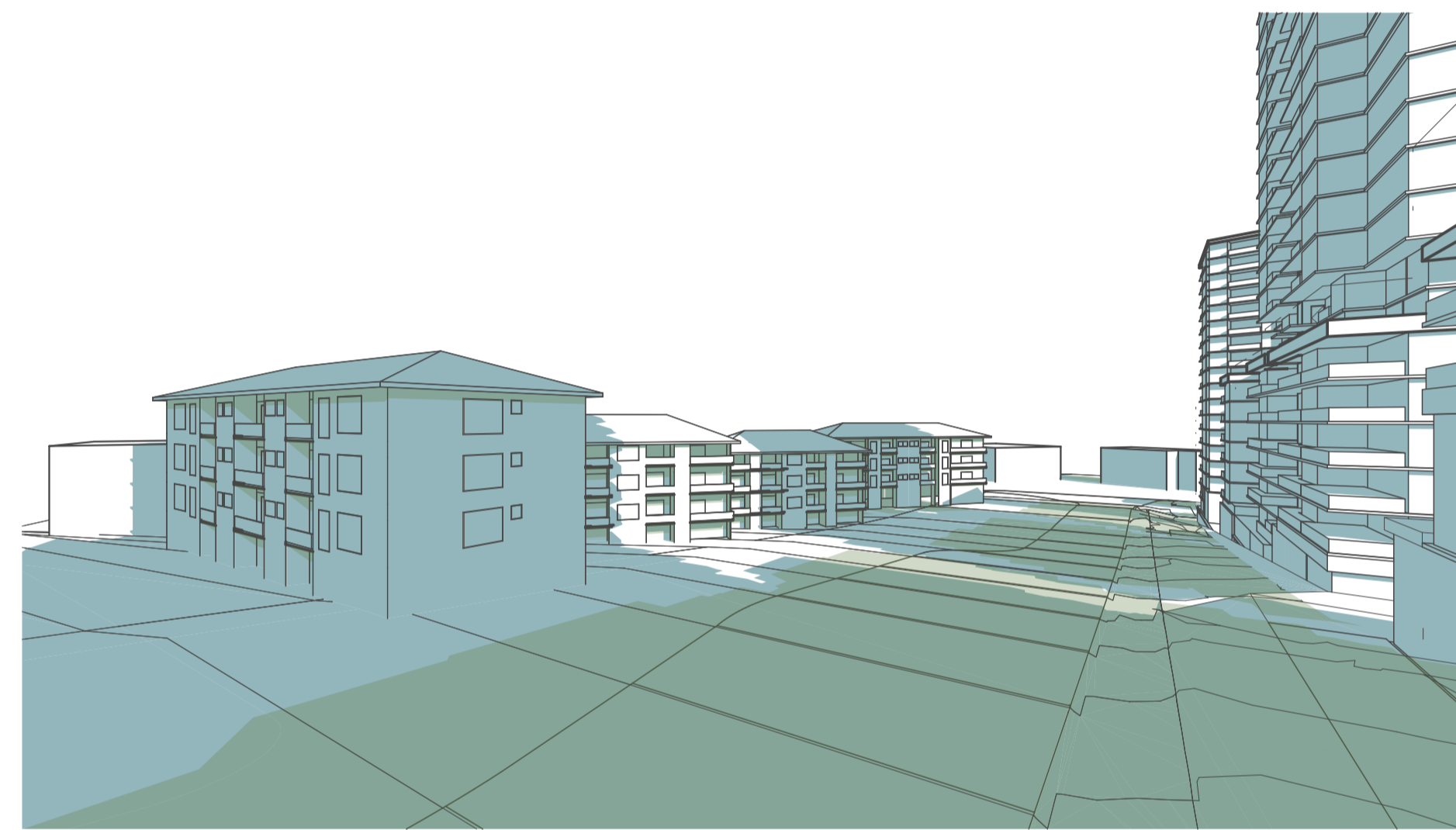
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JUNE 21



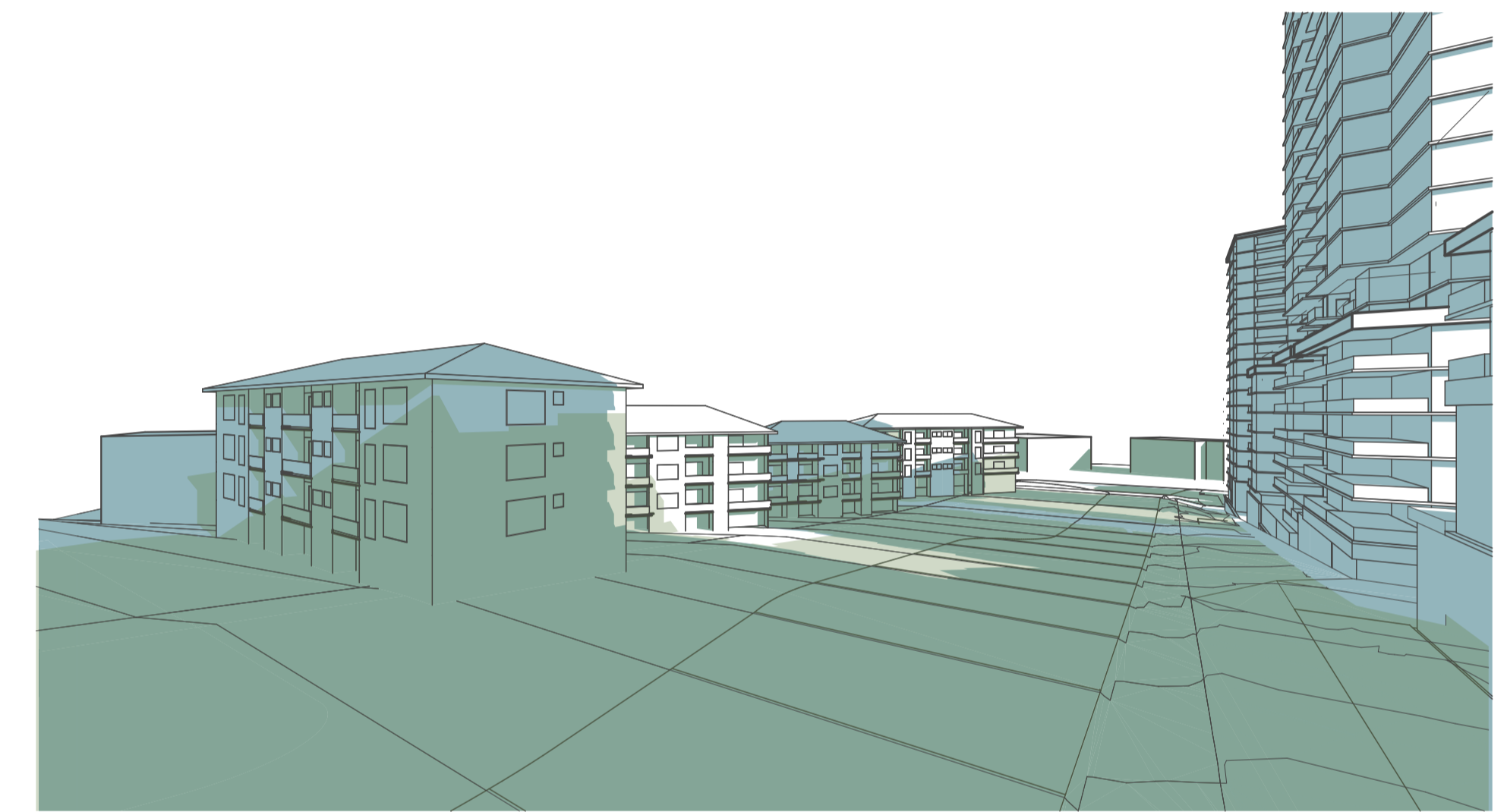
1300

JUNE 21



1400

JUNE 21



1500

JUNE 21



BUILD 01

NEIGHBOURING LIVING SPACES



BUILDING 02

NEIGHBOURING LIVING SPACES

**SHADOW DIAGRAMS LEGEND**

- SHADOWS CAST BY EXISTING DA
- ADDITIONAL SHADOWS CAST BY PROPOSED DEVELOPMENT
- SHADOWS REDUCED FROM EXISTING DA
- SITE BOUNDARY

NOTE: THERE WAS NO IMPACT FROM THE PROPOSED DEVELOPMENT AT 9AM JUNE 21

NOTE: FOR PURPOSES OF THIS STUDY WINDOWS HAVE BEEN LOCATED VIA SATELLITE IMAGERY AND PHOTOGRAPHS NOT SURVEYED INFORMATION.



BASE SITE PLAN

BIMcloud: fkasprbim01 - BIMcloud/20188 Pennant Hills Road, Carlingford/00 BIM MODELS/SD\_TP-DA/CENTRAL MODELS/20188 General\_Cleaned

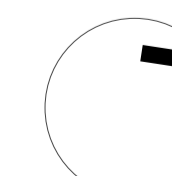
REVISION	DATE	BY
1	25.08.2023	KB

REVISION

QUALITY ASSURANCE	DATE OF REVIEW
<input checked="" type="checkbox"/> SCHEMATIC DESIGN REVIEW FOR THIS PROJECT IS COMPLETE. <input type="checkbox"/> DESIGN DEVELOPMENT REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED. <input type="checkbox"/> TENDER DOCUMENTATION REVIEW FOR THIS PROJECT IS YET TO BE COMPLETED. <input type="checkbox"/> CONSTRUCTION DOCUMENTATION REVIEW FOR THIS DRAWING IS YET TO BE COMPLETED.	28.08.2023

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DRAWN	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE
AA	25.08.2023	AV	11.09.2023	20188	N.T.S.@A1



**PROJECT**  
 CARLINGFORD APARTMENTS, MERITON  
 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
 SYDNEY NSW 2118

**DRAWING TITLE**  
 NEIGHBOURING IMPACT - 346-362 PHR

**FENDER KATSLIDIS**  
 WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
 NEW SOUTH WALES 2000 AUSTRALIA  
 TELEPHONE: +61 2 8216 3500  
 FENDER KATSLIDIS (AUST) PTY LTD ACN 092 943 032

**ISSUE PURPOSE**  
 PLANNING PROPOSAL



**REV.**  
 -

**DRAWING NO.**  
 PP04.10



NOT FOR CONSTRUCTION





**SOLAR ACCESS LEGEND**

- 2HRS OR MORE @ 9AM-3PM JUNE 21
- LESS THAN 2 HRS @ 9AM-3PM JUNE 21

**SOLAR ACCESS RESULTS**

- 36 (60%) APARTMENTS ACHIEVE 2HRS SOLAR
- 60 TOTAL APARTMENTS

NOTE: FOR PURPOSES OF THIS STUDY BUILDINGS AND APARTMENTS HAVE BEEN LOCATED VIA SATELITE IMAGERY ONLY NOT SURVEYED INFORMATION. THIS STUUDY IS INDICATIVE AND SHOULD NOT BE RELIED ON FOR CONSTRUCTION.

REVISION	REVISION
-	PLANNING PROPOSAL
KB	25.08.2023



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DRAWN	DATE	CHECKED	PLOT DATE	JOB NO.	SCALE
AA	25.08.2023	AV	31.08.2023	20188	N.T.S.@A1

**PROJECT**  
 CARLINGFORD APARTMENTS, MERITON  
 263-281 PENNANT HILLS ROAD, CARLINGFORD  
 SYDNEY NSW 2118

**DRAWING TITLE**  
 NEIGHBOURING IMPACT - 346-362 PHR

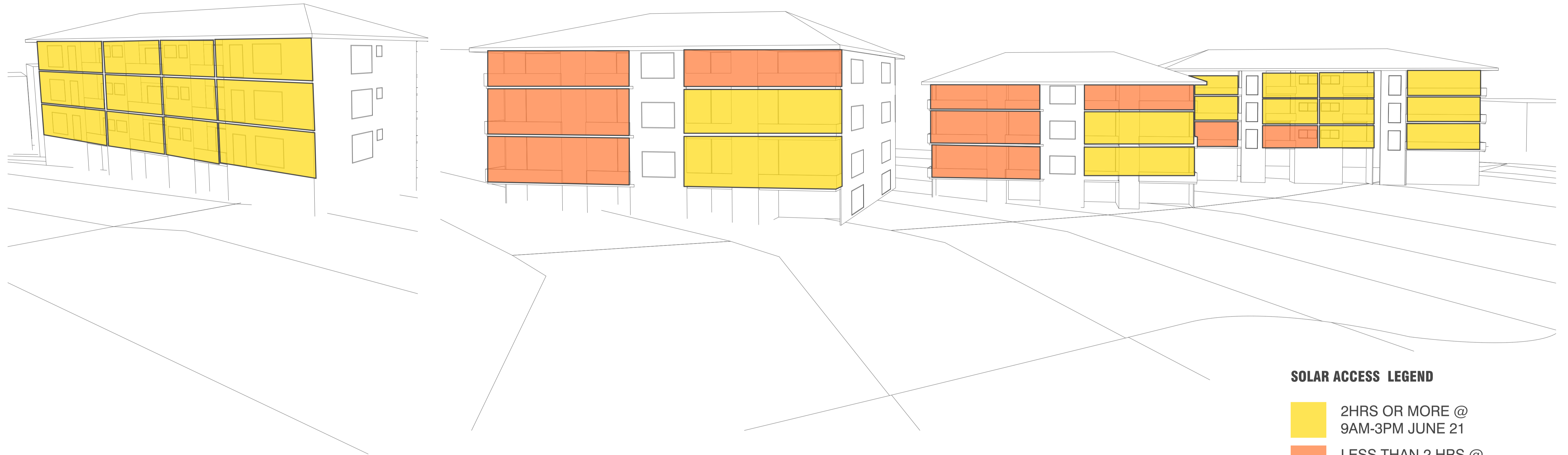
**FENDER KATSALIDIS**  
 WWW.FKAUSTRALIA.COM  
 L21, 259 GEORGE STREET, SYDNEY  
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 TELEPHONE: +61 2 8216 3500  
 FENDER KATSALIDIS (AUST) PTY LTD ACN 092 943 032

**ISSUE PURPOSE**  
 PLANNING PROPOSAL



**REV.**  
 -

**DRAWING NO.**  
 PP04.11



**SOLAR ACCESS LEGEND**

- 2HRS OR MORE @ 9AM-3PM JUNE 21
- LESS THAN 2 HRS @ 9AM-3PM JUNE 21

**SOLAR ACCESS RESULTS**

- 26 (43%) APARTMENTS ACHIEVE 2HRS SOLAR
- 10 (17%) REDUCED SOLAR FROM PROPOSED DEVELOPMENT
- 60 TOTAL APARTMENTS

**NOT MORE THAN 20% REDUCTION**

NOTE: THIS COMPLIES WITH OBJECTIVE 3B-2.3 OF THE ADG "WHERE AN ADJOINING PROPERTY DOES NOT CURRENTLY RECIEVE THE REQUIRED HOURS OF SOLAR ACCESS, THE PROPOSED BUILDING ENSURES SOLAR ACCESS TO NEIGHBOURING PROPERTIES IS NOT REDUCED BY MORE THAN 20%"

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REVISION	REVISION
PLANNING PROPOSAL	KB 25.08.2023



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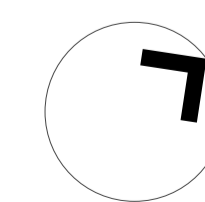
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AA	25.08.2023	AV	11.09.2023	20188	N.T.S.@A1



**PROJECT**  
 CARLINGFORD APARTMENTS, MERITON  
 263-273 & 277-281 PENNANT HILLS RD, CARLINGFORD  
 SYDNEY NSW 2118

**DRAWING TITLE**  
 NEIGHBOURING IMPACT - 346-362 PHR

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**ISSUE PURPOSE**  
 PLANNING PROPOSAL



**REV.**  
 -

**DRAWING NO.**  
 PP04.12