

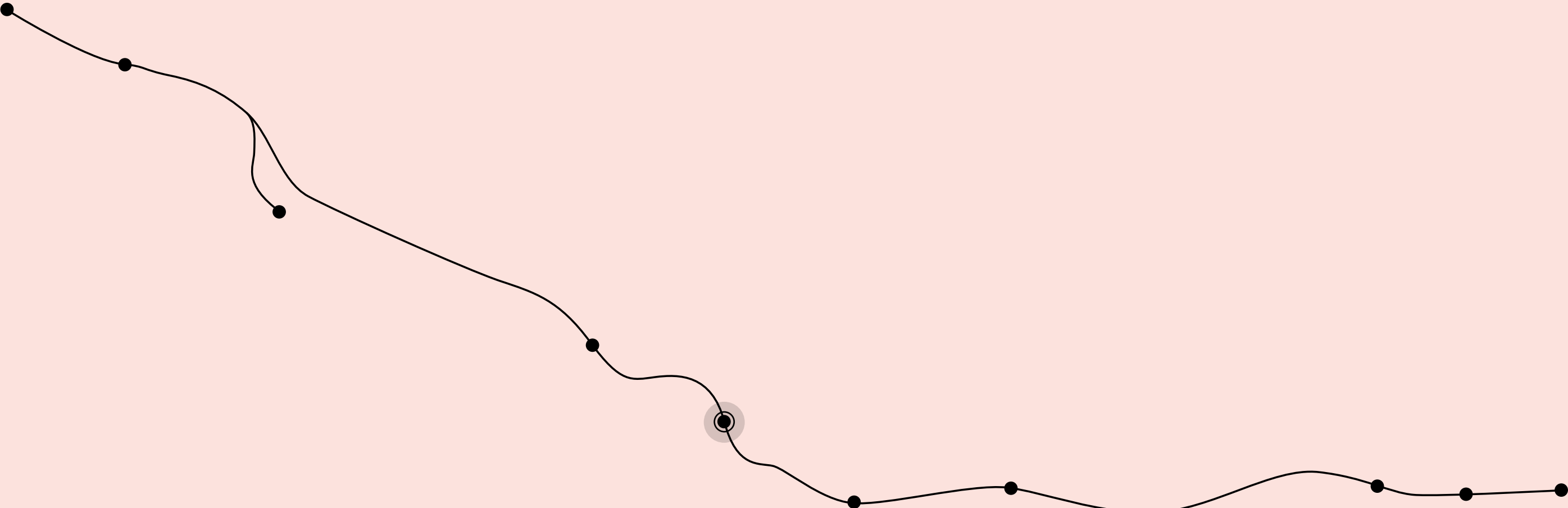
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# Appendix K

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## Shadow Impact Analysis

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Sydney  
Metro  
West

Sydney Olympic Park

REVISION	DATE	SUITABILITY CODE	TEAMBINDER DOCUMENT NUMBER	TB REVISION
Rev when approved	21/09/2022	S4	SMWSTEDS-SMD-OLP-SN400-AR-RPT-044002	E

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FUNCTION	POSITION	NAME	DATE
Author	Team Leader	Alen Spahic	AS
Technical Checker	Project Leader	Anthony Chow	AC
Technical Reviewer	Principal in Charge	John Prentice	JP
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Amendment Record

DATE	REVISION	AMENDMENT DESCRIPTION	AUTHOR
17/12/2021	A	DRAFT 1 ISSUE	AS
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# Executive Summary

This Shadow Impact Analysis supports a Concept State Significant Development Application (Concept SSDA) submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The Concept SSDA is made under section 4.22 of the EP&A Act.

Sydney Metro is seeking to secure concept approval for an over station development (OSD) and adjacent station development (ASD) on an area defined as Site 47 within the Central Precinct of Sydney Olympic Park (referred collectively as the 'proposed development'). The proposed development will comprise of one new commercial and retail building (Building 1) above the Sydney Olympic Park metro station and two residential accommodation buildings (Buildings 2 and 3) with retail and commercial space, adjacent to the Sydney Olympic Park metro station.

The Concept SSDA seeks consent for a building envelope and mixed-use purposes, maximum building height, a maximum gross floor area (GFA), pedestrian and vehicular access, circulation arrangements and associated car parking and the strategies and design parameters for the future detailed design of development.

The Shadow Impact Analysis is providing a solar access analysis of the overshadowing impacts of the development within the site, on surrounding properties and public spaces (during summer and winter solstice and spring and autumn equinox) at hourly intervals between 9am and 3pm. The results demonstrate compliance with solar access requirements set by the local authority (Sydney Olympic Park Authority) and provide evidence that the proposed development would not affect solar access to future residential development or surrounding properties.

This report is a proof-of-concept design compliancy and could be used as a guidance for future designers and developers in achieving required standard for the proposed and surrounding development.

# Introduction

## 1.1 Sydney Metro West

Sydney Metro West will double rail capacity between Greater Parramatta and the Sydney Central Business District (CBD), transforming Sydney for generations to come. The once in a century infrastructure investment will have a target travel time of about 20 minutes between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

Stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD).

Sydney Metro West station locations are shown in Figure 1.1.

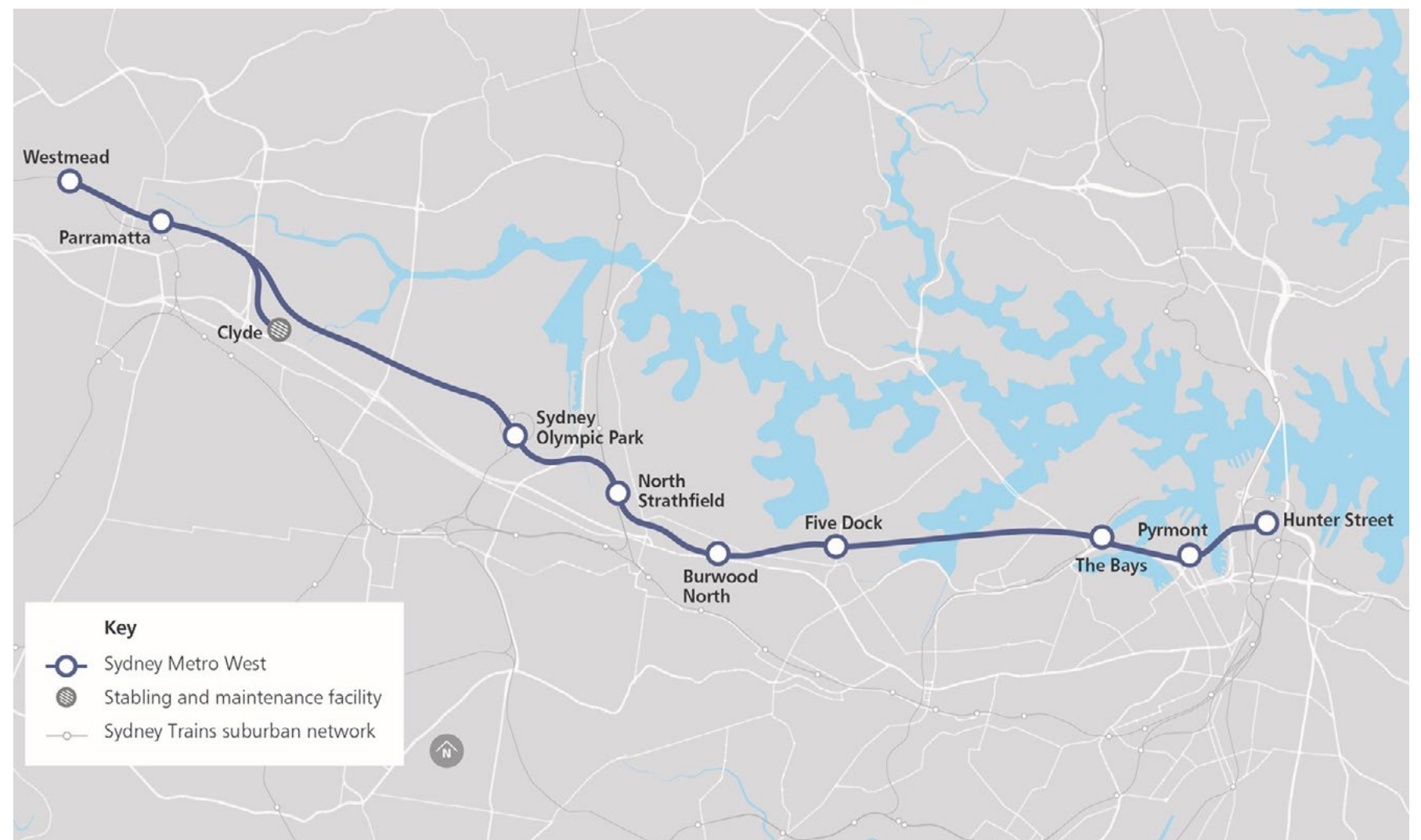


Figure 1.1 Sydney Metro West

1.2 Background and planning context

Sydney Metro is seeking to deliver Sydney Olympic Park metro station under a two part planning approval process. The station fit-out infrastructure is to be delivered under a Critical State Significant Infrastructure (CSSI) application subject to provisions under division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), while the over and adjacent station developments are to be delivered under a State Significant Development (SSD) subject to the provisions of part 4 of the EP&A Act.

1.2.1 Critical State Significant Infrastructure

The State Significant Infrastructure (SSI) planning approval process for the Sydney Metro West metro line, including delivery of station infrastructure, has been broken down into a number of planning application stages, comprising the following:

- Concept and Stage 1 CSSI Approval (SSI-10038) – All major civil construction works between Westmead and The Bays including station excavation, tunnelling and demolition of existing buildings (approved 11 March 2021)
- Stage 2 CSSI Application (SSI- 19238057) – All major civil construction works between The Bays and Hunter Street Station (under assessment)
- Stage 3 CSSI Application (SSI- 22765520) – Tunnel fit-out, construction of stations, ancillary facilities and station precincts between Westmead and Hunter Street Station, and operation and maintenance of the Sydney Metro West line (under assessment).

1.2.2 State Significant Development Application

The SSDA will be undertaken as a staged development with the subject Concept State Significant Development Application (Concept SSDA) being consistent with the meaning under section 4.22 of the EP&A Act and seeking conceptual approval for a building envelope, land uses, maximum building heights, a maximum gross floor area, pedestrian and vehicle access, vertical circulation arrangements and associated car parking. A subsequent Detailed SSD/s is to be prepared by a future development partner which will seek consent for detailed design and construction of the development.

1.3 Purpose of the report

This Shadow Impact Analysis supports a Concept SSDA submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the EP&A Act. The Concept SSDA is made under section 4.22 of the EP&A Act.

This report has been prepared to specifically respond to the Secretary's Environmental Assessment Requirements (SEARs) issued for the concept SSDA on 18 February 2022 which states that the environmental impact statement (EIS) is to address the following requirements:

ITEM	SEARs requirement	Where addressed in report
4. Environmental Amenity	Assess amenity impacts on the surrounding locality, including lighting impacts, reflectivity, solar access, visual privacy, visual amenity, view loss and view sharing, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated.	This report
	Provide a solar access analysis of the overshadowing impacts of the development within the site, on surrounding properties and public spaces(during summer and winter solstice and spring and autumn equinox) at hourly intervals between 9am and 3pm, when compared to the existing situation and a compliant development (if relevant).	This report

# The site and proposal

## 2.1 Site location and description

The site is located within Sydney Olympic Park and is situated within the City of Parramatta Local Government Area. The site is in the Central Precinct of Sydney Olympic Park and defined as Site 47 in the Proposed SOP Master Plan (Interim Metro Review). The broader metro site is bound by Herb Elliot Avenue to the north, Olympic Boulevard to the west and Figtree Drive to the south as shown in Figure 12.

As described in Table 11, the site comprises part of Lot 59 in DP 786296 and Lot 58 in DP 786296, and comprises approximately 11,407m2 of land.

Table 11 Site legal description

Street Address	Legal Description
5 Figtree Drive, Sydney Olympic Park	Lot 58 in DP 786296
7 Figtree Drive, Sydney Olympic Park	Lot 59 in DP 786296



Figure 12 Sydney Olympic Park metro station location precinct



2.2 Overview of this proposal

The Concept SSDA will seek consent for three building envelopes and the delivery of Precinct Street A as detailed in Table 1-2 and Figure 1-3.

Table 1 2 Sydney Olympic Park proposed development overview

Item	Description
Land use	Building 1: Commercial and retail
	Building 2: Commercial, retail and residential
	Building 3: Commercial, retail and residential
Building Height (RL) /	Building 1: 120.20 / 21 storeys
Number of storeys	Building 2: 116.90 / 27 storeys
	Building 3: 171.50 / 45 storeys
Gross Floor Area (m2)	Building 1: 28,517
	Building 2: 12,089
	Building 3: 27,384
	TOTAL: 68,000
Car parking spaces	358

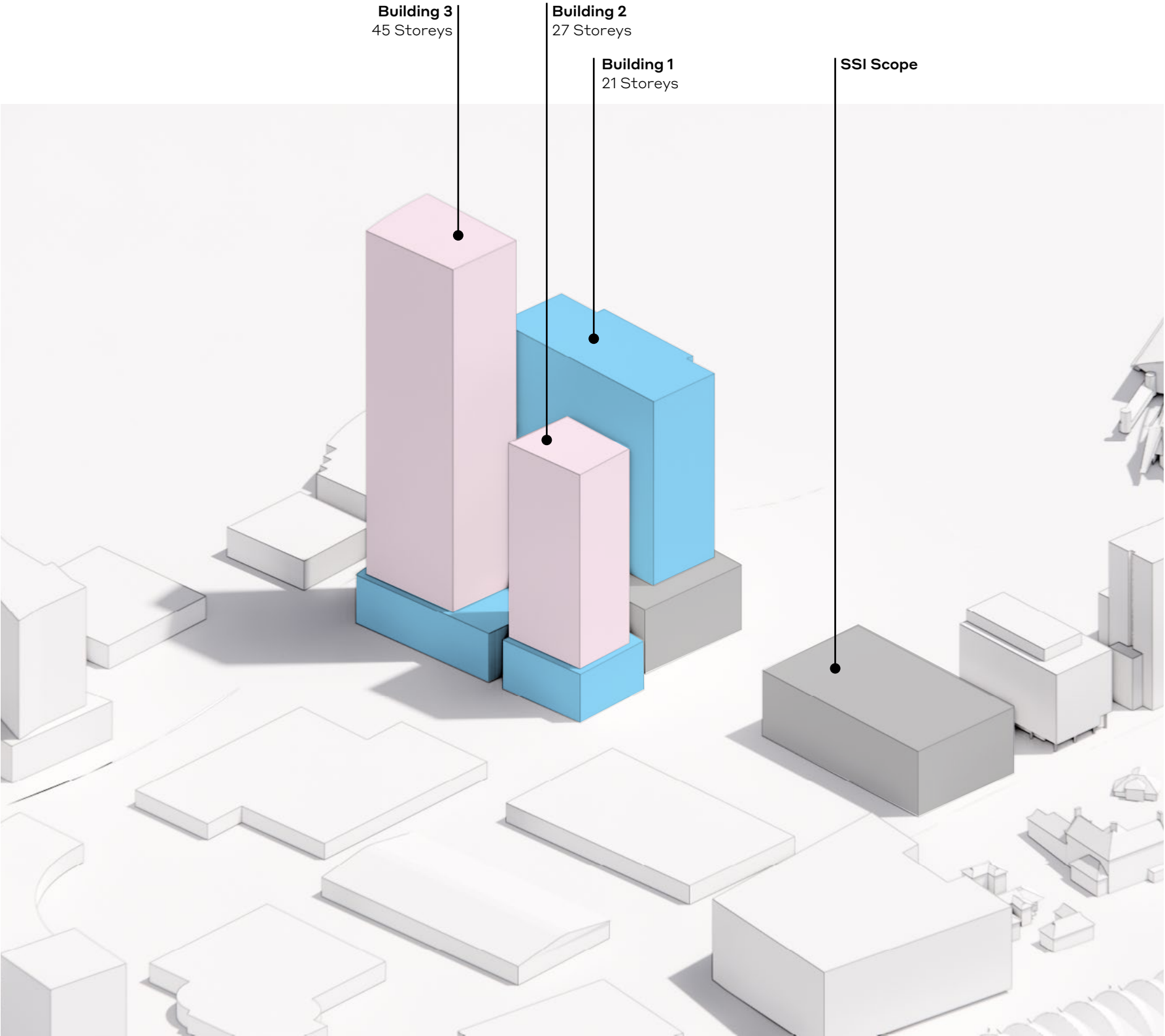
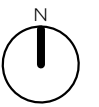


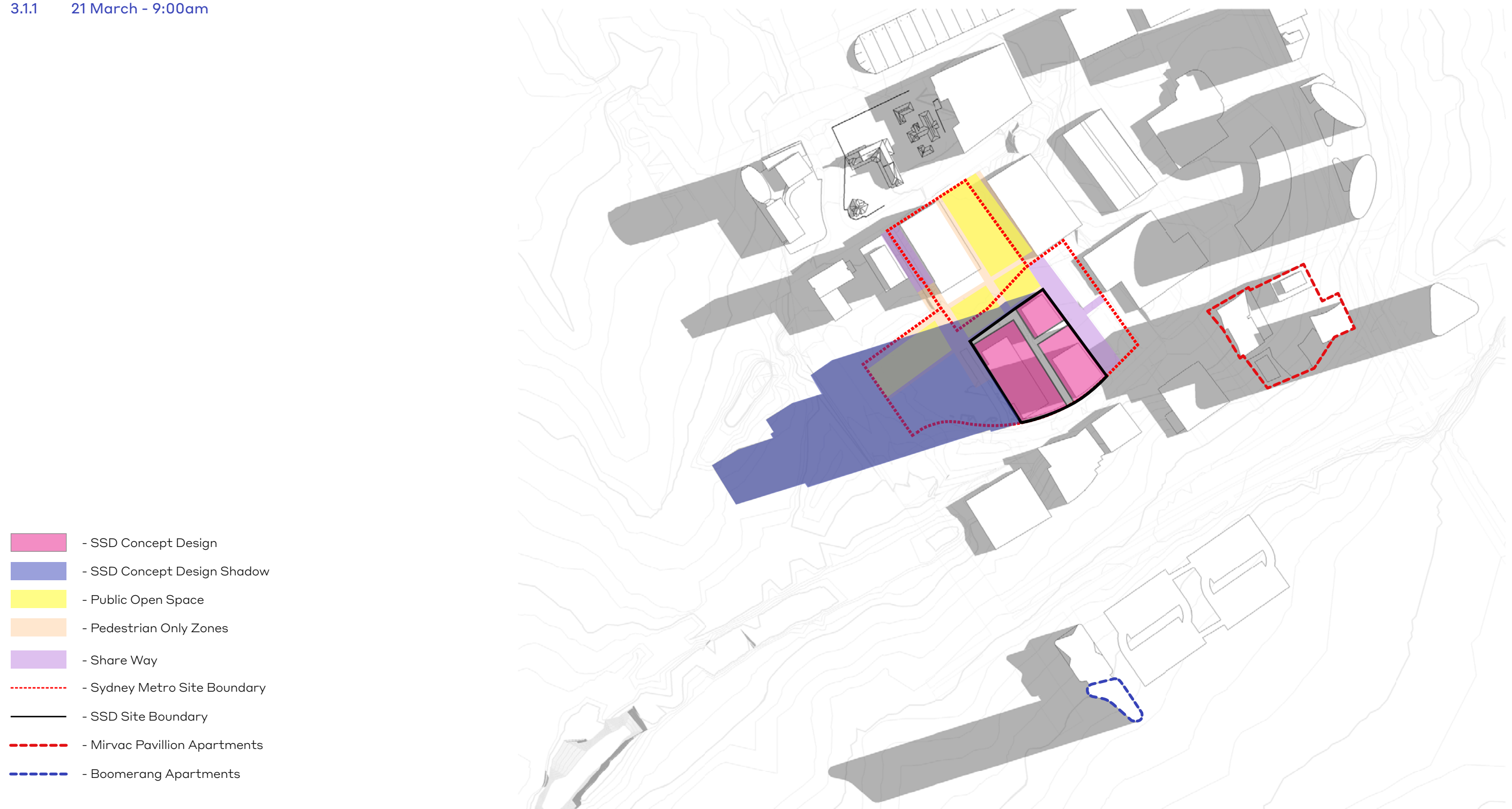
Figure 13 - Proposed Concept SSDA development and CSSI scope

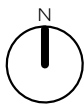
# Overshadowing Impact on Existing Context



## 3.1 Autumn Equinox

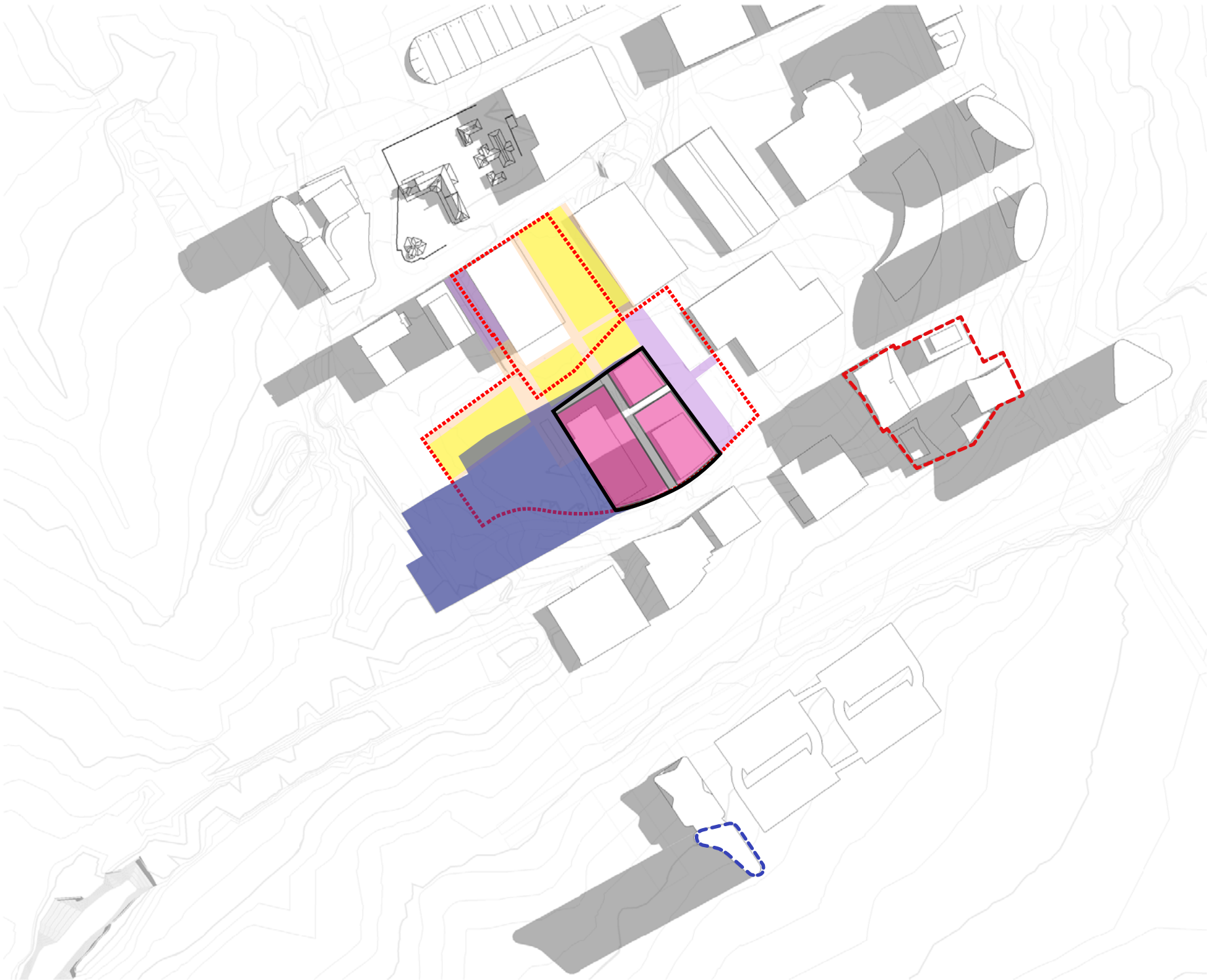
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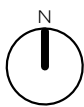


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- SSD Concept Design
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- Share Way
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- SSD Site Boundary
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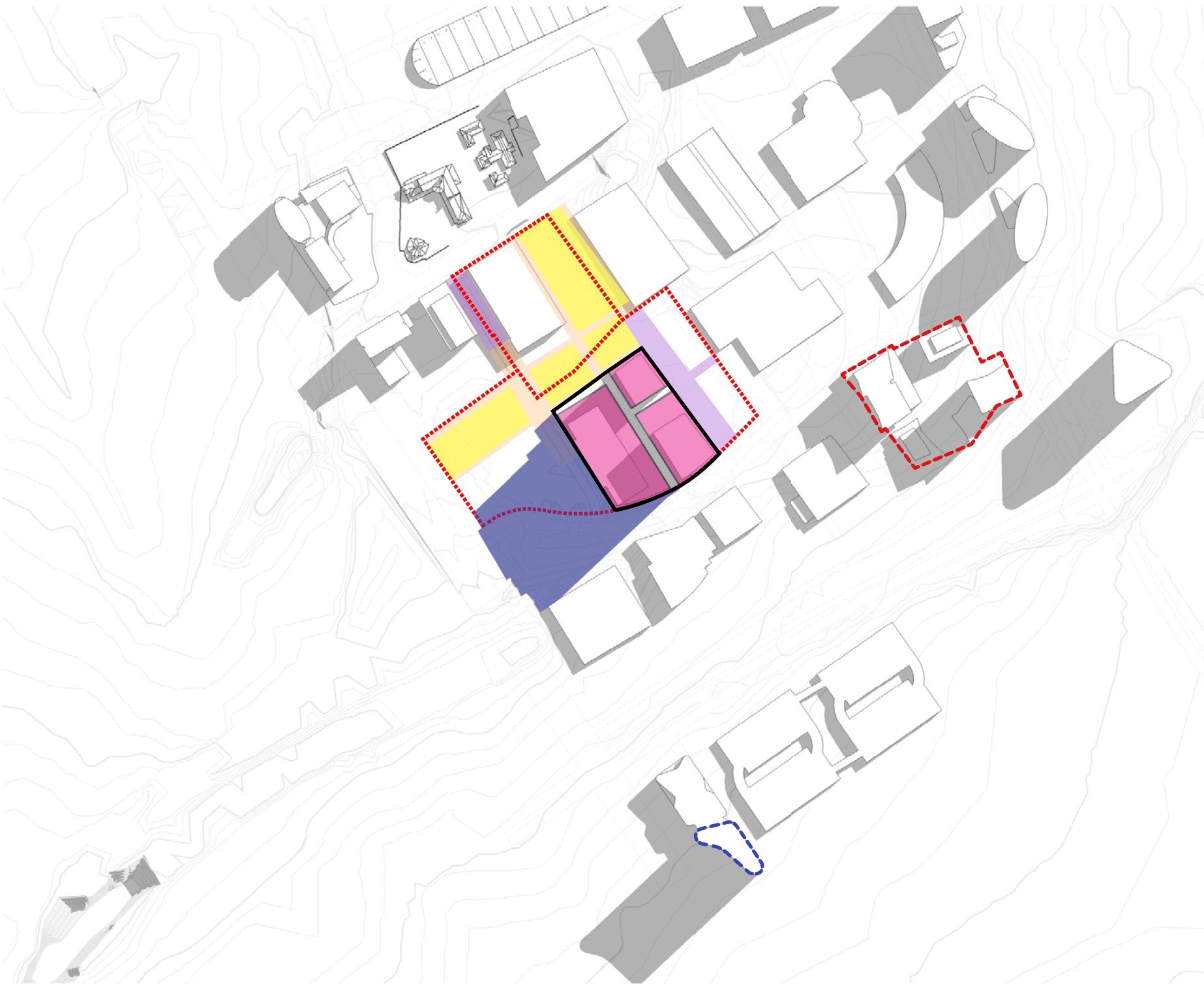




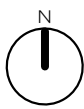


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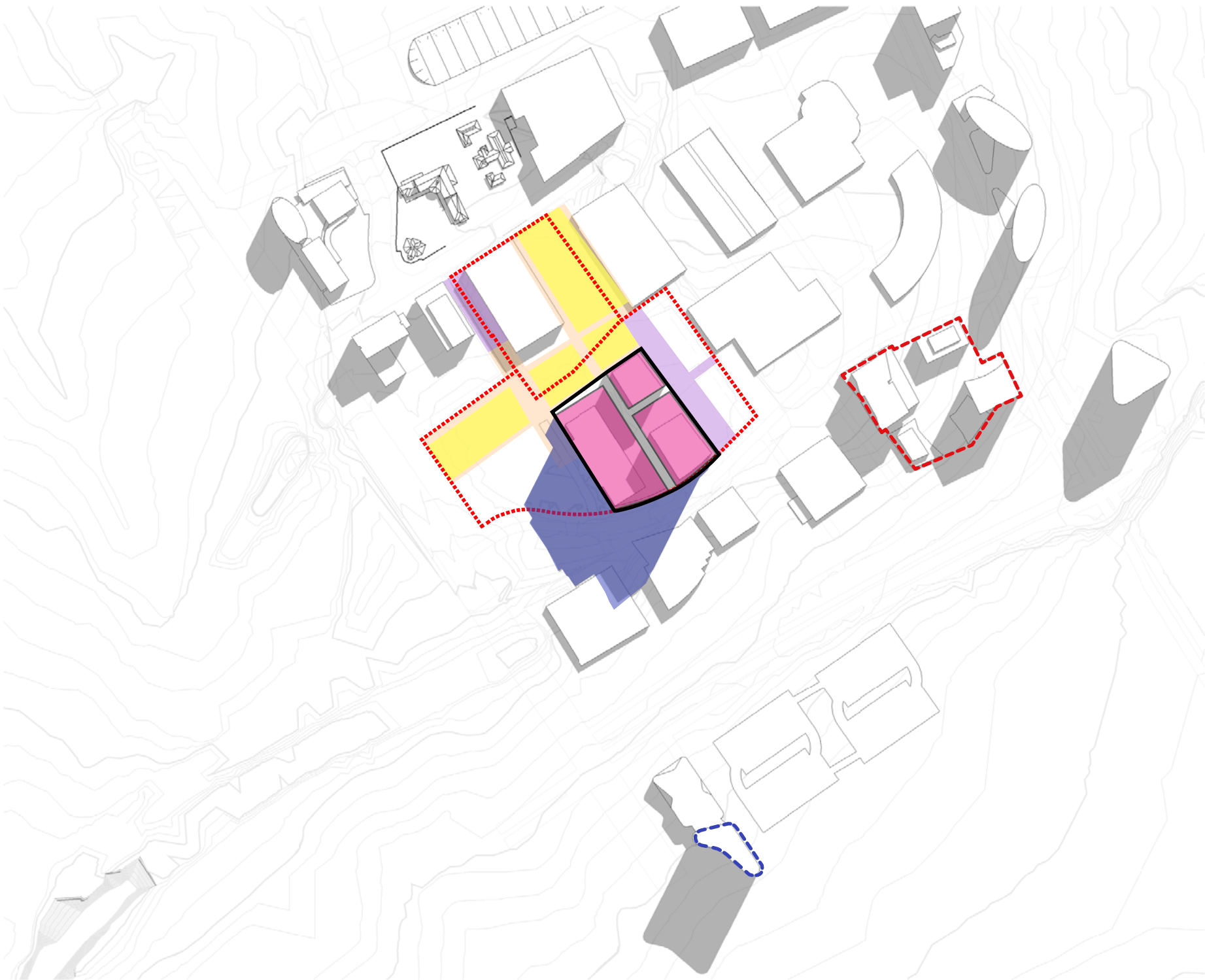


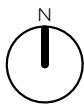




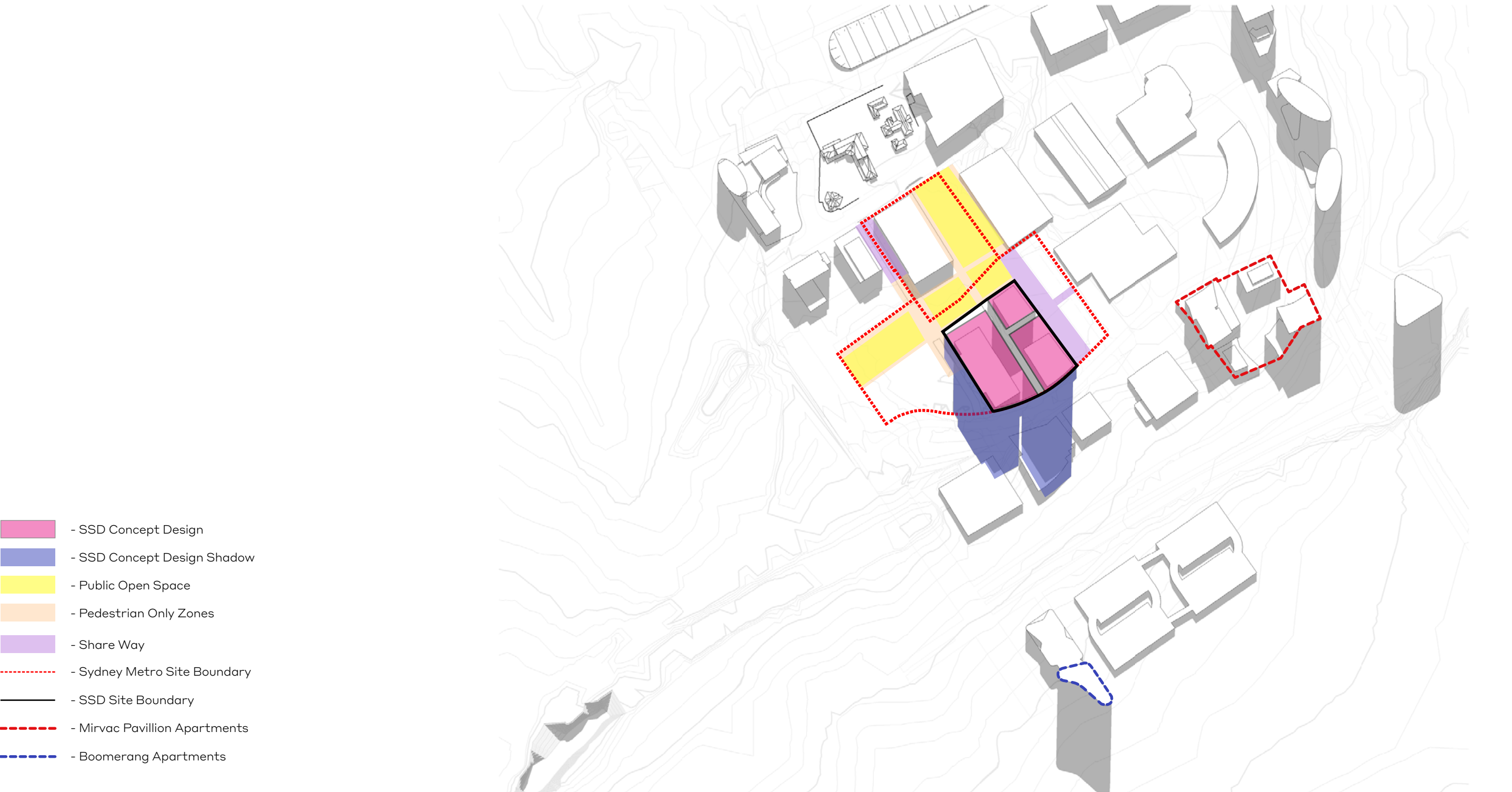
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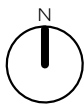




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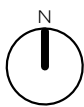


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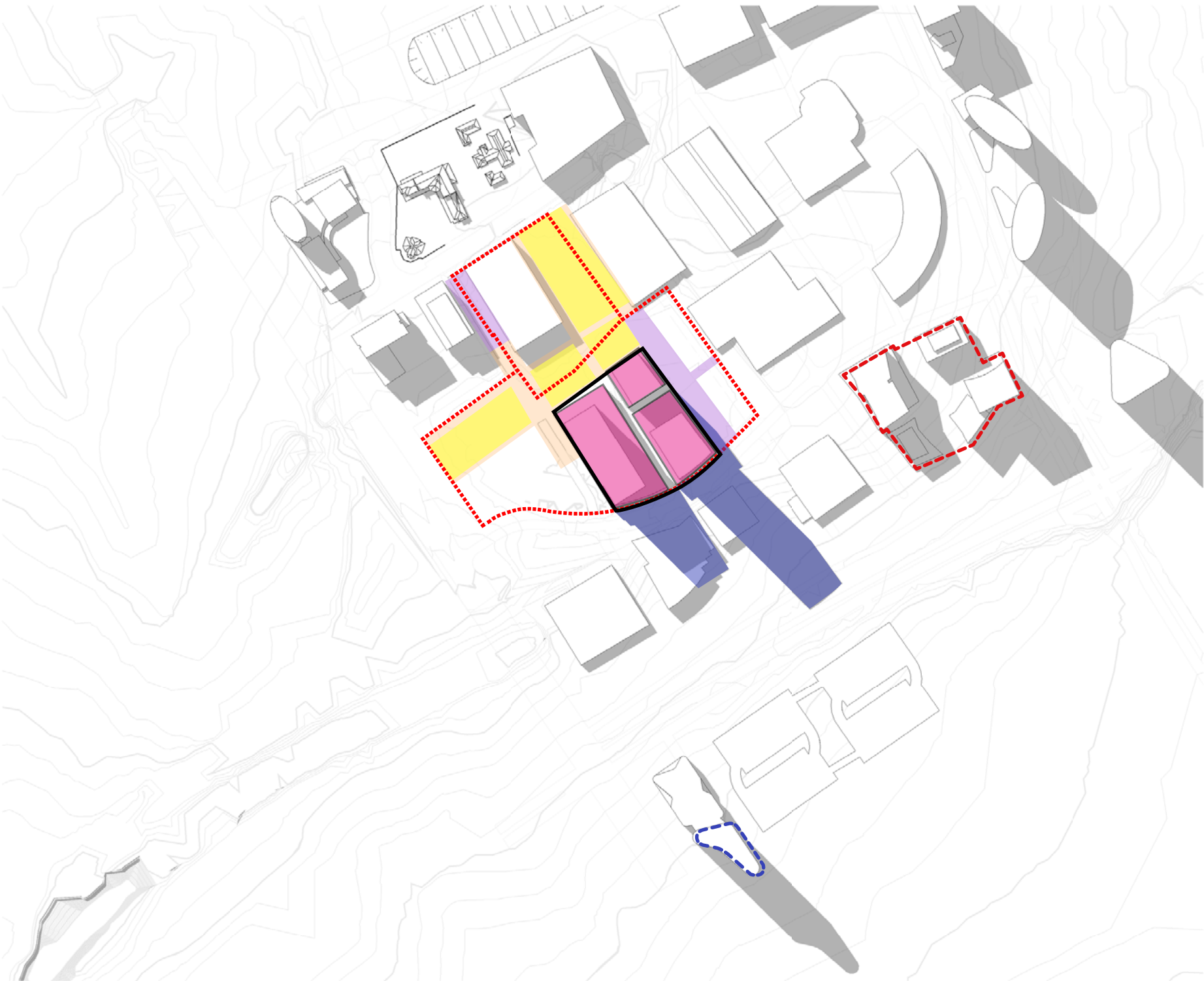






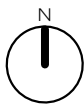
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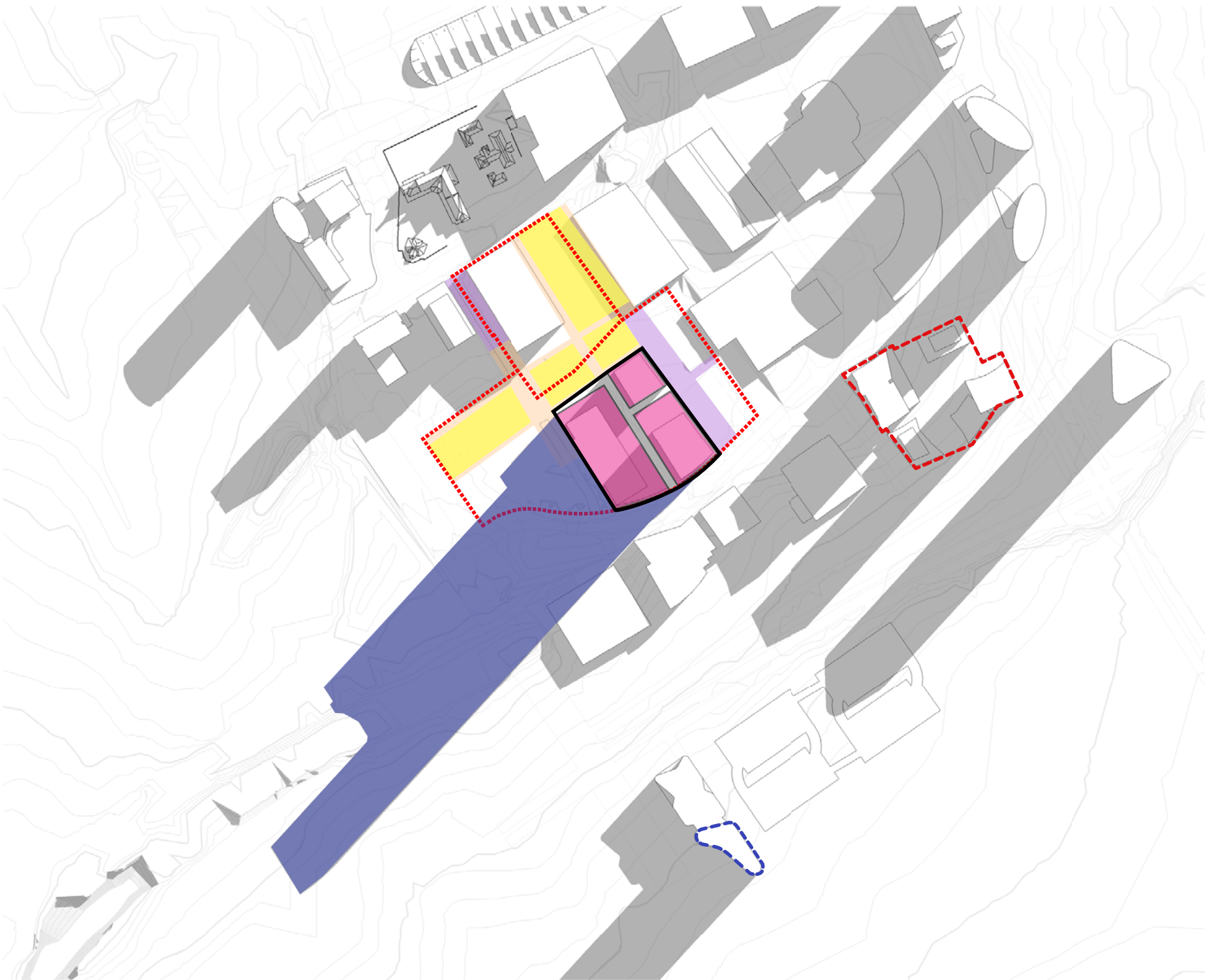


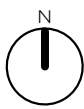
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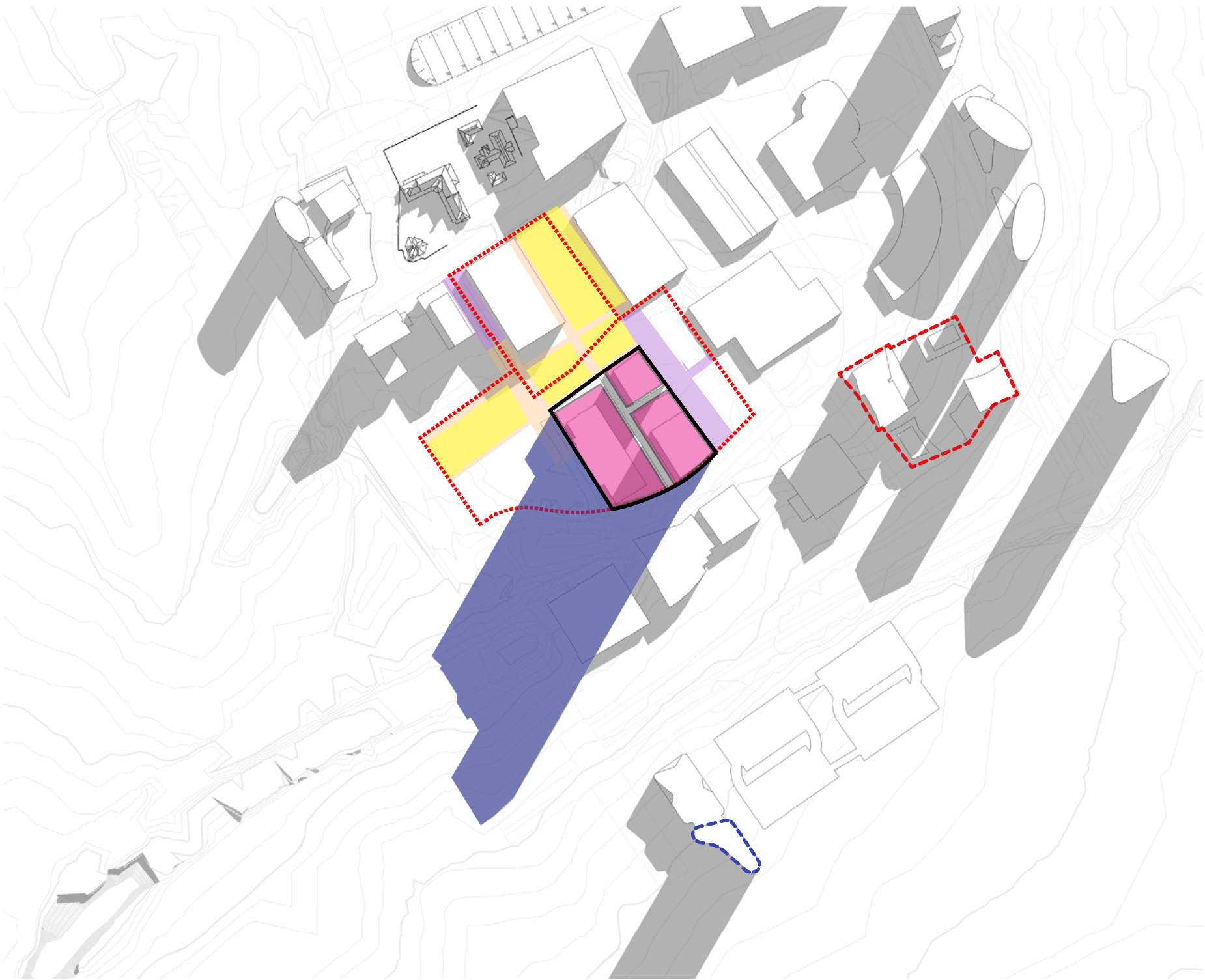
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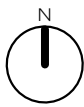


3.2.2 21 June - 10:00am










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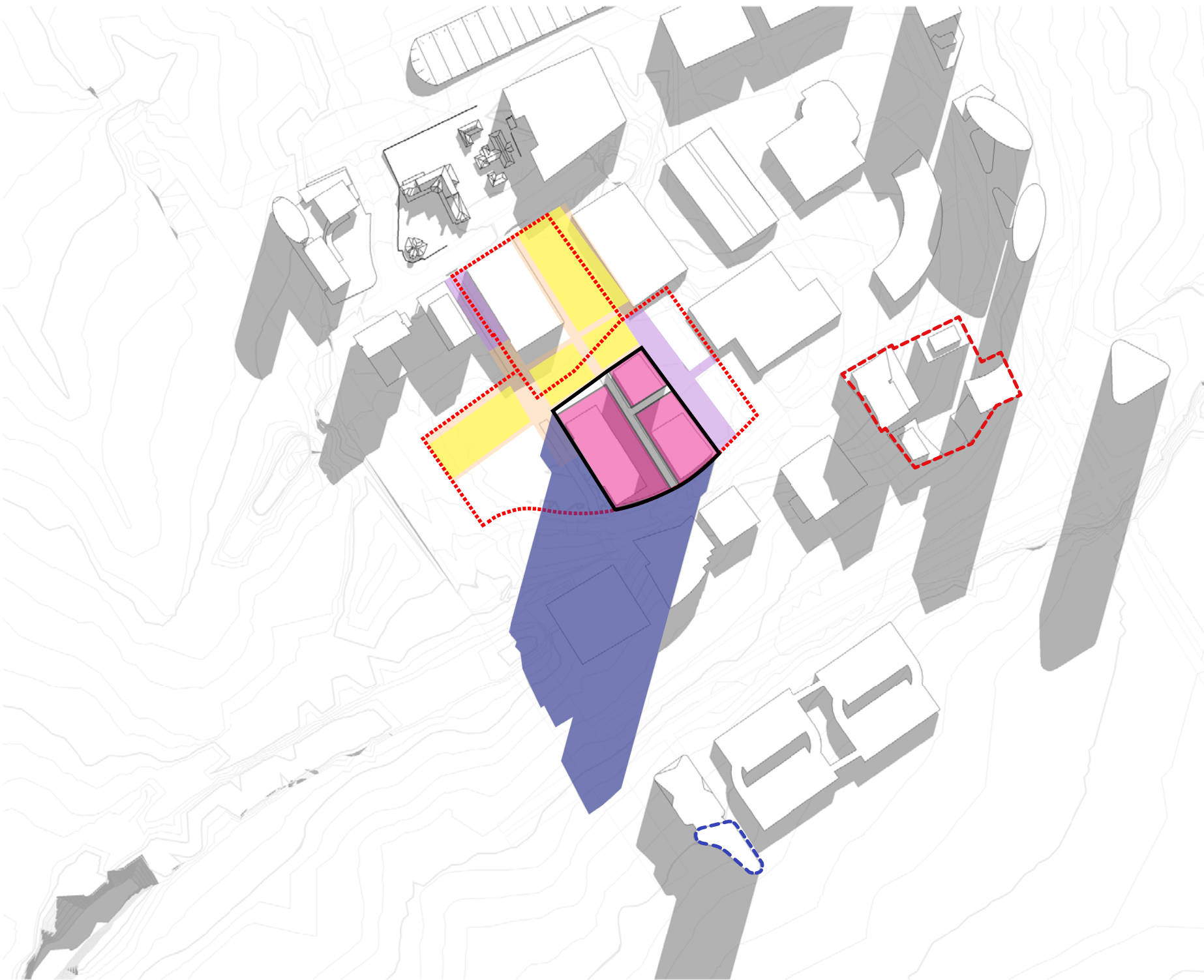


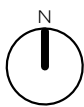




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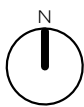


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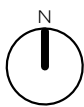




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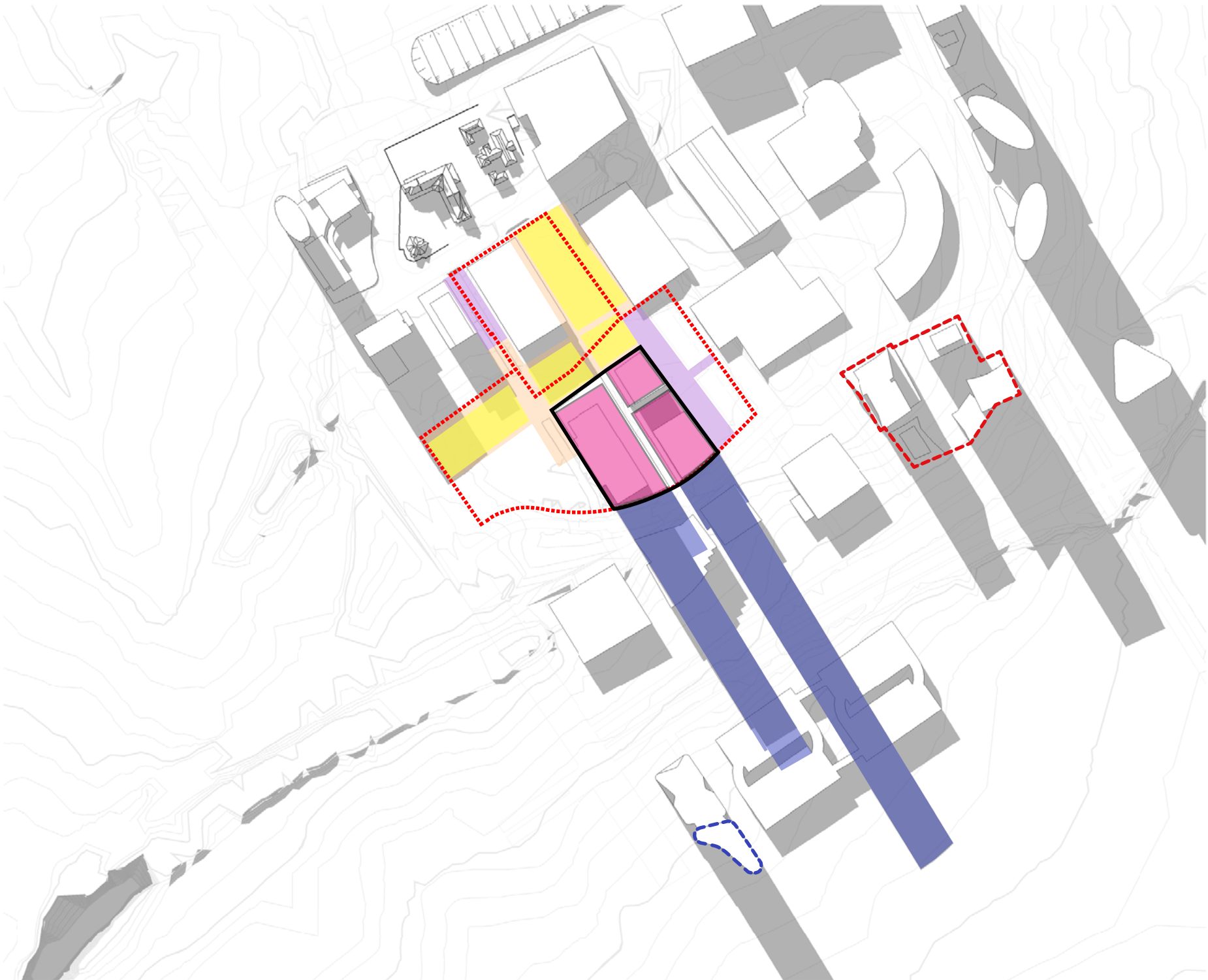
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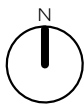




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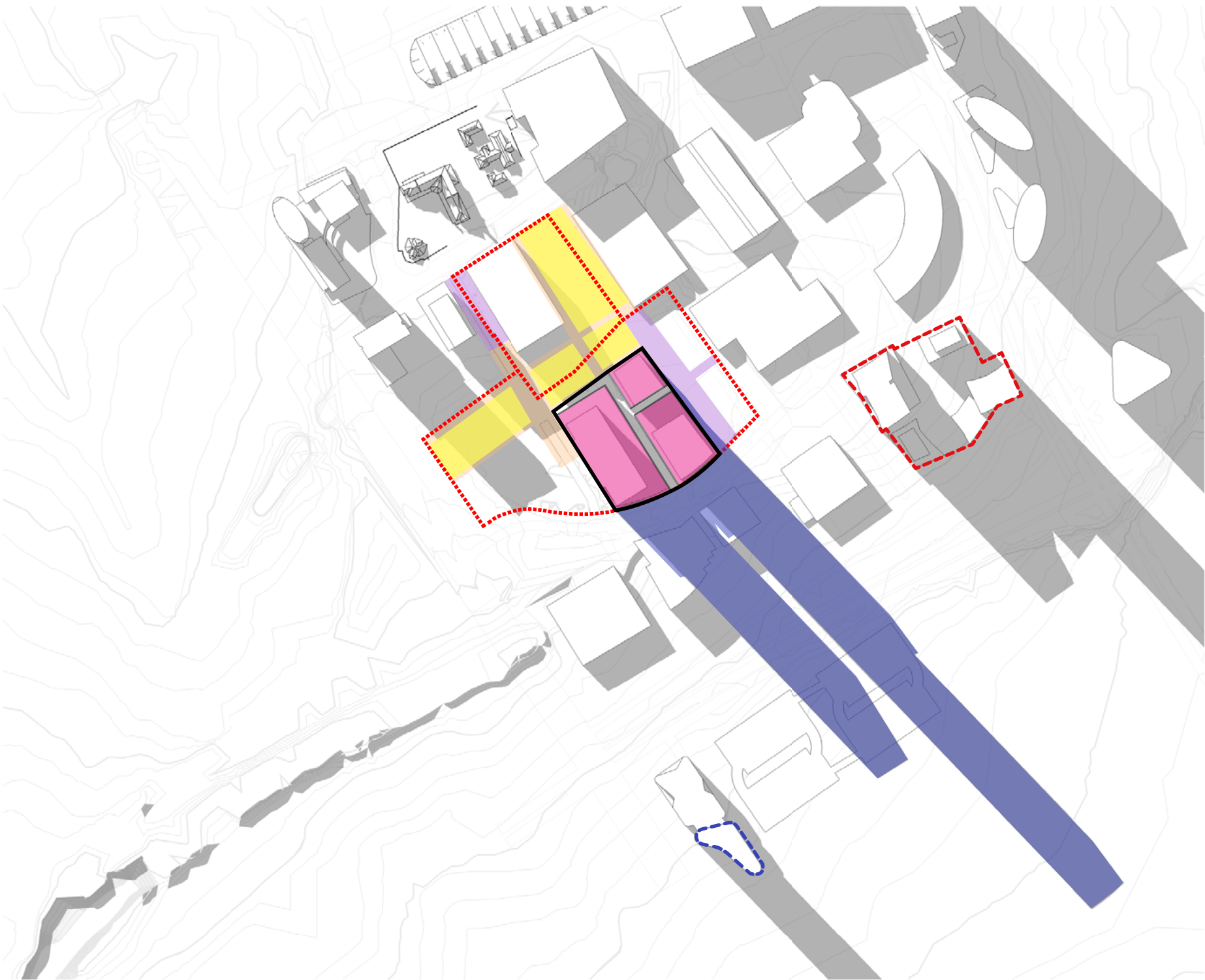
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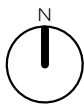
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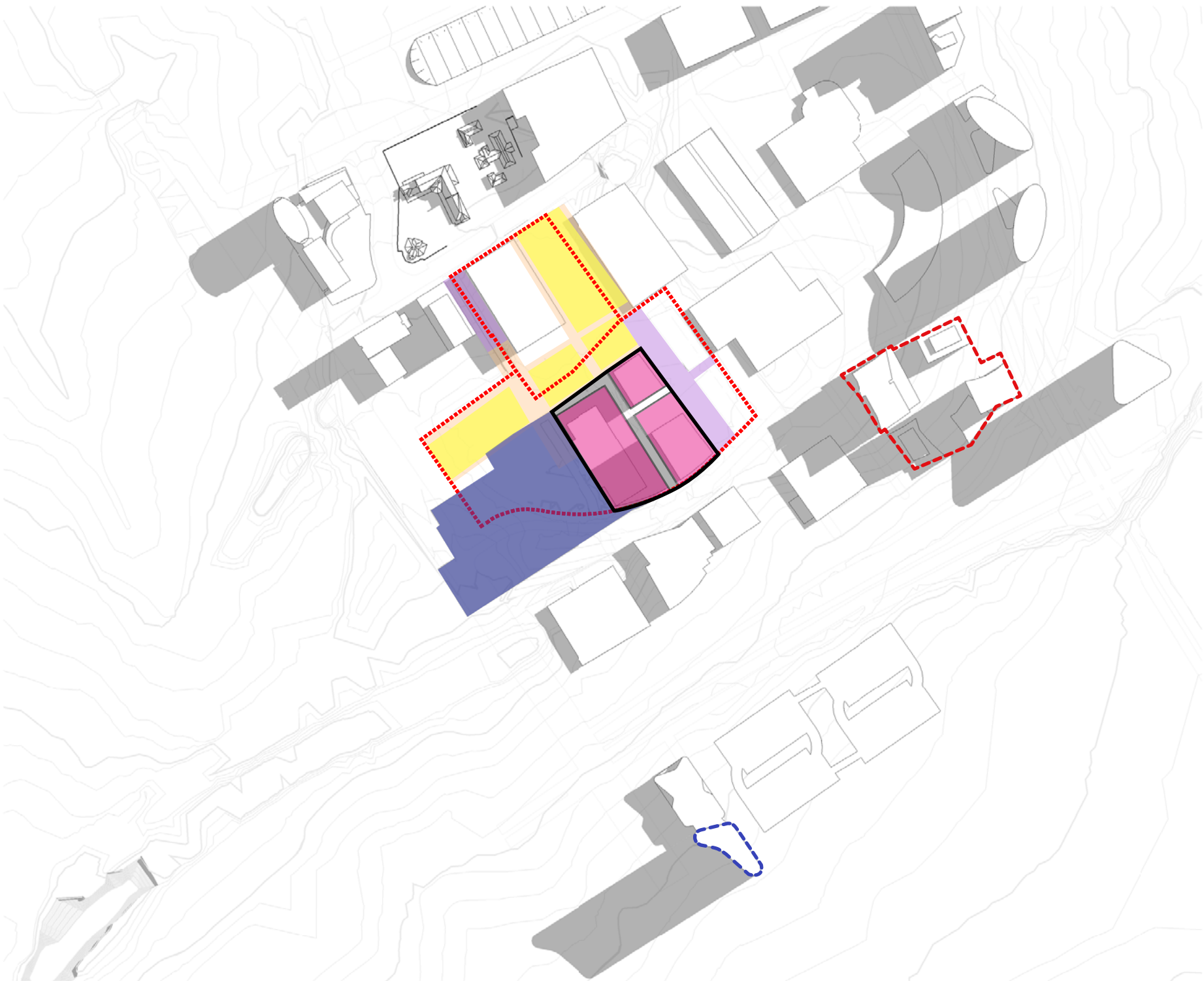


3.3 Spring Equinox

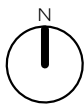
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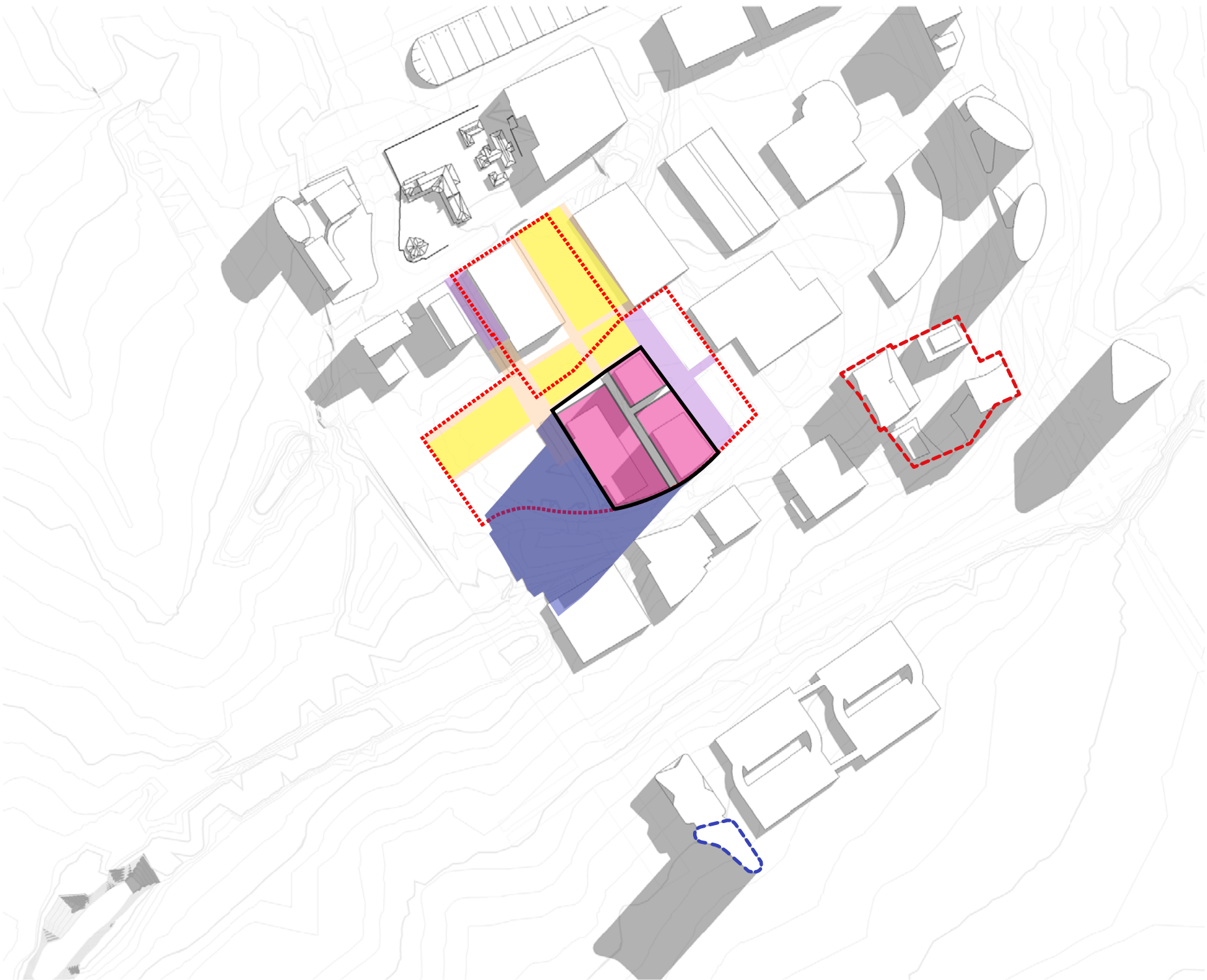
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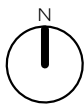
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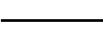




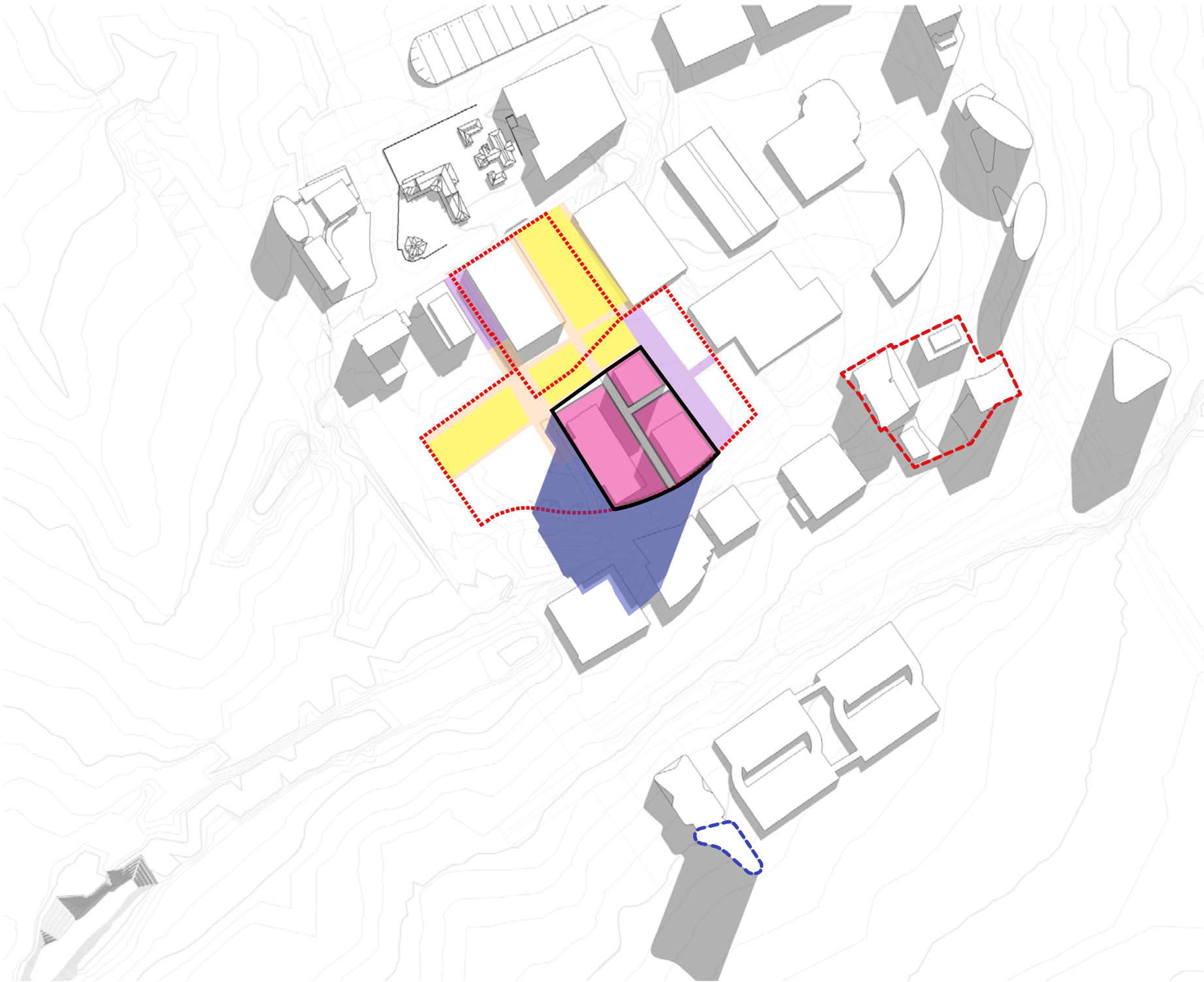
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3.3.3 23 September - 11:00am

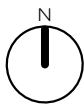


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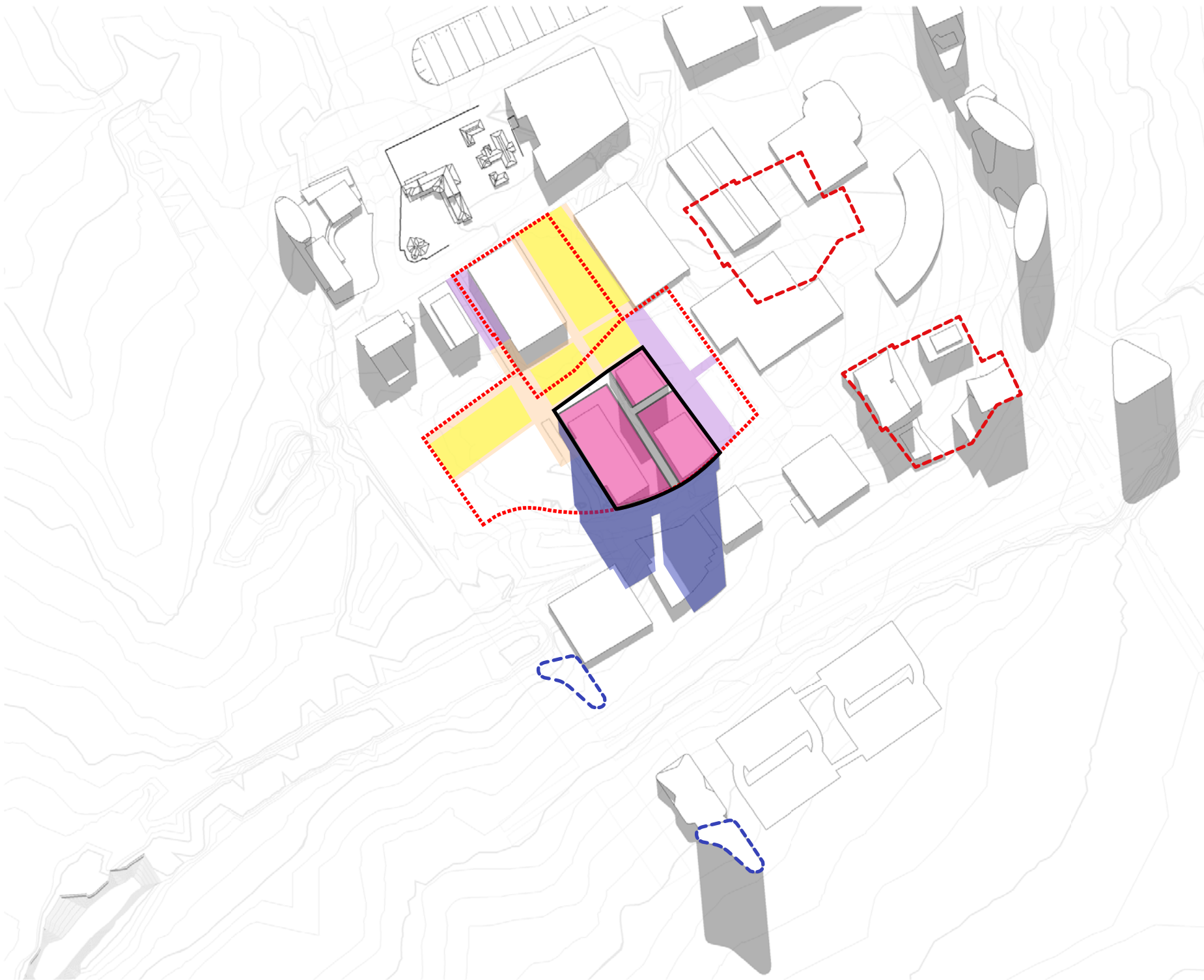




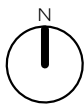
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3.3.5 23 September - 1:00pm

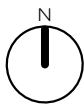


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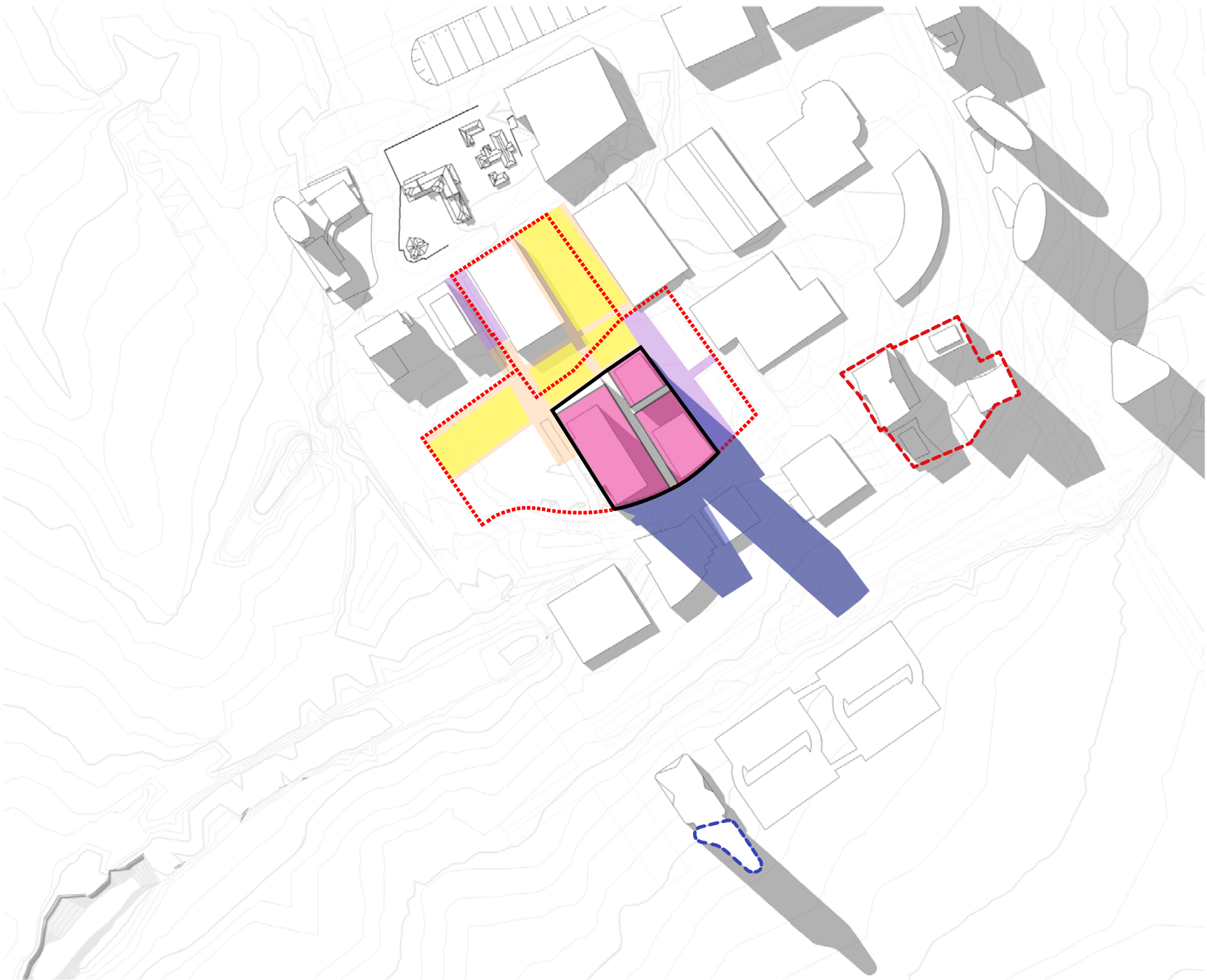




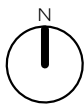
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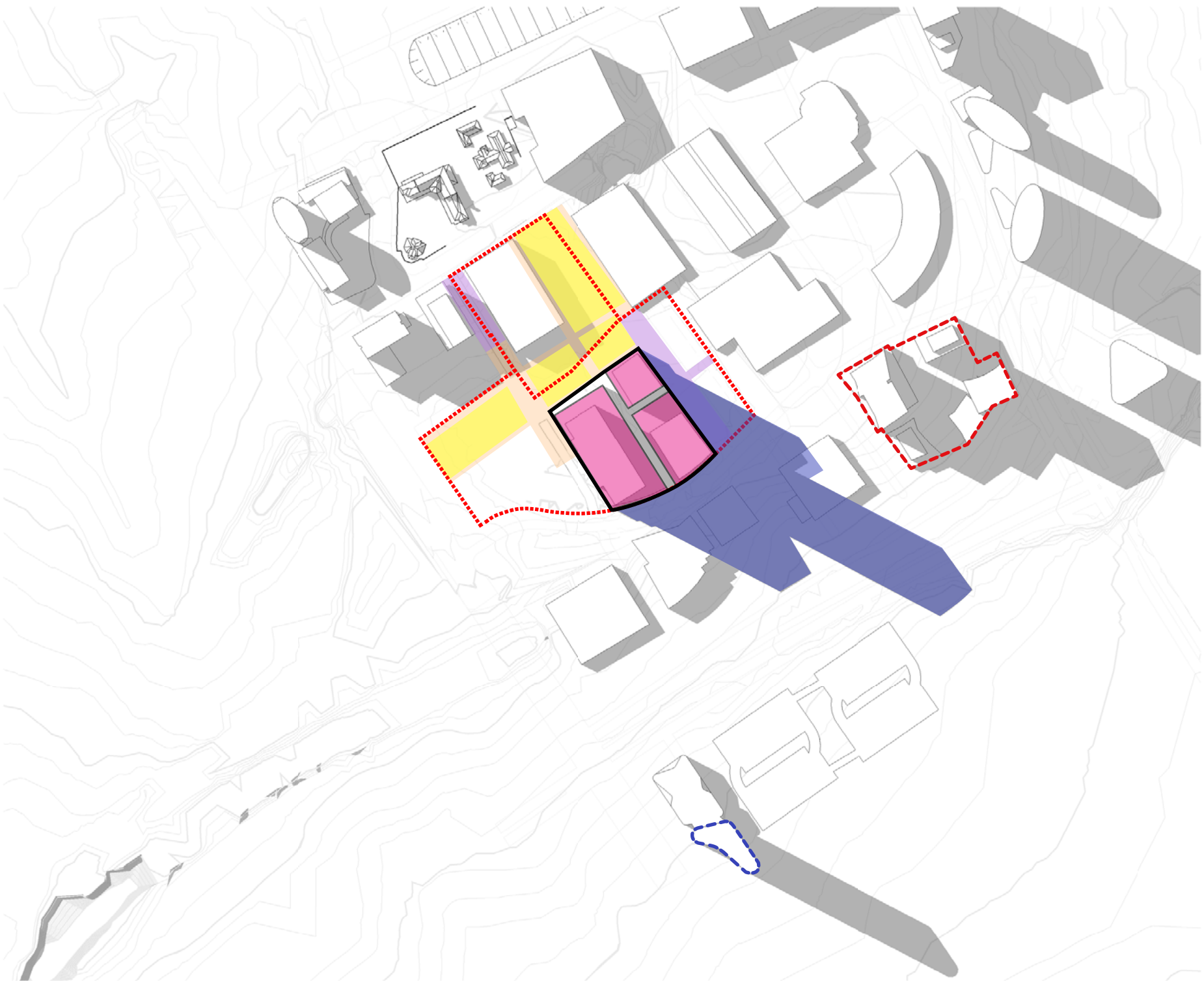
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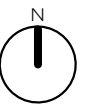
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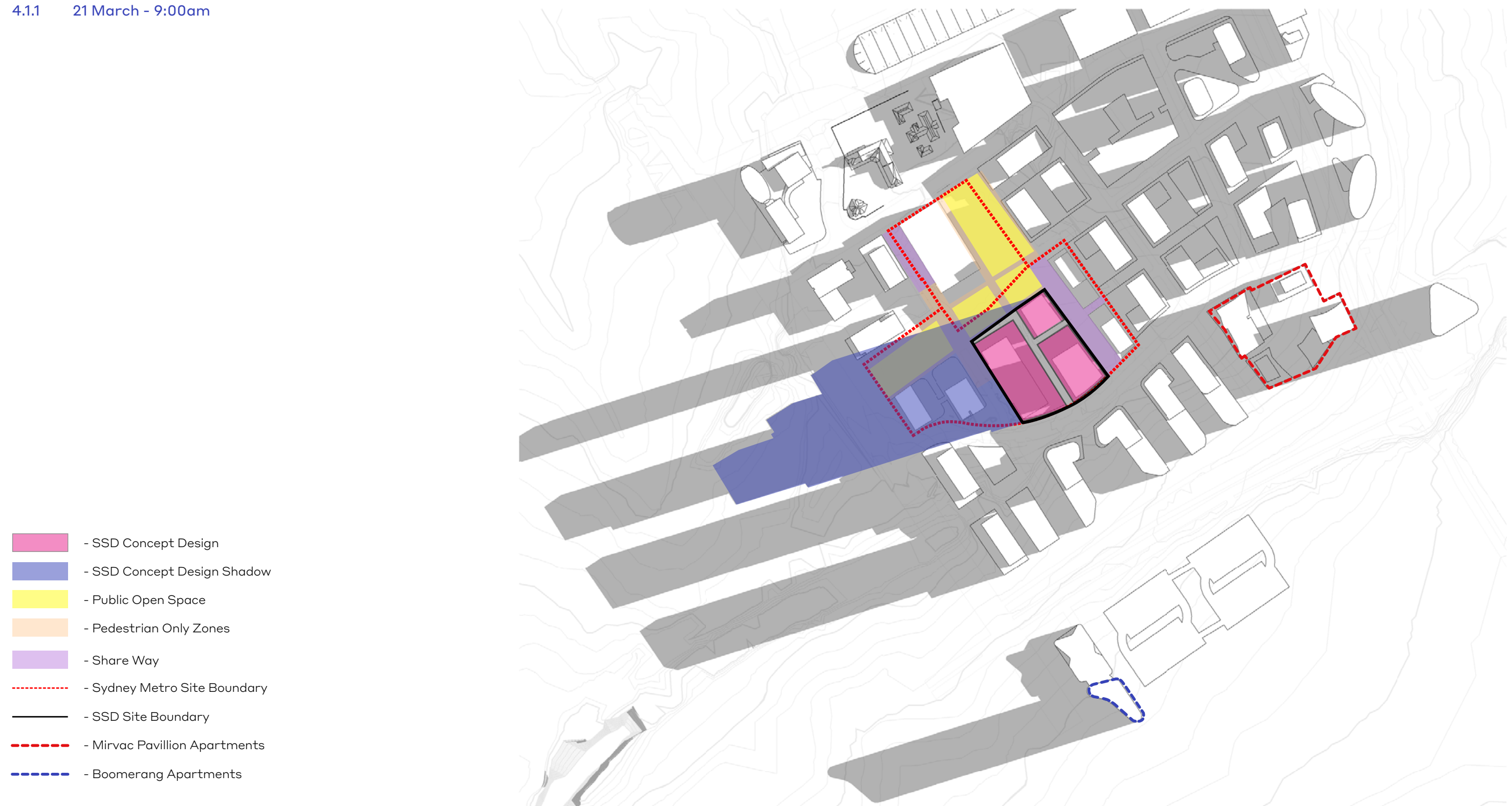


# Overshadowing Impact on 2030 SOPA Masterplan Context

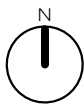


## 4.1 Autumn Equinox

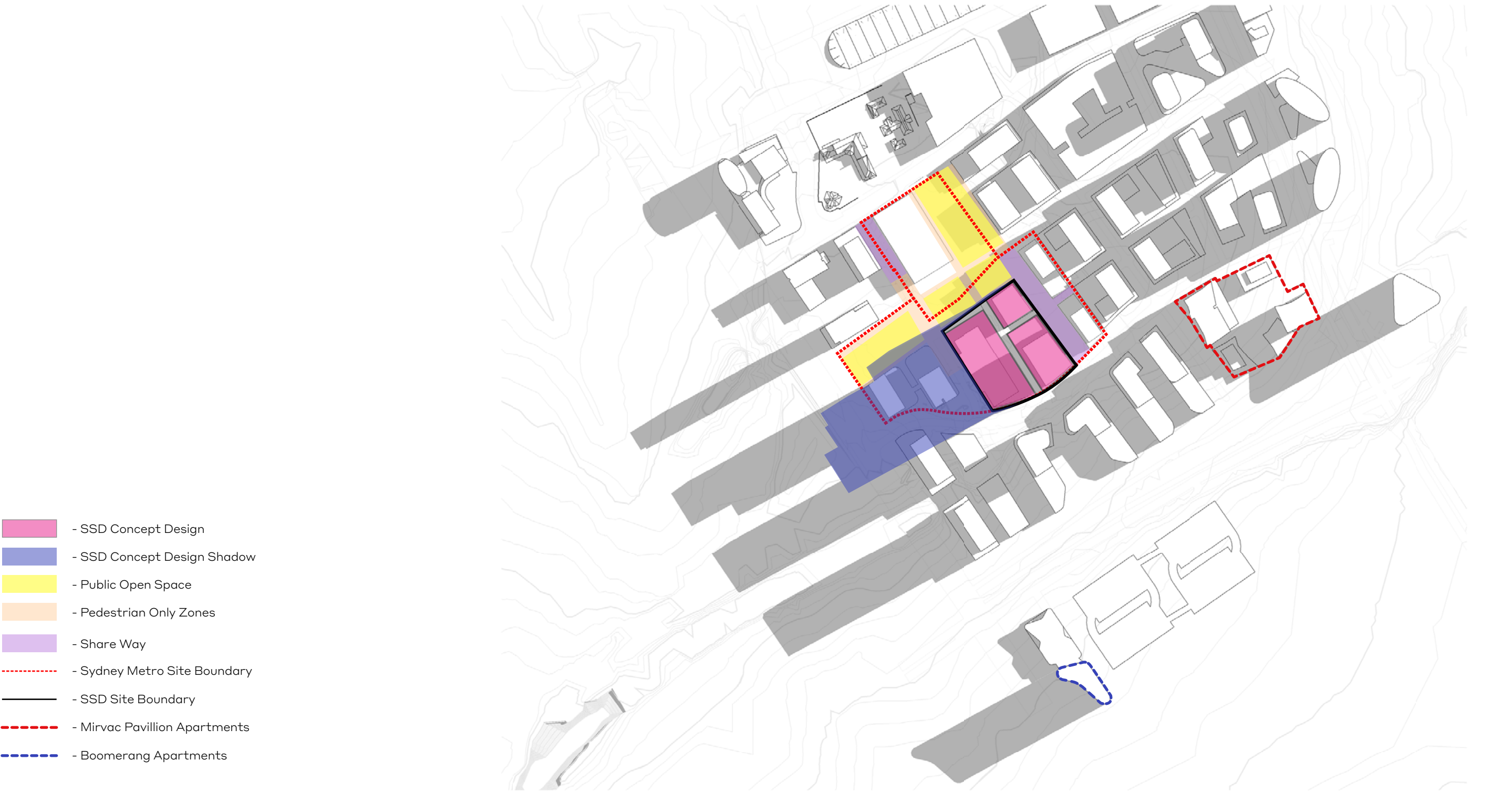
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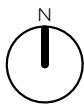




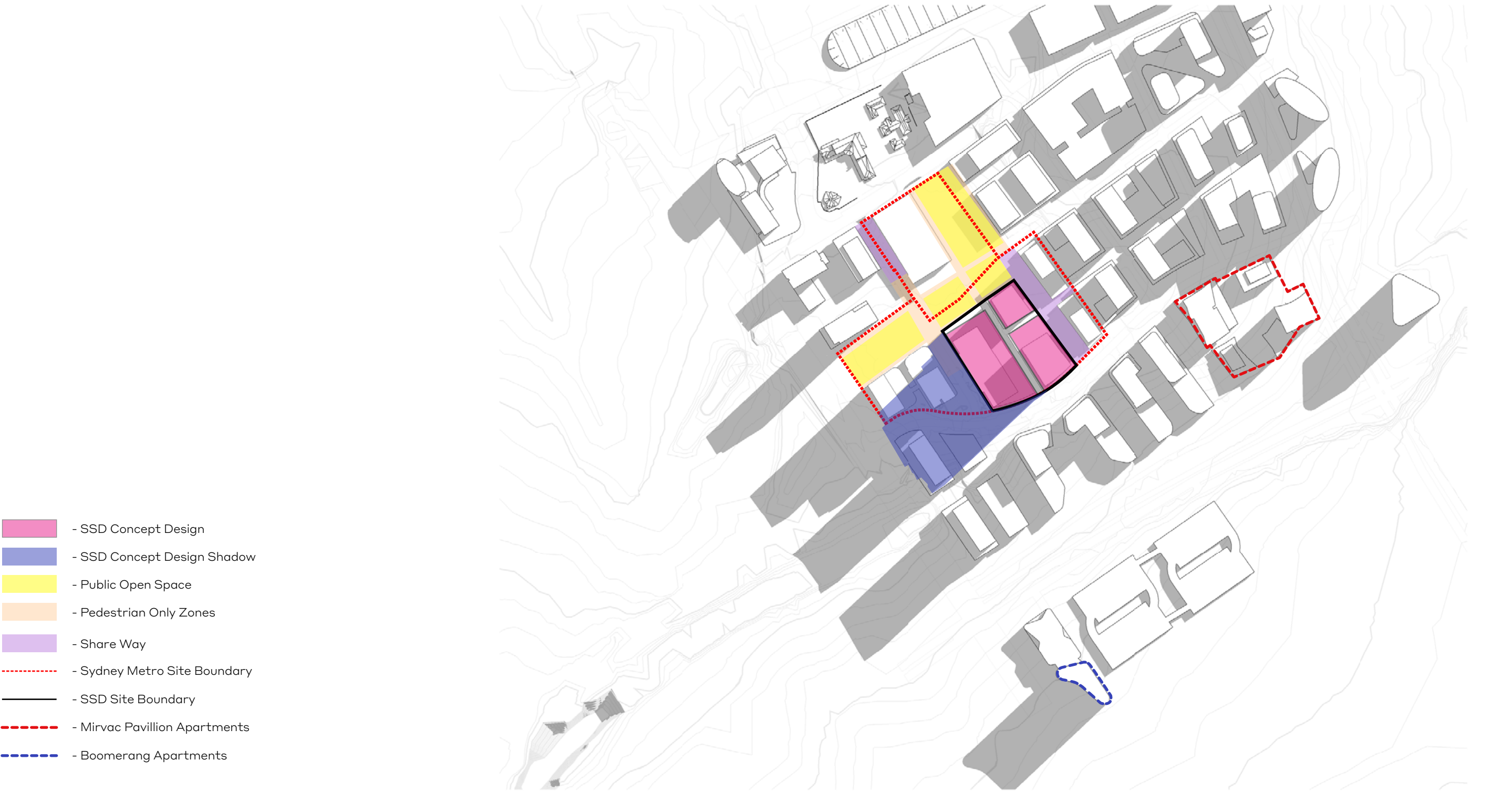
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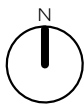
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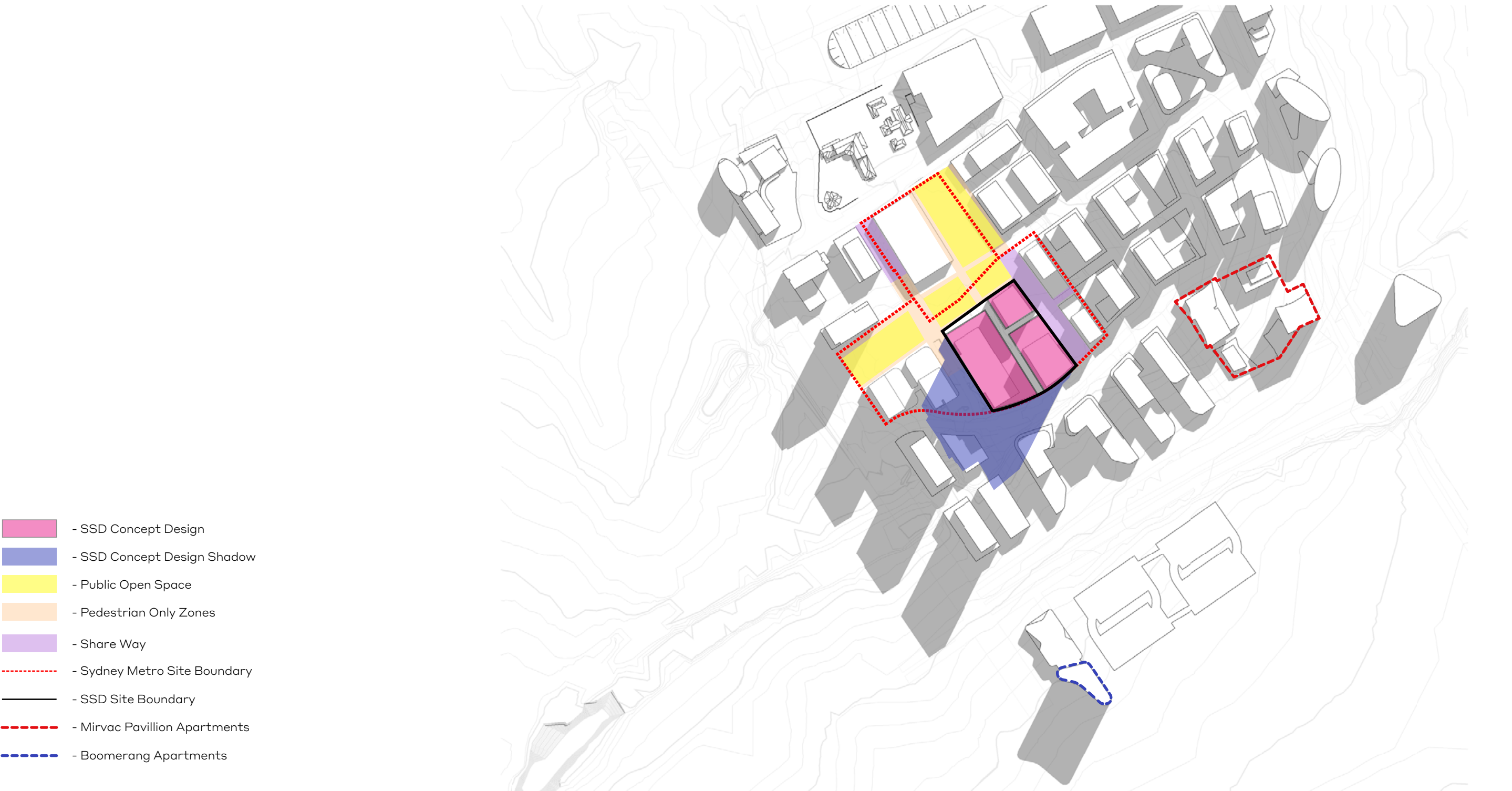
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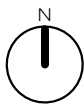


4.1.4 21 March - 12:00pm

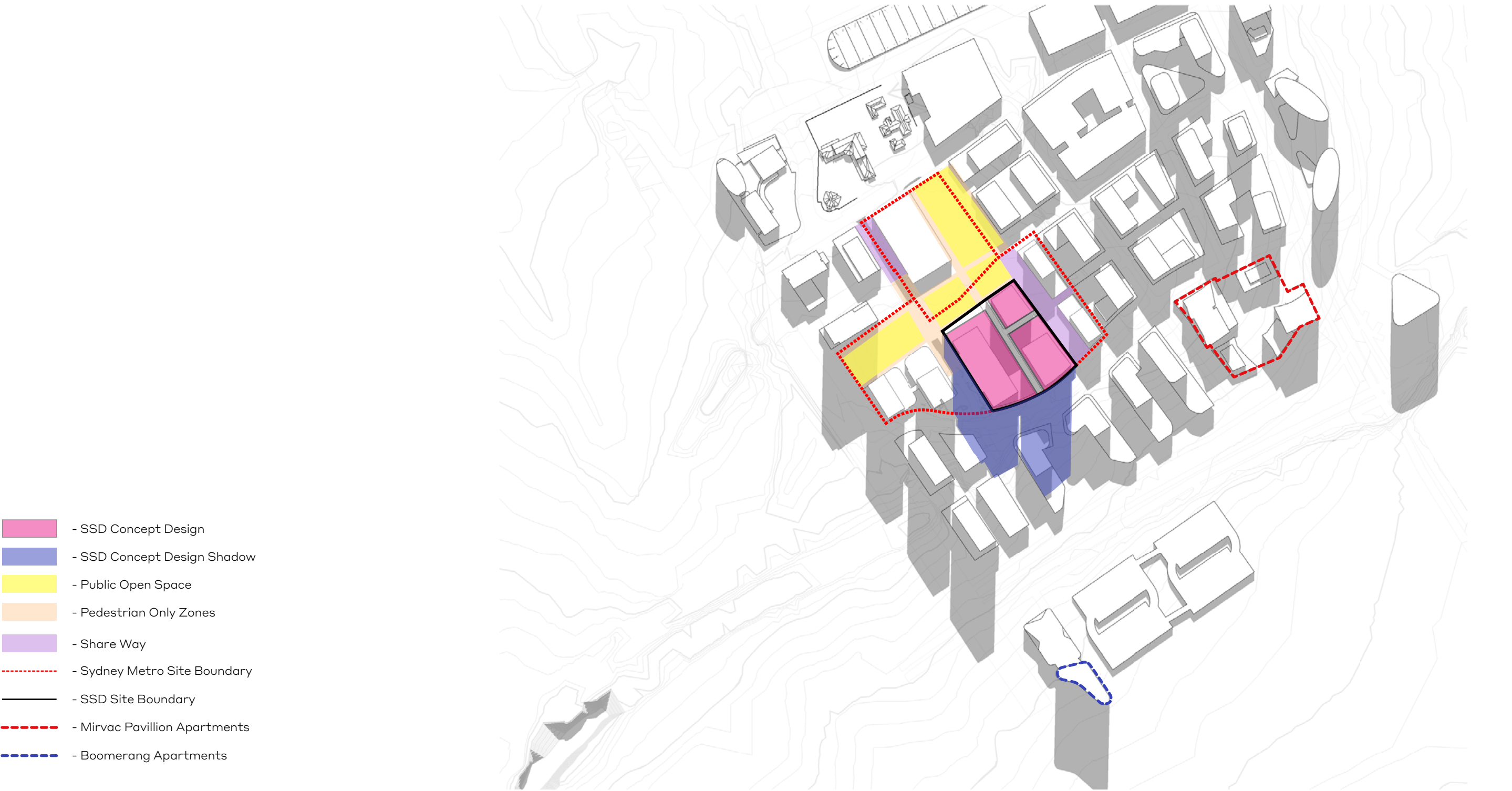


- SSD Concept Design
- SSD Concept Design Shadow
- Public Open Space
- Pedestrian Only Zones
- Share Way
- Sydney Metro Site Boundary
- SSD Site Boundary
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- Boomerang Apartments

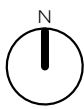




4.1.5 21 March - 1:00pm

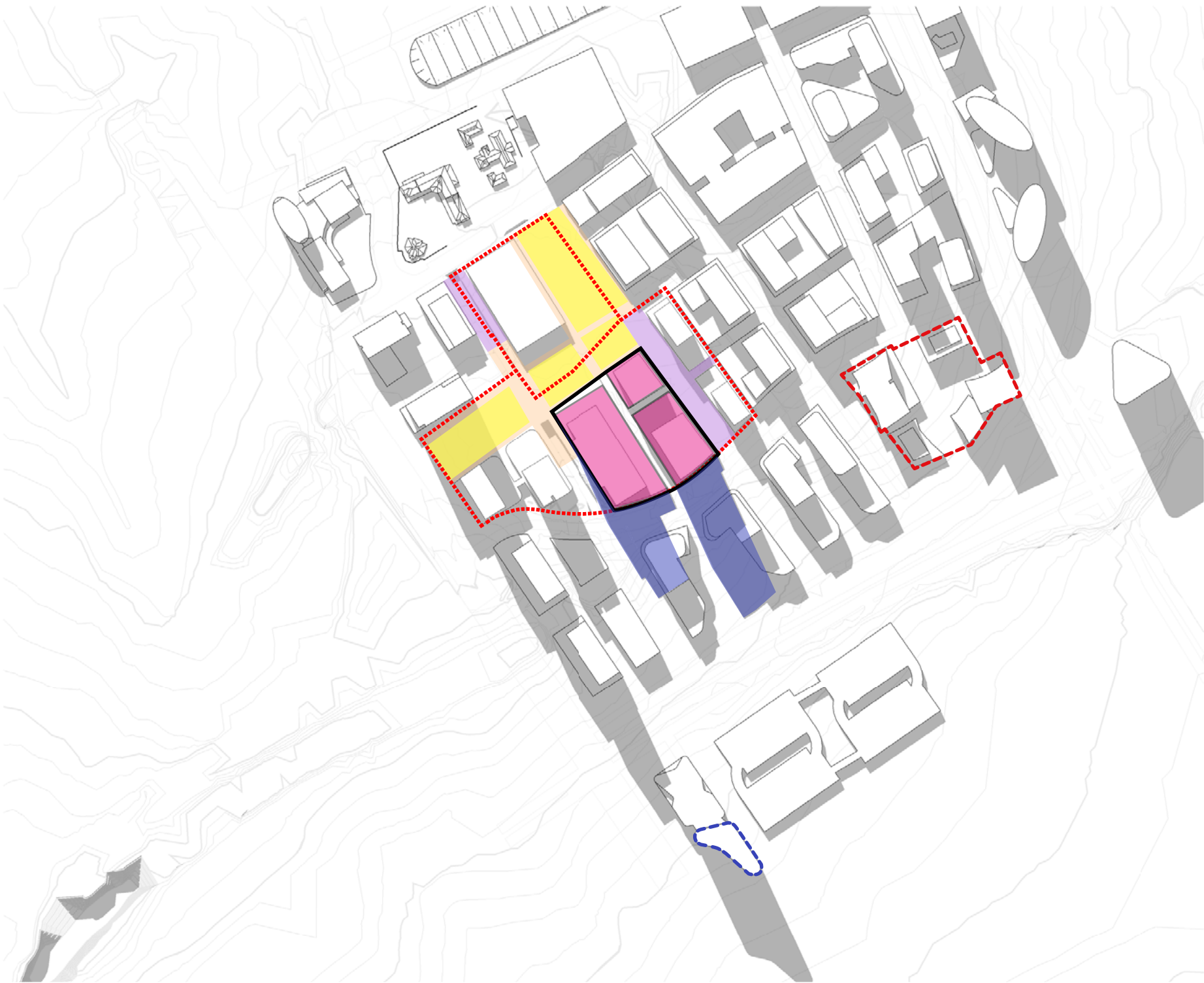


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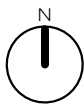


4.1.6 21 March - 2:00pm

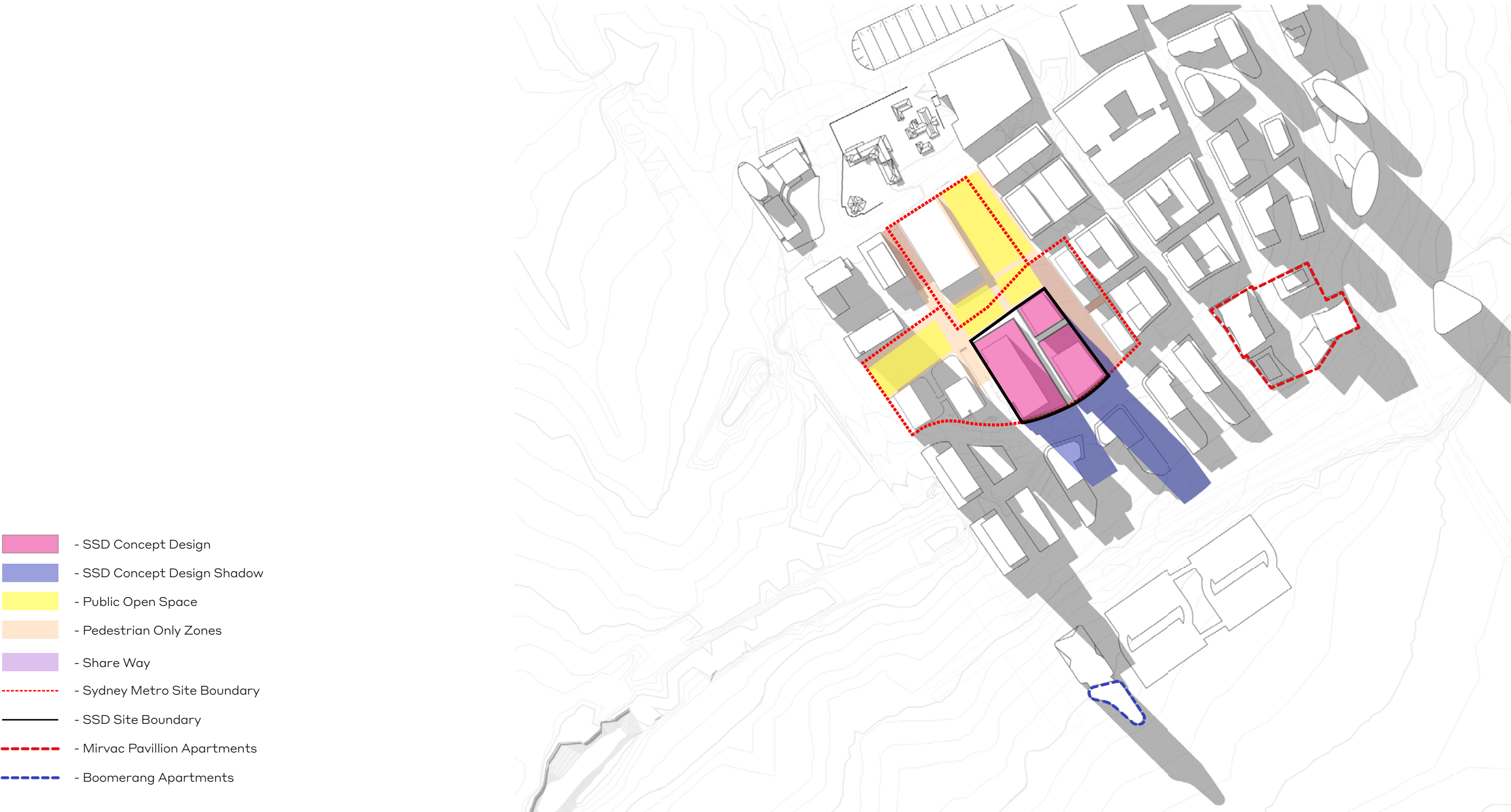
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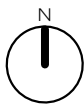


4.1.7 21 March - 3:00pm



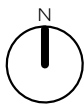
4.2 Winter Solstice

4.2.1 21 June - 9:00am



- SSD Concept Design
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- Sydney Metro Site Boundary
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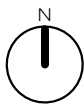


4.2.2 21 June - 10:00am

- SSD Concept Design
- SSD Concept Design Shadow
- Public Open Space
- Pedestrian Only Zones
- Share Way
- Sydney Metro Site Boundary
- SSD Site Boundary
- Mirvac Pavillion Apartments
- Boomerang Apartments

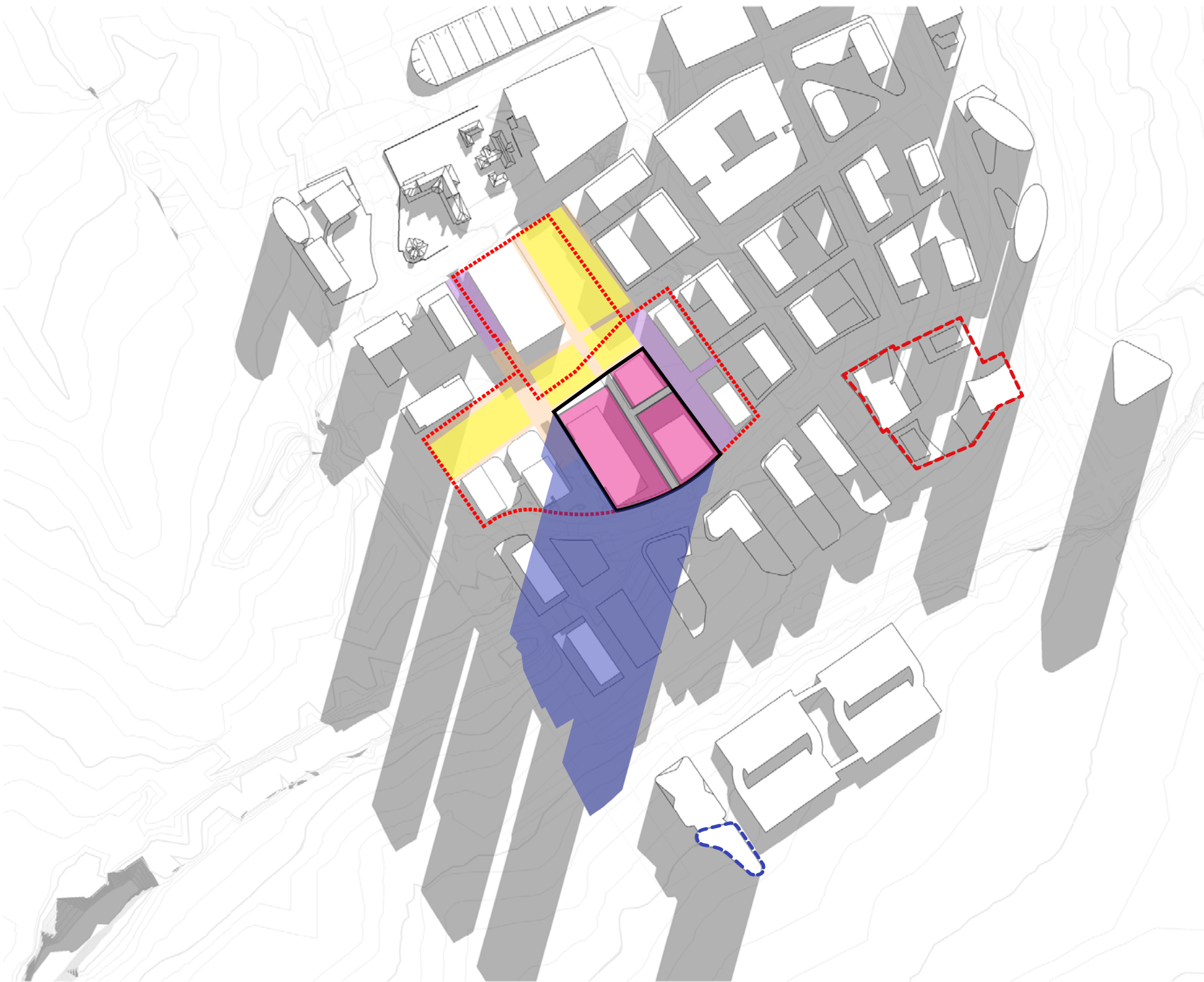


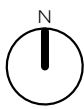




4.2.3 21 June - 11:00am

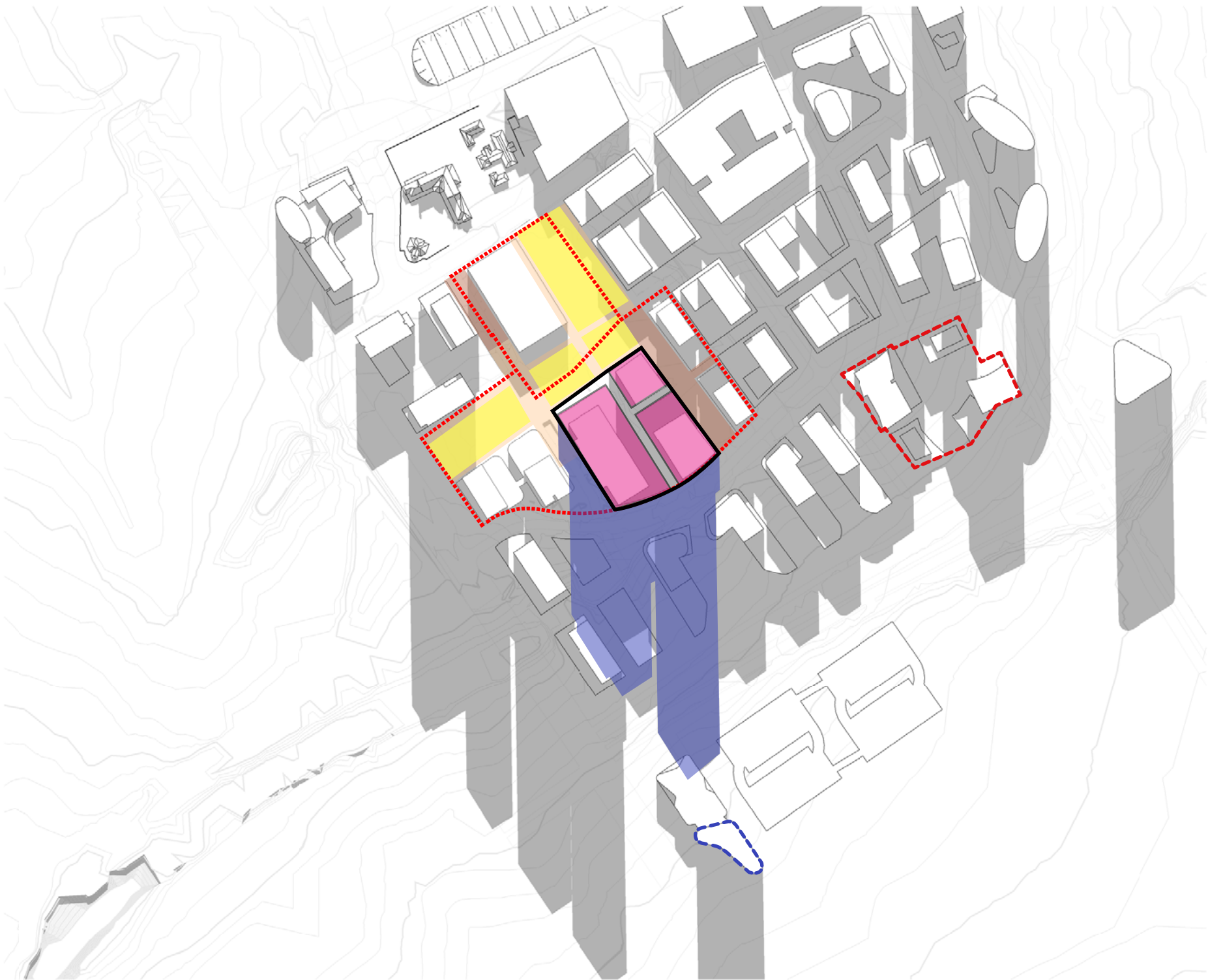
- SSD Concept Design
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- Pedestrian Only Zones
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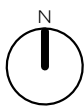




4.2.4 21 June - 12:00pm

- SSD Concept Design
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- SSD Site Boundary
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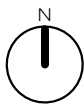




4.2.5 21 June - 1:00pm

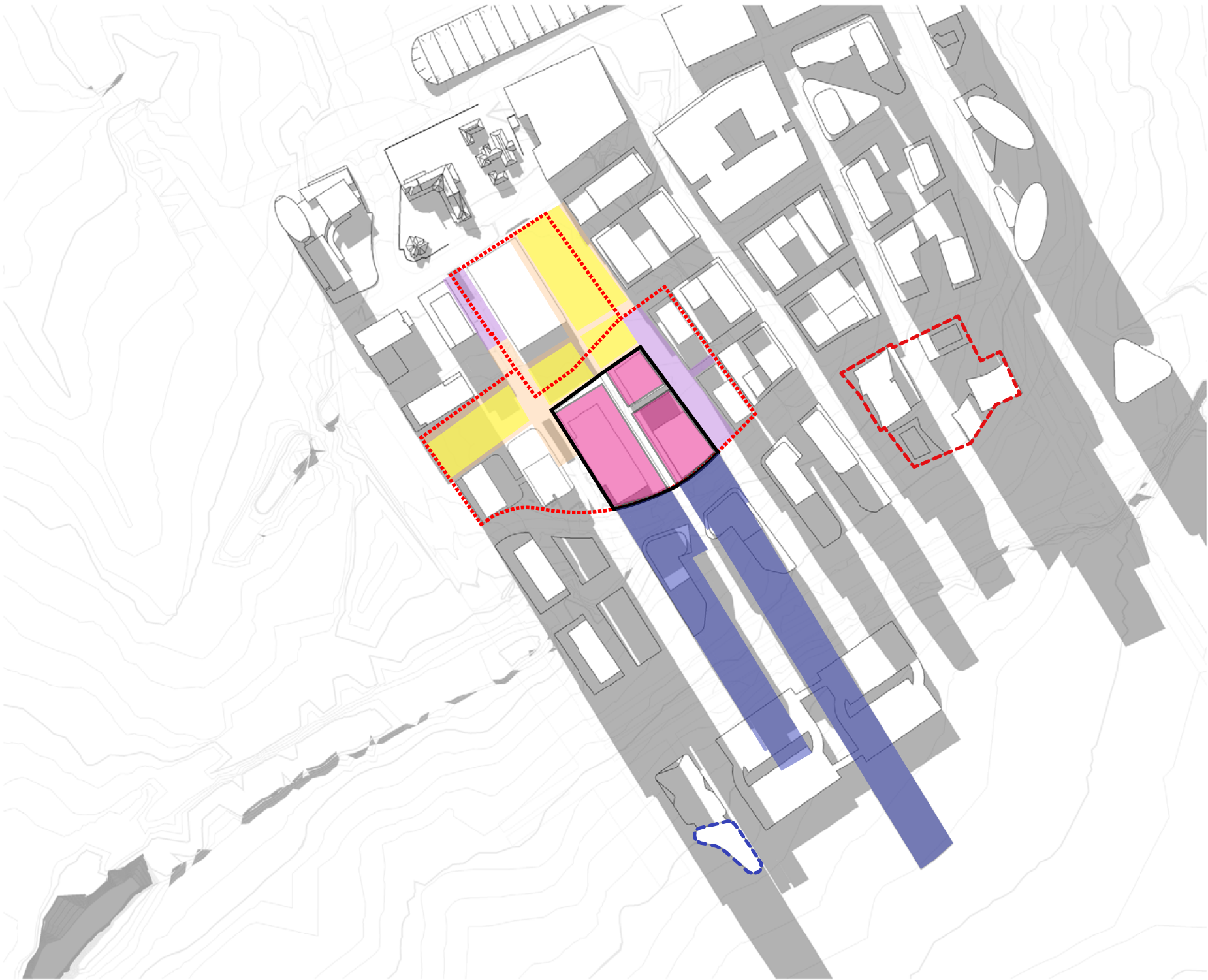


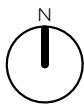




4.2.6 21 June - 2:00pm

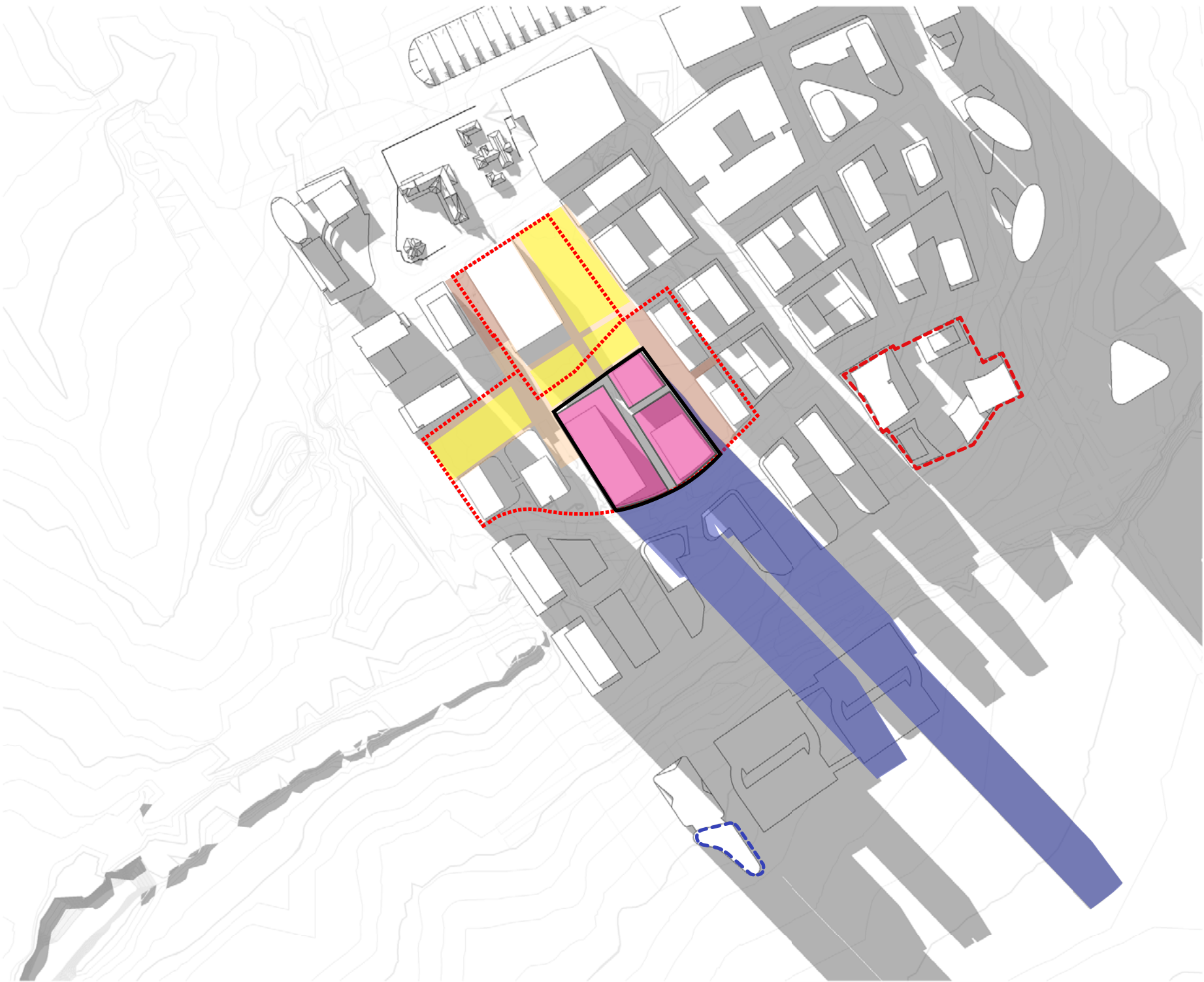
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4.2.7 21 June - 3:00pm

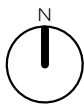
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4.3 Spring Equinox

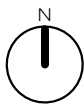
4.3.1 23 September - 9:00am



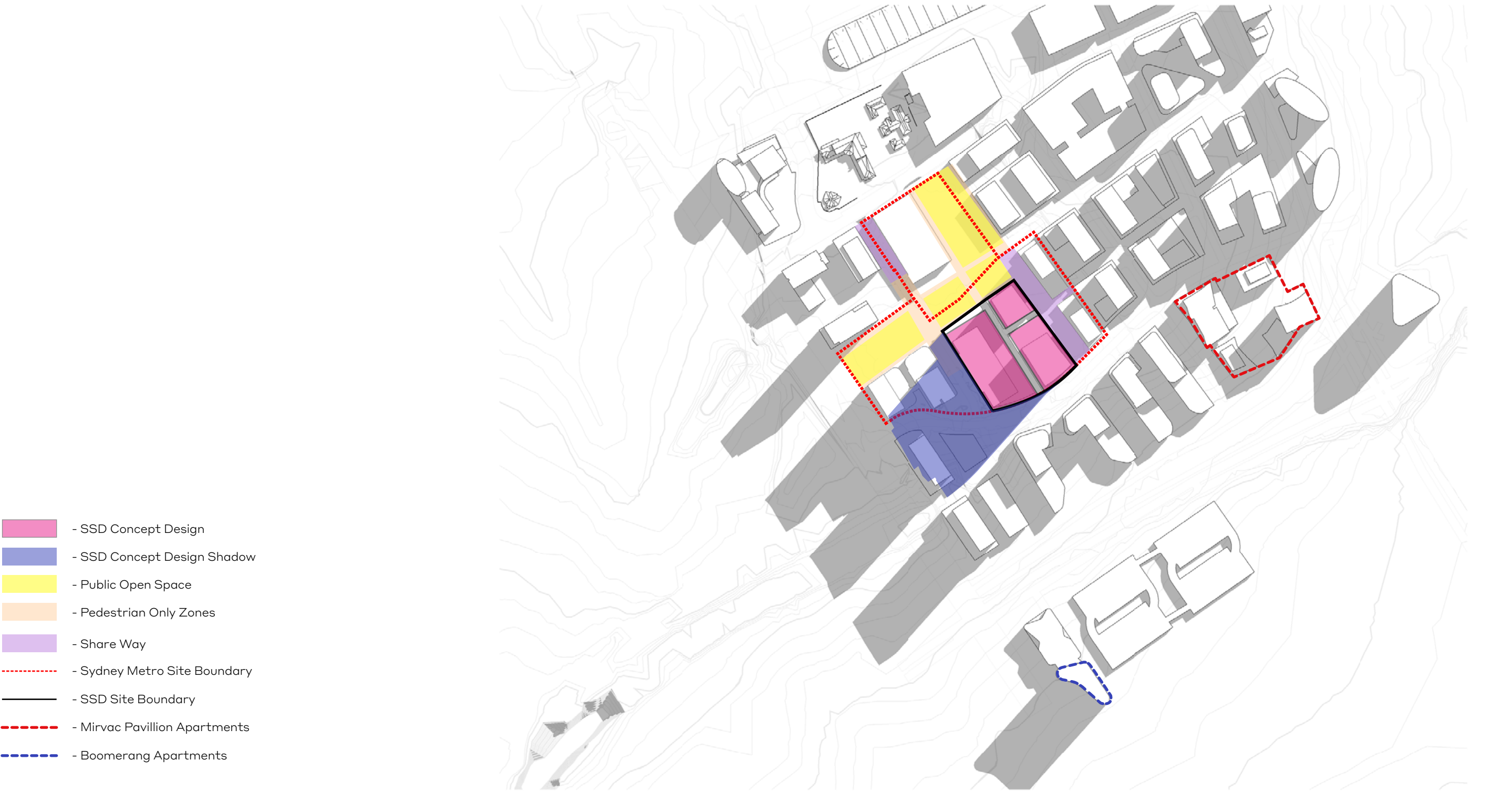
-  - SSD Concept Design
-  - SSD Concept Design Shadow
-  - Public Open Space
-  - Pedestrian Only Zones
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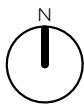




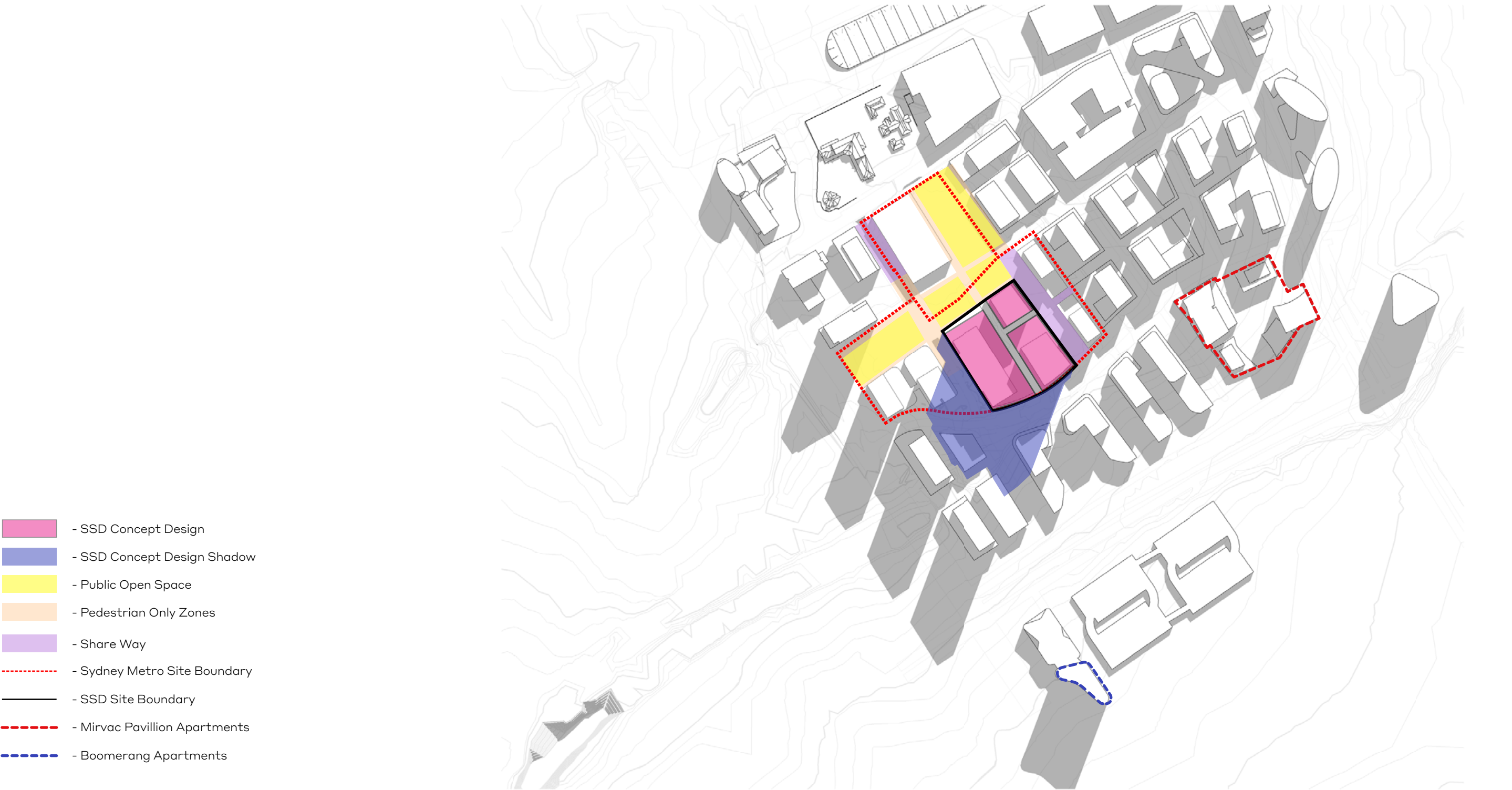
4.3.2 23 September - 10:00am



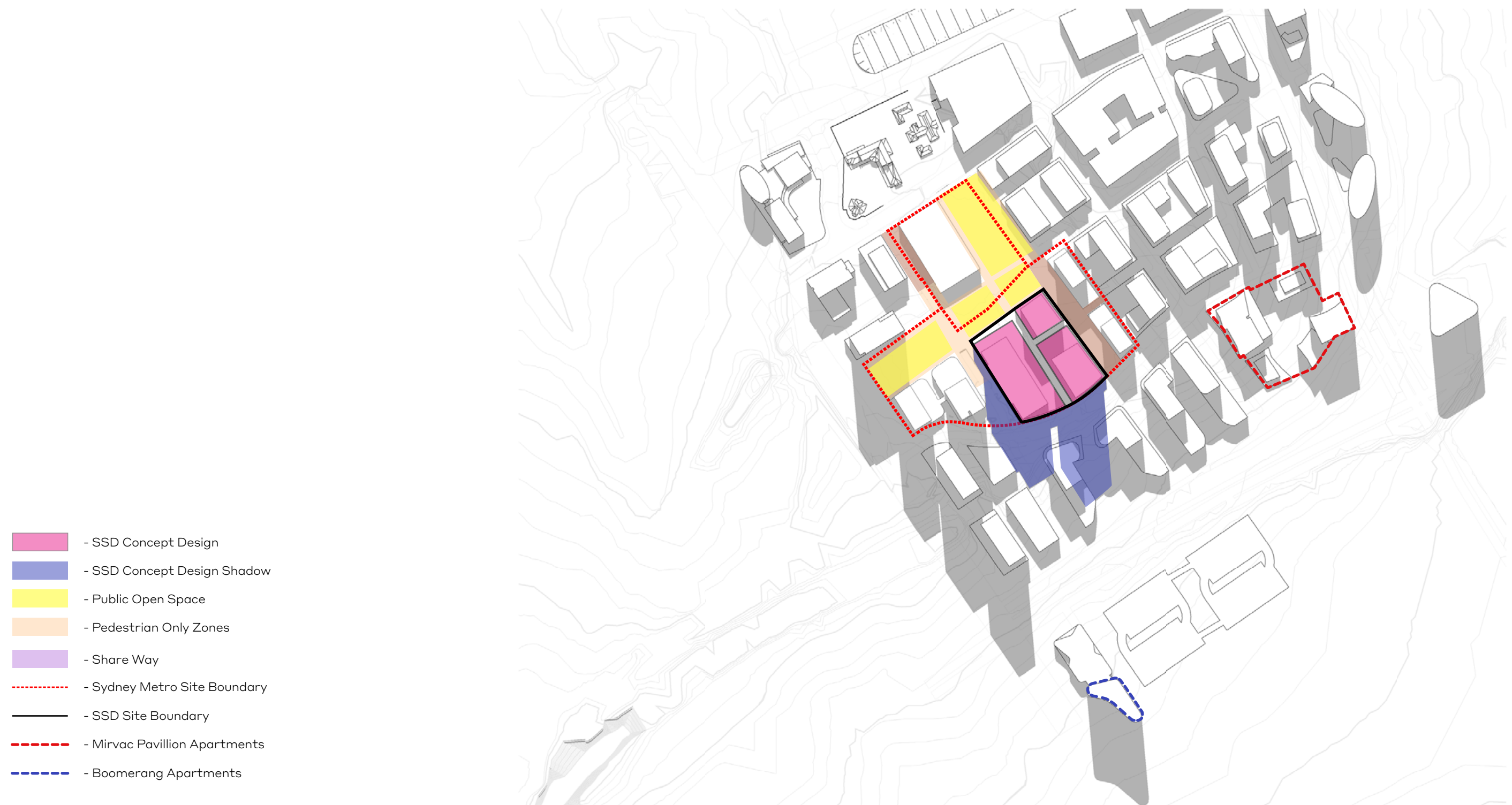
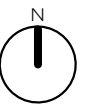
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4.3.3 23 September - 11:00am



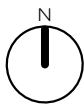
4.3.4 23 September - 12:00pm



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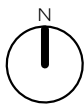
4.3.5 23 September - 1:00pm



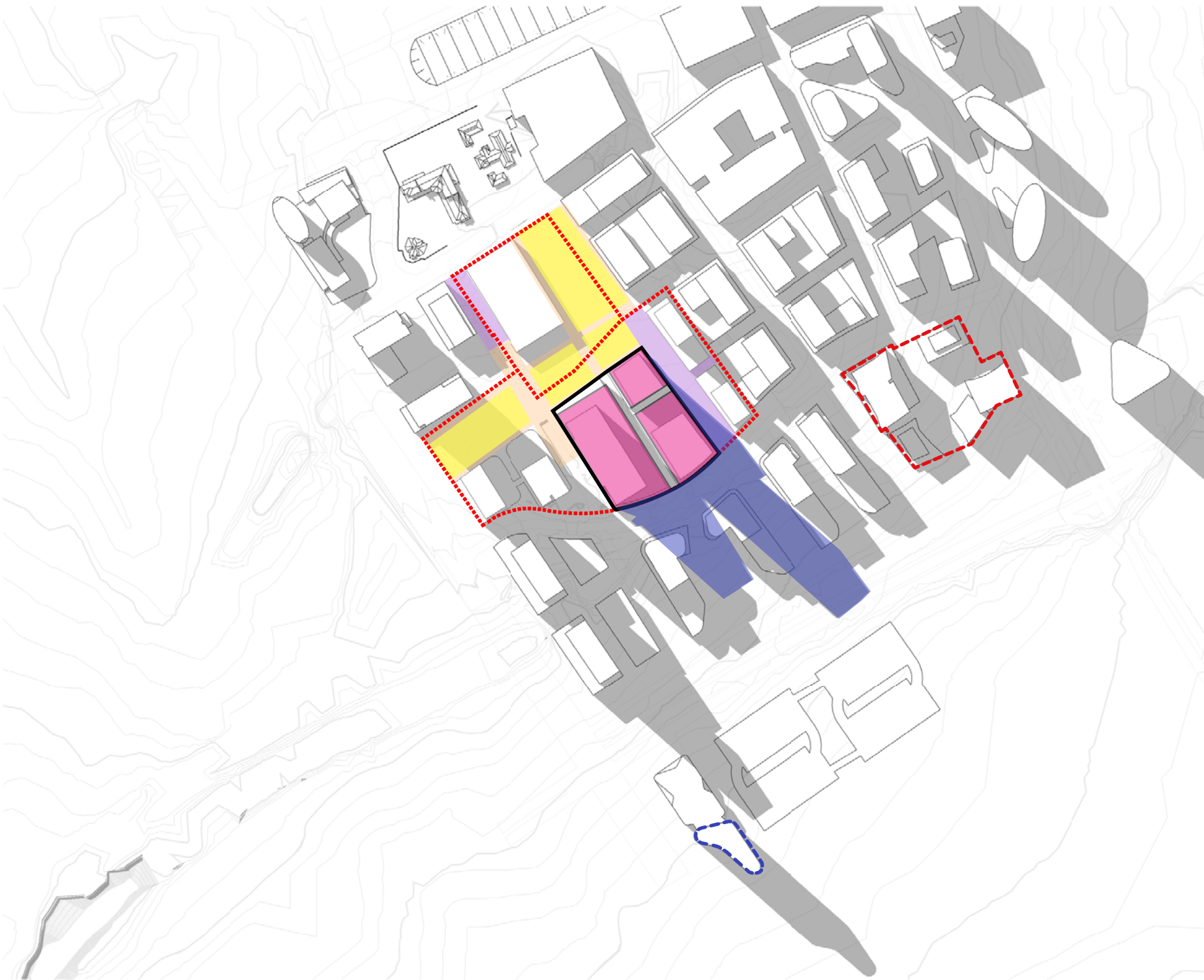
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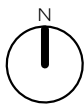
4.3.6 23 September - 2:00pm



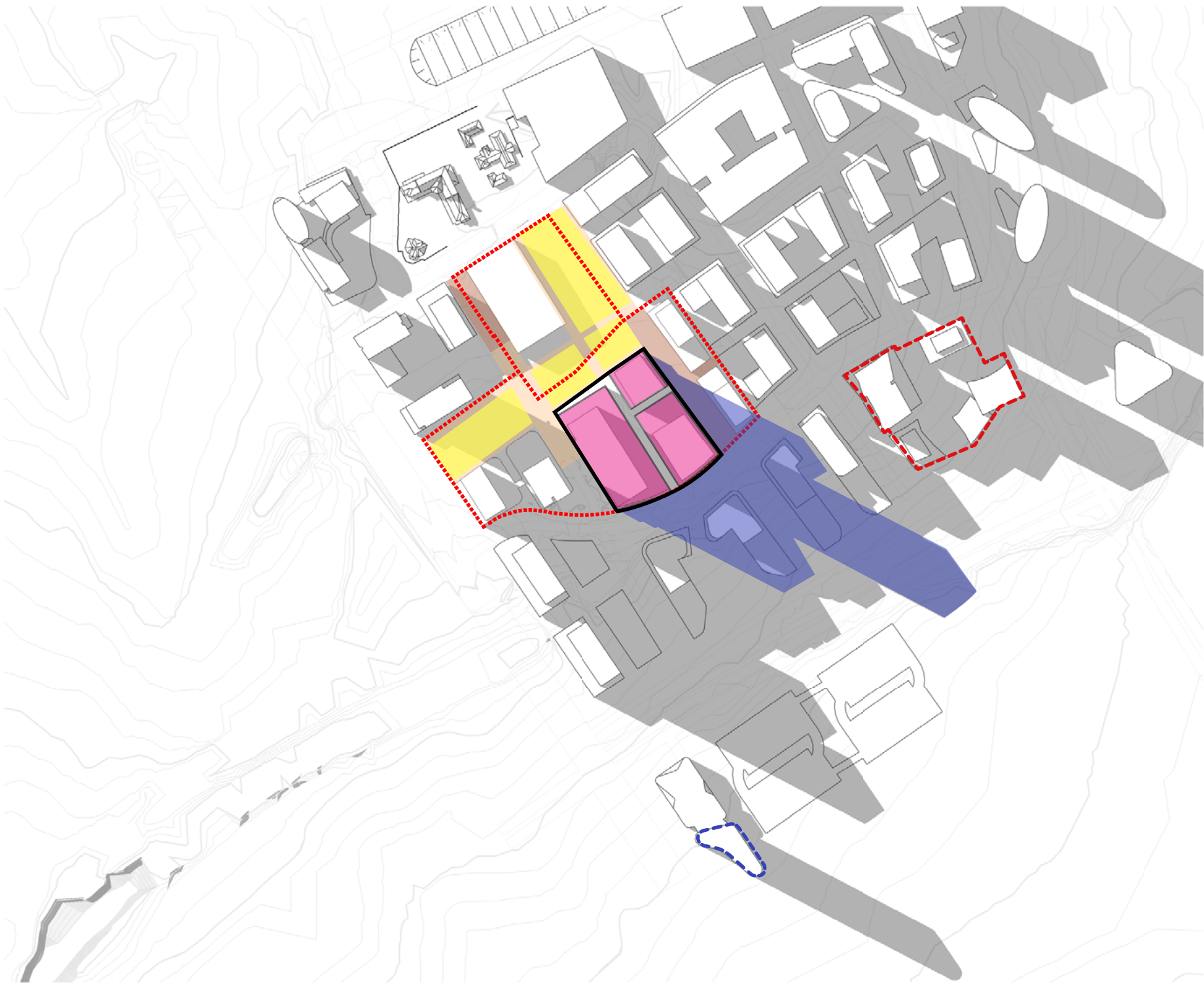
- SSD Concept Design
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4.3.7 23 September - 3:00pm



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# Conclusion

The shadow Impact Analysis report is defining the overshadowing impact that proposed development would have on surrounding properties and public spaces. Overshadowing impact is measured during summer and winter solstice, and spring and autumn equinox, on hourly intervals between 9am and 3pm. The impact has been assessed both on existing built forms and public spaces, as well as future public areas and buildings proposed through Sydney Olympic Park Authority (SOPA) 2030 Masterplan.

This report demonstrates that proposed development does not impact solar access to any of the existing public areas or those proposed through SOPA Masterplan 2030. It shows that none of the existing adjacent residential developments have been impacted by the proposal, and that all surrounding sites proposed by SOPA Masterplan 2030 are still able to achieve required solar access, on a masterplan assessment level (not assessing potential layouts).