

An aerial photograph of a residential neighborhood. The image shows a mix of single-family homes with gabled roofs, some larger commercial or industrial buildings, and a parking lot. A multi-lane road runs vertically through the center, and a set of railroad tracks runs horizontally across the right side. The area is densely packed with trees and vegetation.

# **242-244 BEECROFT ROAD RESIDENTIAL DEVELOPMENT**

## **DESIGN REPORT**

**BENNETT AND TRIMBLE**

**8/7/19**



# INTRODUCTION

## URBAN DESIGN EPPING NORTH WEST URBAN TRANSFORMATION

Prepared for	Landcom
Prepared by	Bennett and Trimble
Issue	B
Date	8/7/19

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# EXECUTIVE SUMMARY

The purpose of this design report is to develop a concept design for a State Significant Development Application (SSDA) for a site at 242-244 Beecroft Road, Epping. Multiple site strategies and built form studies were investigated with two selected for additional testing. From these, the preferred option was further developed as the concept design.

Preliminary planning for the buildings has been undertaken in order to test amenity through compliance with the Apartment Design Guide (ADG) focussing on solar access, natural cross ventilation, communal open space and building separation. Typical apartment plans have been developed to determine an achievable yield, a schedule of areas, and ADG compliance.

Structure of Report:

**A Site Analysis** includes context analysis of the site, opportunities and constraints on the site, a summary of relevant planning controls, and urban design principles.

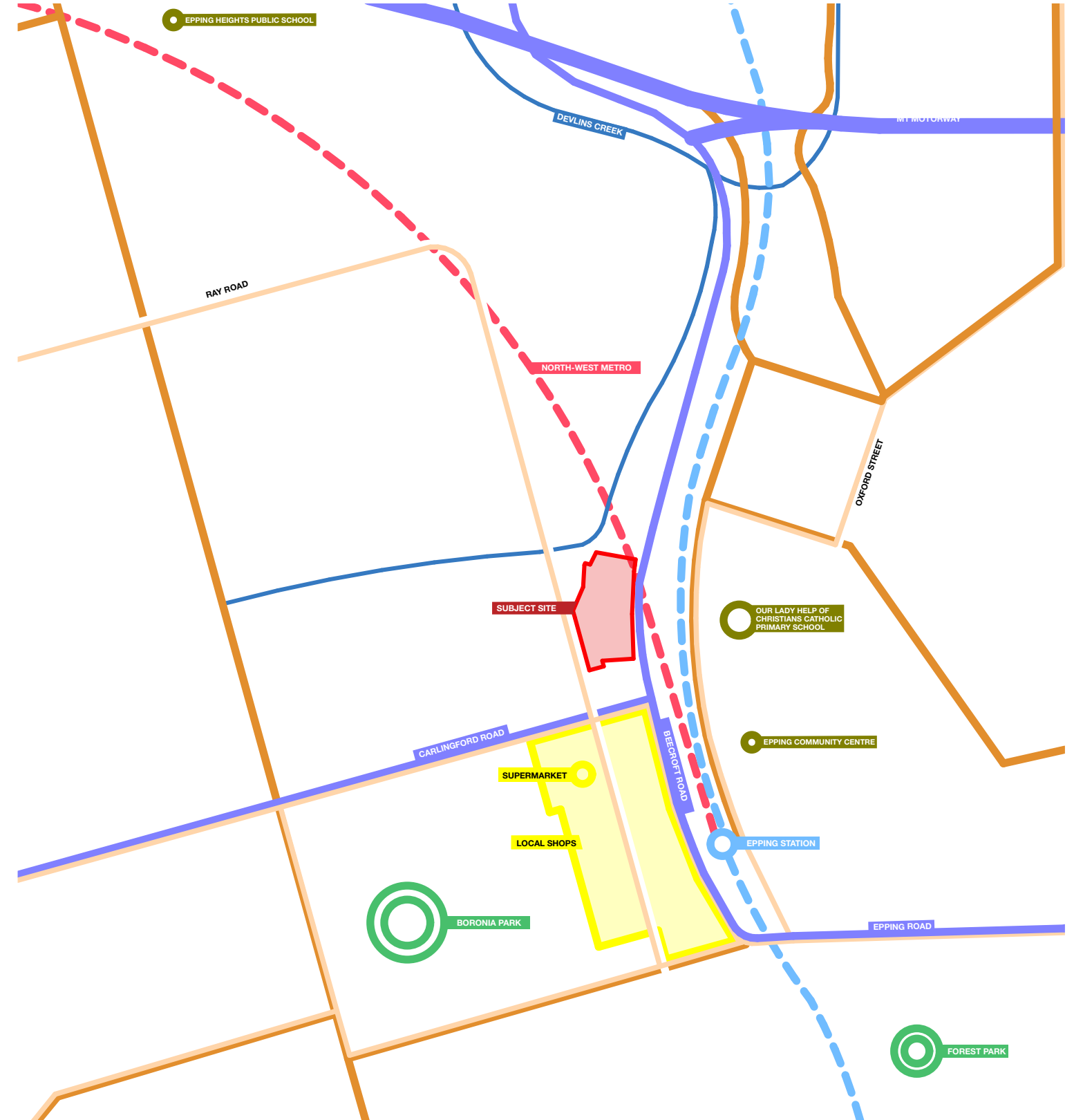
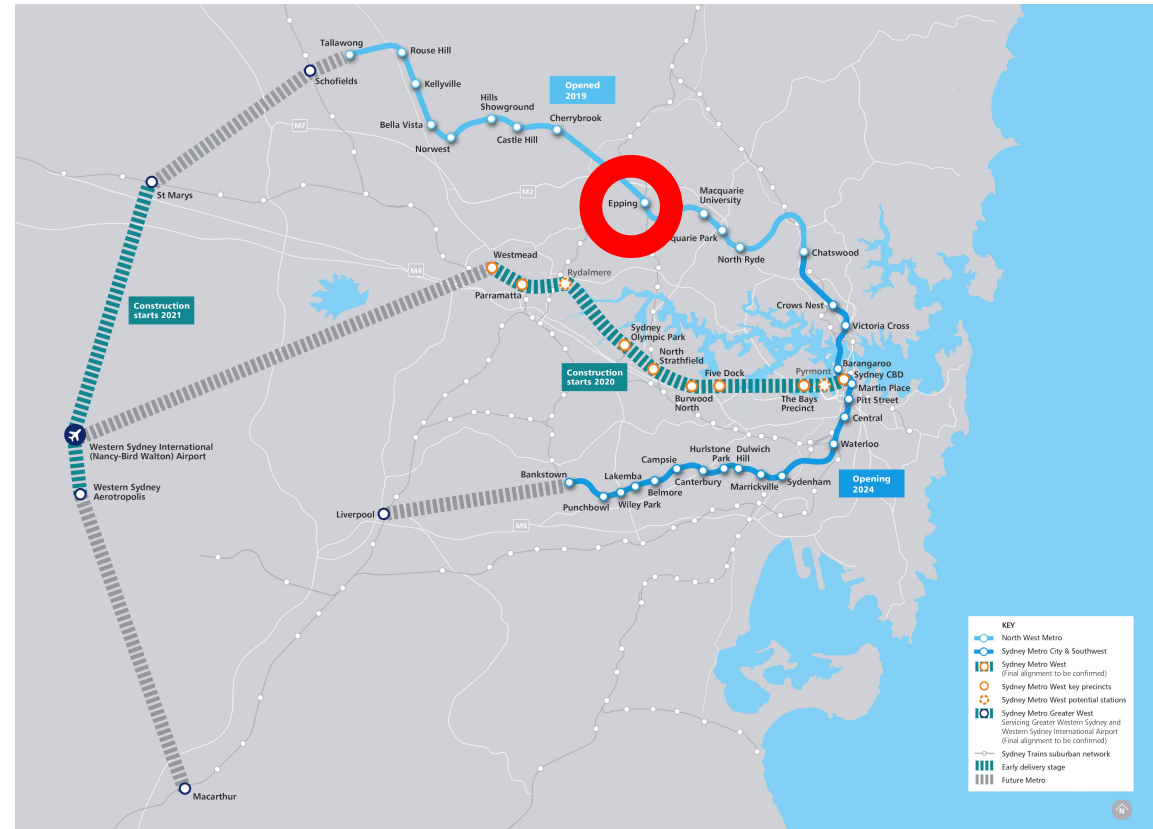
**A Concept Design** for the site has been developed to test massing and urban form within planning controls, capacity and yield, ADG compliance for cross ventilation and daylight provisions, and typical floorplate efficiency. They have been tested to demonstrate a development model that maximises the development yield within setback and building separation controls, the ADG, and the height limit, and that is commercially realistic in this market.

**Concept Images** have been prepared with indicative massing, landscaping and common open space. The reference scheme has been shown in the context of proposed and approved developments in the immediate context.





# ANALYSIS - LOCAL CONTEXT



- SITE BOUNDARY
- T1 NORTHERN LINE
- NORTH WEST METRO (INDICATIVE PATH)
- M2 MOTORWAY
- PRIMARY ROAD
- SECONDARY ROAD
- TOWN CENTRE
- BUS ROUTES
- BIKE PATHS
- DEVLINS CREEK
- PARK
- COMMUNITY AND SCHOOLS



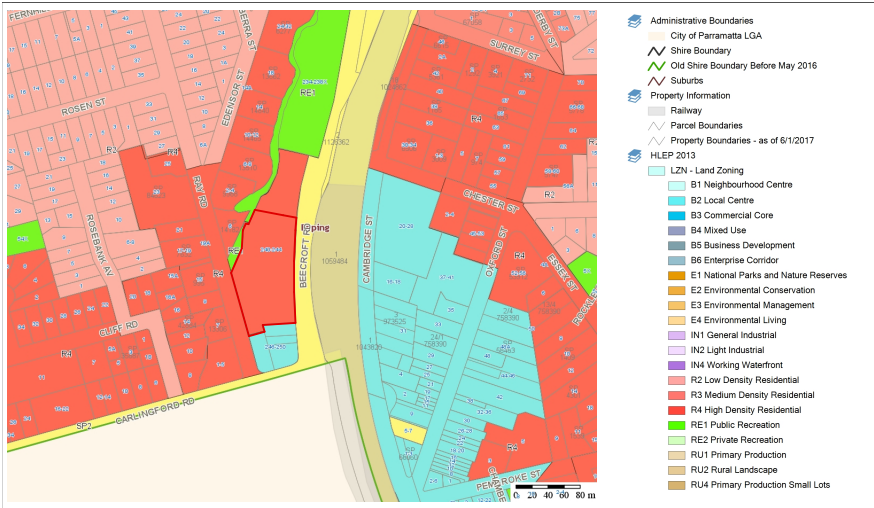
# ANALYSIS - LEP CONTROLS

## HORNSBY SHIRE COUNCIL - RELEVANT LEP CONTROLS

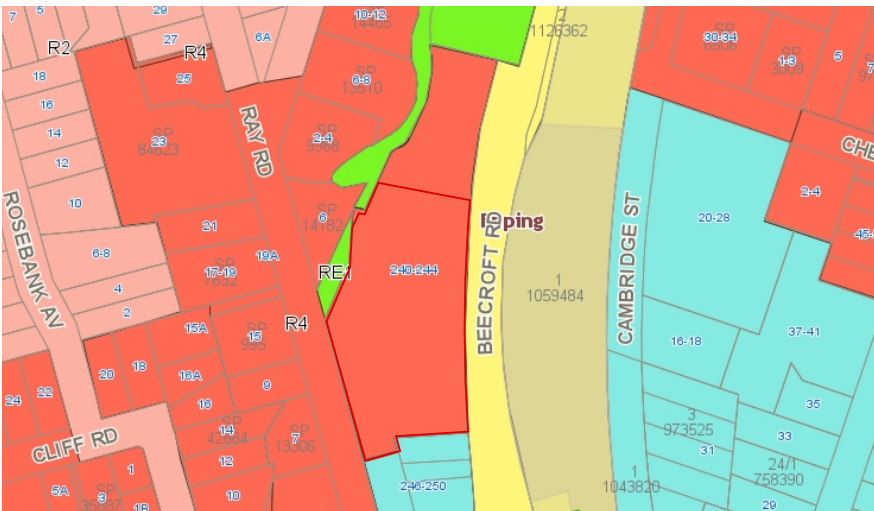
**NOTE:**  
The study site is within the newly amalgamated City of Parramatta Local Council area.

Planning controls for the new City of Parramatta area will be consolidated after the new council is elected. In the interim the Hornsby Shire Council LEP controls are referenced below.

### ZONING



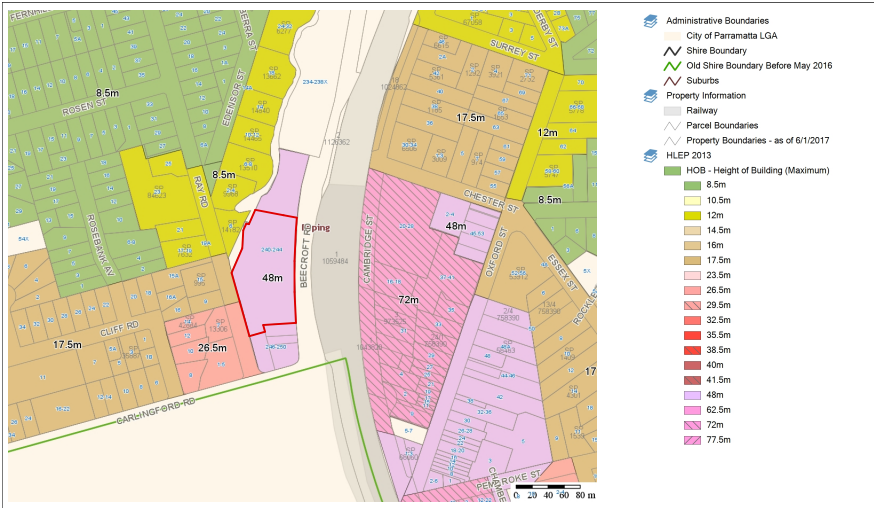
<b>Important Notice!</b> Location of features and boundaries are indicative only. Their actual position has not been surveyed. Aerial photography may not align with cadastral boundaries. Hornsby Shire Council accepts no responsibility for any incident arising from any inaccuracy.	<b>Projection:</b> GDA94 / MGA zone 56
<b>Date:</b> 16/08/2017	<b>Map Scale:</b> 1:4000 at A4 Landscape



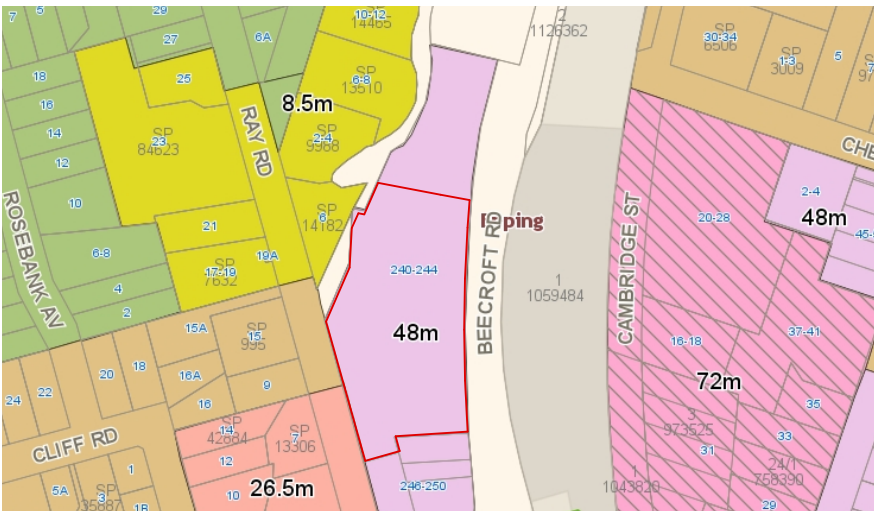
The study areas includes sites that are zoned:

**R4** R4 High Density Residential

### MAXIMUM BUILDING HEIGHT



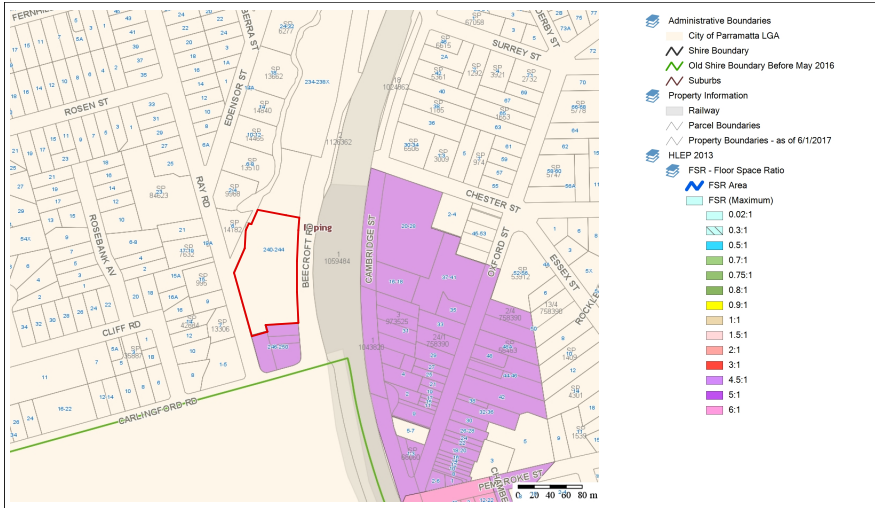
<b>Important Notice!</b> Location of features and boundaries are indicative only. Their actual position has not been surveyed. Aerial photography may not align with cadastral boundaries. Hornsby Shire Council accepts no responsibility for any incident arising from any inaccuracy.	<b>Projection:</b> GDA94 / MGA zone 56
<b>Date:</b> 16/08/2017	<b>Map Scale:</b> 1:4000 at A4 Landscape



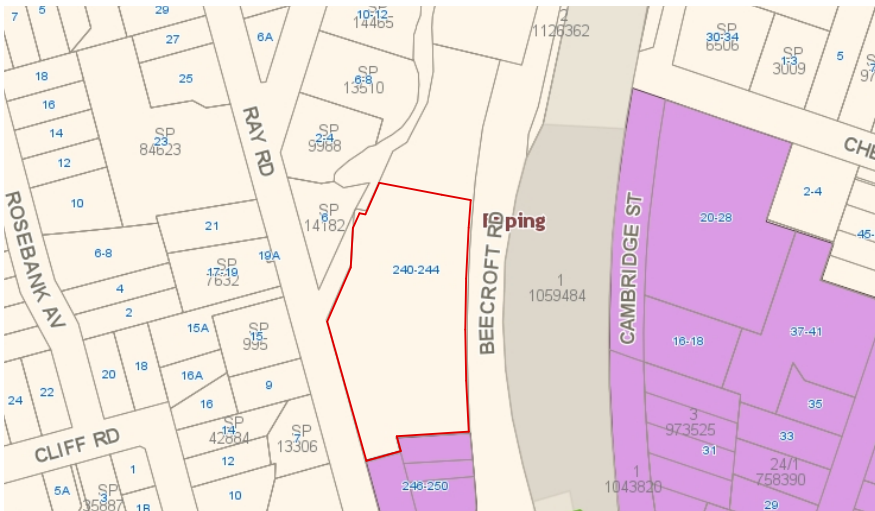
The maximum buildings heights are:

**48m**

### FLOOR SPACE RATIO



<b>Important Notice!</b> Location of features and boundaries are indicative only. Their actual position has not been surveyed. Aerial photography may not align with cadastral boundaries. Hornsby Shire Council accepts no responsibility for any incident arising from any inaccuracy.	<b>Projection:</b> GDA94 / MGA zone 56
<b>Date:</b> 16/08/2017	<b>Map Scale:</b> 1:4000 at A4 Landscape



No floor space ratio applies to the site



# DESIGN STATEMENT

Three towers are arranged on the site to optimise access to daylight, privacy, and building separation. The towers are oriented east/west to minimise exposure to rail and road noise and to open the primary facade to the north. Each tower comprises two rectangular forms that are angled in response to the geometry of the site and to increase solar penetration. This breaks down the scale of the towers, reducing the apparent width of each element and allows for increased opportunities for cross ventilation.

The towers are within the height plane and of an equal height. They act as a transition between the tall towers proposed at the Epping Town Centre and the lower scale built form to the north of the site.

A dense landscape corridor along Devlins Creek provides a green buffer to the development when viewed from the north.

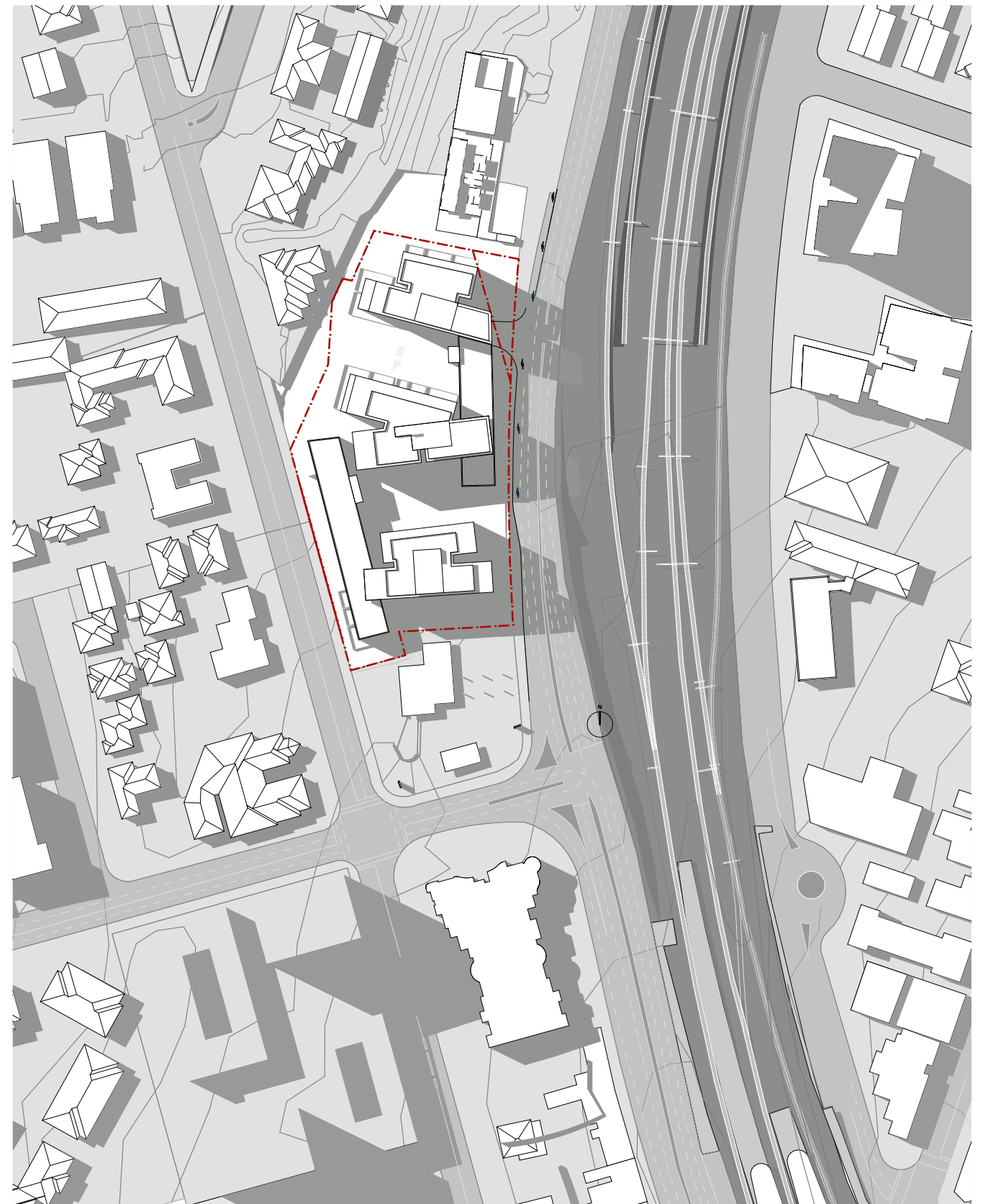
On Beecroft Road a 5 storey podium connects the two northernmost towers and on Ray Road a 5 storey podium connects the two southernmost towers.

Communal open space is located on the rooftops of the towers and podiums, as well as in the northern ground level courtyard between the towers.

A through site pedestrian link connects Beecroft Road and Ray Road through the centre of the site.

There are two proposed carpark entry points; one on Beecroft Road and one on Ray Road. Waste collection and loading would be from the Ray Road entry.

The architectural treatment of the buildings would further break down the scale of the building as series of elements at an appropriate urban scale.





# DESIGN PRINCIPLES

## FINE GRAIN TOWER FORM

The development is designed as 3 towers to minimise bulk and to create smaller floor plates with greater access to sunlight, ventilation and views.



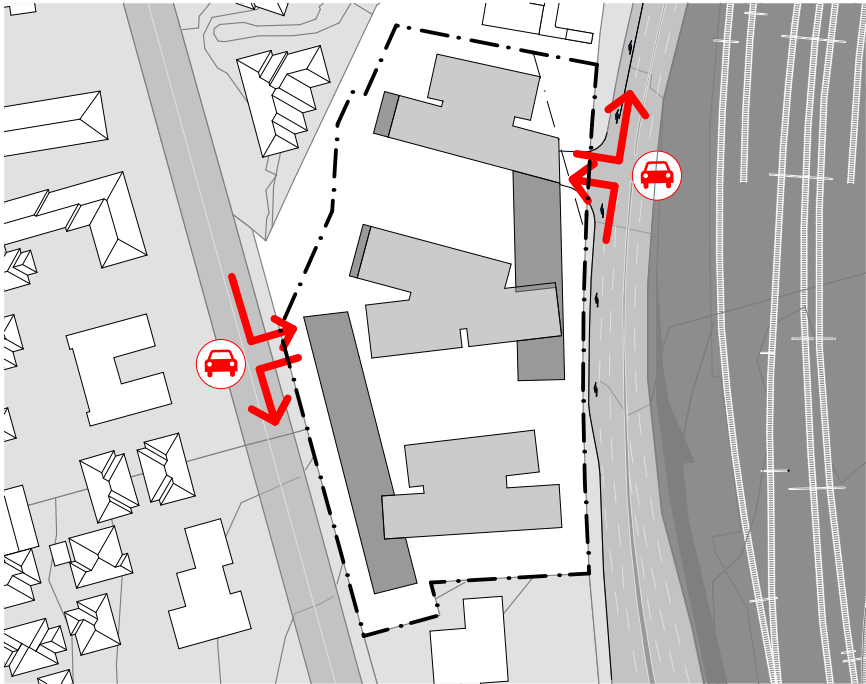
## LOW-RISE FORM + LANDSCAPE

The building podium frames two landscape courts and provides smaller scale built form to Beecroft Road and Ray Road.



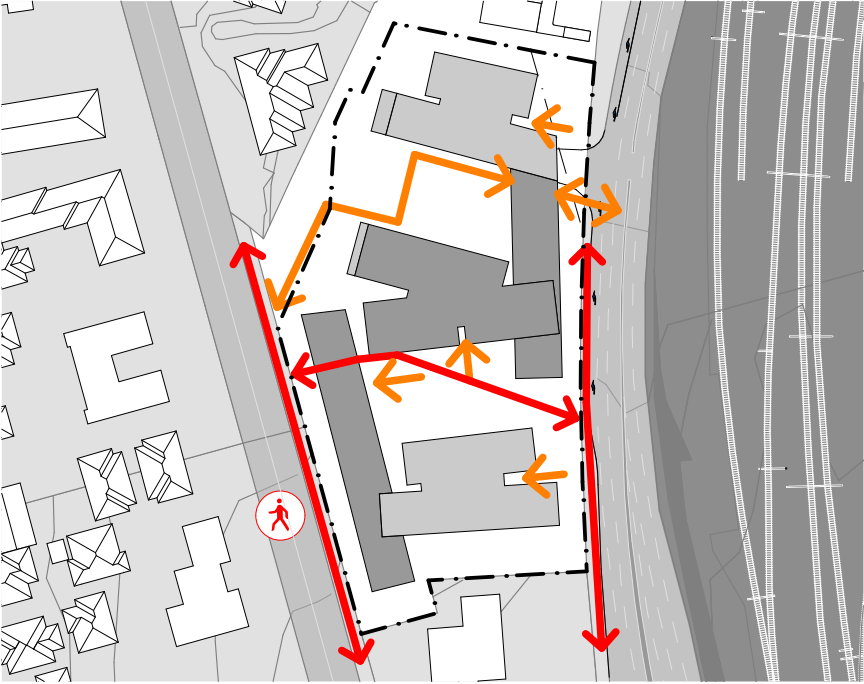
## VEHICULAR ACCESS

Proposed left-in, left-out vehicular access on both Ray Road and Beecroft Road are located at the approximate locations of existing crossovers.



## SITE LINKS + ACTIVATION

The primary through-site pedestrian link breaks down the perimeter of the development, increasing permeability.



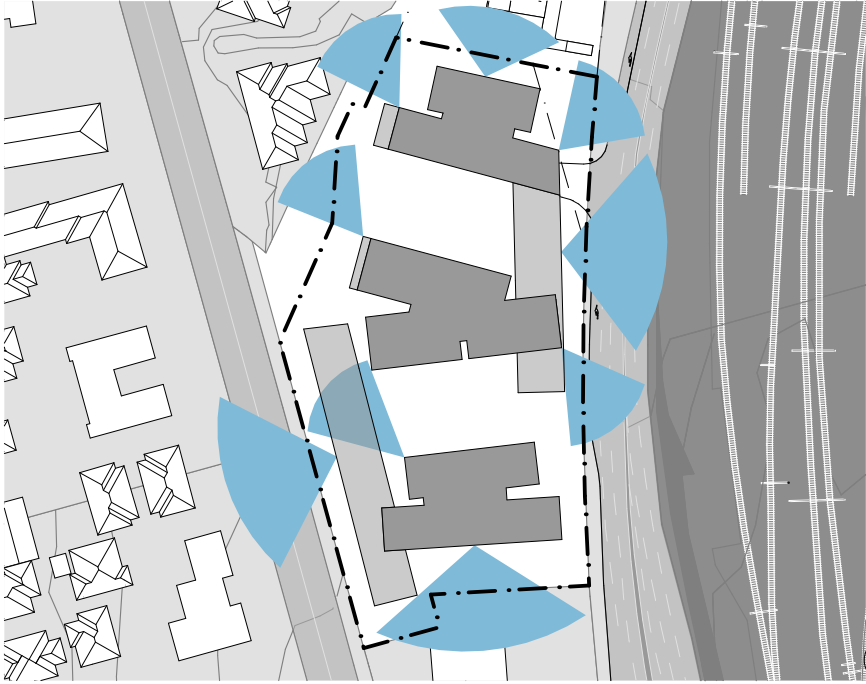
## MINIMISE ACOUSTIC EXPOSURE

The towers are orientated to minimise exposure to the noise generated by Beecroft Road and the rail corridor



## INCREASE VIEWS

The configuration and separation of the towers increases opportunities for local and district views.





# DESIGN PRINCIPLES - ADG

The following key elements of the Apartment Design Guide have informed the Concept Design. The Concept Design has been developed to enable full compliance with the ADG for the future developed design. Detailed compliance diagrams are included at the end of this report.

## MAXIMISE SUNLIGHT ACCESS

Building form is configured and oriented to maximise sunlight access to achieve ADP compliance.



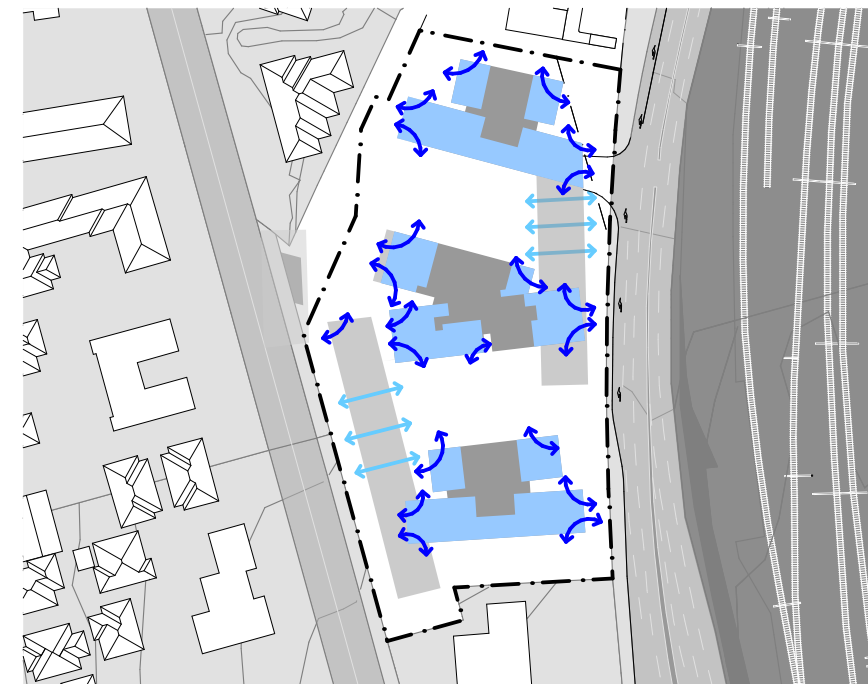
## BUILDING SEPARATION

There is a 24 metre separation between buildings over 8 storeys in compliance with ADG separation requirements.



## OPTIMISE NATURAL VENTILATION

Natural ventilation is provided by slender towers with cross ventilated corner apartments and low-rise dual-aspect apartments.



## DEEP SOIL ZONES

Large Deep Soil zones are located at the northern, eastern, and southern boundaries to provide landscape buffers and separation to adjacent properties. Dedicated deep soil areas are located in the basement to allow for trees to be planted in the ground level courtyards.



## COMMON AREAS

Cores and lobbies have been arranged for a maximum of eight apartments per lobby to encourage interaction and familiarity with neighbours. All lobbies are naturally ventilated.



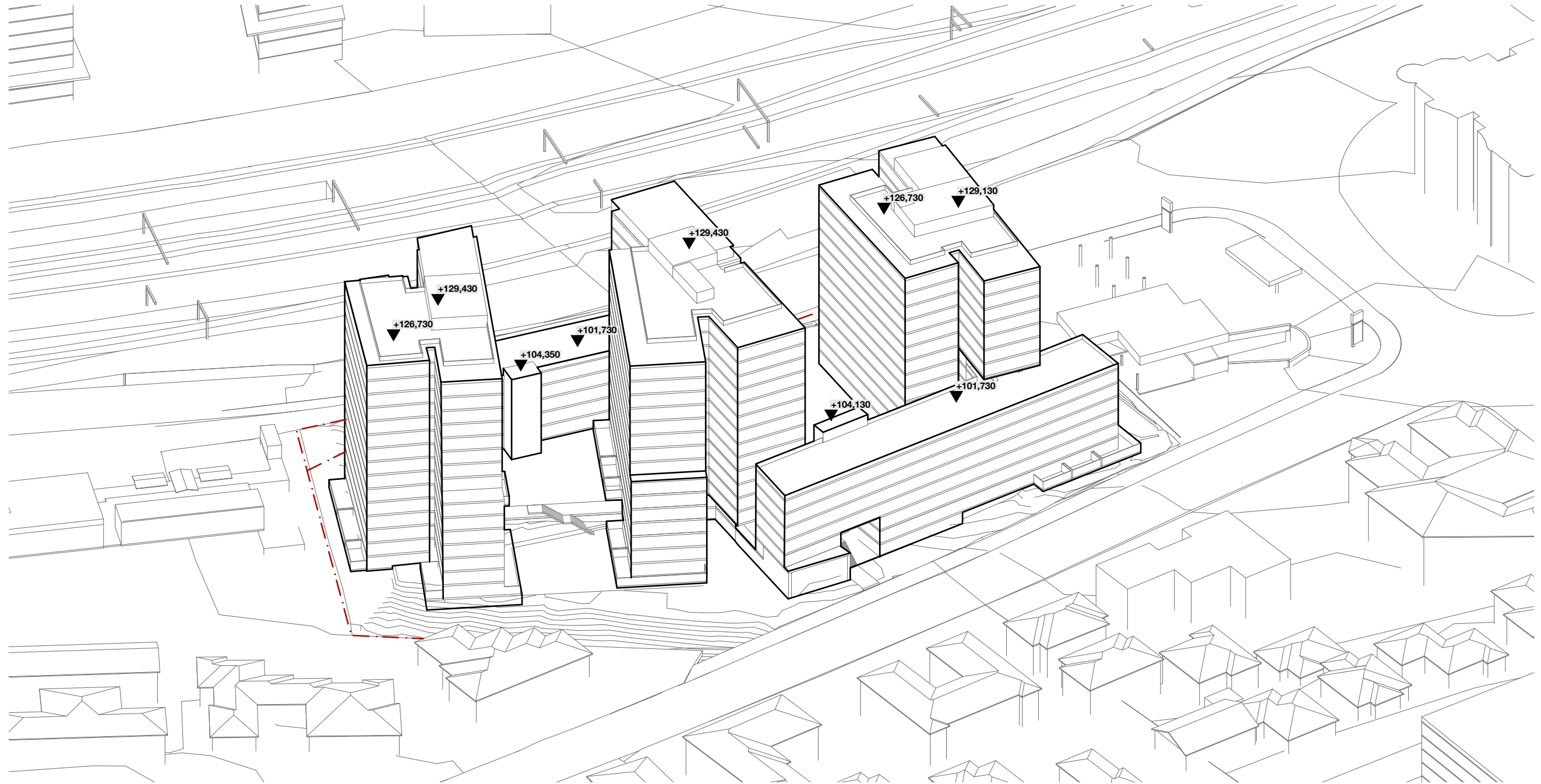
## COMMUNAL OPEN SPACE

Communal open space is provided on the rooftops of the towers, podiums, and at ground level. The rooftops provide excellent access to daylight and privacy. The number of them will make a variety of types of communal spaces and activities possible.





# ENVELOPE



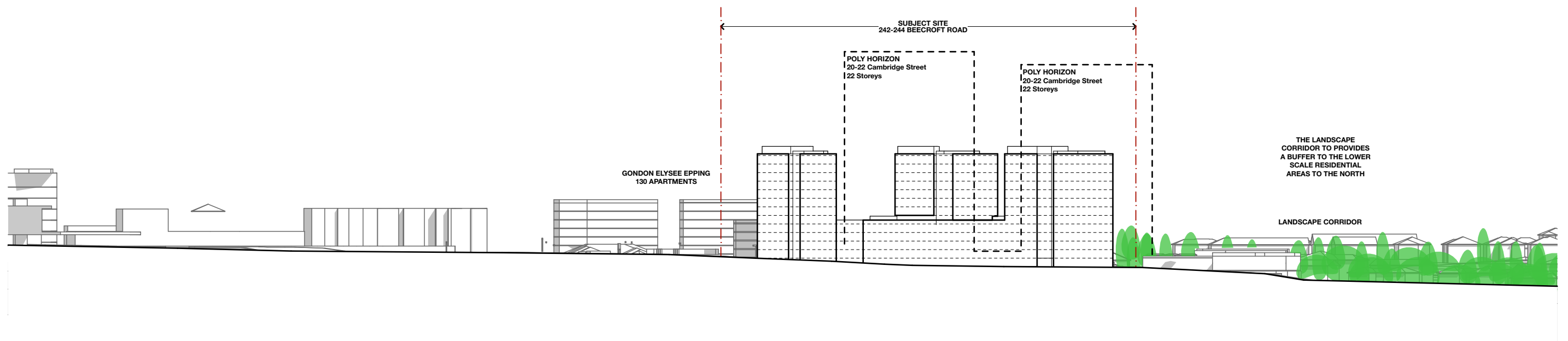


# CONCEPT PROPOSAL - VIEWS





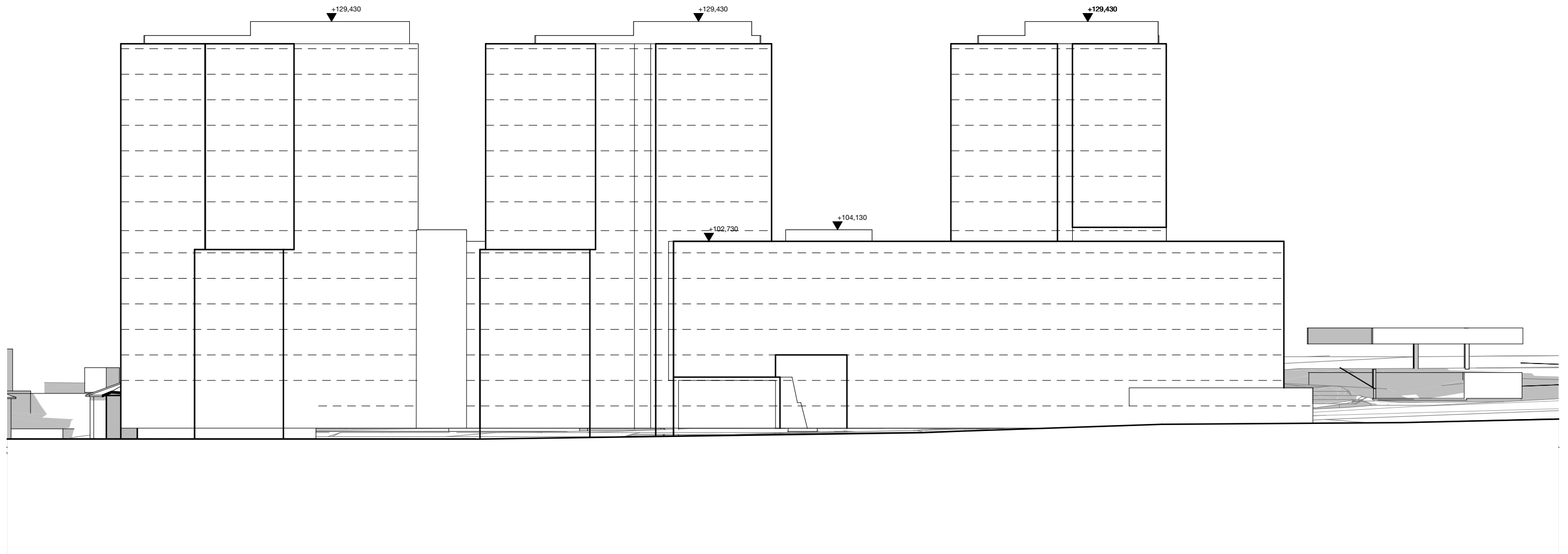
# CONCEPT PROPOSAL - CONTEXT ELEVATION



CONTEXT ELEVATION  
1:1500



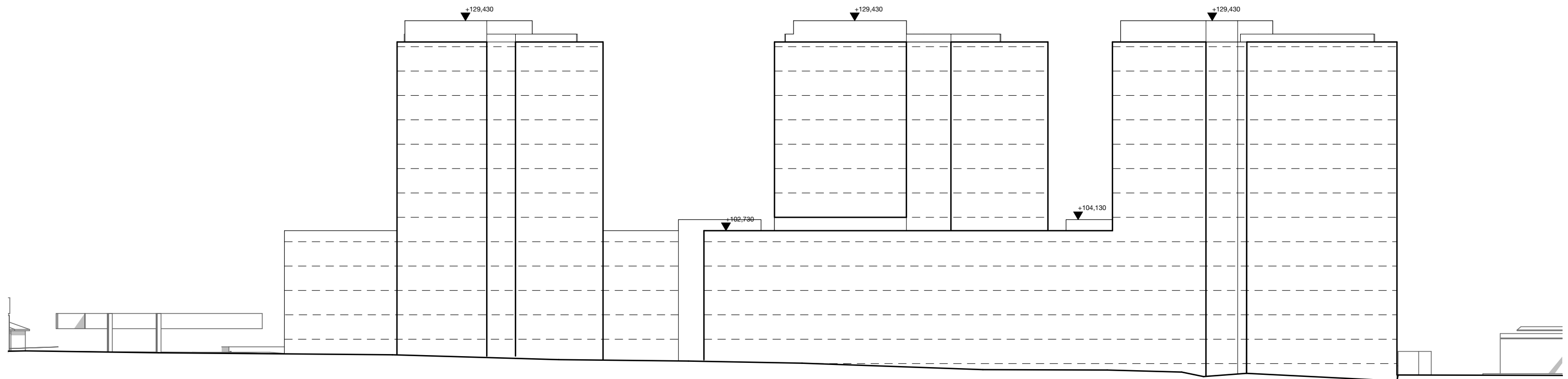
# CONCEPT PROPOSAL - RAY ROAD ELEVATION



RAY ROAD ELEVATION  
1:500



# CONCEPT PROPOSAL - BEECROFT ROAD ELEVATION



**BEECROFT ROAD ELEVATION**  
**1:500**

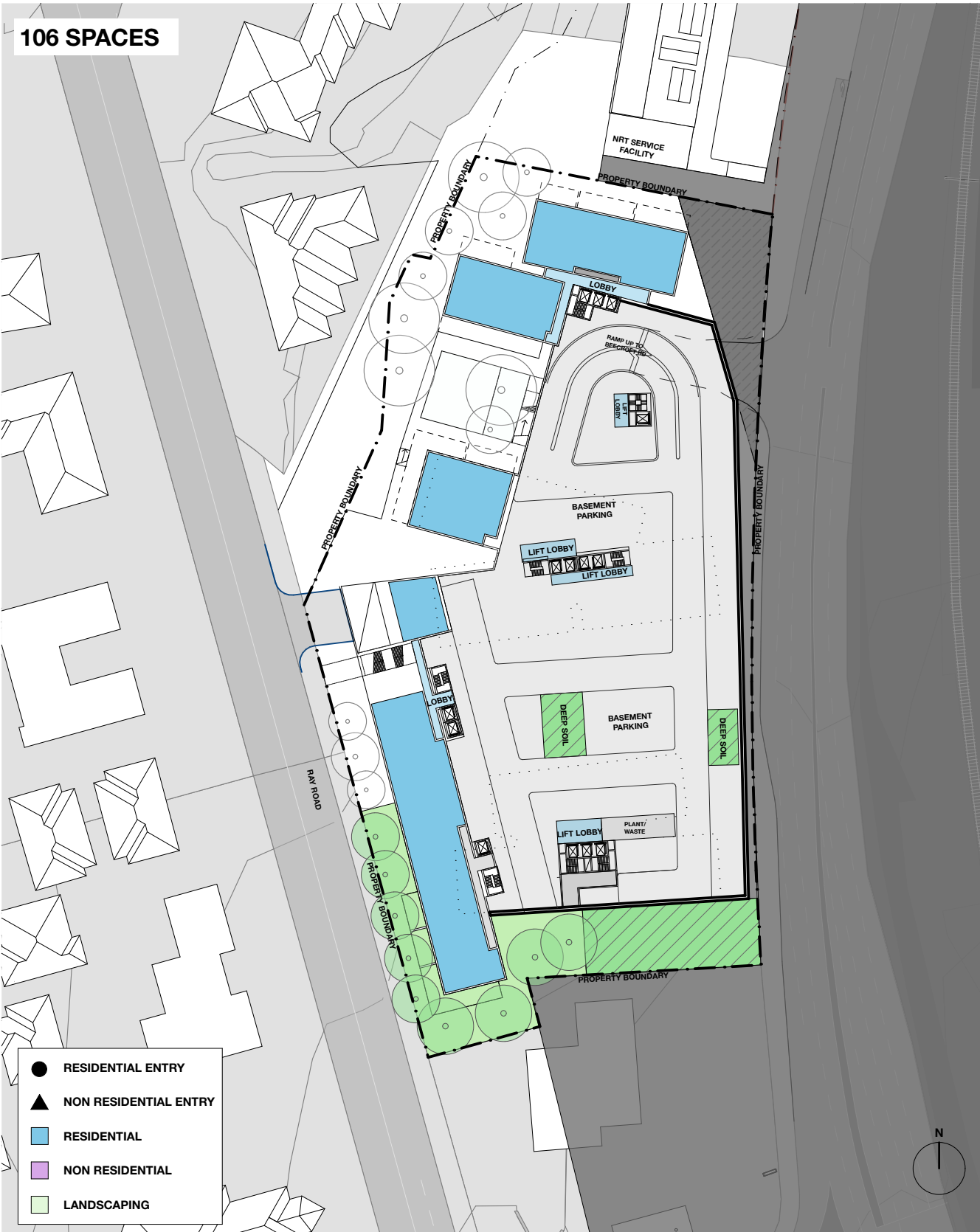


# CONCEPT PROPOSAL - PLANS - P2 & P1





# CONCEPT PROPOSAL - PLANS - LG & GF



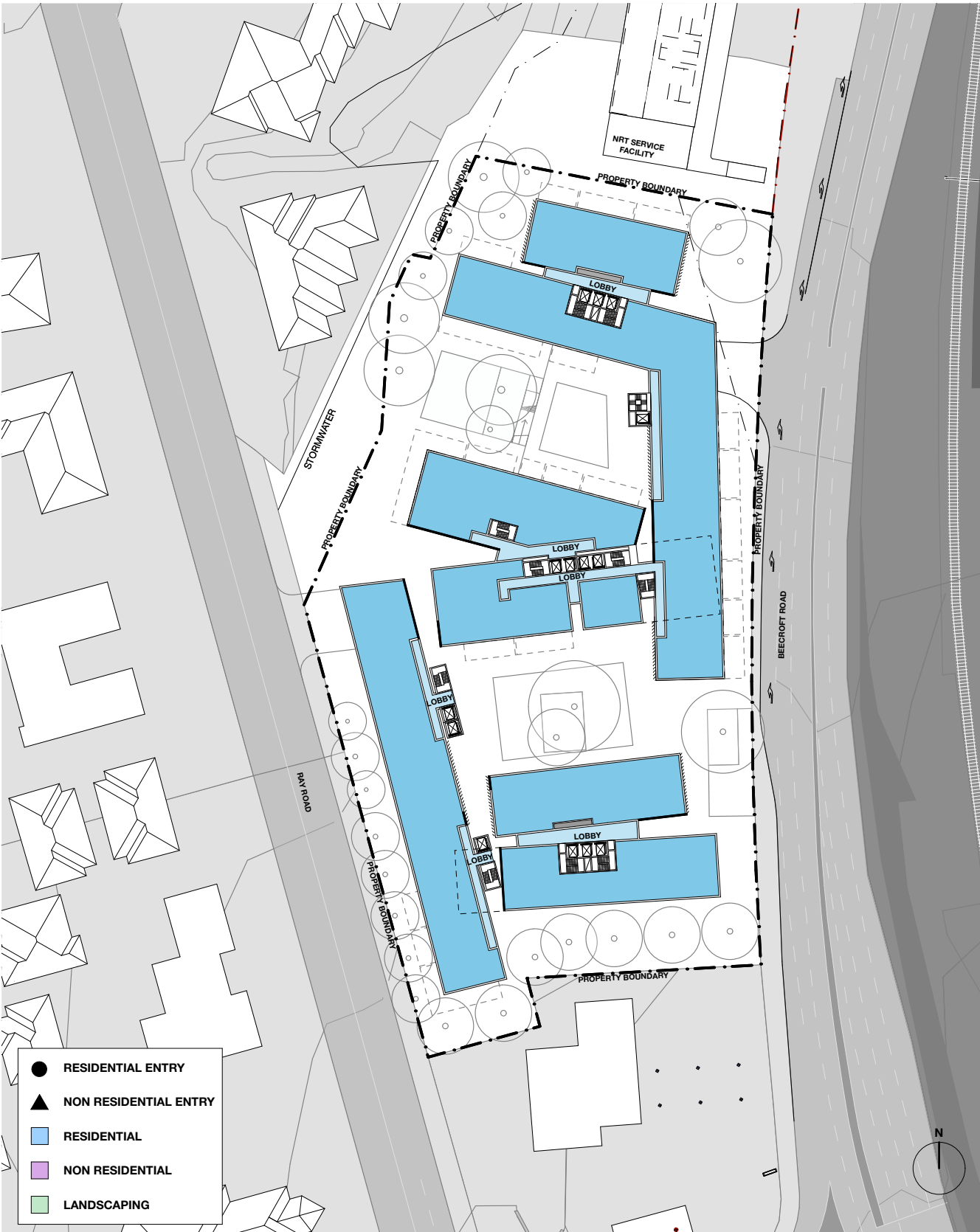
INDICATIVE LOWER GROUND FLOOR (RAY ROAD) PLAN 1:1000



INDICATIVE GROUND FLOOR (BEECROFT ROAD) PLAN 1:1000



# CONCEPT PROPOSAL - PLANS- L1-L4 & L5



INDICATIVE LEVEL 1-4 FLOOR PLAN 1:1000



INDICATIVE LEVEL 5 FLOOR PLAN 1:1000



# CONCEPT PROPOSAL - PLANS - TOWER



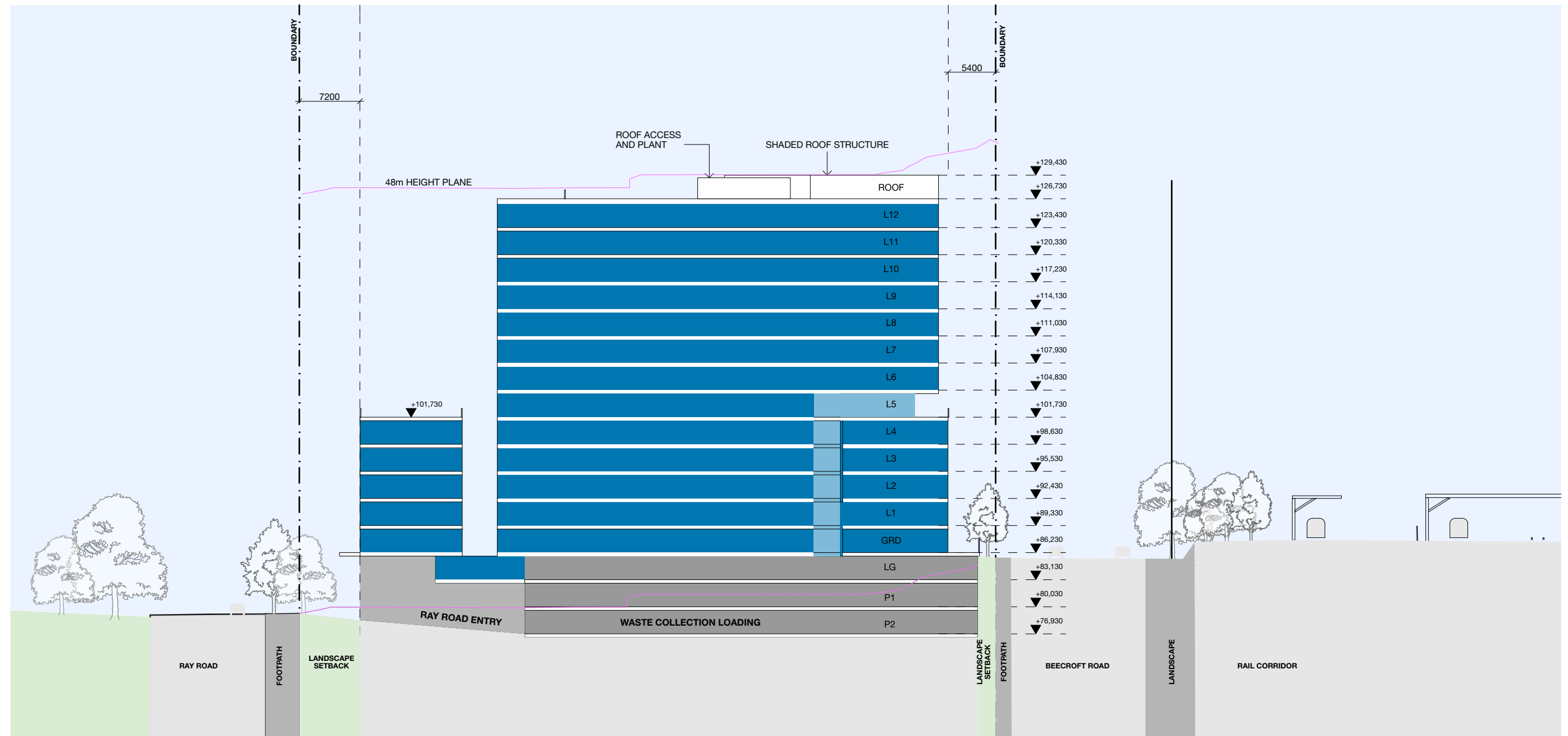
INDICATIVE TYPICAL TOWER FLOOR PLAN 1:1000



INDICATIVE ROOF PLAN 1:1000



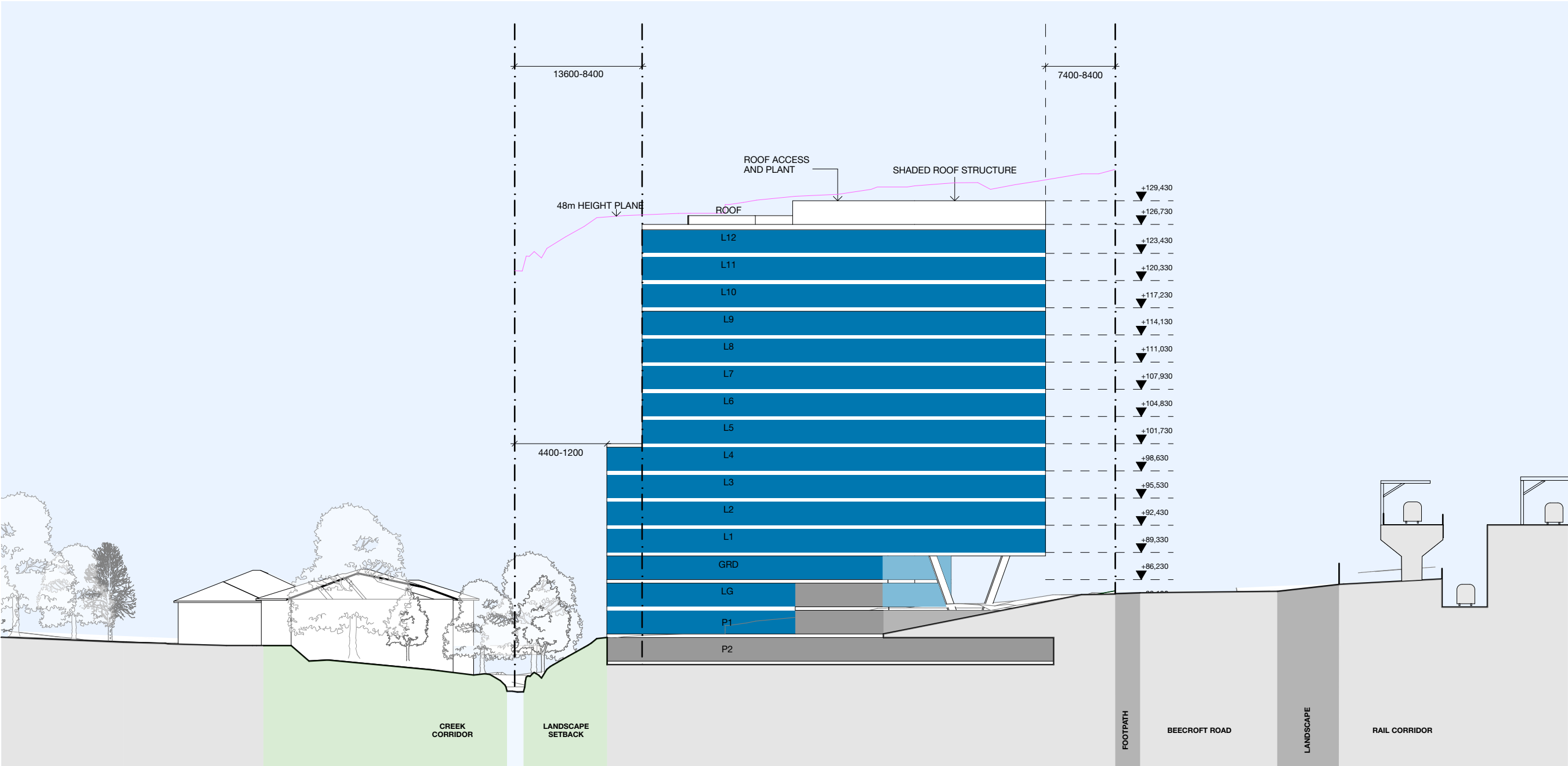
# CONCEPT PROPOSAL - EW SECTION 1



EAST-WEST SECTION A-A 1:500  
RAY ROAD ENTRY



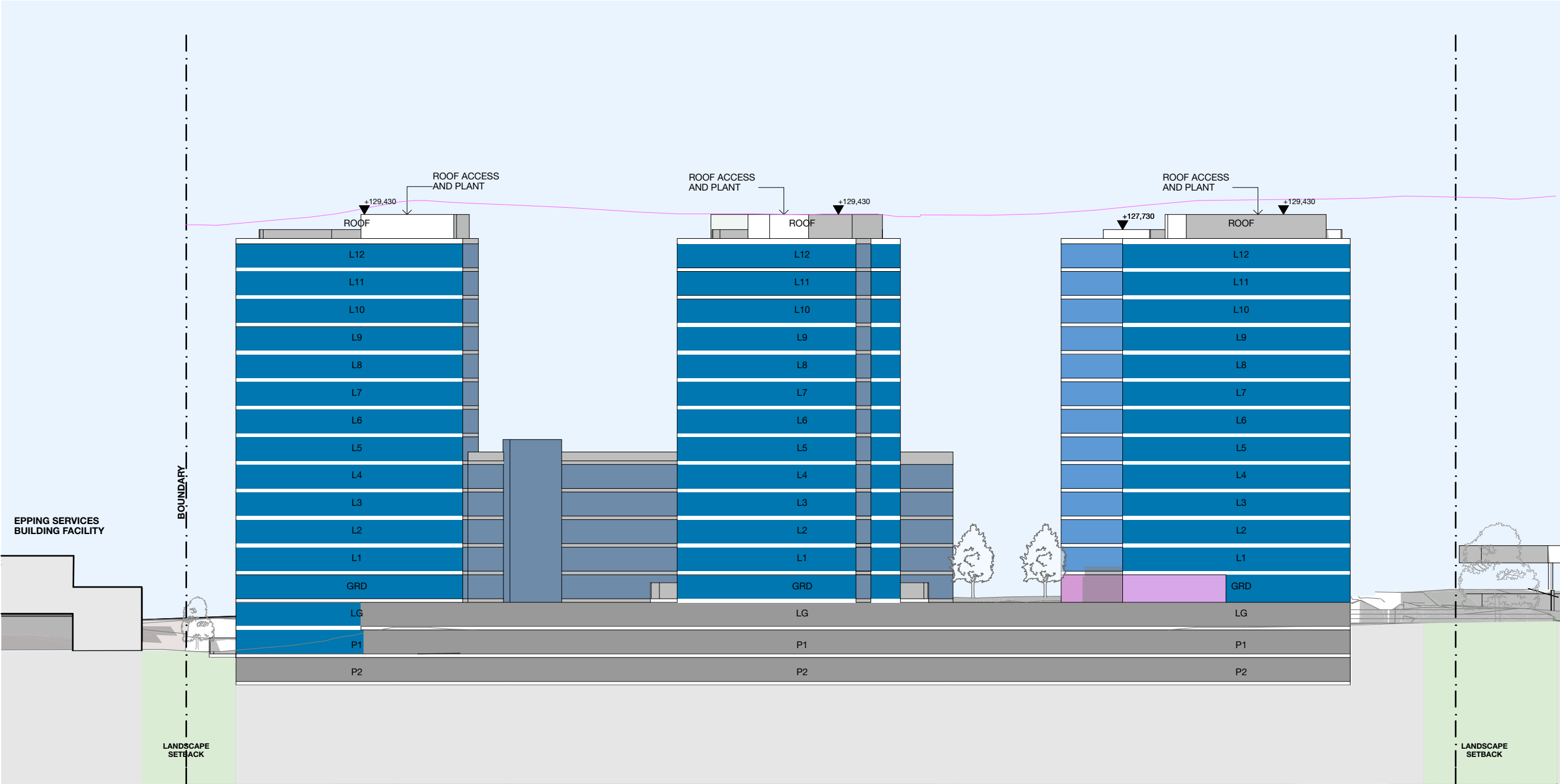
# CONCEPT PROPOSAL - EW SECTION 2



EAST-WEST SECTION A-A 1:500  
RAY ROAD ENTRY



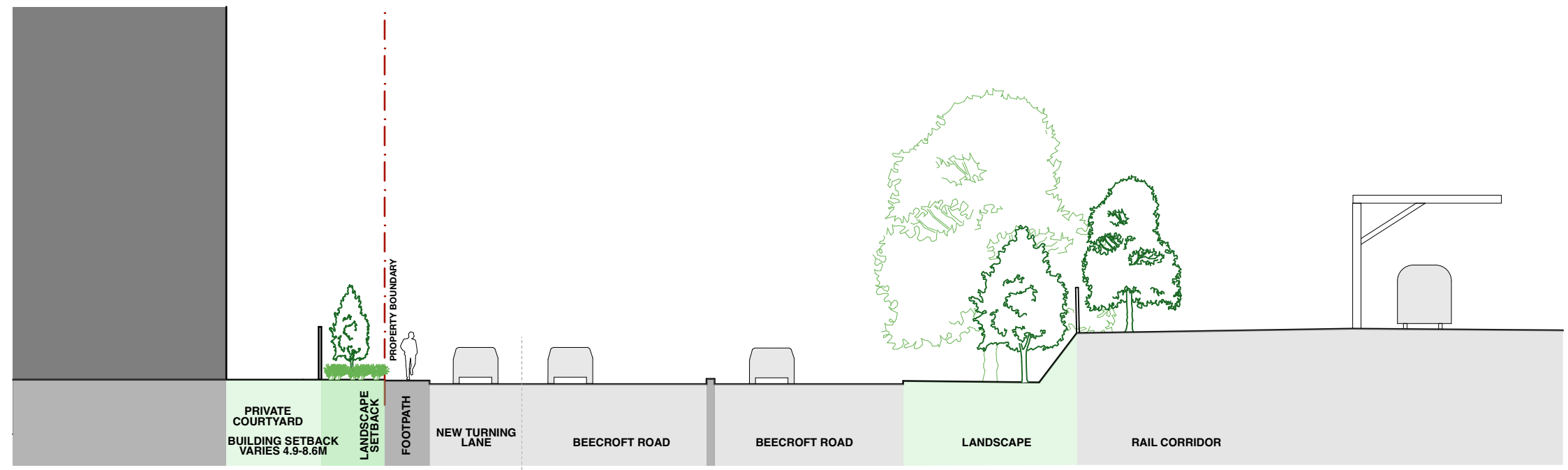
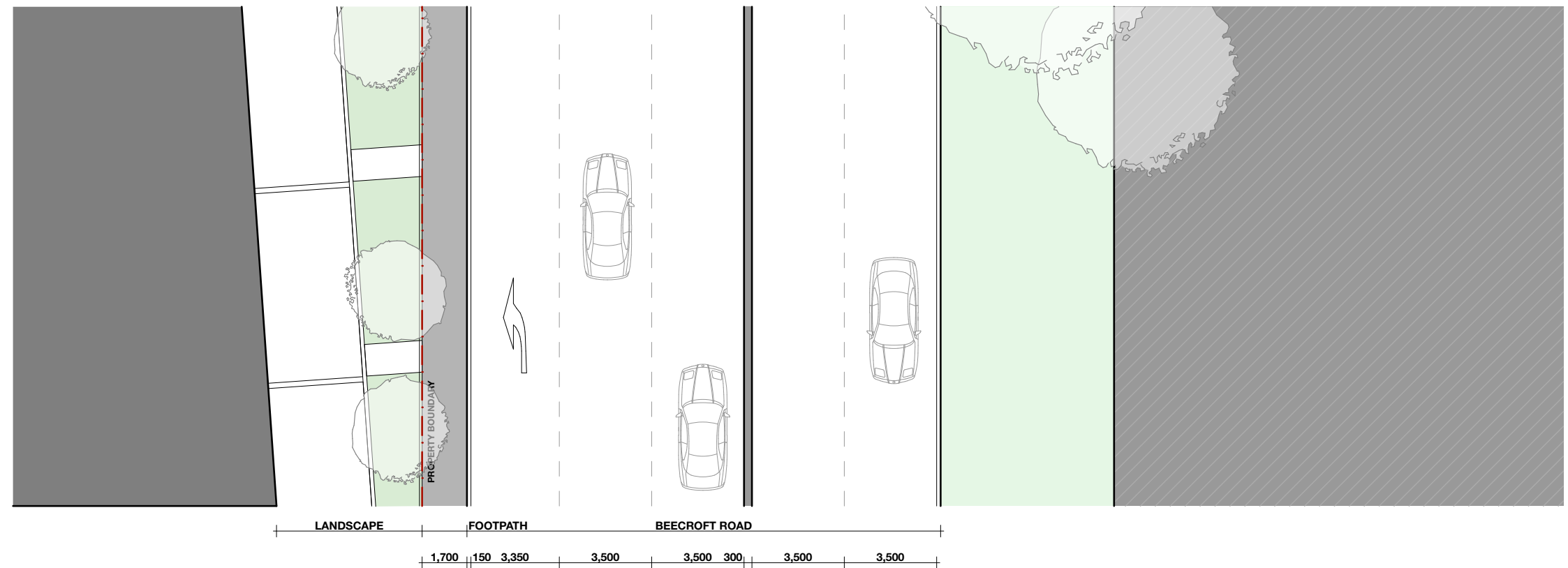
# CONCEPT PROPOSAL - NS SECTION



NORTH-SOUTH SECTION A-A 1:500  
RAY ROAD ENTRY

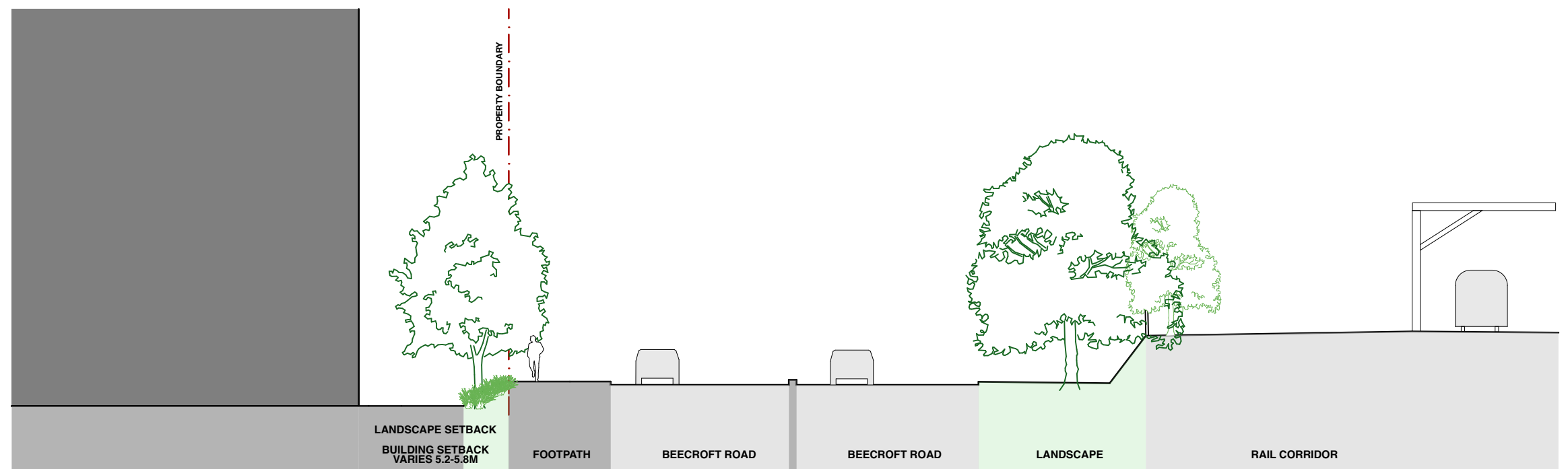
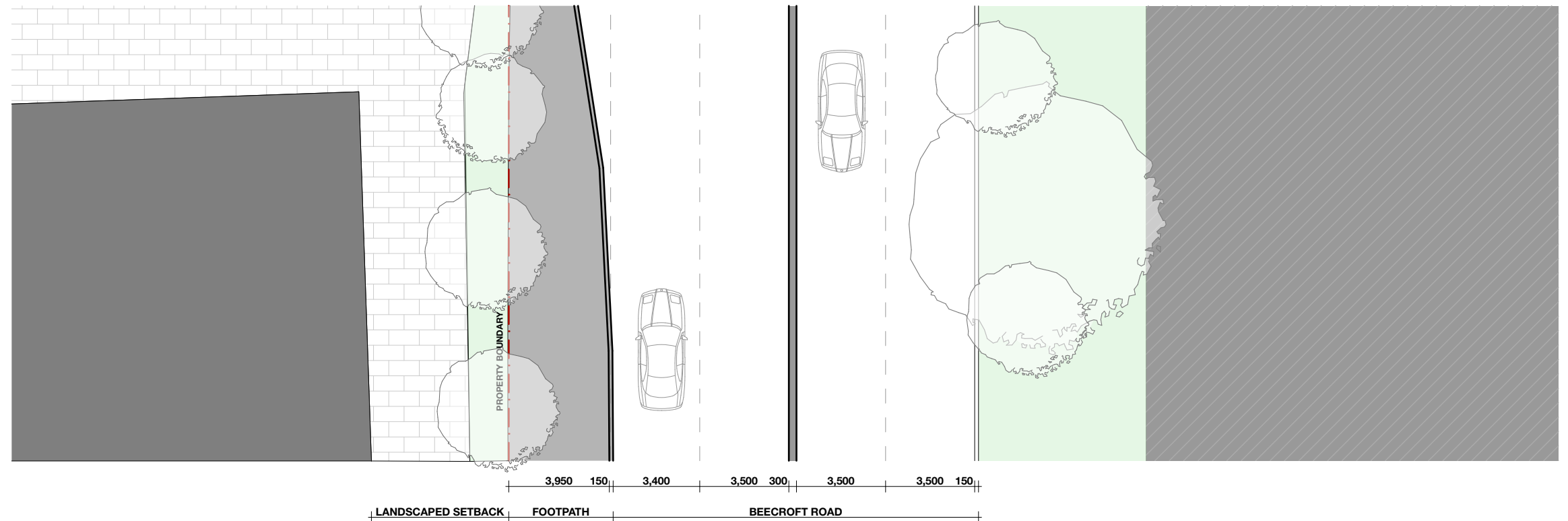


# STREET SECTION - BEECROFT ROAD (1)

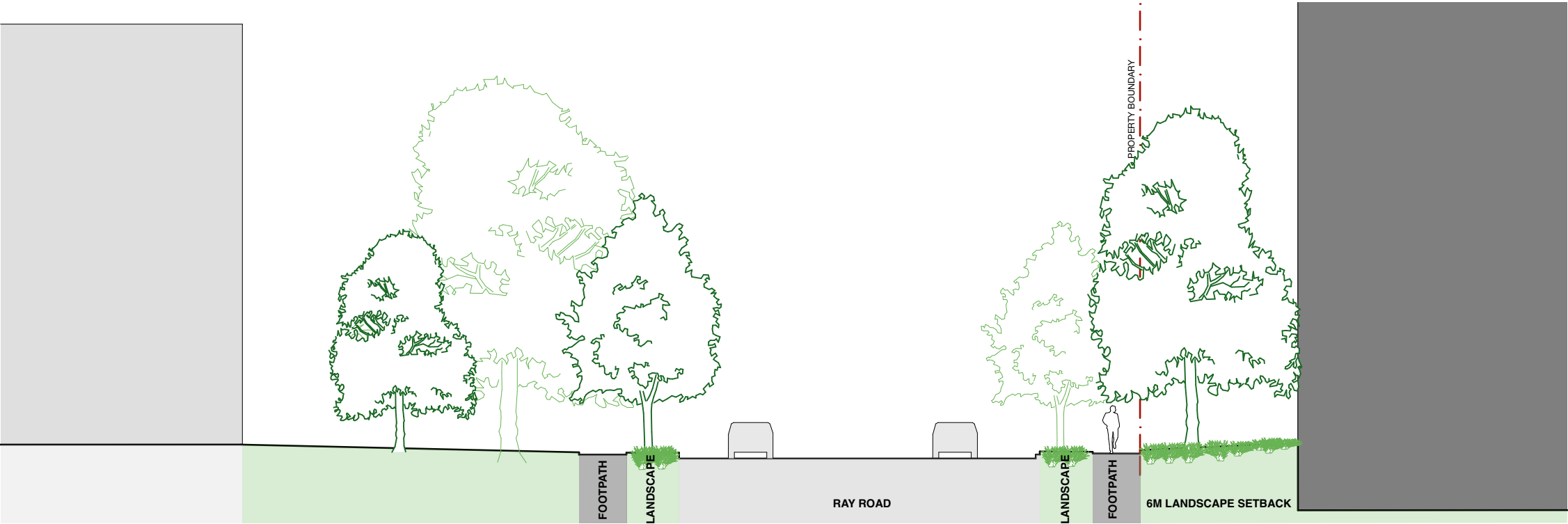
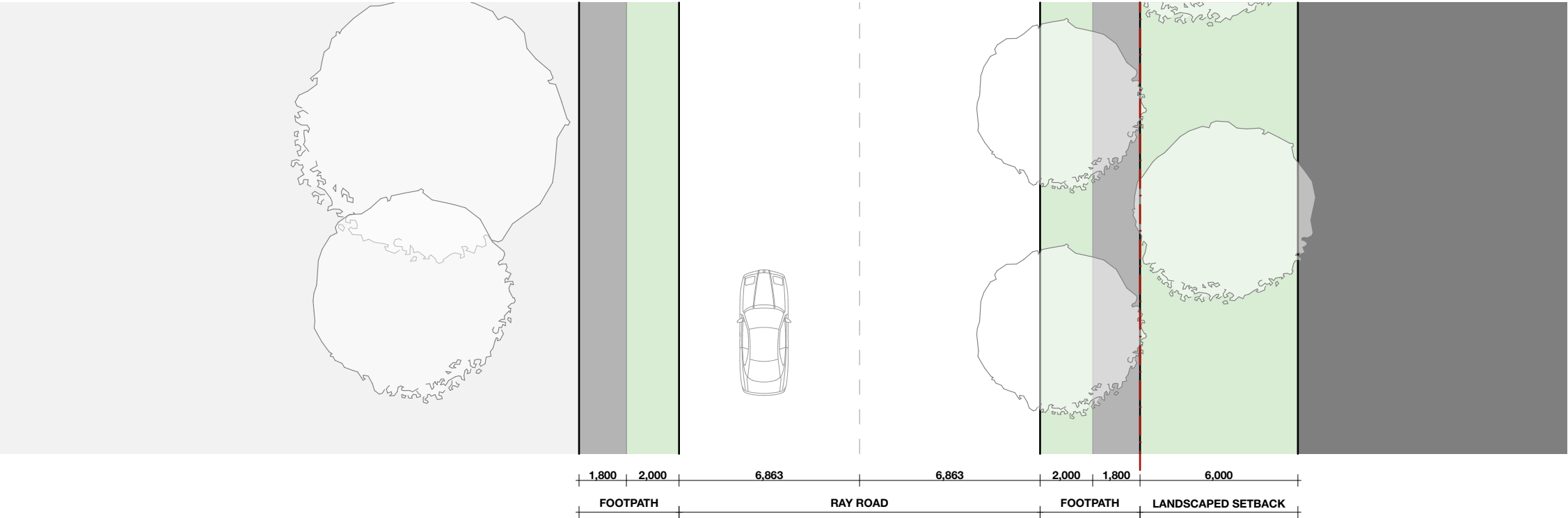




# STREET SECTION - BEECROFT ROAD (2)

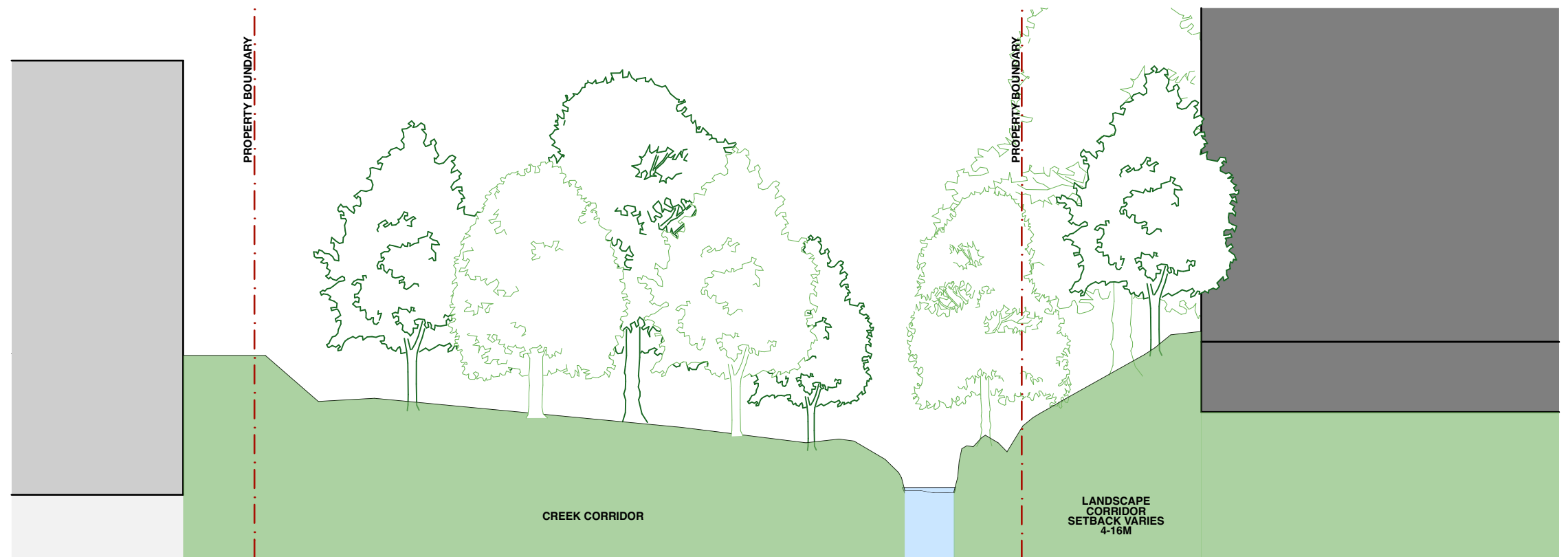
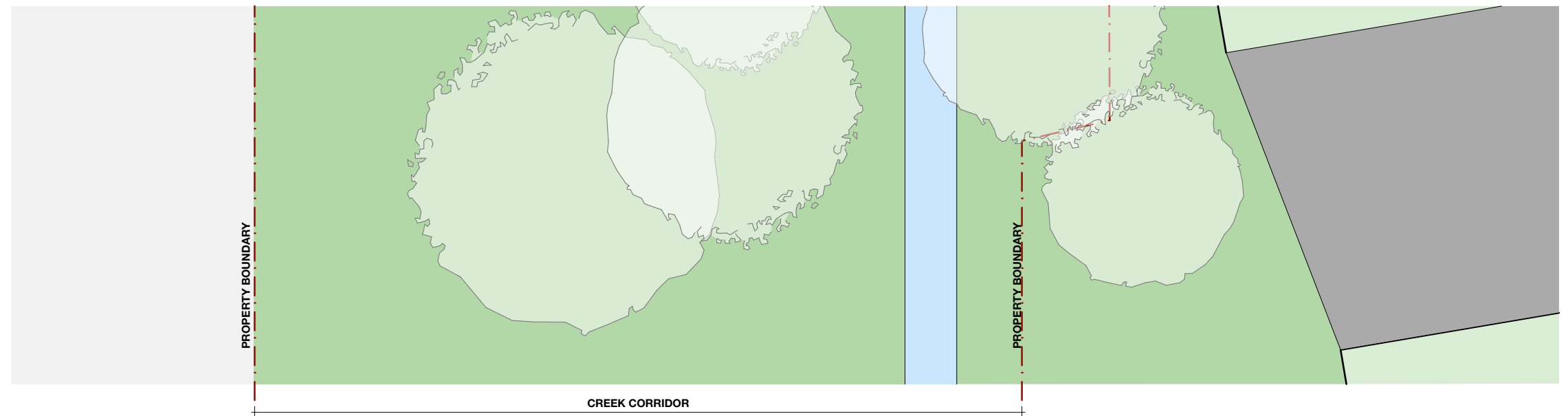


# STREET SECTION - RAY ROAD





# STREET SECTION - CREEK CORRIDOR



# PUBLIC DOMAIN AND LANDSCAPE PLAN



INDICATIVE GROUND FLOOR PLAN 1:1000



# ADG COMMUNAL OPEN SPACE

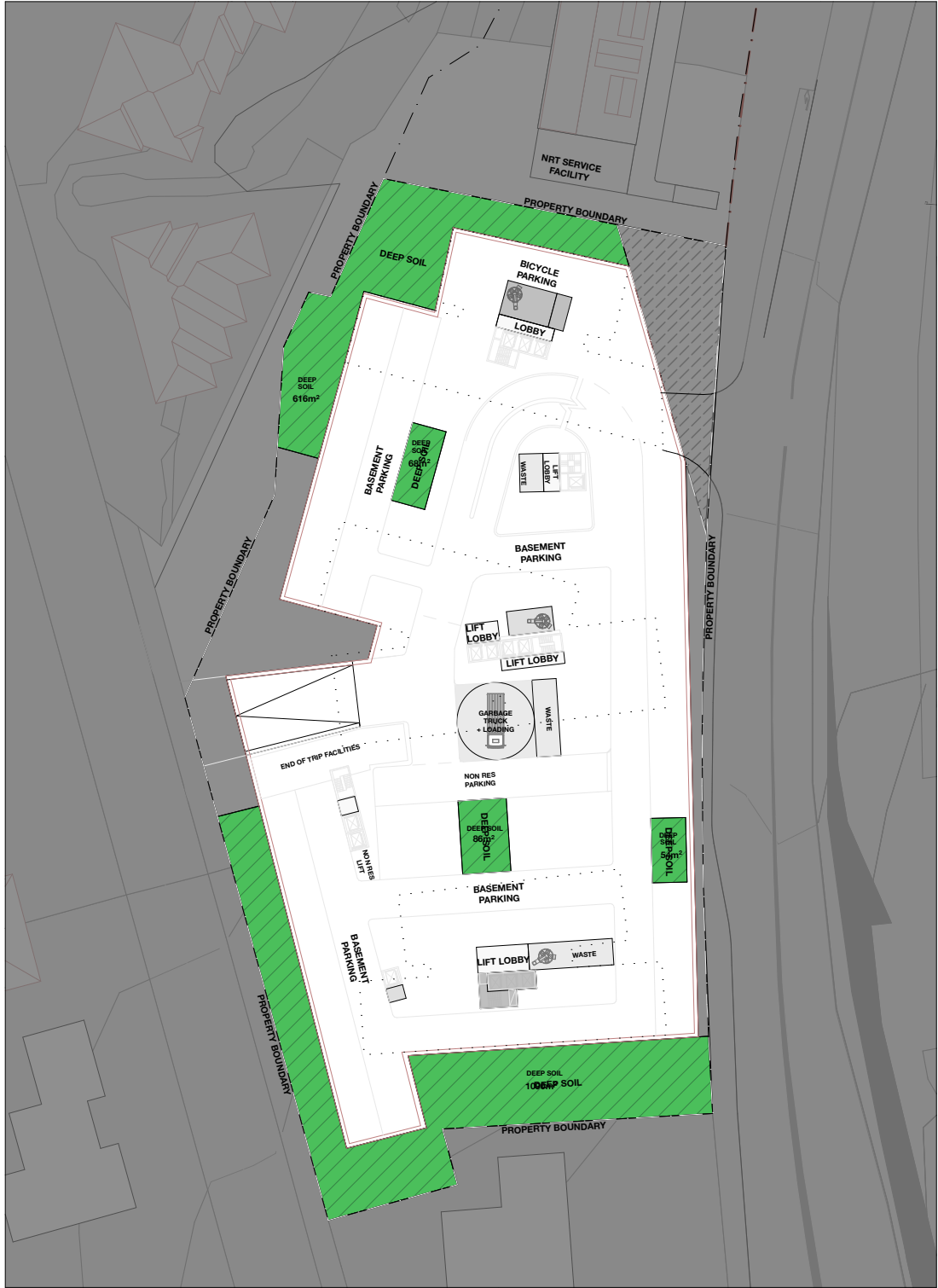
OBJECTIVE 3A-1

ADG OPEN SPACE DIAGRAM

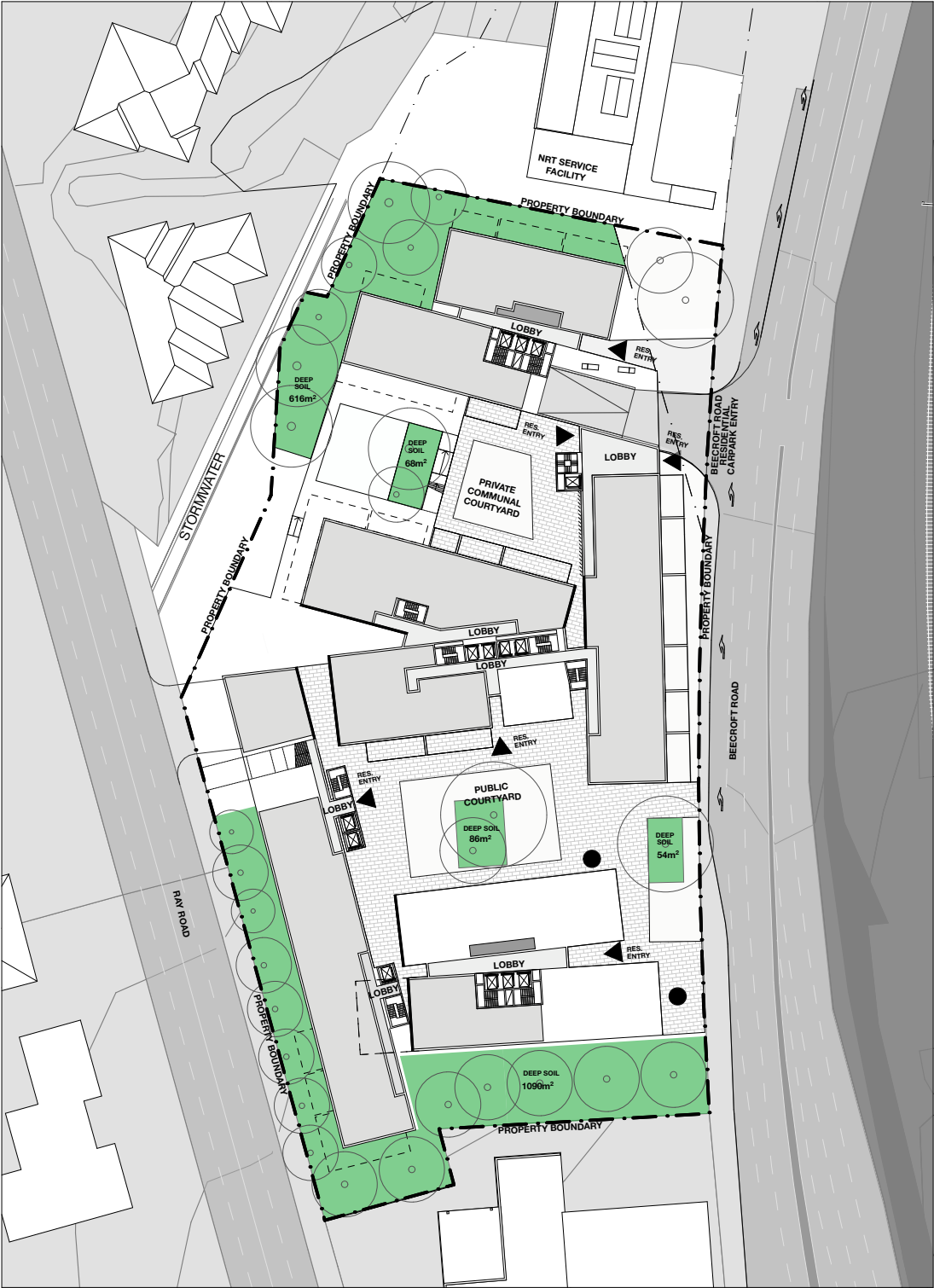


# ADG - DEEP SOIL

OBJECTIVE 3E-1



LOWER GROUND FLOOR



GROUND FLOOR

DEEP SOIL

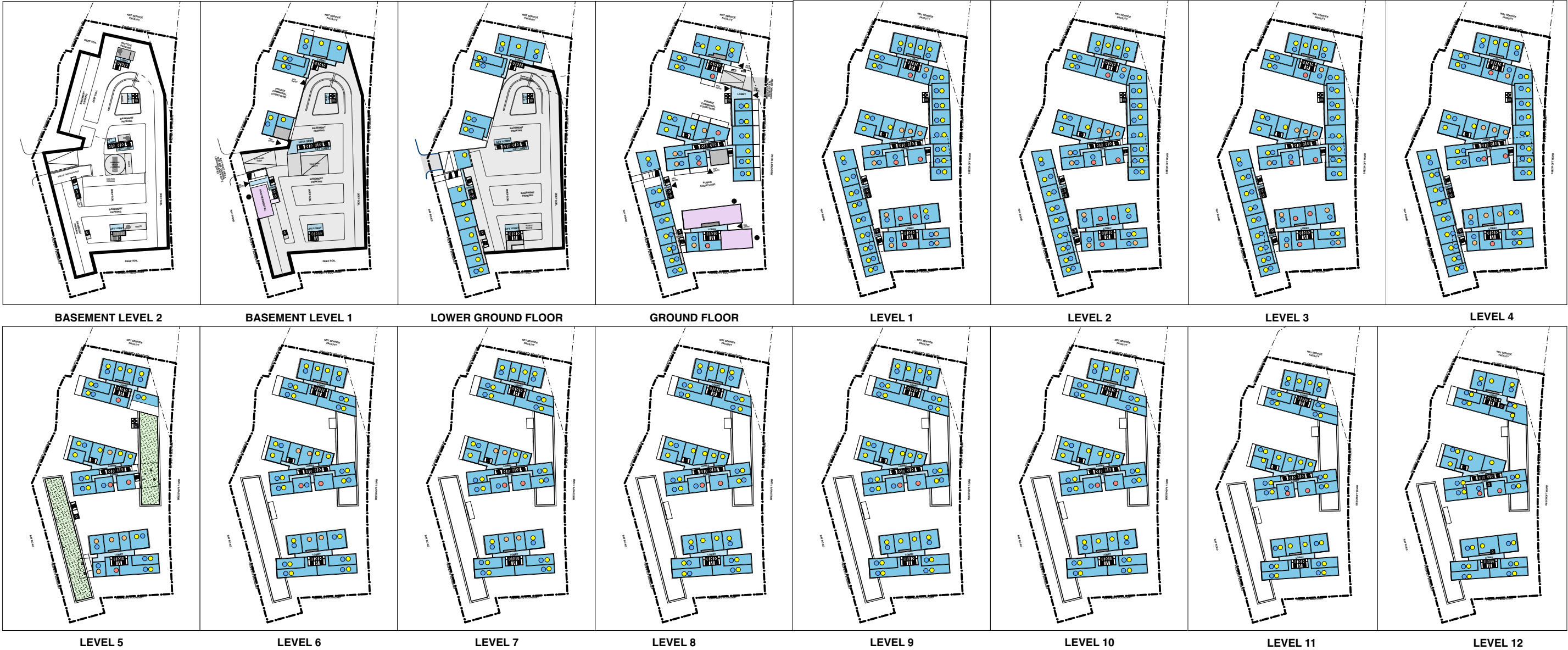
SITE AREA	10,121M <sup>2</sup>
DEEP SOIL	2,063m <sup>2</sup>
DEEP SOIL = >7% OF TOTAL SITE AREA	



# ADG - VENTILATION AND SOLAR ACCESS

OBJECTIVE 4A-1 SOLAR AND DAYLIGHT ACCESS  
OBJECTIVE 4B-3 NATURAL VENTILATION

NOTE: THE REFERENCE SCHEME HAS BEEN TESTED FOR SOLAR ACCESS AND CROSS VENTILATION COMPLIANCE ONLY. A DETAILED CONCEPT DESIGN WILL REQUIRE FURTHER TESTING FOR FULL COMPLIANCE WITH THE APARTMENT DESIGN GUIDE.

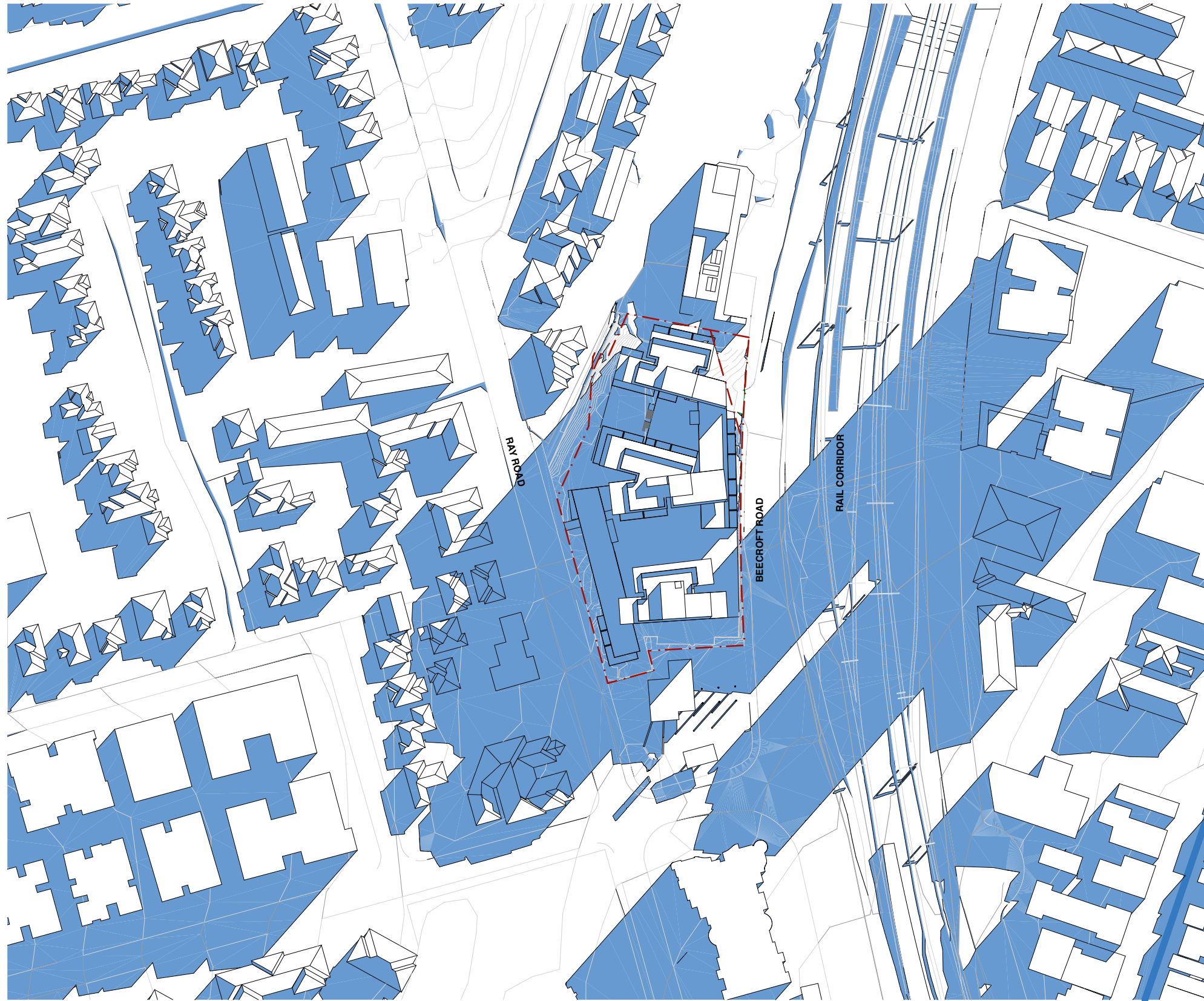


- RECEIVES TWO OR MORE HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21
- RECEIVES LESS THAN TWO HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21
- RECEIVES NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21
- NATURALLY CROSS VENTILATED APARTMENTS

OBJ 4A-1 - SOLAR AND DAYLIGHT ACCESS	ADG TARGET			COMPLIES
NUMBER OF APARTMENTS RECEIVING TWO OR MORE HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21	min 70%	345	78%	YES/EXCEEDS
NUMBER OF APARTMENTS RECEIVING NO DIRECT SUNLIGHT TWO BETWEEN 9AM AND 3PM, JUNE 21	max 15%	44	10%	YES/EXCEEDS
OBJ 4B-3 - NATURAL CROSS VENTILATION				
NUMBER OF APARTMENTS THAT ARE NATURALLY CROSS VENTILATED	min 60%	296	67%	YES/EXCEEDS

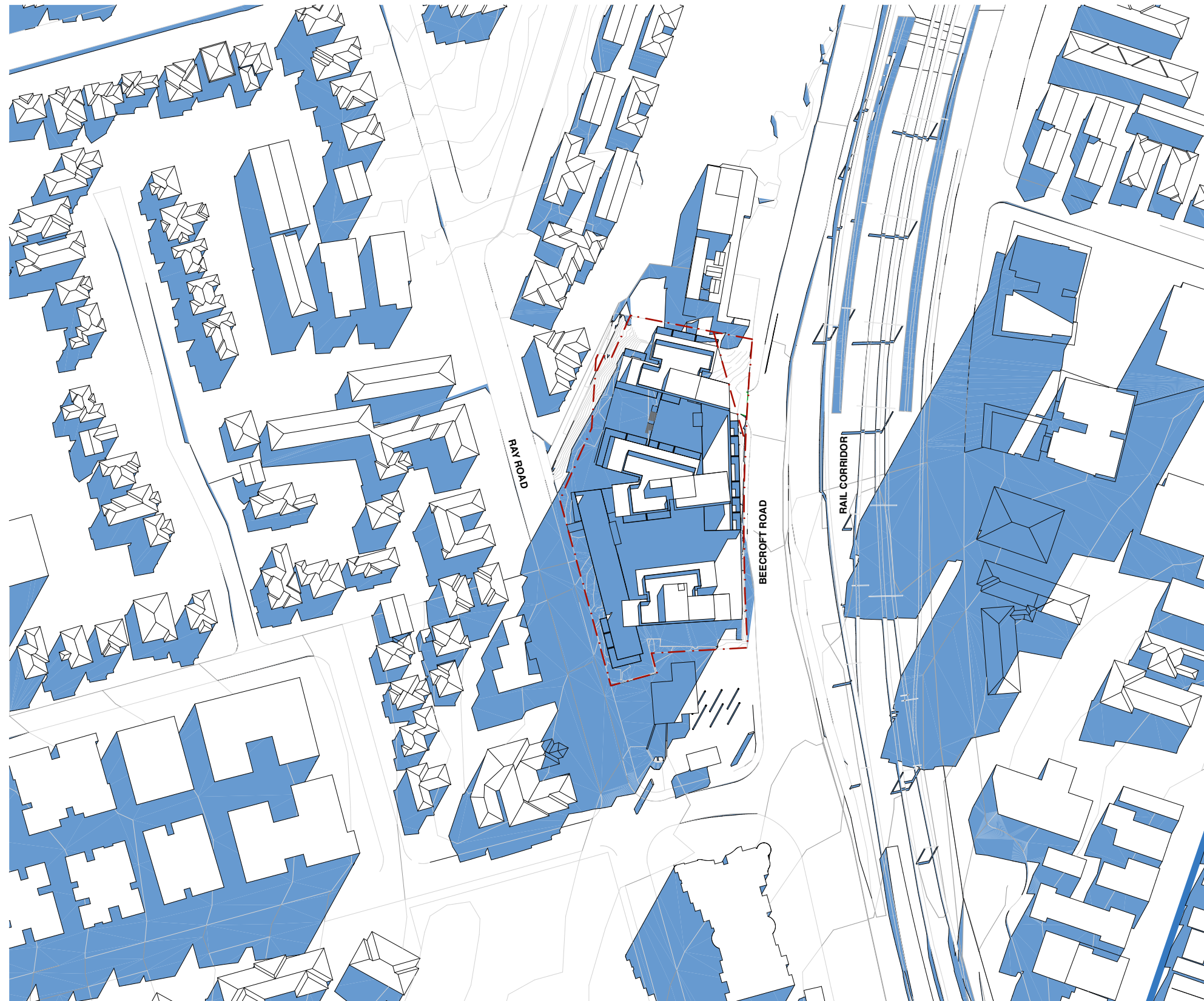
REFERENCE SCHEME COMPLIES WITH OBJECTIVES 4A-1 AND 4B-3

# SUN STUDIES 9AM

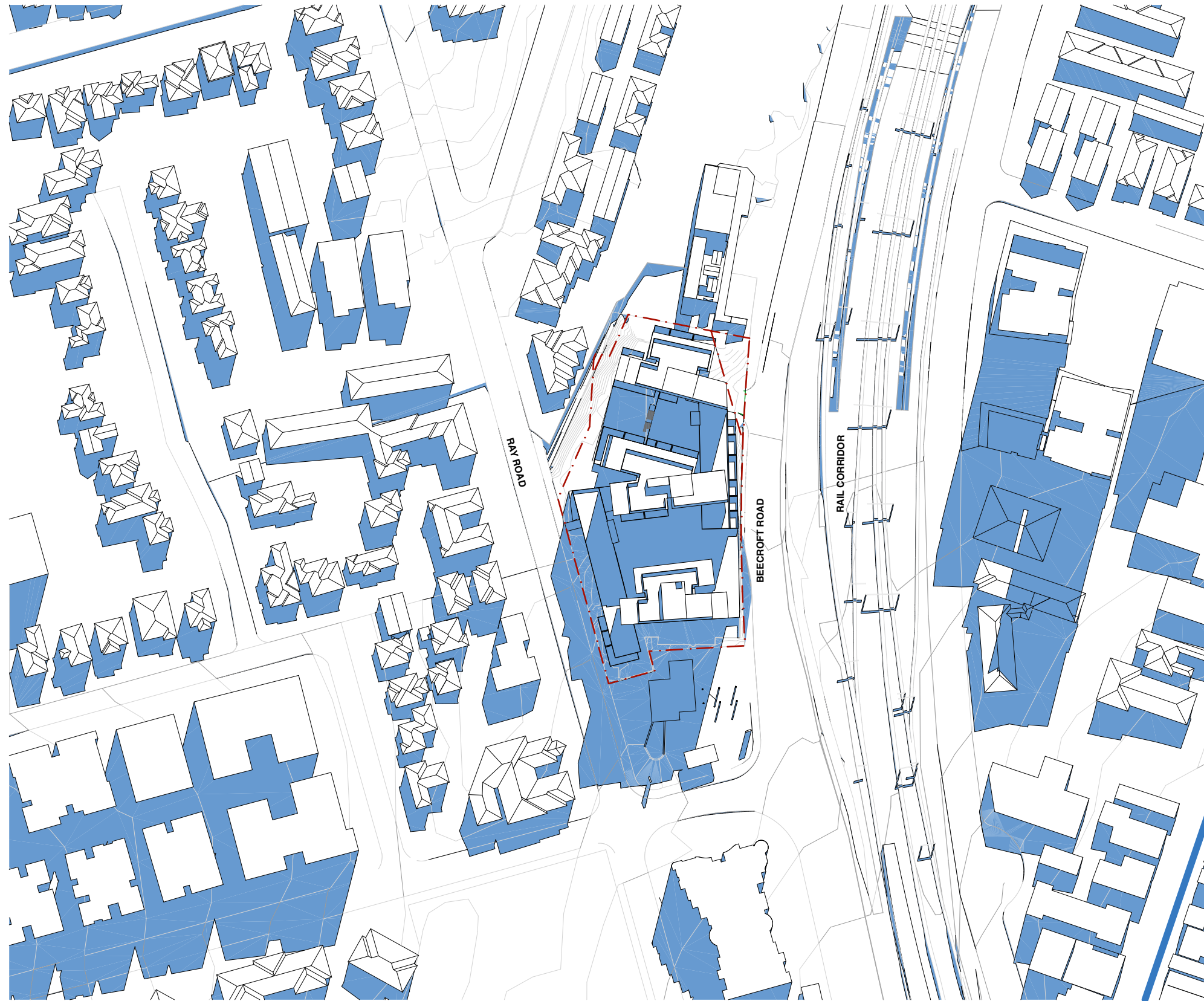




# SUN STUDIES 10AM

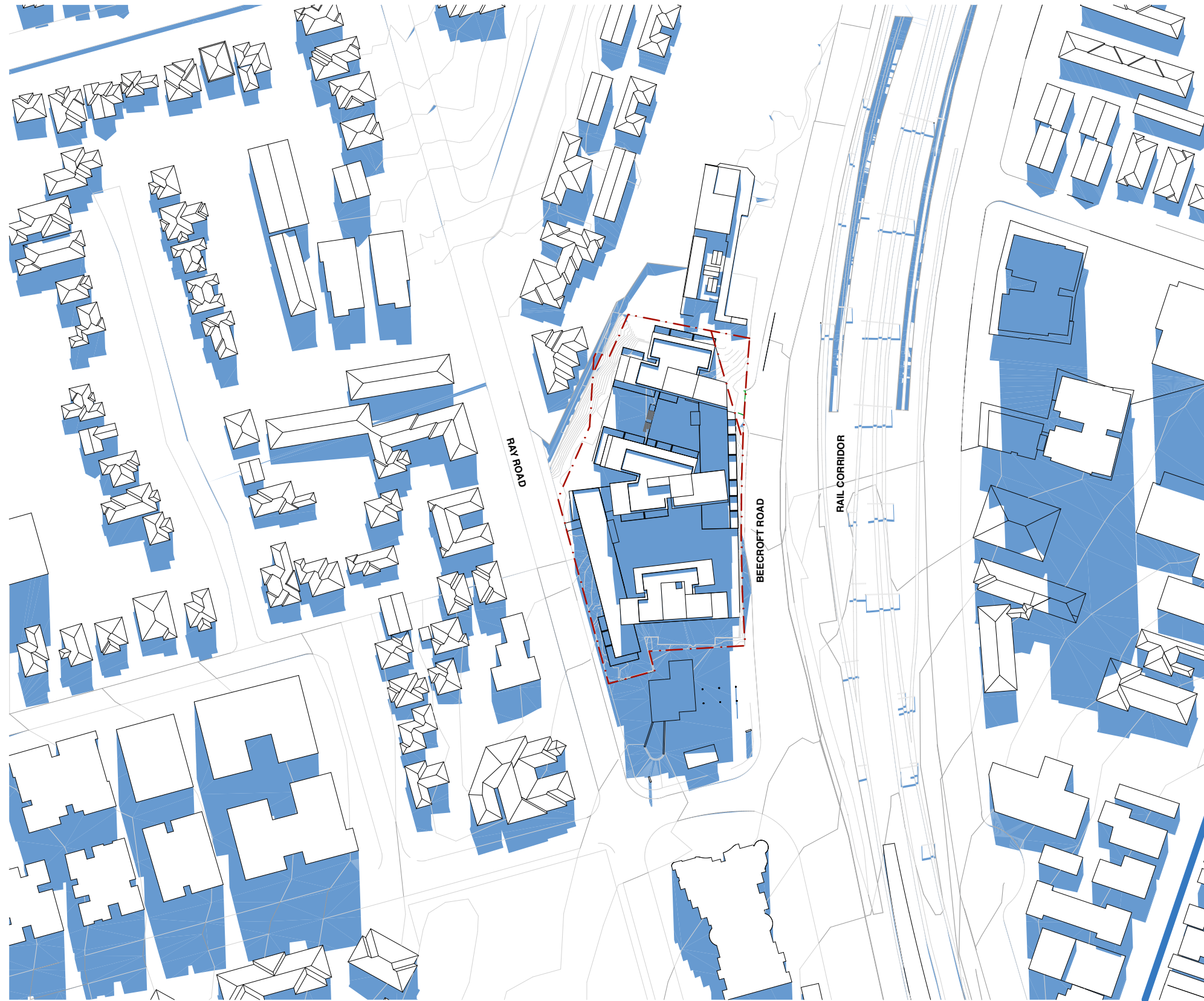


# SUN STUDIES 11AM

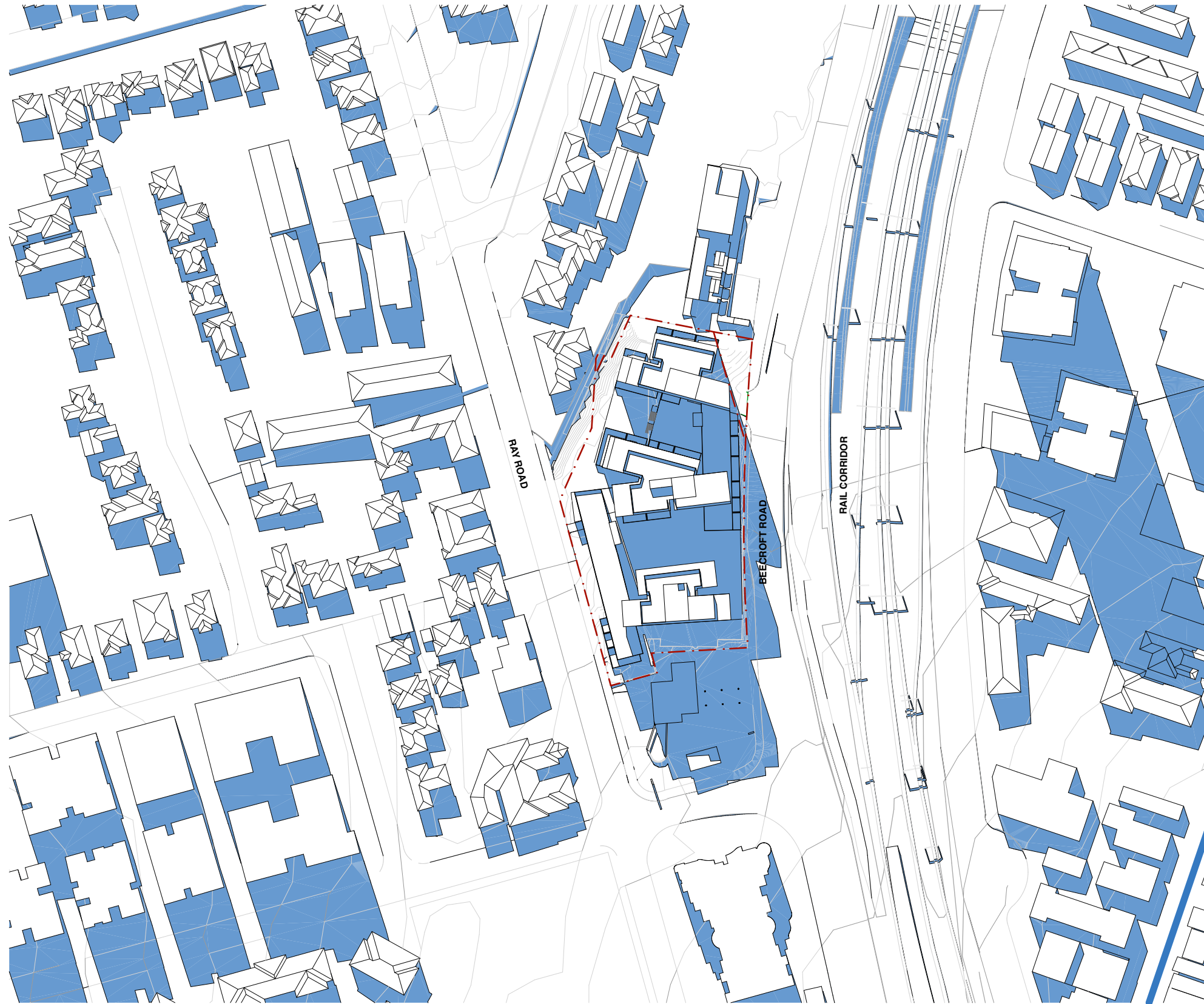




# SUN STUDIES 12PM

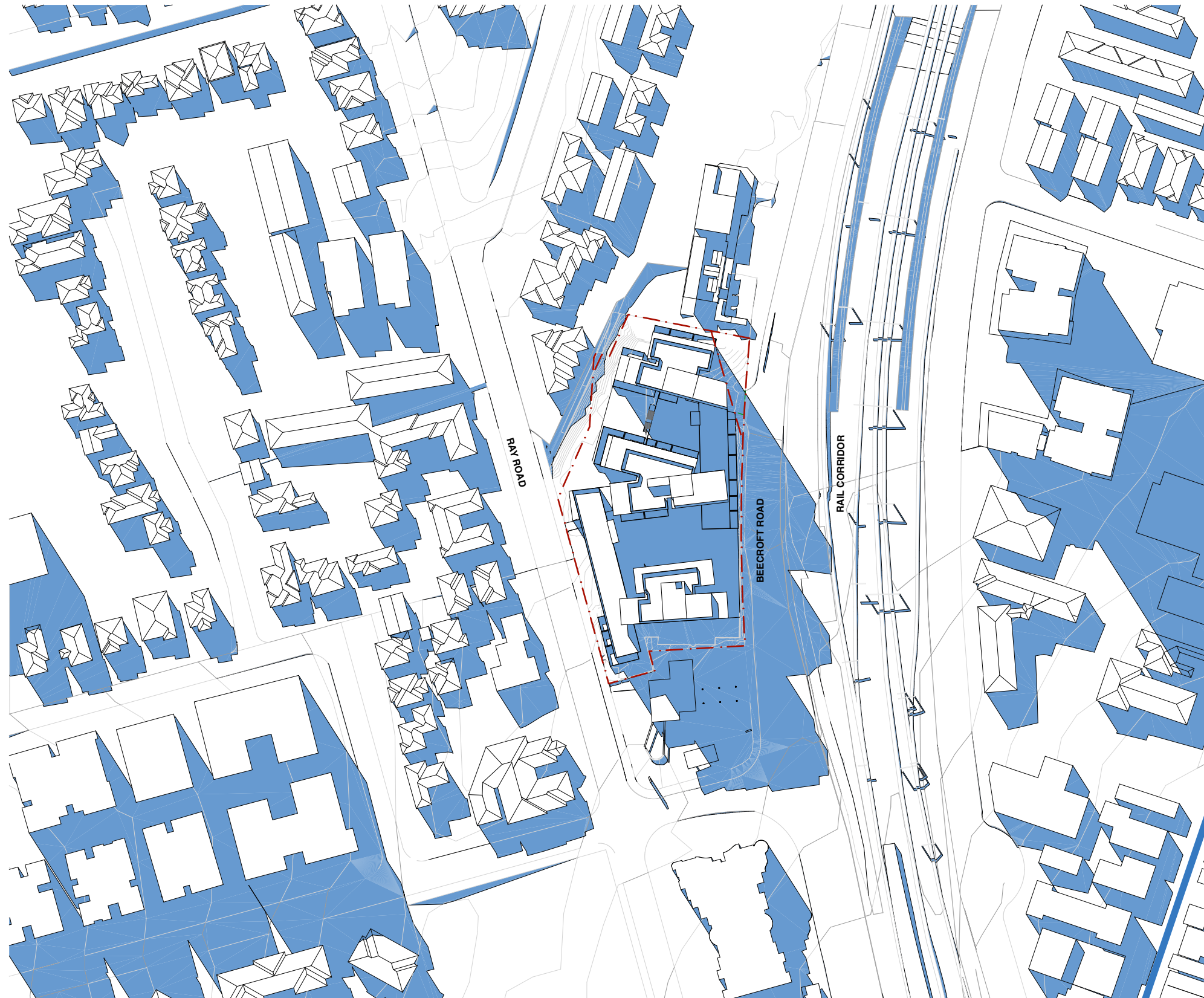


# SUN STUDIES 1PM

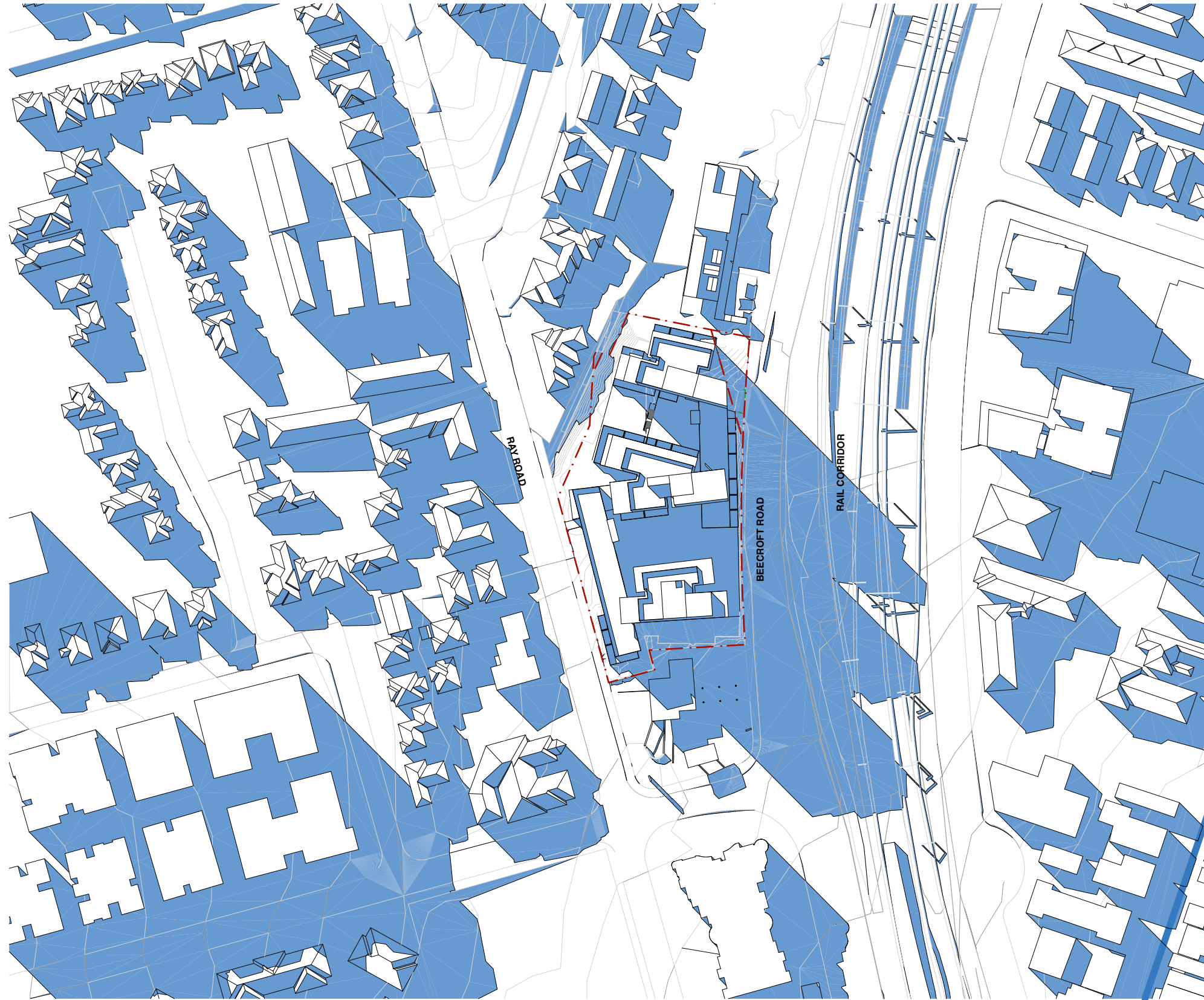




# SUN STUDIES 2PM



# SUN STUDIES 3PM





# CONCEPT PROPOSAL- AREA CALCULATIONS

EPPING PRECINT CONCEPT PLANS

DRAFT AREAS

AREA SCHEDULE

Site Area	10,121													
	GBA Basement	GBA Non Residential	GFA Non-res	GBA Residential	GFA Residential	TOTAL GFA (Res+ Non Res)	RES NLA	Yield	(As per refecence scheme)					
	Measured	Measured	Calculated (GFAx90%)	Measured	Calculated (GFA*80%)		Calculated (GFAx90%)	Studio	1 Bed	2 Bed	3 Bed	Total APTs	No. Car Spaces	
P2	7,356					0	0					0	146	
P1	5,435	196	176	1,012	810	986	729		2	4	1	7	103	
LG	4,800			1,924	1,539	1,539	1,385		4	9	2	15	107	
GRD		595	536	3,680	2,944	3,480	2,650		11	16	3	30		
L1				4,490	3,592	3,592	3,233	4	12	23	4	43		
L2				4,490	3,592	3,592	3,233	4	12	23	4	43		
L3				4,490	3,592	3,592	3,233	4	12	23	4	43		
L4				4,490	3,592	3,592	3,233	4	12	23	4	43		
L5				3,050	2,440	2,440	2,196	4	7	13	2	26		
L6				3,050	2,440	2,440	2,196	4	4	15	5	28		
L7				3,050	2,440	2,440	2,196	4	4	15	5	28		
L8				3,050	2,440	2,440	2,196	4	4	15	5	28		
L9				3,050	2,440	2,440	2,196	4	4	15	5	28		
L10				3,050	2,440	2,440	2,196	4	4	15	5	28		
L11				3,050	2,440	2,440	2,196	4	4	15	5	28		
L12				3,050	2,440	2,440	2,196		1	18	5	24		
TOTAL	17,591	791	712	48,976	39,181	39,893	35,263	44	97	242	59	442	356	
	FSR 3.94:1								31.9%	54.8%	13.3%		0.81	

Parking

	Rate	Source	No. Required
1 BED	0.4	RMS	57
2 BED	0.7	RMS	170
3+ BED	1.2	RMS	71
VISITOR	1 per 10apts		45
CARSHARE	1 per Building	Parramatta DCP	3
NON RES	1 per 70sqm	Parramatta DCP	10
TOTAL CAR SPACES			356
MOTORCYCLE	1 per 25 car spaces		15
BICYCLE	1 per apt + 1 visitor / 10 apartments		487

**NOTE:**  
Area schedule based on the reference design. Further development and testing of this reference scheme will be required to confirm all numbers.

# CPTED

## CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN



INDICATIVE GROUND FLOOR PLAN 1:1000

**CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN**  
THE FOLLOWING CONSIDERATIONS HAVE BEEN MADE WITH RESPECT TO  
MAKING A SAFE AND SECURE MIXED USE DEVELOPMENT



**PRIVATE COURTYARD AND OPEN SPACE**

- ACCESS CONTROLLED AREA
- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- SHARED FACILITIES AND LANDSCAPED AREAS AT GROUND FLOOR TO ENCOURAGE TERRITORIAL REINFORCEMENT



**PUBLIC COURTYARD AND OPEN SPACE**

- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- ACTIVATION THROUGH MIXED USES AT GROUND FLOOR
- USE OF LIGHTING TO MAKE A COMFORTABLE AND SAFE OUTDOOR SPACE AT ALL HOURS
- SHARED FACILITIES AND LANDSCAPED AREAS AT GROUND FLOOR TO ENCOURAGE TERRITORIAL REINFORCEMENT



**THROUGH SITE LINK**

- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- ACTIVATION THROUGH MIXED USES AT LOWER LEVELS
- USE OF LIGHTING TO MAKE A COMFORTABLE AND SAFE OUTDOOR SPACE AT ALL HOURS



PASSIVE SURVEILLANCE FROM APARTMENTS