

DKO Architecture  
Places designed for people

# Mackillop Drive Baulkham Hills

NSW  
Aqualand

Planning Proposal  
September 2017

# DKO



Mackillop Drive  
64 Mackillop Drive – BAULKHAM HILLS

Bualkham Hills – NSW

Aqualand

Planning Proposal

19 September 2017

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# Introduction

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Driven by the goal of setting a new precedent for high quality residential development in the area, the Proposal's basis is formed from a thorough investigation of what characterises the Hills shire, looking at its history, remaining heritage, landscape and landform.





# 1700

## Indigenous

The traditional people of the area where the Dharug, who made use of the rich ecosystems of the area, particularly to the north around the Hawkesbury River.

## European Settlement

Baulkham Hills was settled by Europeans in the late 1700's, as a part of establishing industry networks to support and feed Sydney. It was found to have fertile and productive soils, which made it a prime area for agriculture, becoming known for its successful orchards, which formed park of the Hills with a unique identity. People desired to live in the area because of the good climate, open space and connection to nature; but also it's connections to Sydney



# 2000

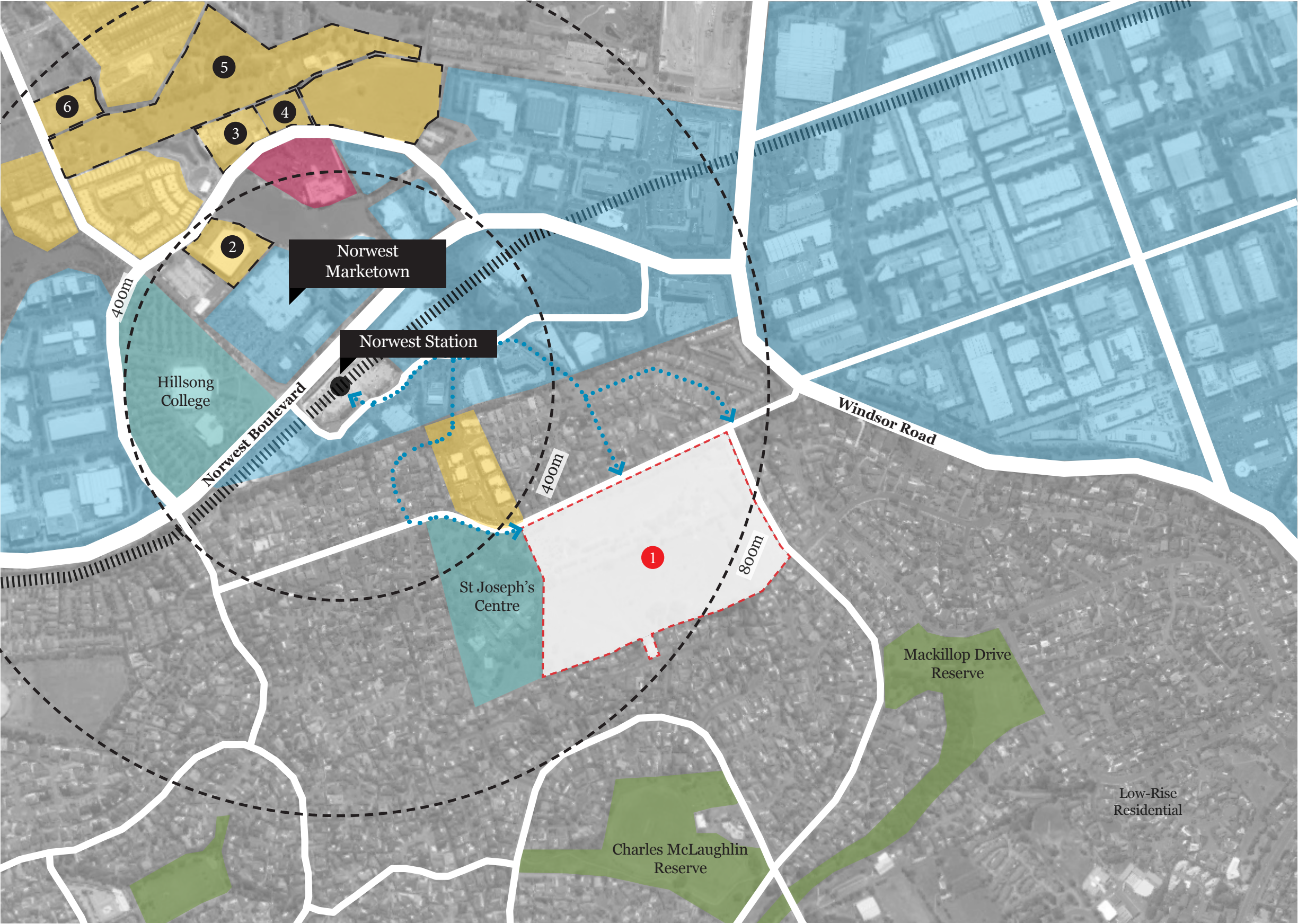
## Today

With a constant population growth in the area, the once rural, green landscape has been rapidly densified with new dwellings.

Through this rapid densification, the "gardenesque" character which reflects the history and feeling of the area, has been poorly maintained despite council's intentions to retain it. The built environment is dominated by garages, roads and facades lacking human-scale and a fine grain nature, with little to no relationship to green spaces.







- Key
- Future Metro Station
  - ||||| Future Metro Line
  - Public Buildings
  - Health/Recreation
  - Commercial / Retail
  - Education / Culture
  - Public Open Space
  - Multi-Residential Development
  - ... Pedestrian Link to Station
1. Subject Site Location
2. Esplanade Development
3. Watermark Development
4. Haven Development
5. The Orchards Development
6. Moda Development





# Urban Analysis

## Linking the site into the urban networks

There are a variety of pedestrian, cycle and cultural networks surrounding the site, but due to the predominance of cul-de-sac roads and lack of a grid, there is limited connections to Norwest Business Park and train station.

The system of linear parklands through the site, stemming from the central green spine, provide an opportunity for the site to be unlocked to this wider urban context, re-linking it to the network of surrounding heritage sites and to support and extend pedestrian and cycle movement through the area into Norwest.

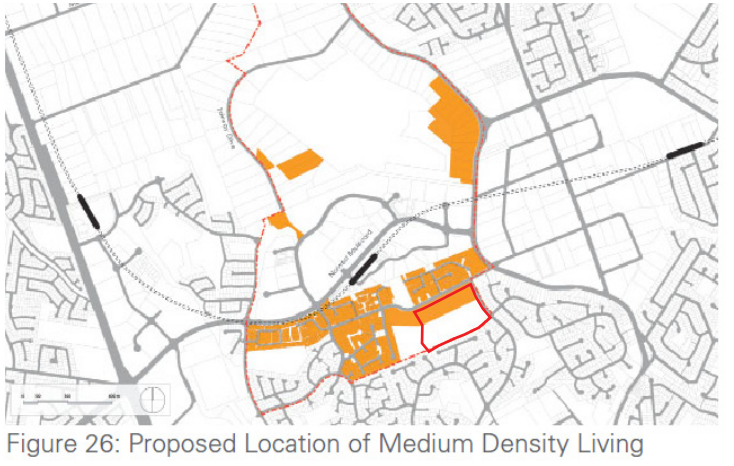
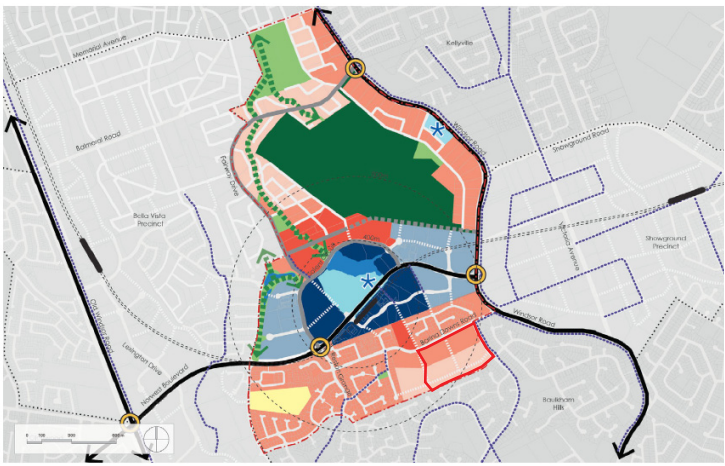
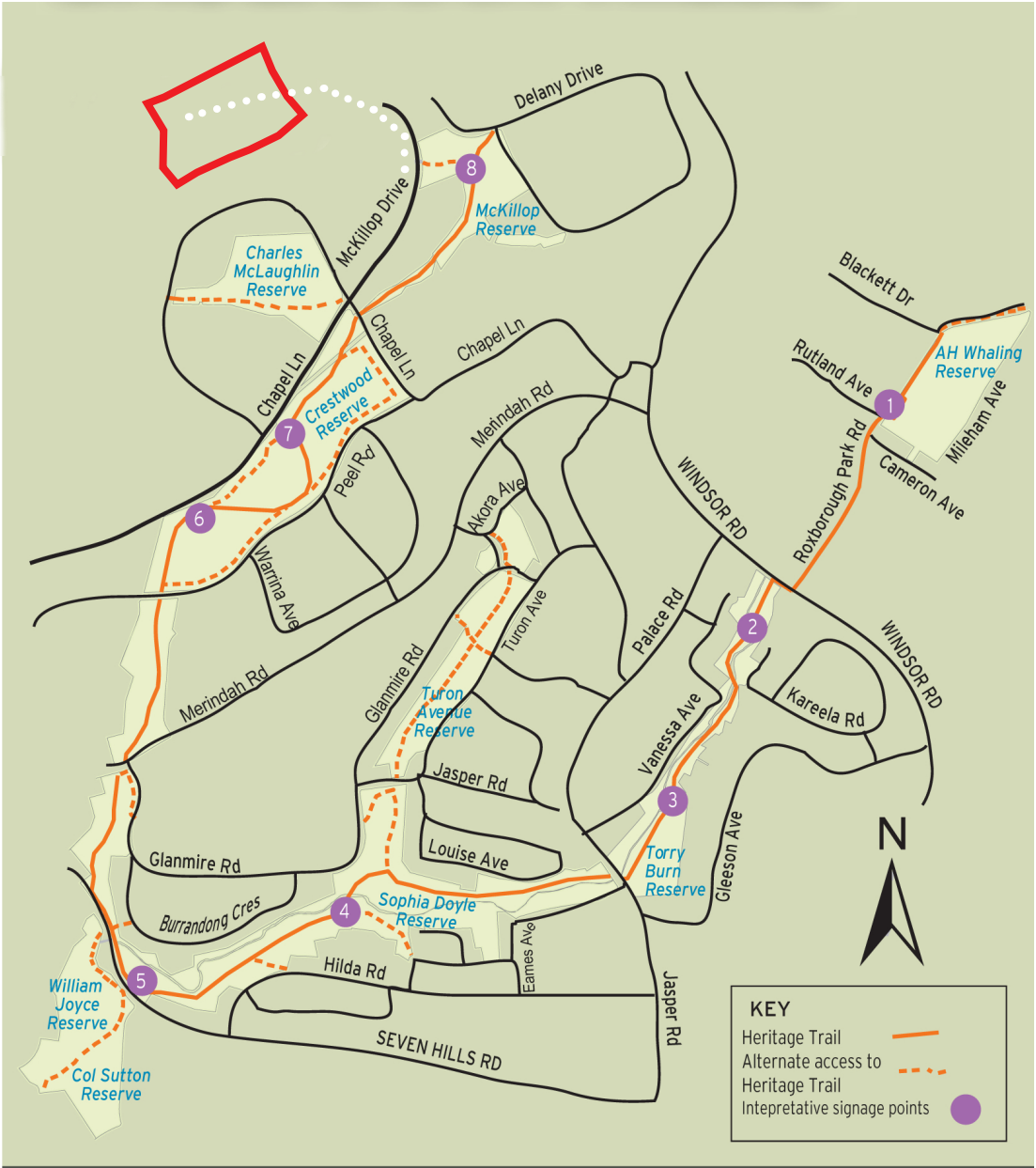
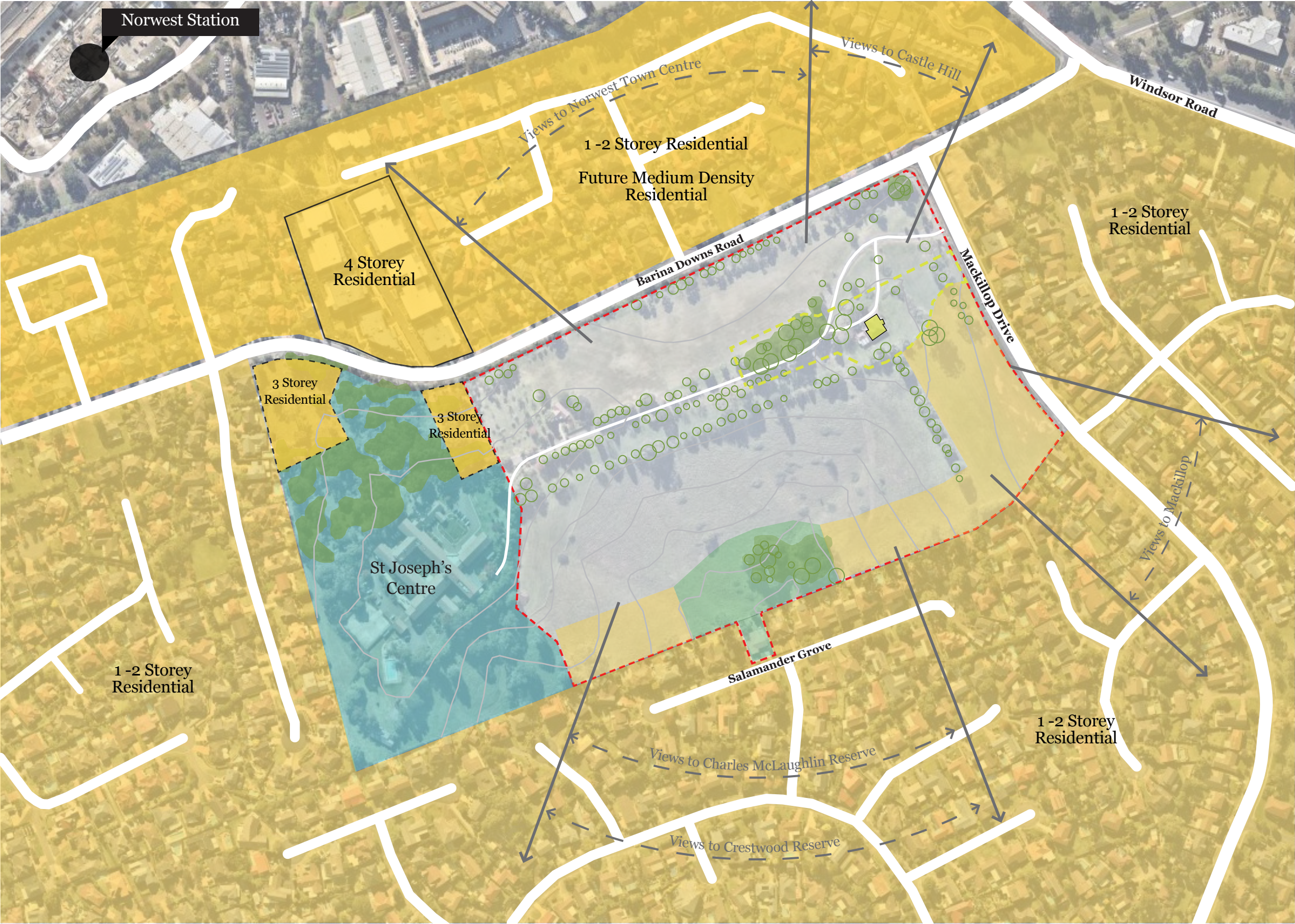


Figure 26: Proposed Location of Medium Density Living



Site Analysis

Opportunities and Constraints



- Key
- Metro Station
  - Heritage Buildings
  - Heritage Curtilage (Indicative)
  - Education / Culture
  - Significant Native Vegetation
  - Existing Trees
  - Public Open Space
  - Residential

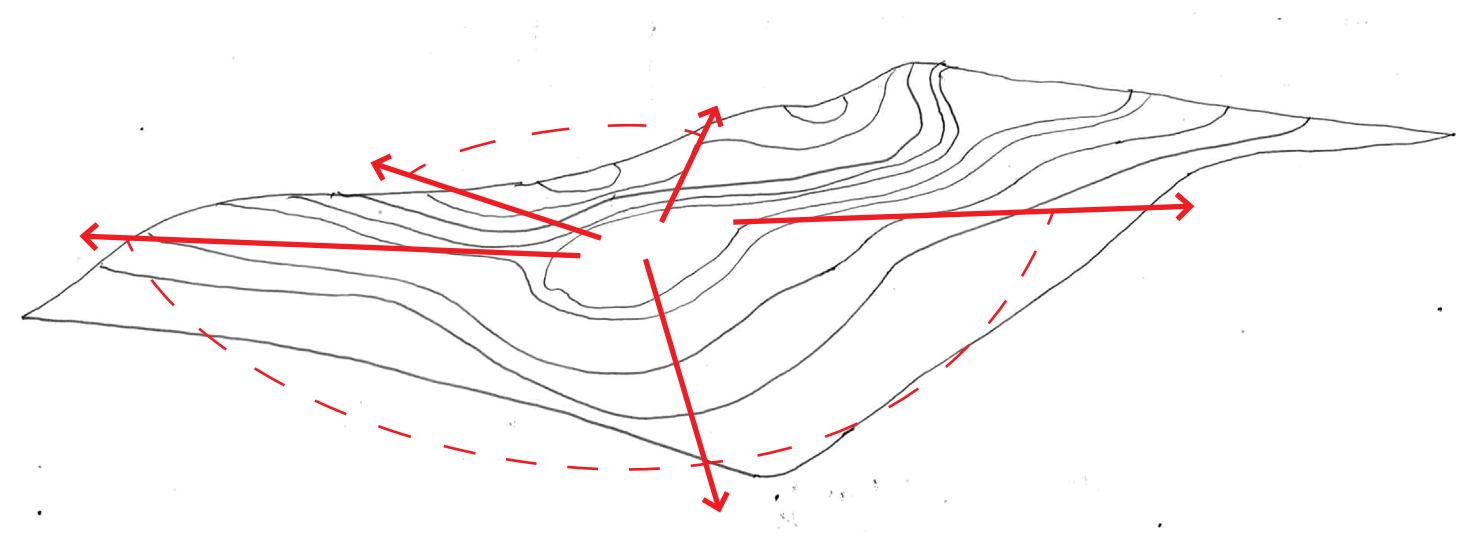






LANDFORM

- Undulating
- Ridge
- Basin
- Gentle
- Steep



The site’s landform is a grand showcase of the unique undulating slopes that typify the region.

With the ridges and basins in the site, a unique opportunity exists for outlooks to the south and to the north across the area.

The proposal utilises the opportunity of this landform, with an architecture that responds to it rather than constricts and disregards it.

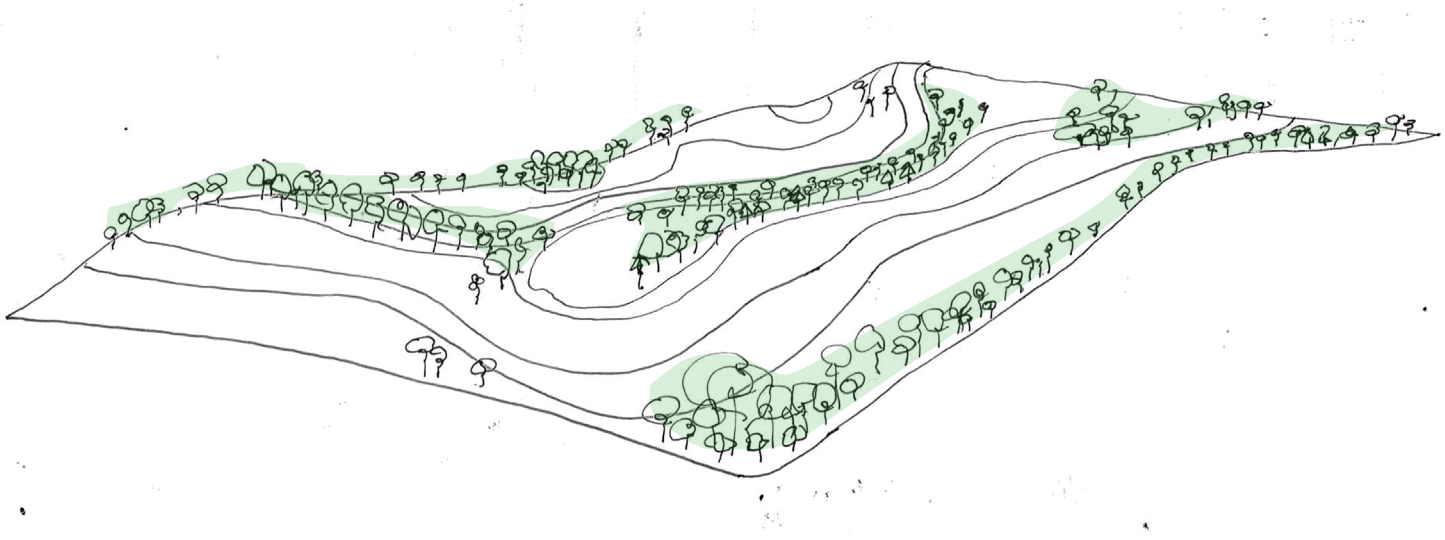






LANDSCAPE

- Garden
- Trees
- Canopy
- Field
- Park



Priority is placed on the provision of viable, meaningful landscaped areas which support the “gardenesque” character of the area, respecting and incorporating prominent, mature trees with planting which will offer long term benefit, enhancement and amenity to both public and private realms.

The prominent tree lines and distinct tree canopies are showcased and linked with new green corridors through the site, allowed for by generous building separation with larger grain built form.







## HERITAGE

Rural  
Convent  
Prosperity  
Scottish  
Retreat

The site was originally owned by a free immigrant Alexander MacDougall of Buckhold Hills, Roxburgh Scotland -which Baulkham Hills was named after - and was part of the rich rural industry of the region, used as a farm which the existing house was a part of.

The Sisters of Saint Joseph, founded by Sister Mary Mackillop, acquired the site in the mid 20th Century to relocate the novitiate from the cramped Mother House in North Sydney. The new 47 hectare property allowed the sisters to live a self-sufficient, simple life in appreciate for of the natural world.

Just as the Sisters came to the site to seek a retreat from the bustling city, 64 Mackillop Drive will offer an Eden on the urban edge, bringing the old rural sense of a simple life into today's world and allows for residents to appreciate and interact with nature.





# Heritage and View Considerations

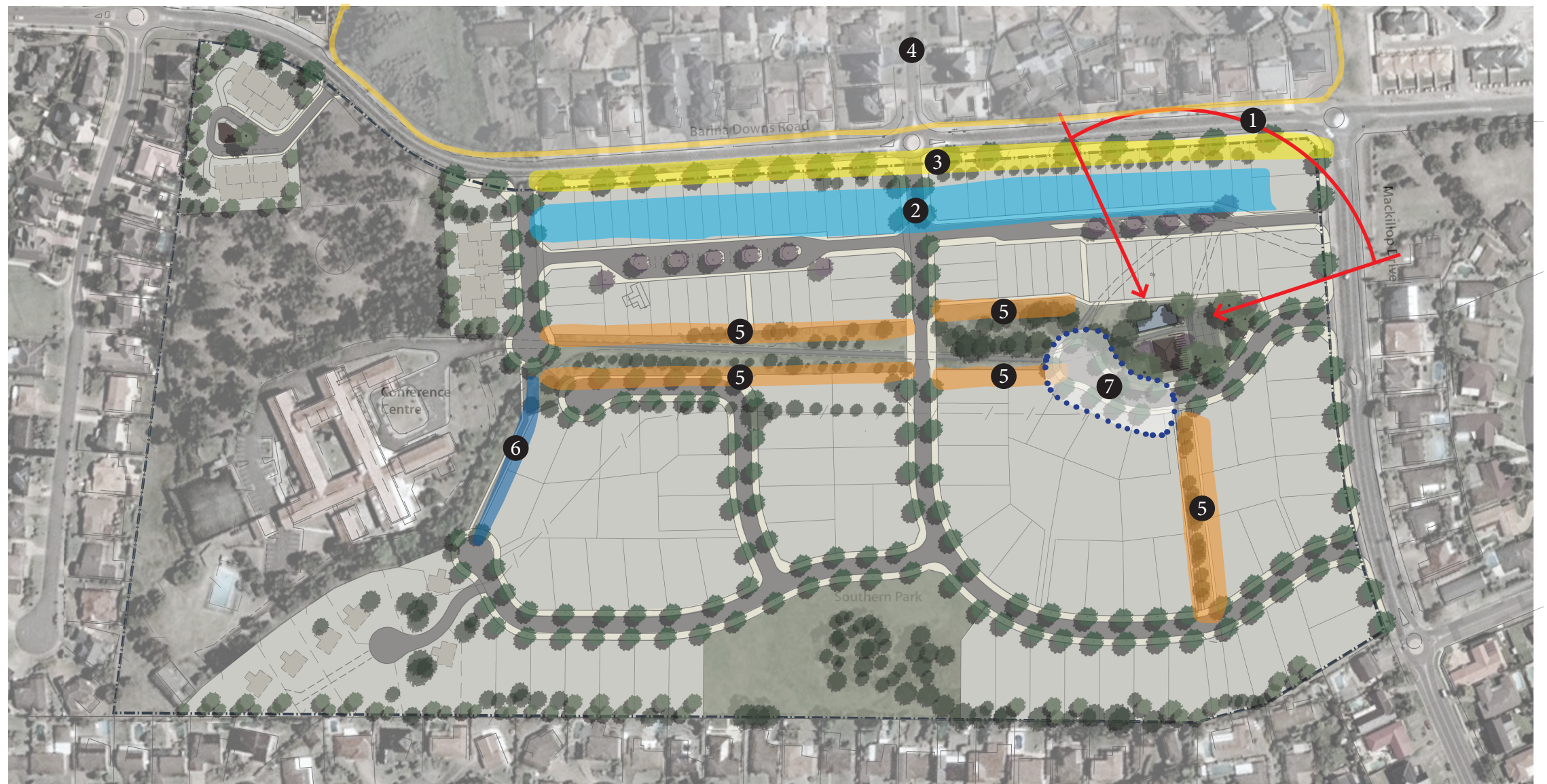
## Key Views



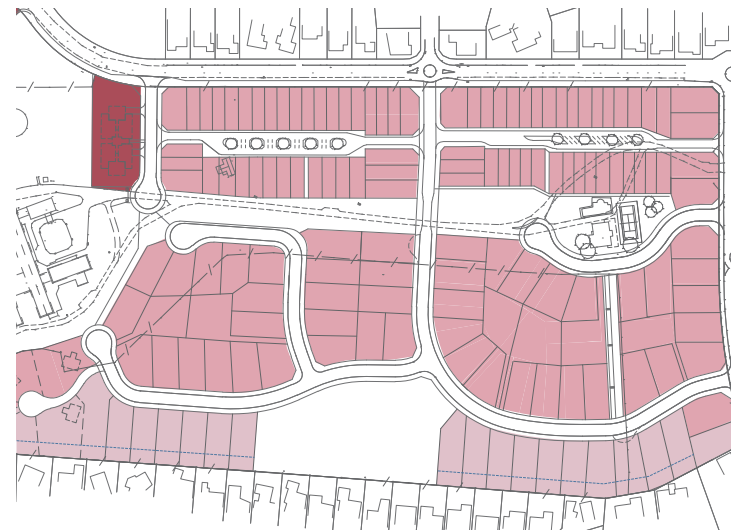


# Approved Masterplan Analysis

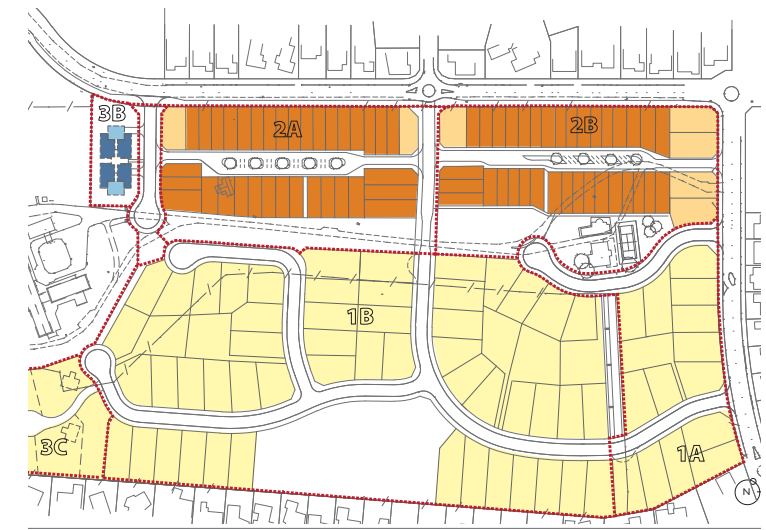
- 1 Lack of permeability along Barina Down Road, with lack of connection (even visual) to ridge line and heritage item which are key aspects of site
- 2 Due to dwelling typologies, limited possibility for viable areas in side setbacks of zero lot/ attached homes which stops the possibility for landscape to flow through the site from the ridge line
- 3 Little provision for the possibility to retain street trees along Barina Downs Road with the allowable setbacks and site coverage for zero lot or attached dwellings
- 4 Lack of address of the future density, typology and height of development on the northern side of Barina Downs Road (medium density residential flat building typology)
- 5 Lack of demonstration to activate, address or respond to the ridge line linear park, as well as the north-south tree ridge line.
- 6 Minimal passive surveillance of public pathways
- 7 Excessive length of public road, resulting in unnecessary greater impact on heritage house and surrounding native mature trees



Limited potential of approved master plan to property activate, passively survey and respond to open spaces and pathways, despite identifying a need for this in site analysis.



Maximum 2 Storeys dwellings (above carparking) along Barina Downs Road, despite the other side of Barina Downs marked at having a maximum 4 storey limit.



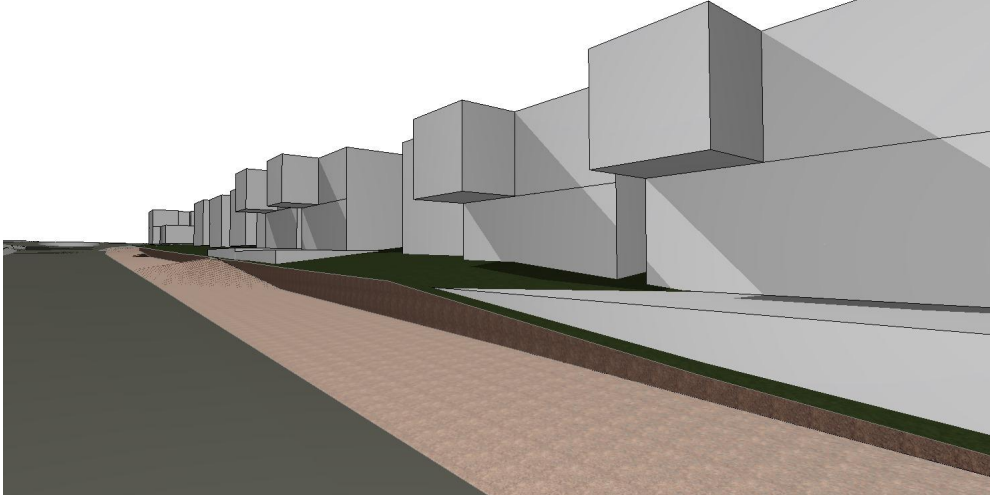
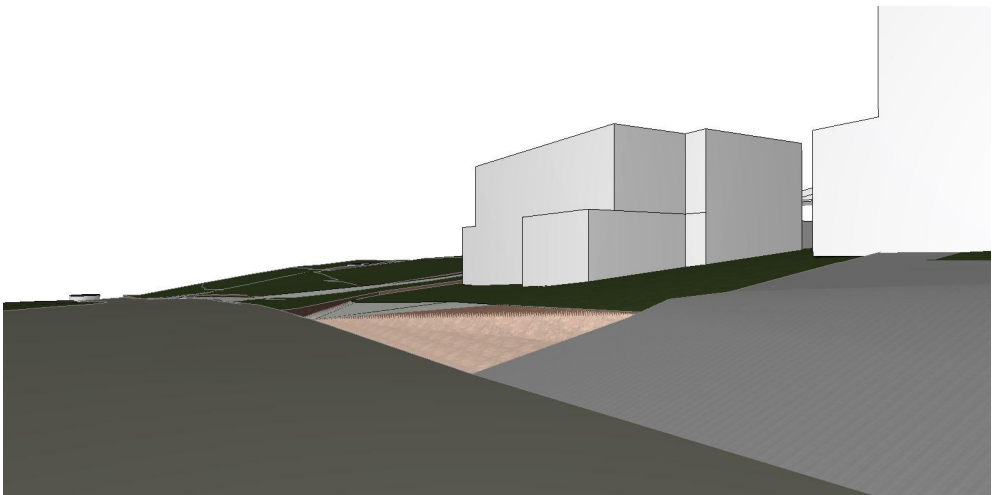
Attached/Zero Lot Dwellings placed along Barina Downs Road, likely resulting in a street-wall affect and lack of visual permeability.



Street Views - Existing Condition



Street Views - Approved Masterplan (Indicative Massing)





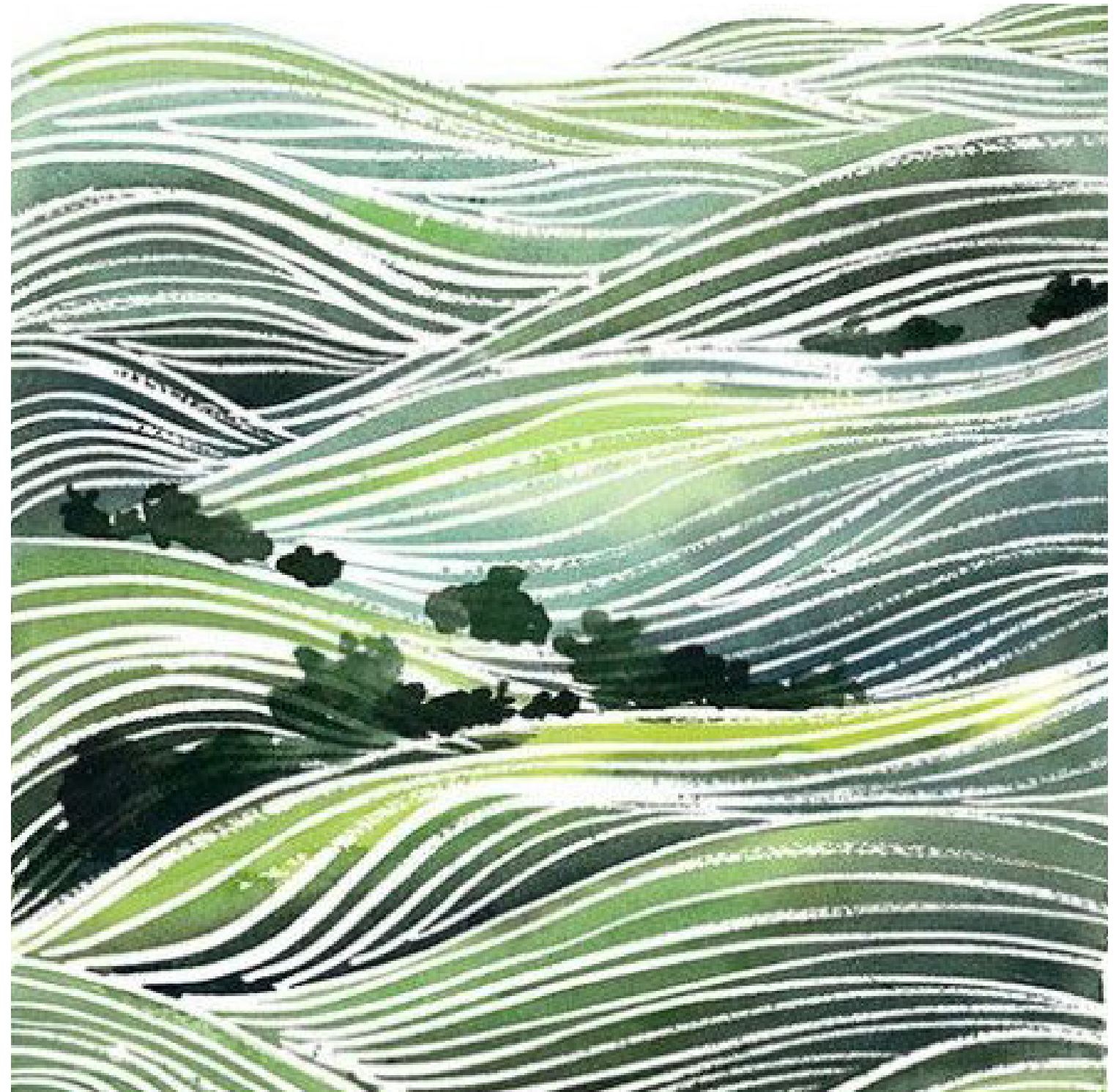
# Design Vision and Principles

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64 Mackillop Drive will have a unique character identifiable by the way it responds and links into the history, undulating landform and the gardenesque, tree canopy landscape of the site and the Hills Shire.

It will provide an Eden-like environment that softens the transition from the large scale density to the north to the small, human scale density to the south.

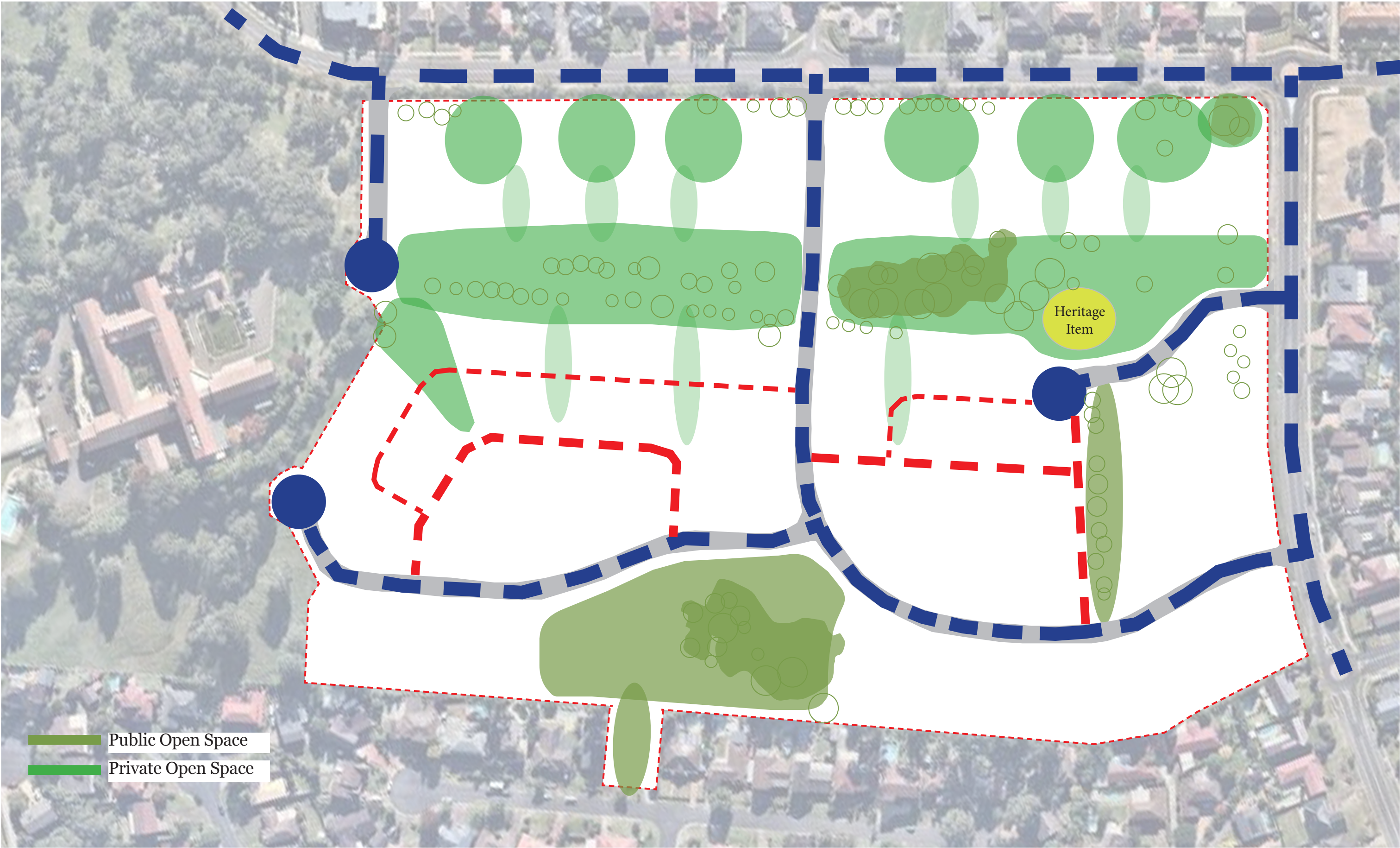
It will establish a new standard for well-planned, well-designed landscaped spaces with an architecture that responds and engages with it.



















Low Density Typologies (As Approved)



Medium Density Typologies



Apartment Typology



# Masterplan

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## Response







**Indicative Yield**

- Medium Density
- Lot 215 - 24 Small Lot Dwellings
  - 46 Attached Dwellings
  - Lot 216 - 17 Small Lot Dwellings
  - 23 Attached Dwellings
- Residential Flat Buildings
- Lot 218 - 160 Apartment Dwellings
  - Lot 217 - 110 Apartment Dwellings

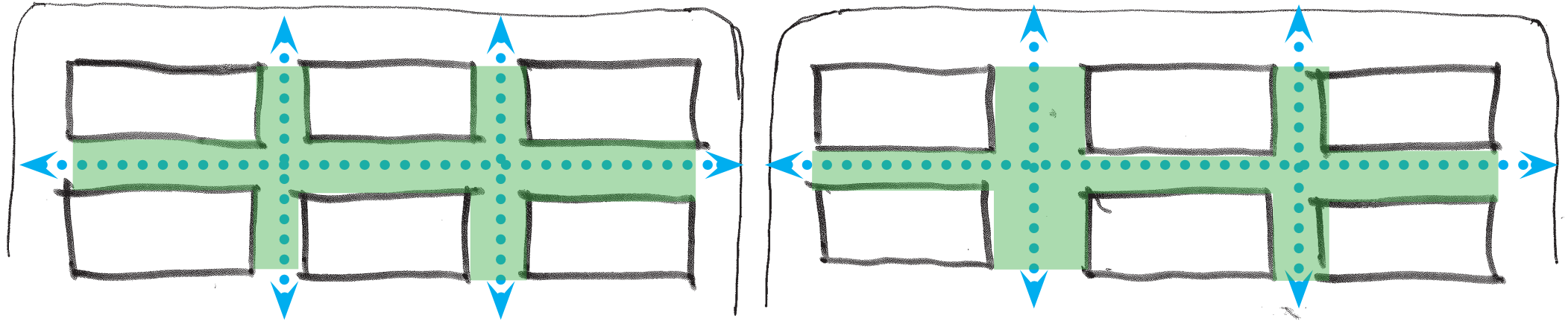


# Design Principles

## Superlot Massing Options

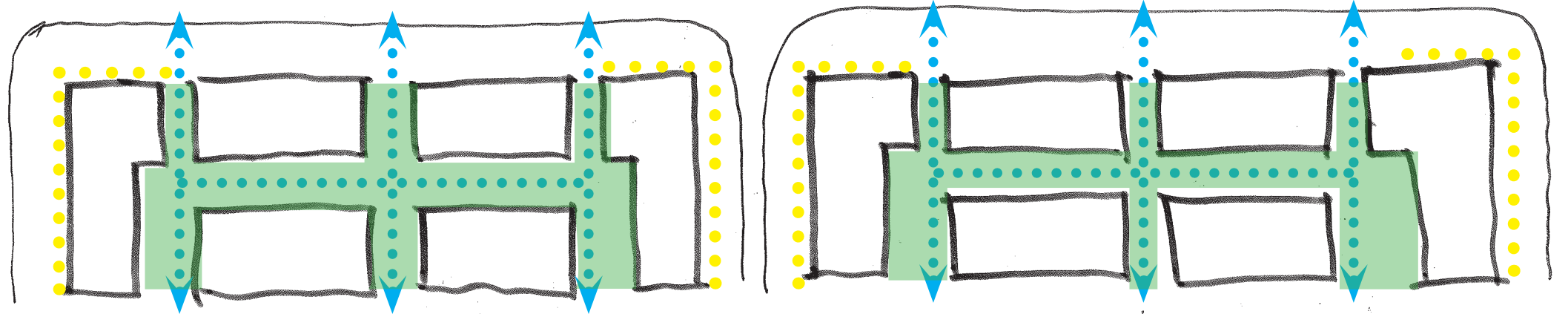
### Option 1

- Maximizing the frontages along Barina Downs Rd.
- Maximizing the permeability within the site along both axis.
- Continuous green space between the buildings



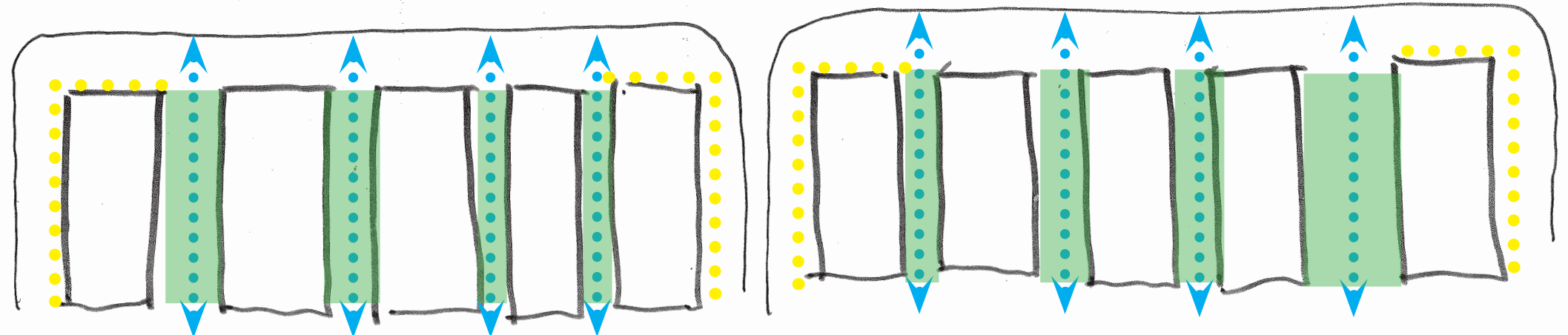
### Option 2

- Reducing the long frontages along Barina Downs Rd.
- Wrapping the Building around the corners
- Continuous green spaces between the buildings



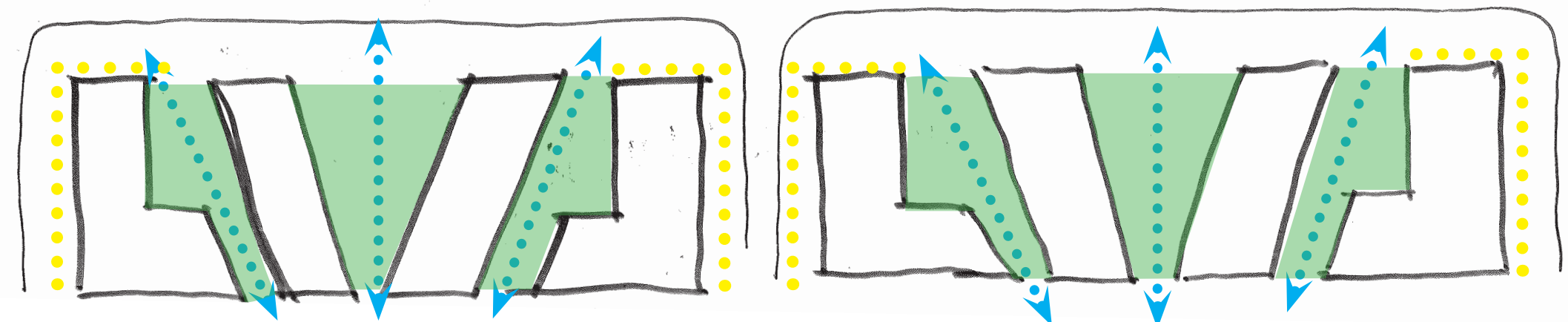
### Option 3

- Further Reducing the long frontages along Barina Downs Rd.
- Wrapping the Building around the corners
- Continuous green spaces between the buildings



### Option 4

- Larger open spaces the long Barina Downs Rd further reducing the street impact
- Wrapping the Building around the corners
- Large open green spaces
- Less over Shadowing
- Larger building separation





# Design Principles

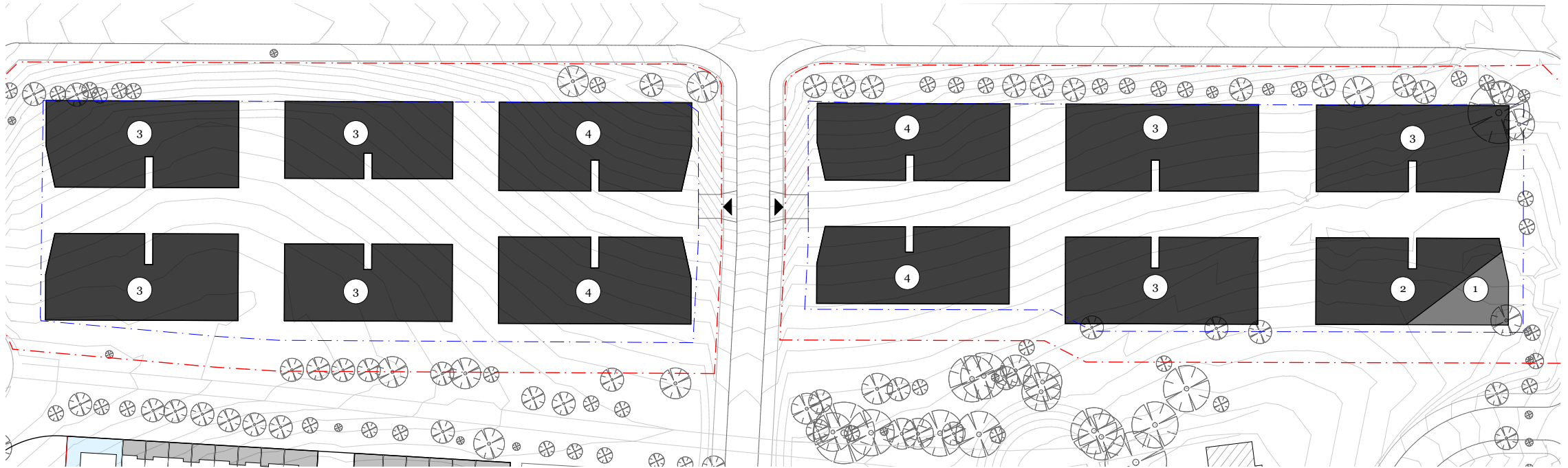
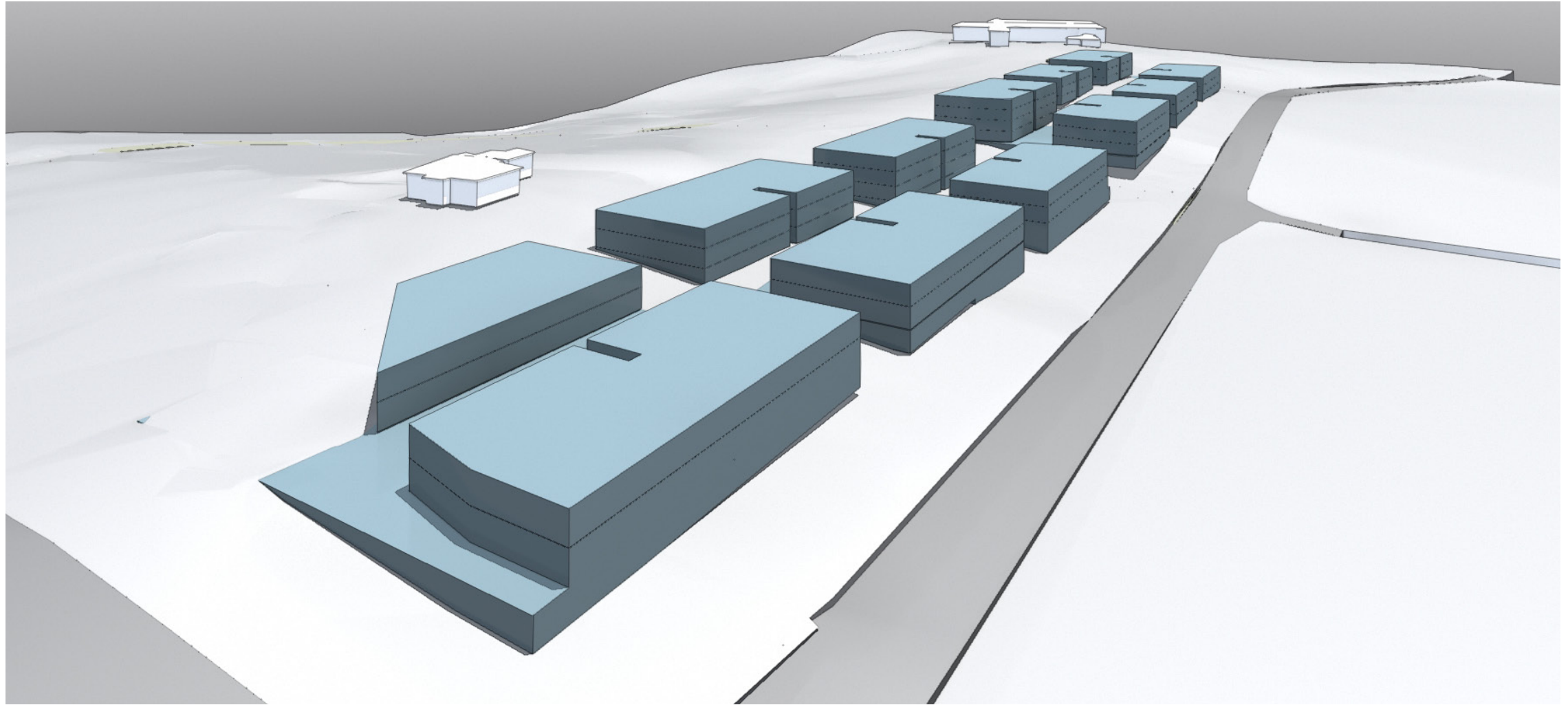
## Superlot Massing Option 1

### Opportunities

- Option 1 looked to apply the basic urban design principle of lining the street with building frontage to create a continuous streetscape.
- The design is very permeable in both north/south and east/west axis, allowing both visual and pedestrian access towards the ridge line park.

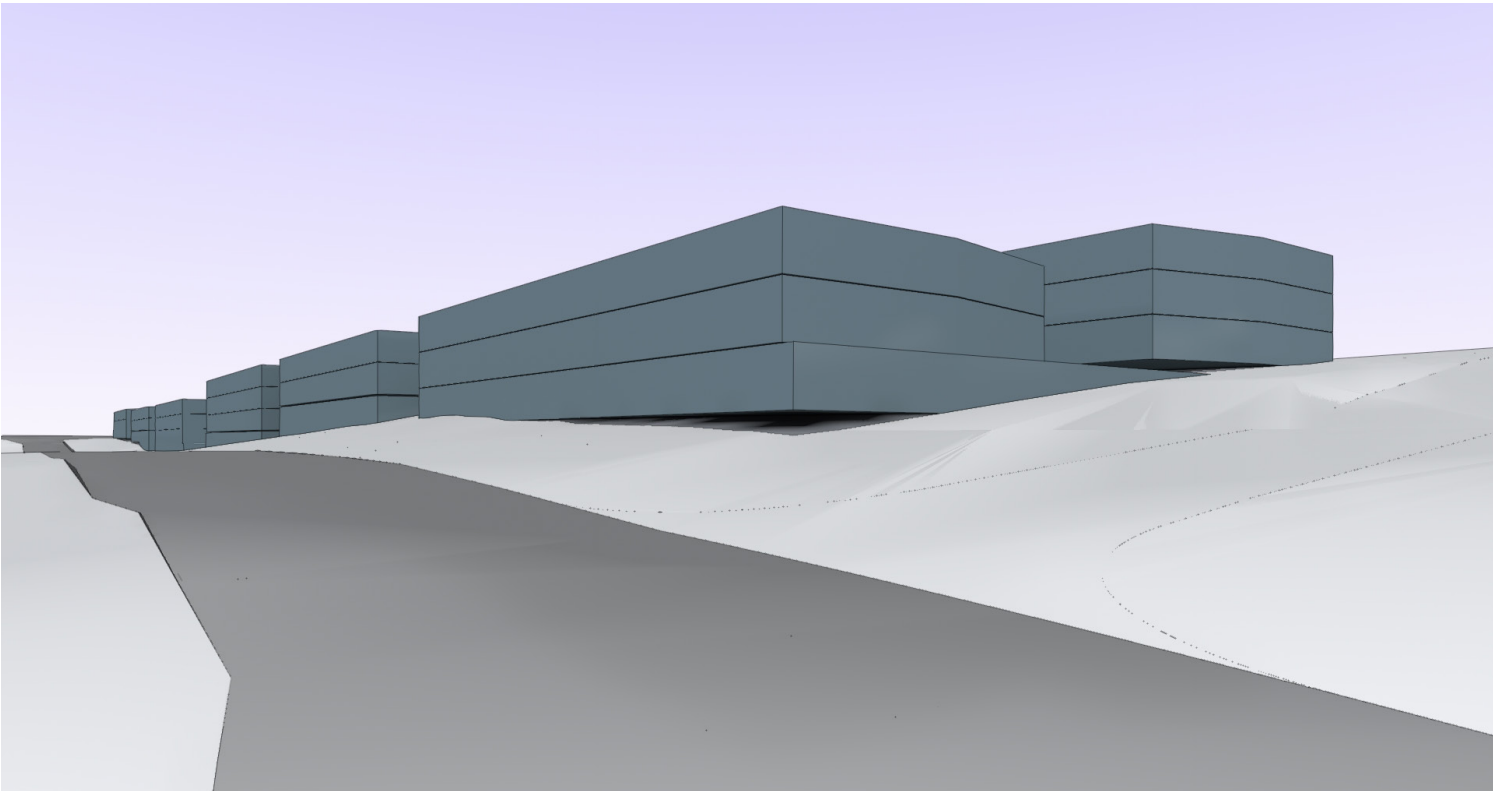
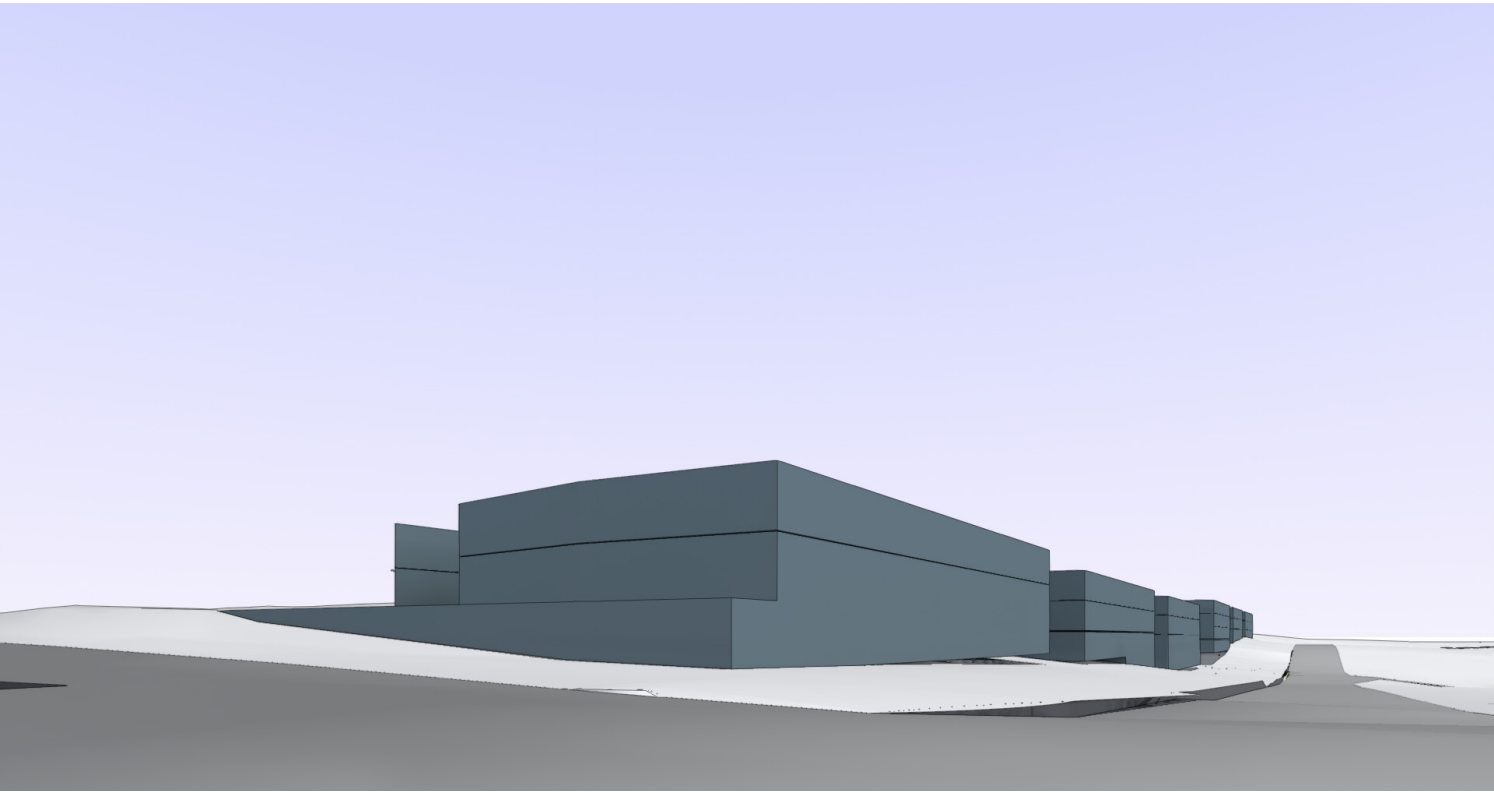
### Constraints

- Large frontage along Barina Downs road are having a large impact on the street due to the fact that the setback line is 3 meters above the foot path level.
- Long façades along the ridge line park create visual impact on the public interface.
- The separation between the buildings is not enough to provide generous amenities for both public and residents.
- The visual connection to the heritage building is indirect.

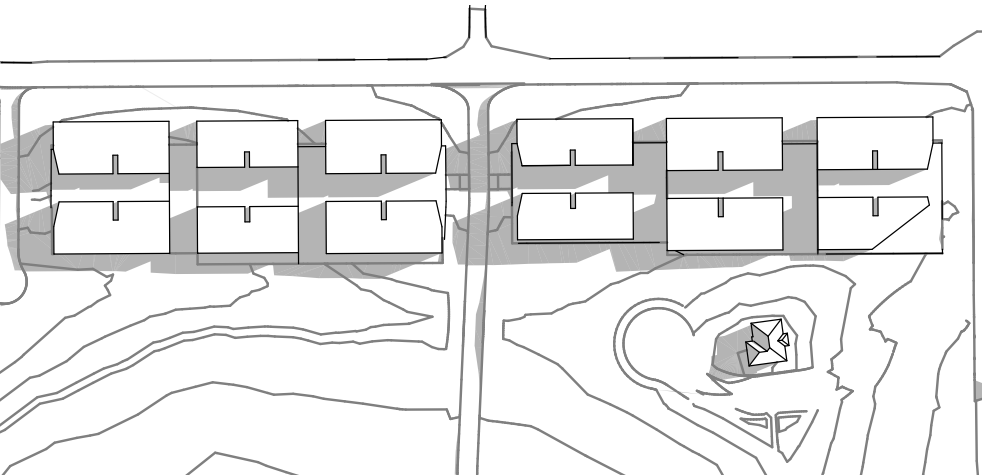




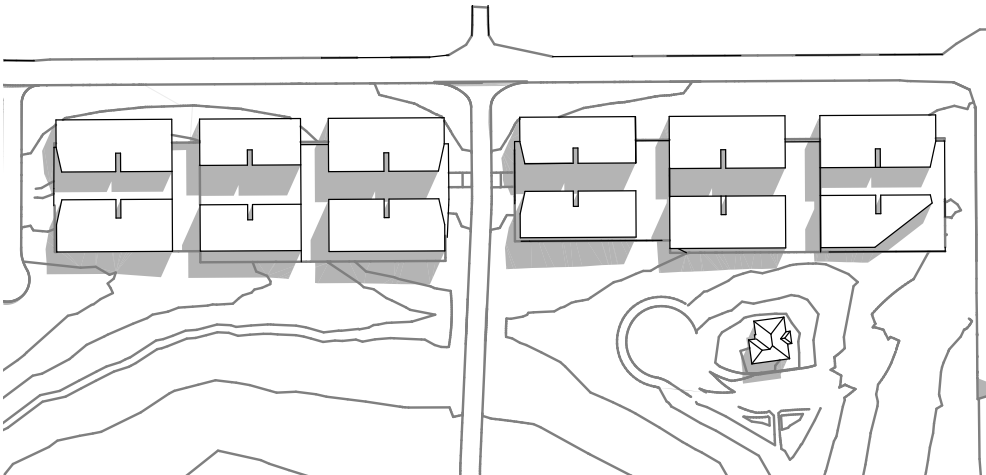
Street Views



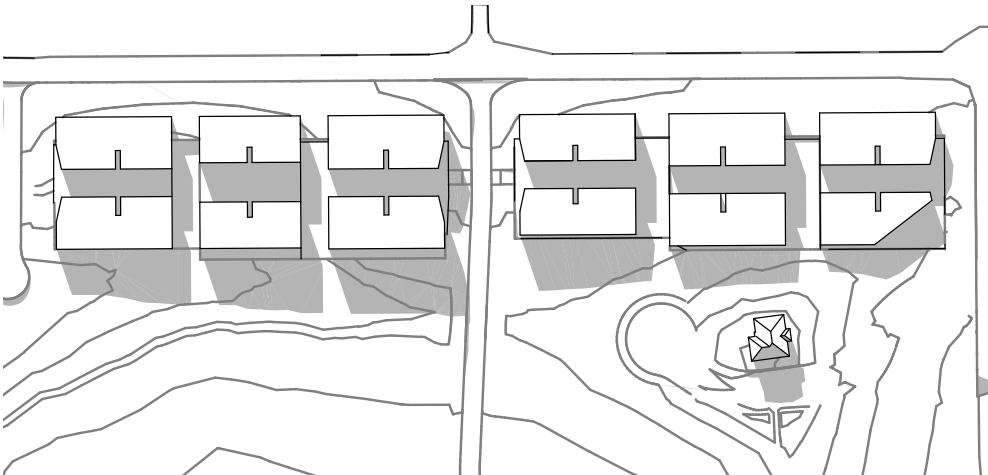
Shadow Analysis June 21 - Mid Winter



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12pm



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# Design Principles

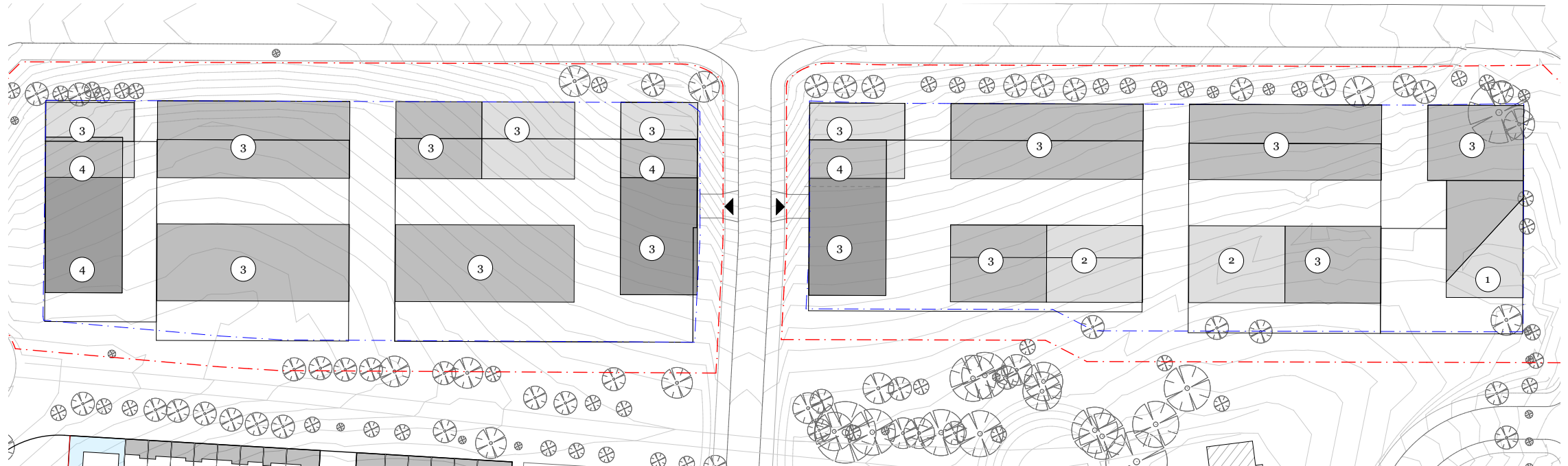
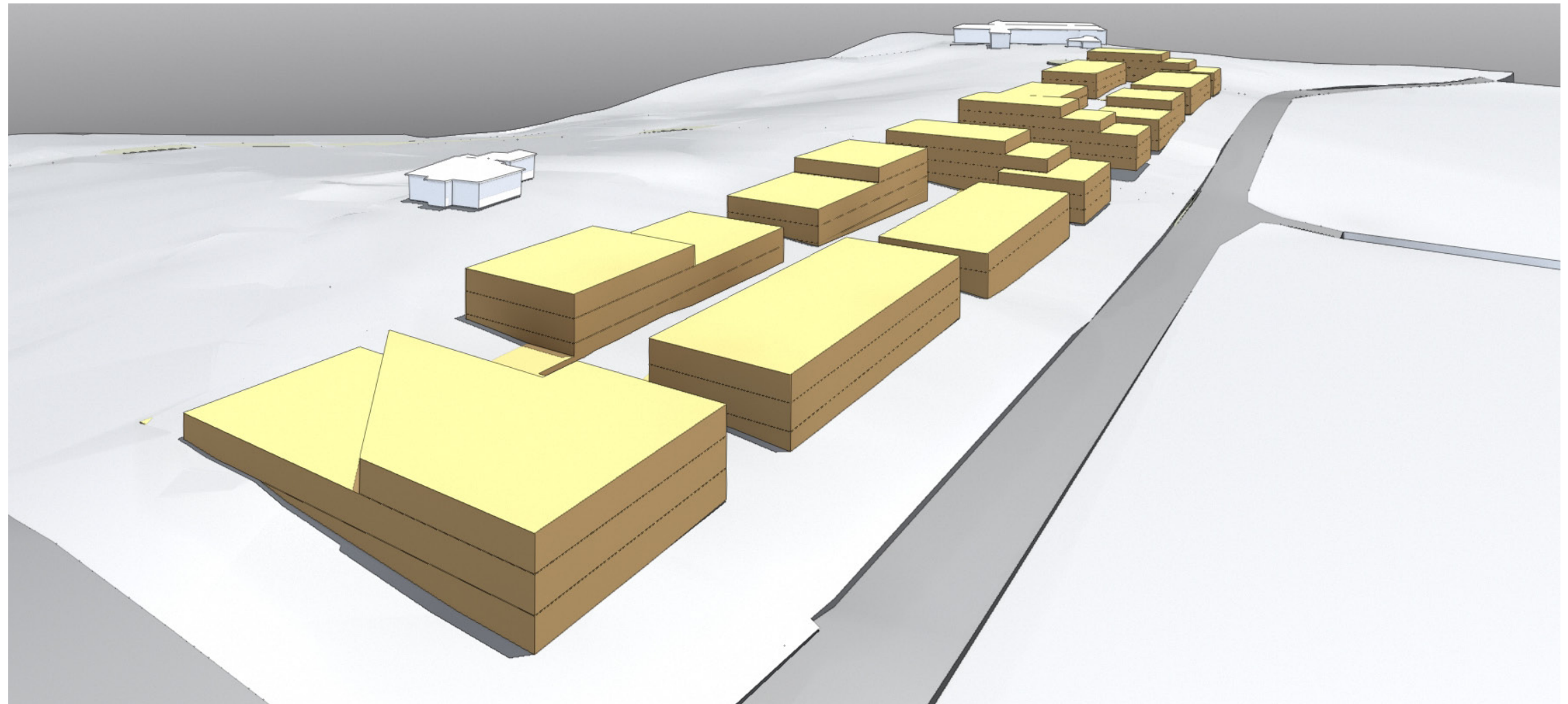
## Superlot Massing Option 2

### Opportunities

- More openings between buildings to allow for more public and communal open spaces
- Lining the corners of the street to create a sense of neighbourhood with frontages along all streetscapes
- Better separation between buildings and more permeability through the site

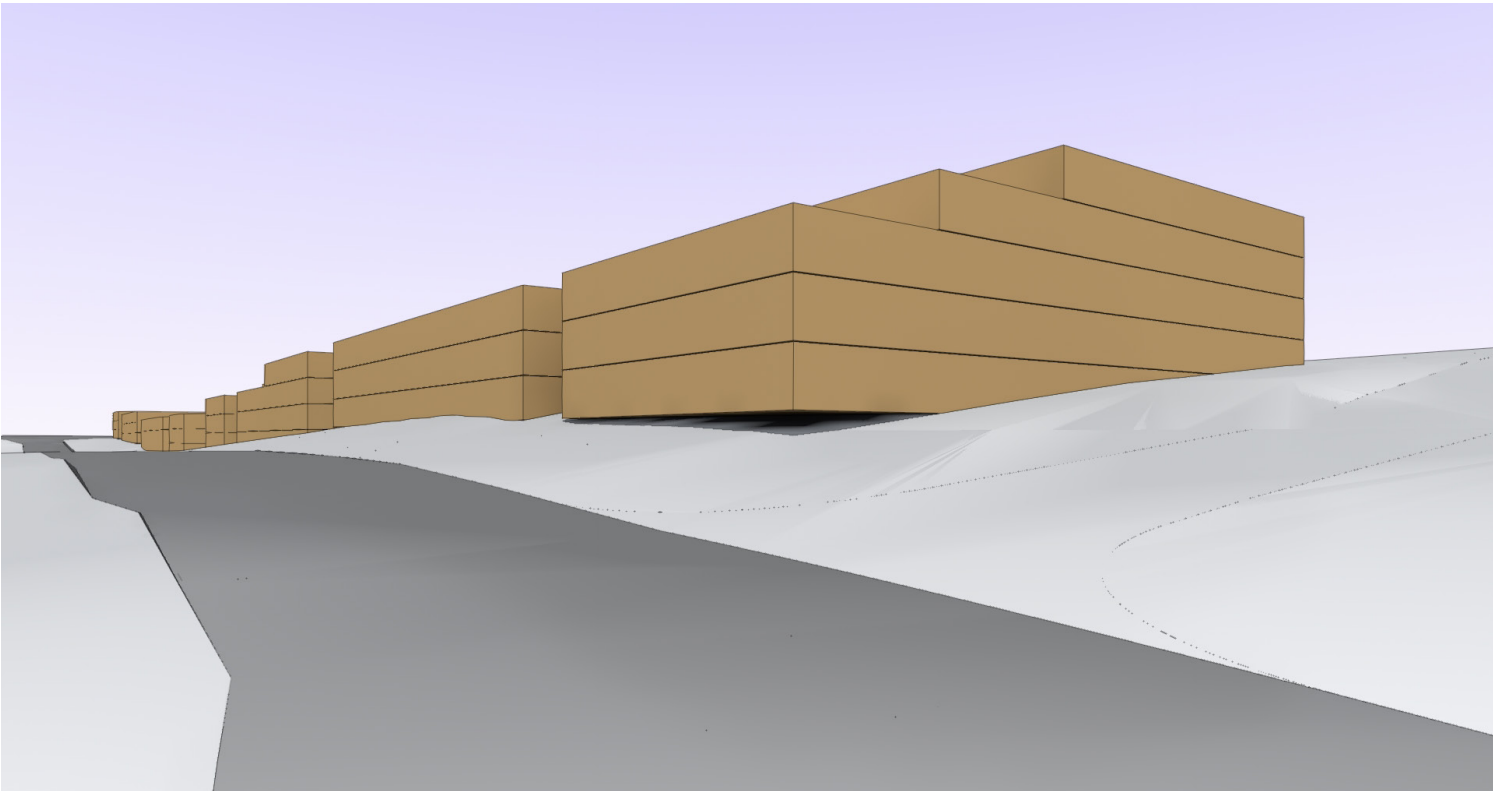
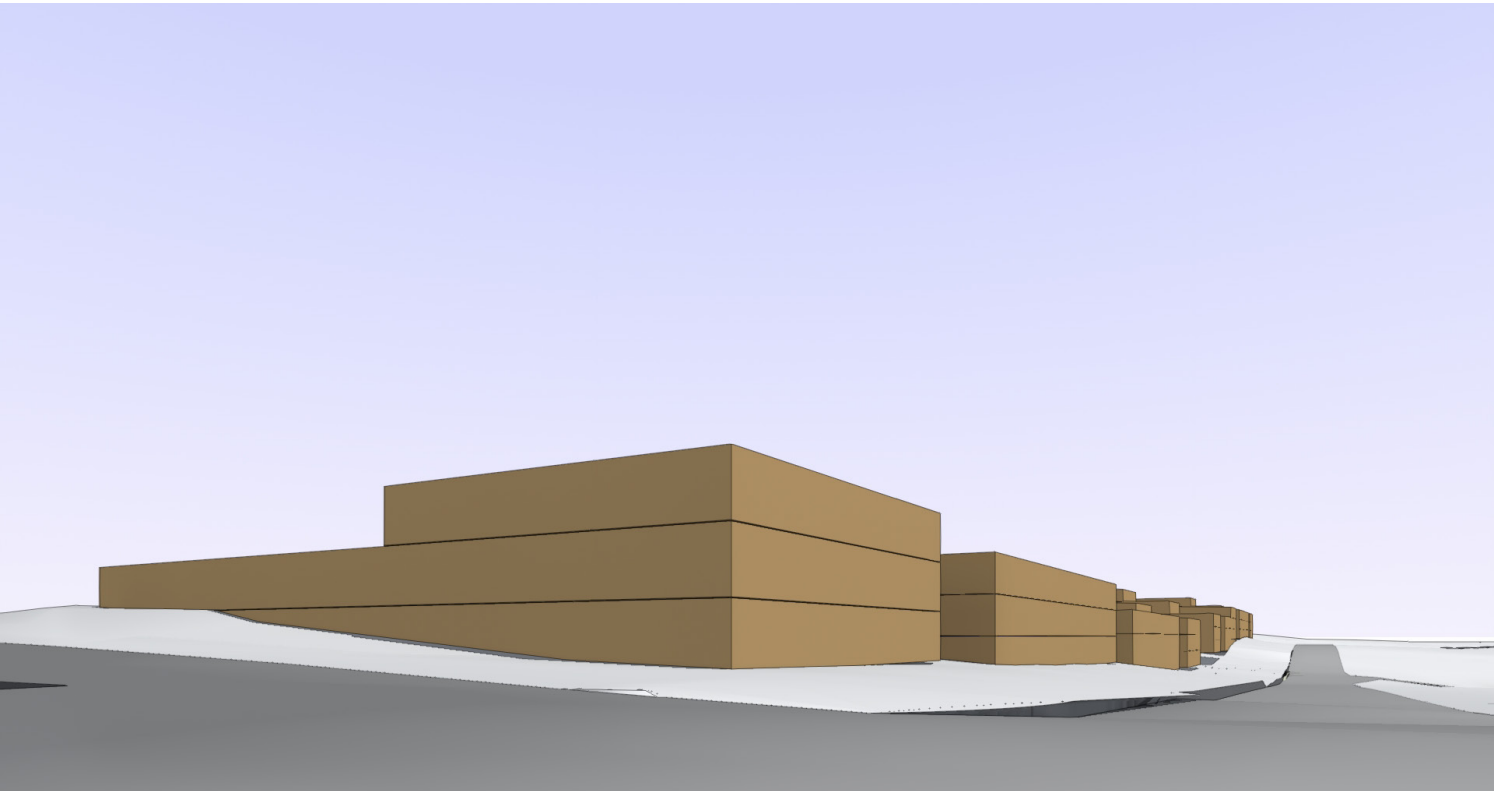
### Constraints

- Large frontages along Barina Downs Road are having a large impact on the street due to the fact that the setback line is 3 meters above the foot path level. Although the long facades are reduced the increased building numbers along the street is not desirable
- Long facades along the ridgeline park create visual impact on the public interface
- The separation between the buildings are not sufficient enough to provide generous ammenity for both the public and residents

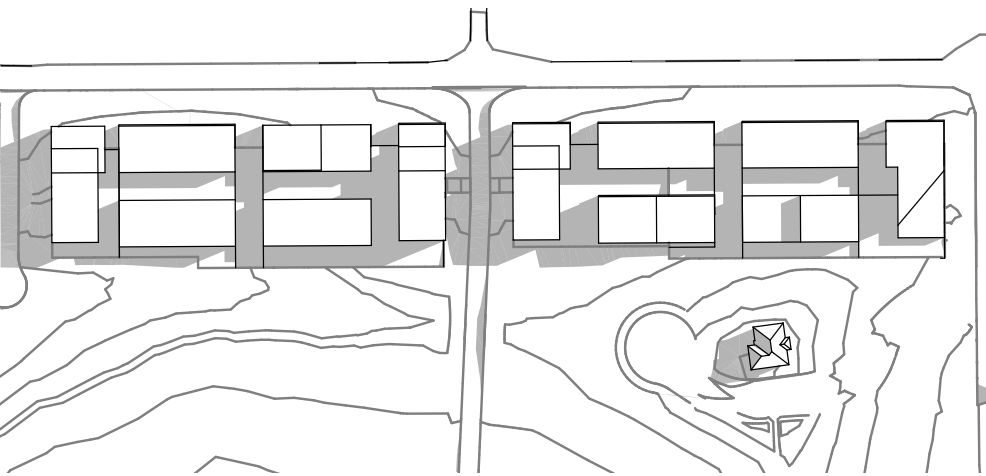




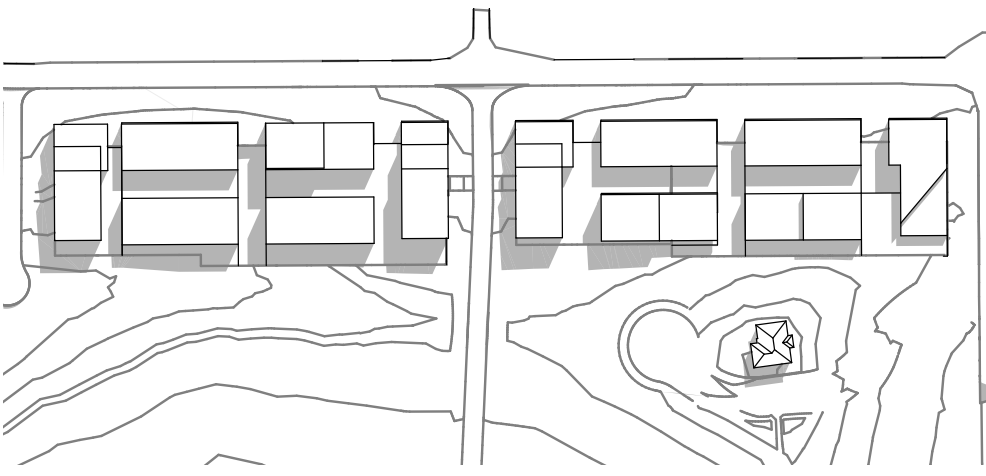
Street Views



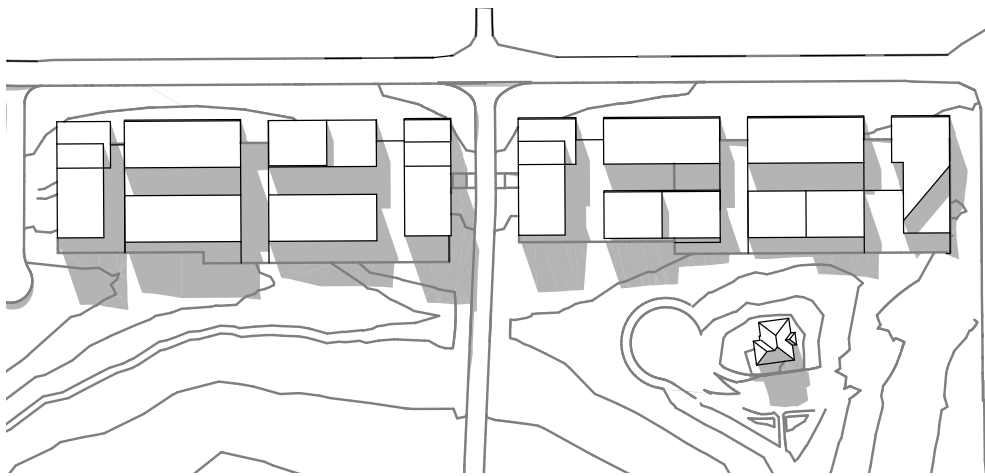
Shadow Analysis June 21 - Mid Winter



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# Design Principles

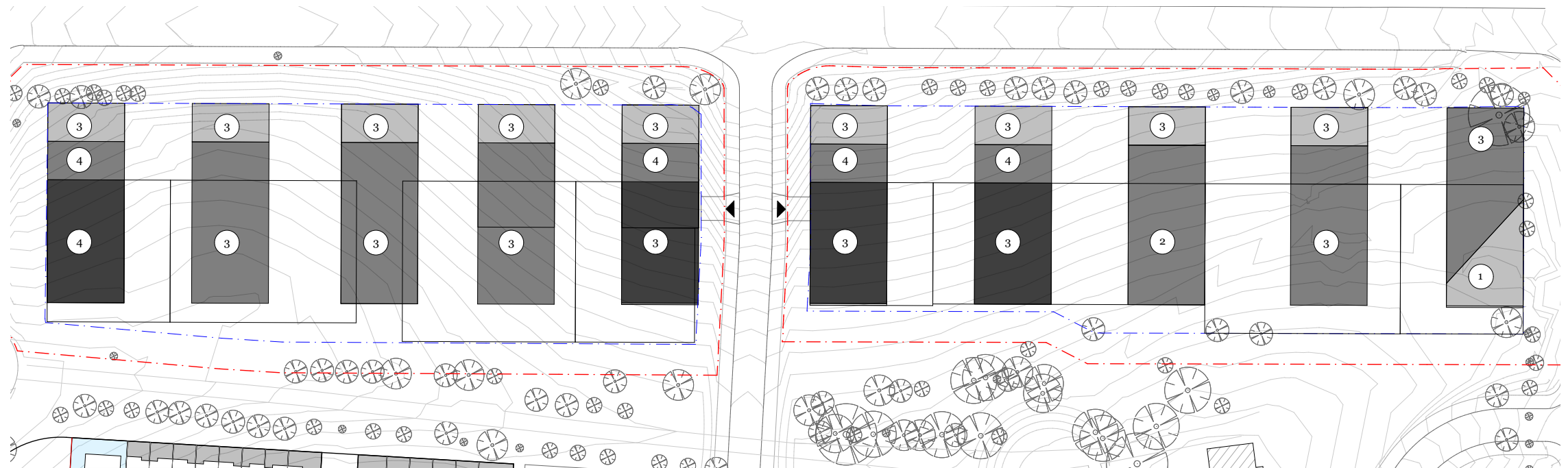
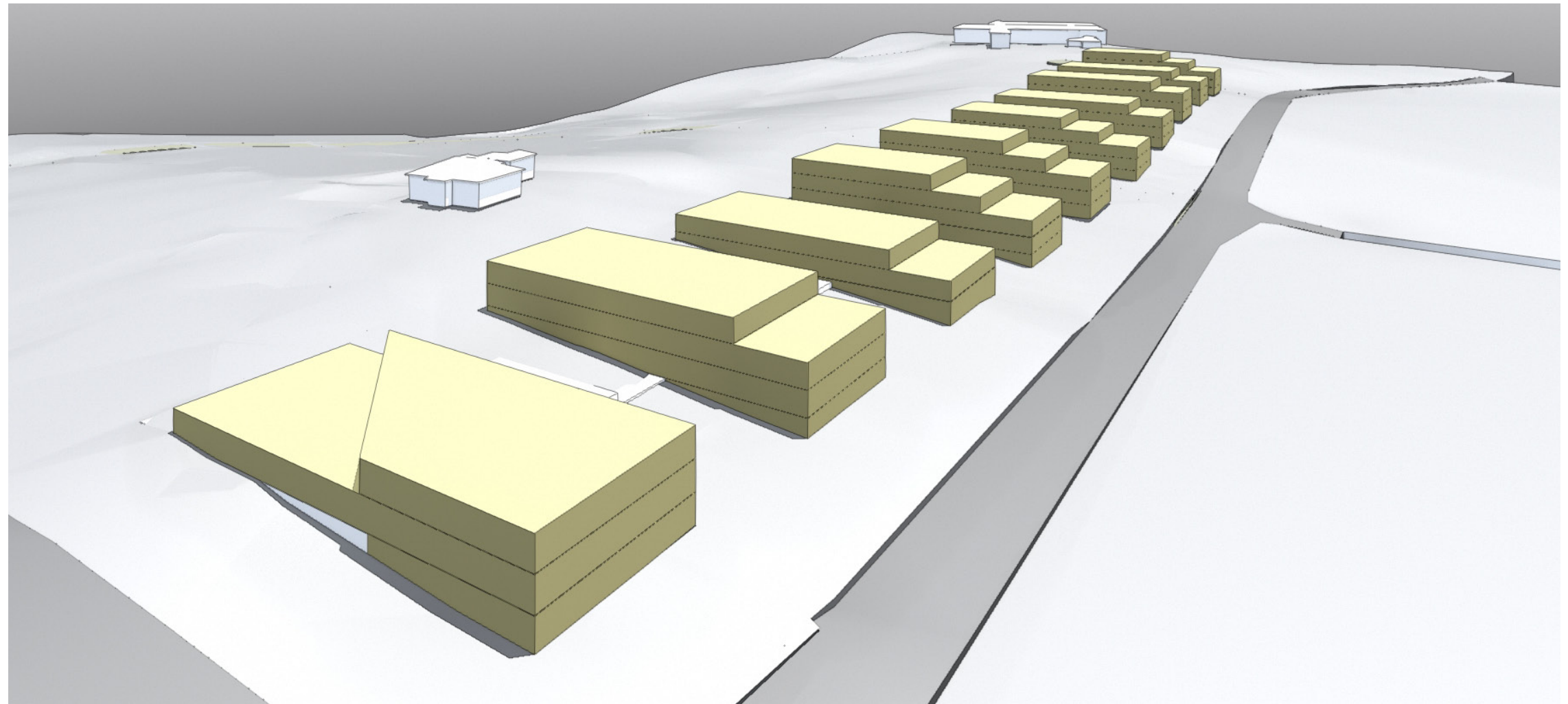
## Superlot Massing Option 3

### Opportunities

- Option 3 rotates the buildings to have a shorter frontage facing Barina Downs Road in order to reduce the long frontage impact along the street (to reduce the sense of a street wall)
- Creating more generous separations between buildings
- Increasing the number of paths and visual connections to the ridgeline park, thus increase the site's permeability.

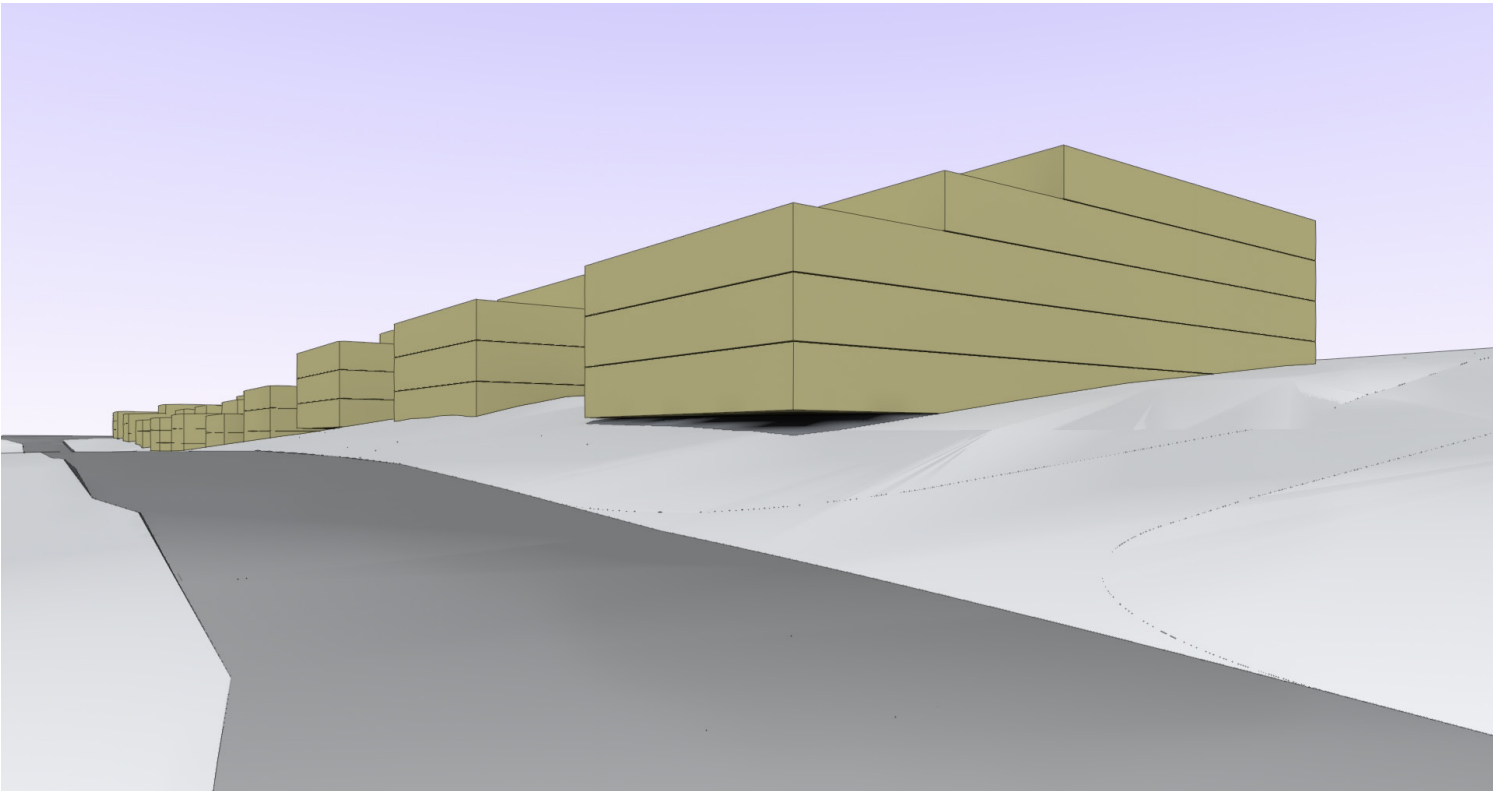
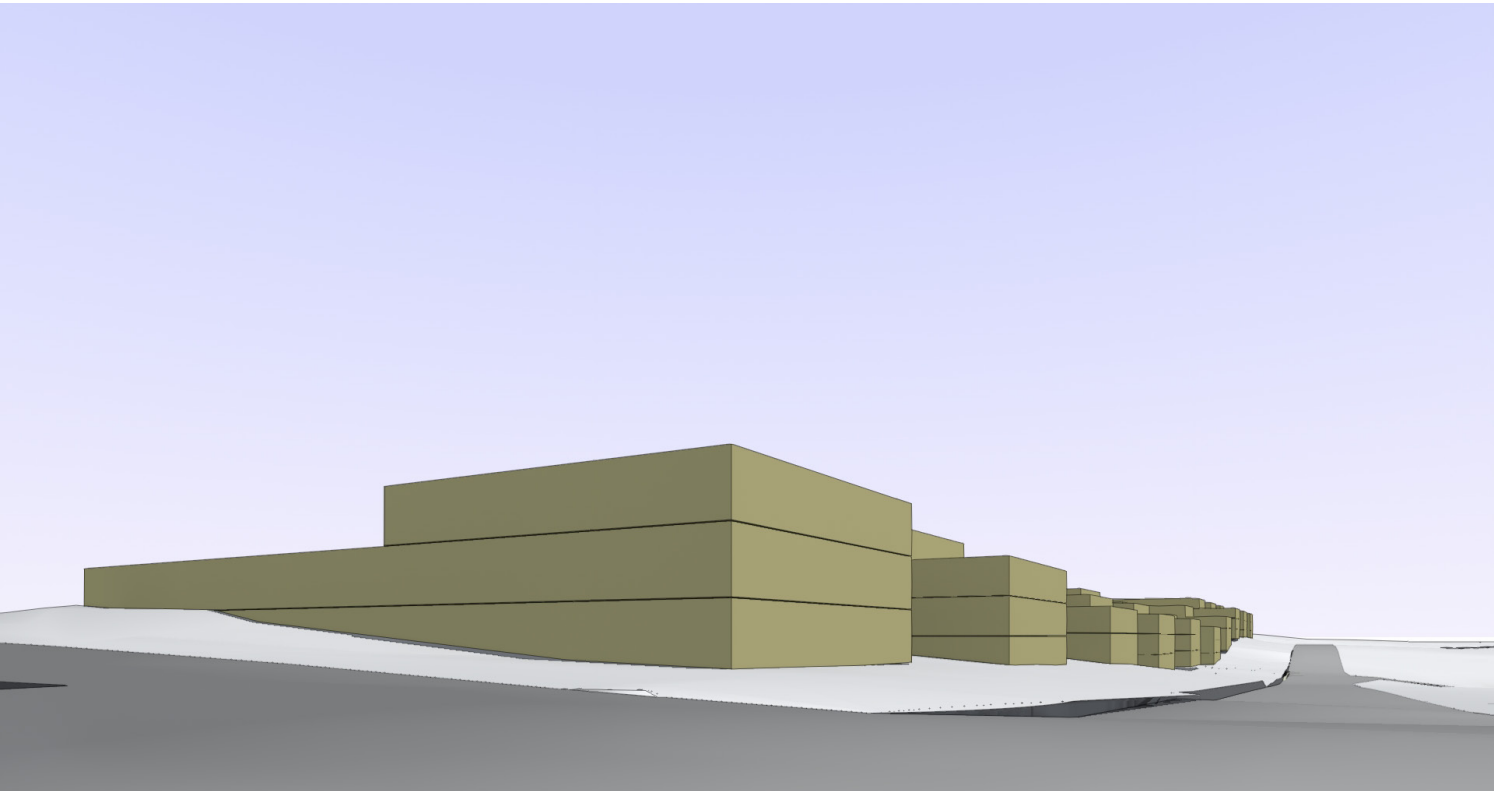
### Constraints

- The separation between buildings are not quite sufficient enough to provide both public and private open spaces
- As the buildings are orientated North-South, internal overshadowing will be an issue
- The building massing is highly repetitive which results in a lack of diversity along the street.

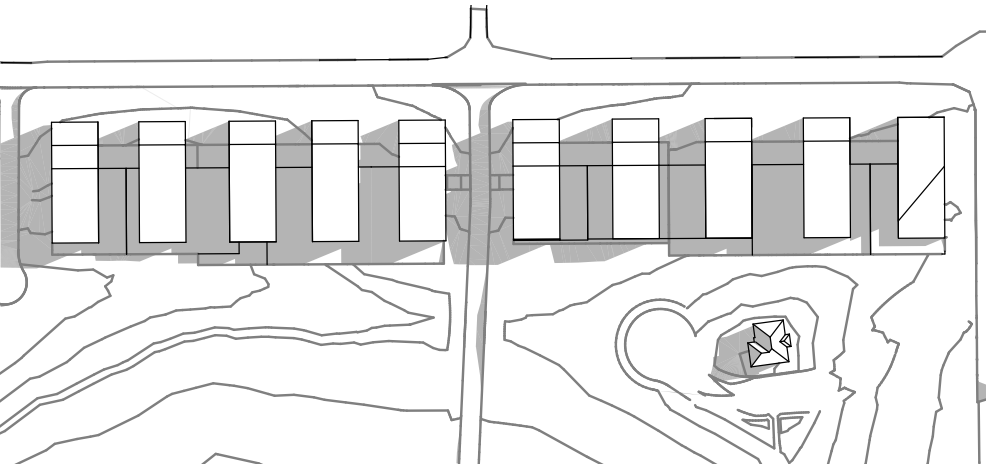




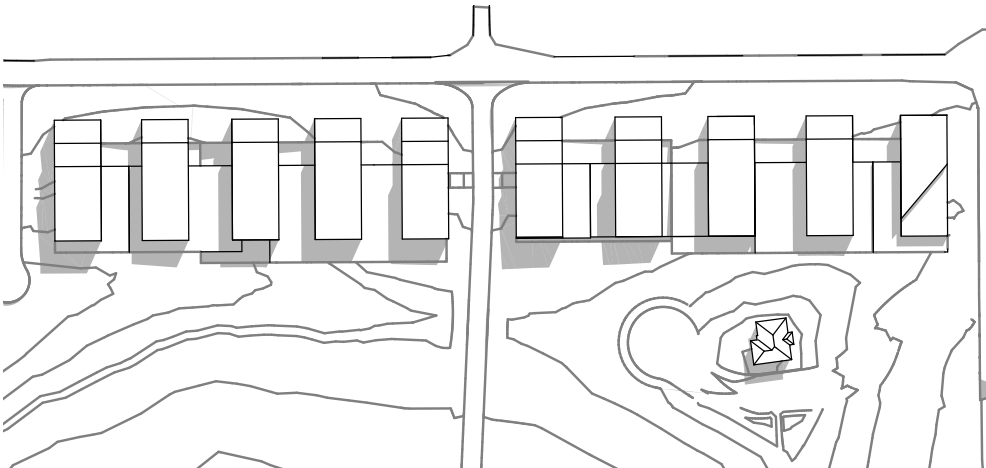
Street Views



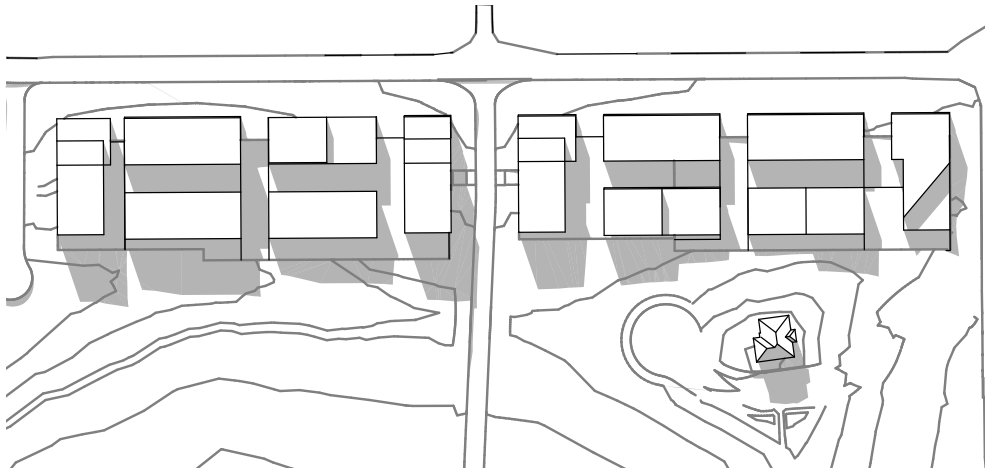
Shadow Analysis June 21 - Mid Winter



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# Design Principles

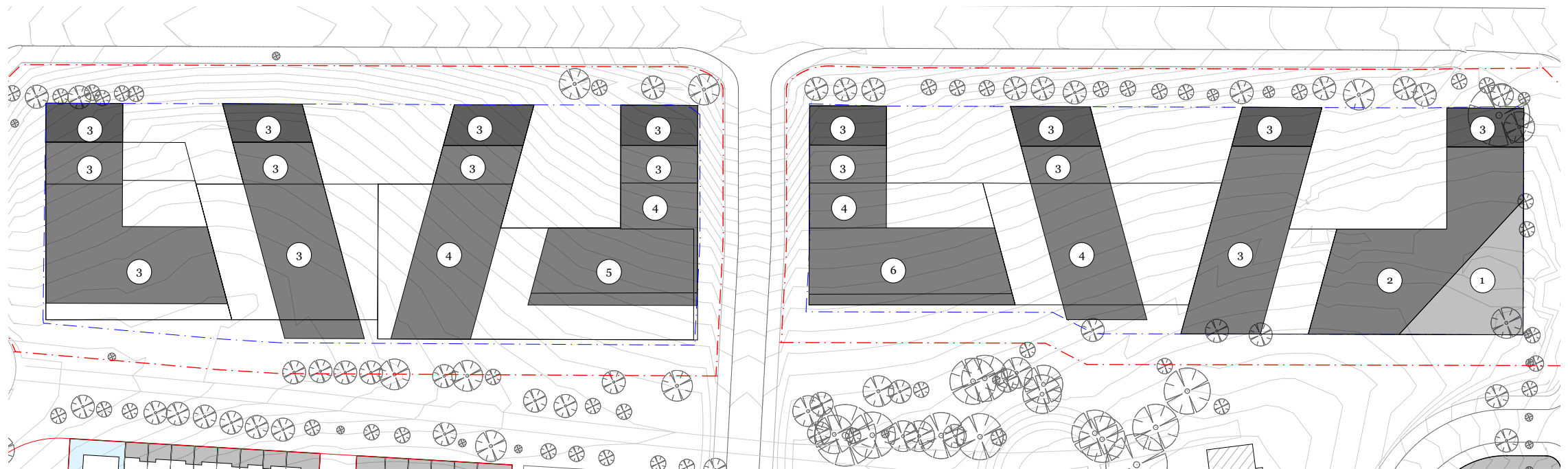
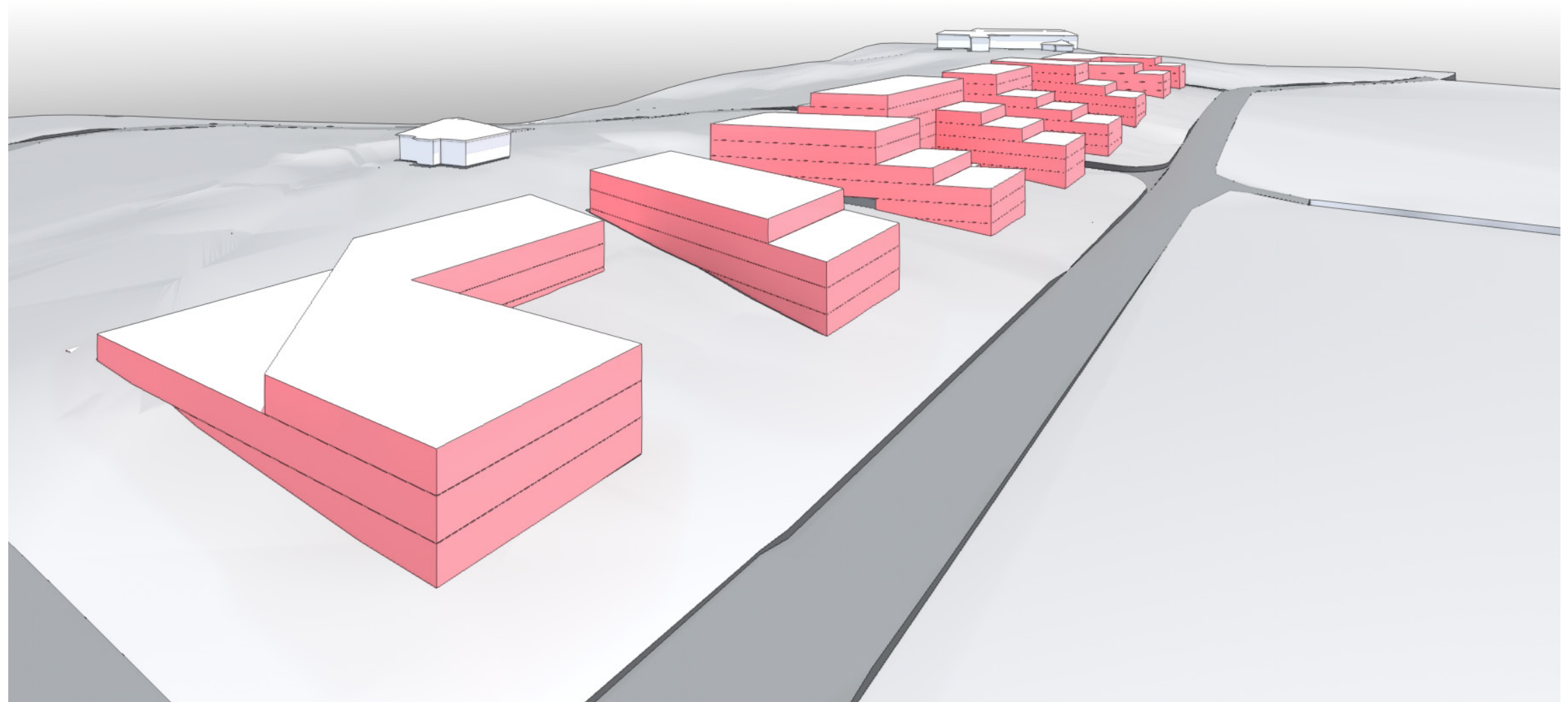
## Superlot Massing Option 4

### Opportunities

- Increases the open space along Barina Downs Road and creates better separation between the buildings, which also provides greater ability to separate private, communal and public open space.
- Shorter building frontages along Barina Downs Road which reduces the impact on the streetscape
- Excellent visual and the potential for pedestrian connection to the ridge line park and heritage item,
- Larger separation between buildings improves natural light access and reduces overshadowing
- Creation of courtyard style open spaces that are positioned on the north ensures that open space will receive optimal direct sunlight access.

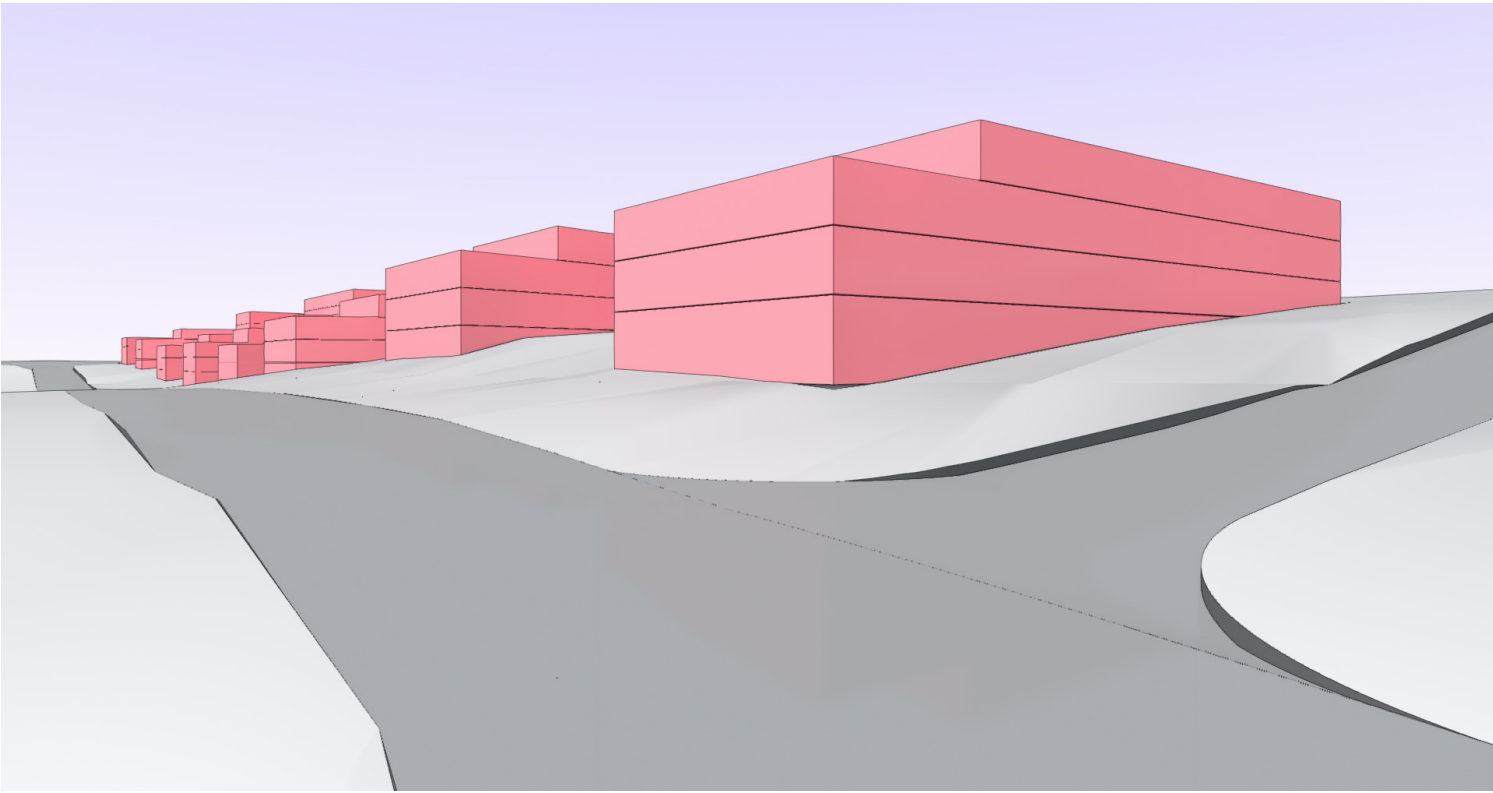
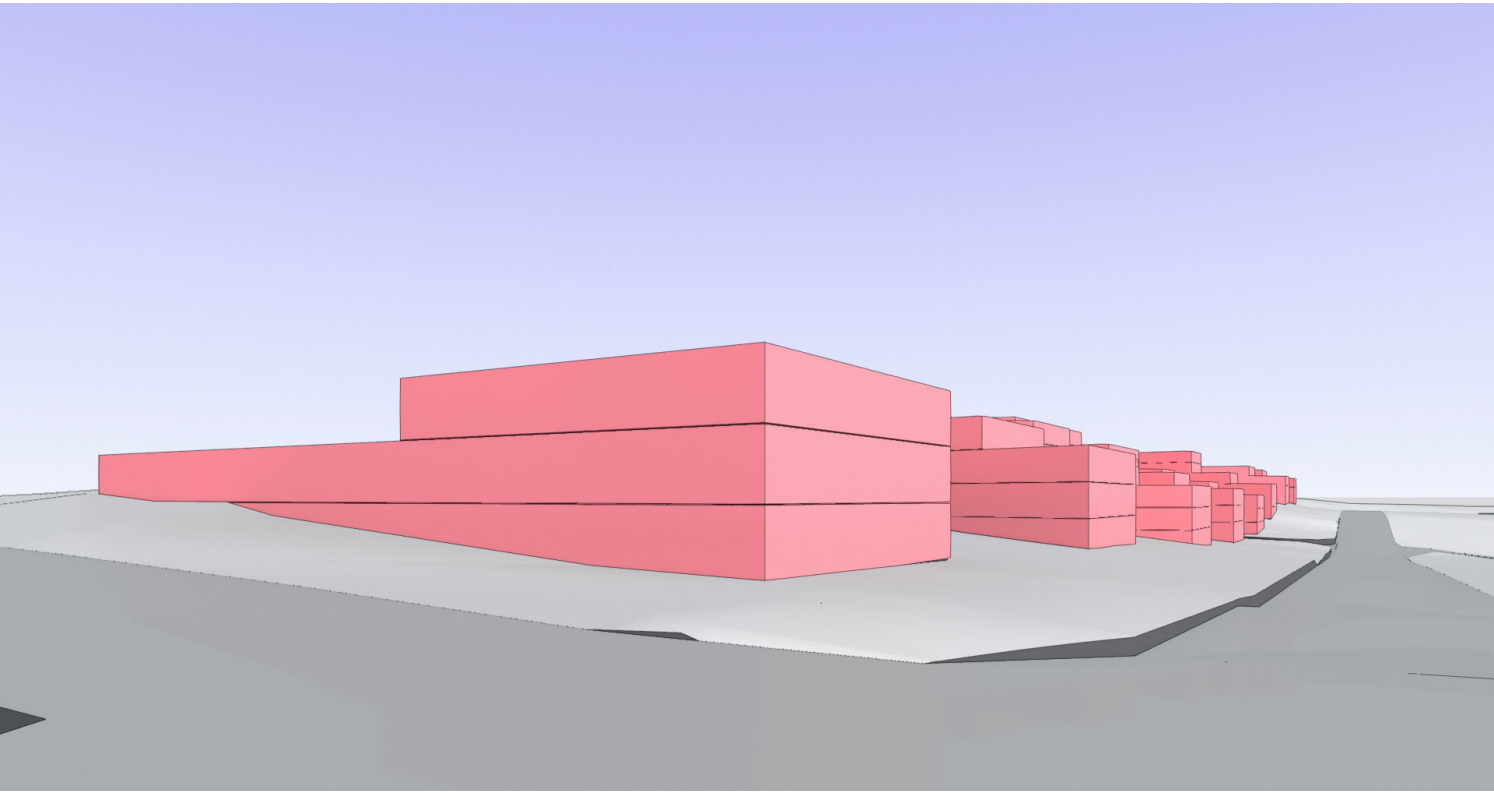
### Constraints

- Some longer facades along the ridge line park

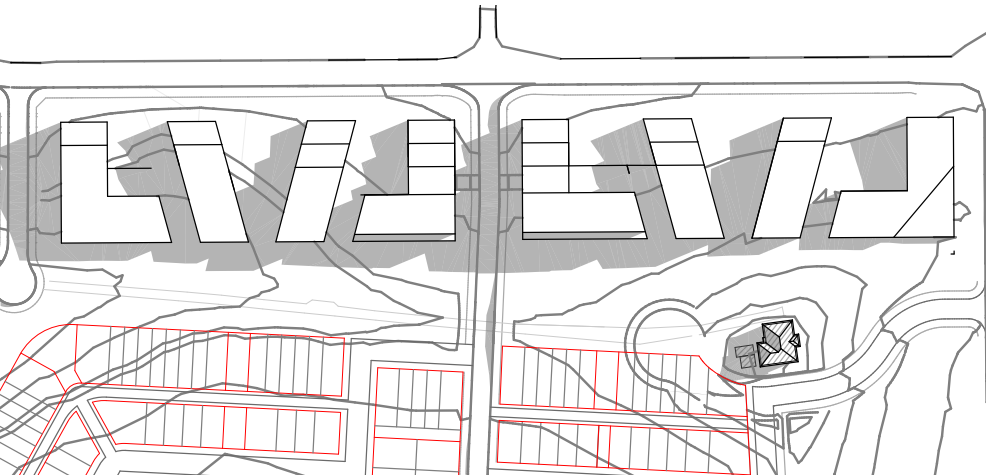




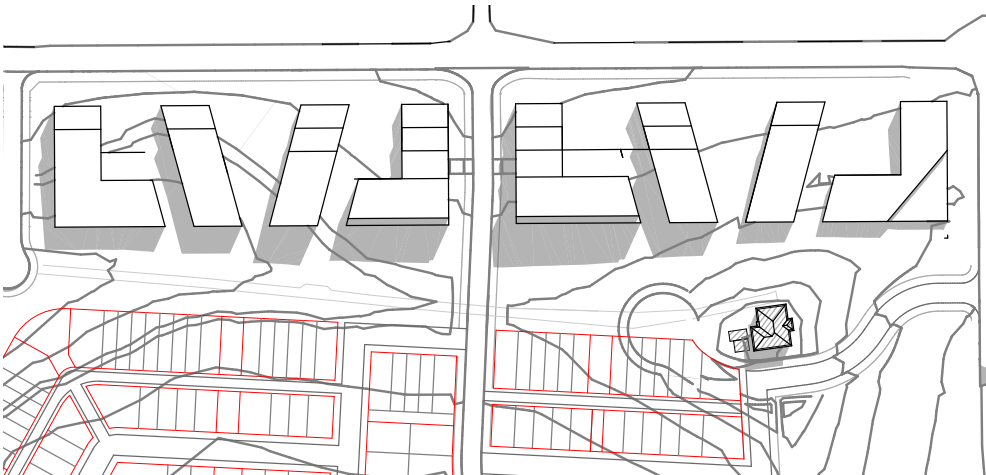
Street Views



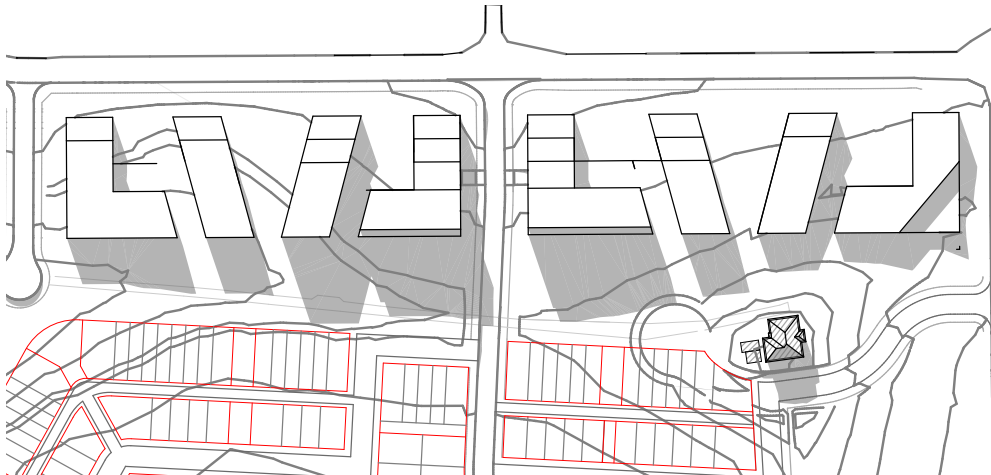
Shadow Analysis June 21 - Mid Winter



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# Design Principles

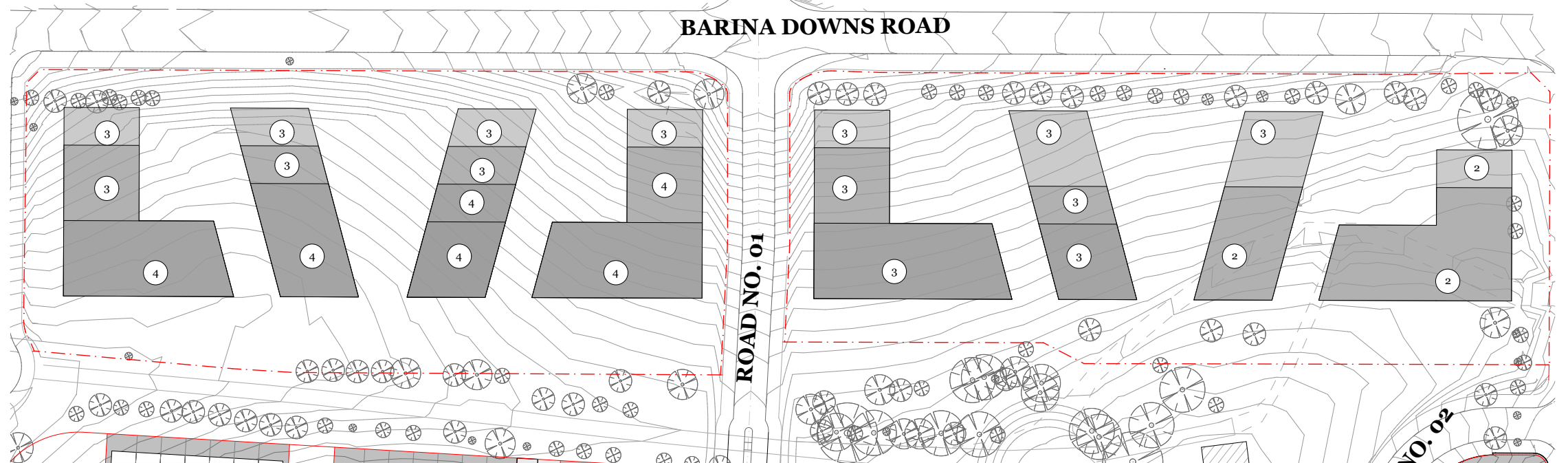
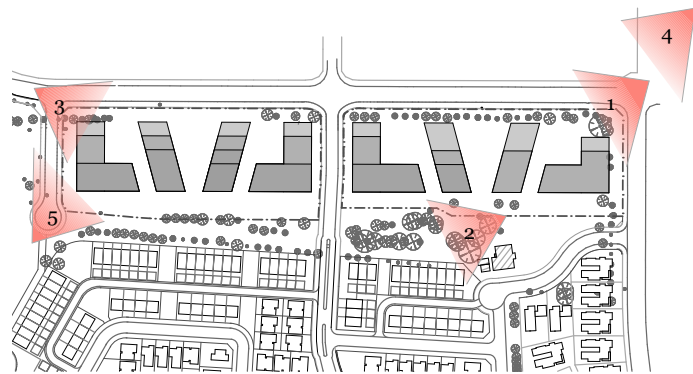
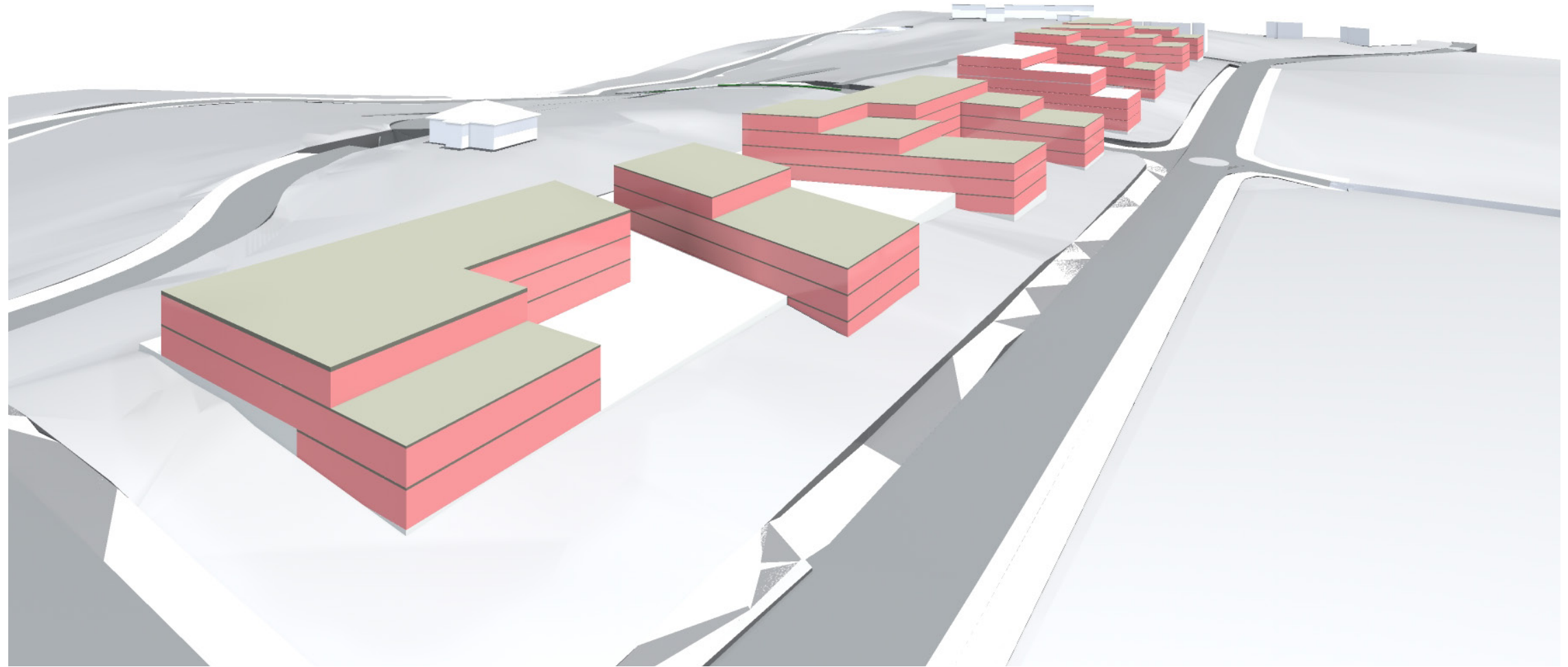
## Proposed Massing

### Opportunities

- Same as Option 4
- Gradual stepping of building heights to low 2 storey scale adjacent to heritage item and low density zoning
- a maximum 3 storey height is maintained along Barina Downs Road which minimises the impact of the surrounding existing scale

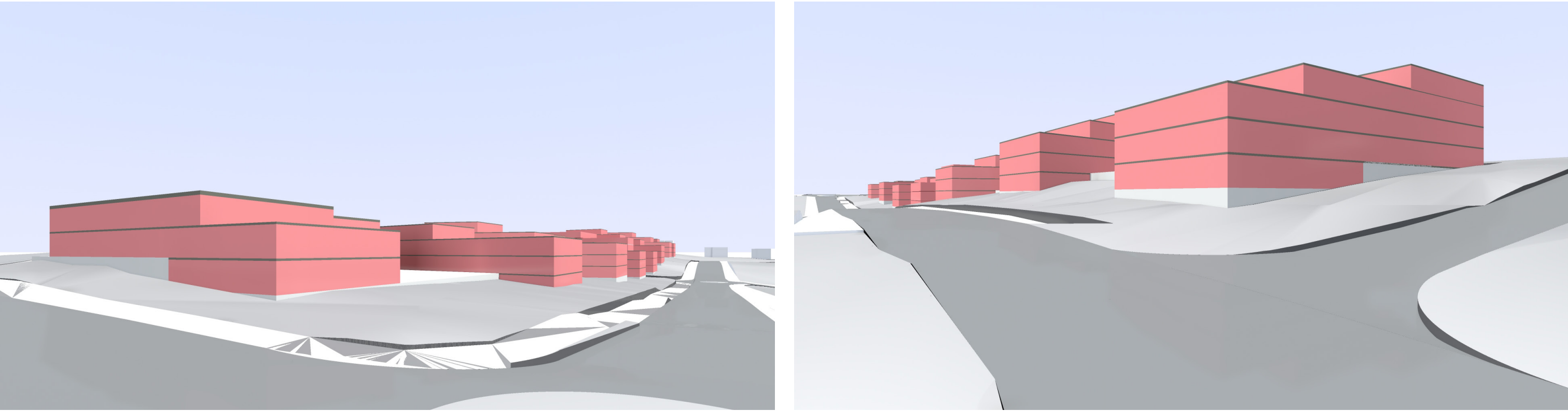
### Constraints

- Same as Option 4

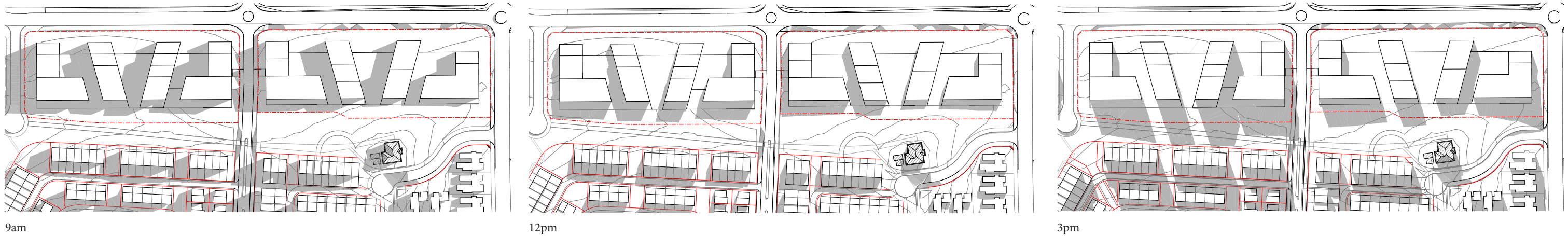




Street Views

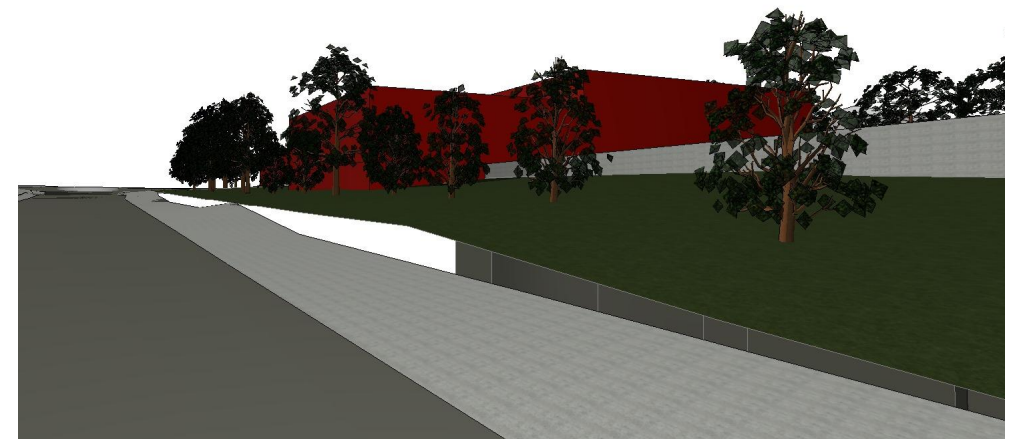
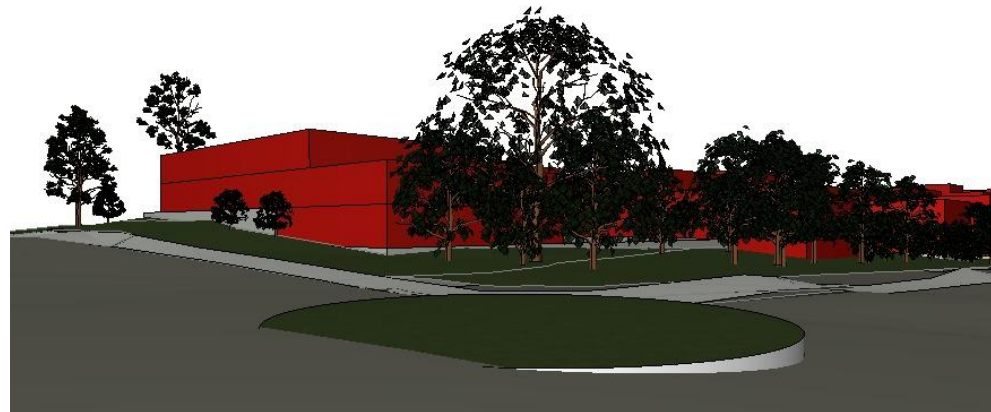


Shadow Analysis June 21 - Mid Winter

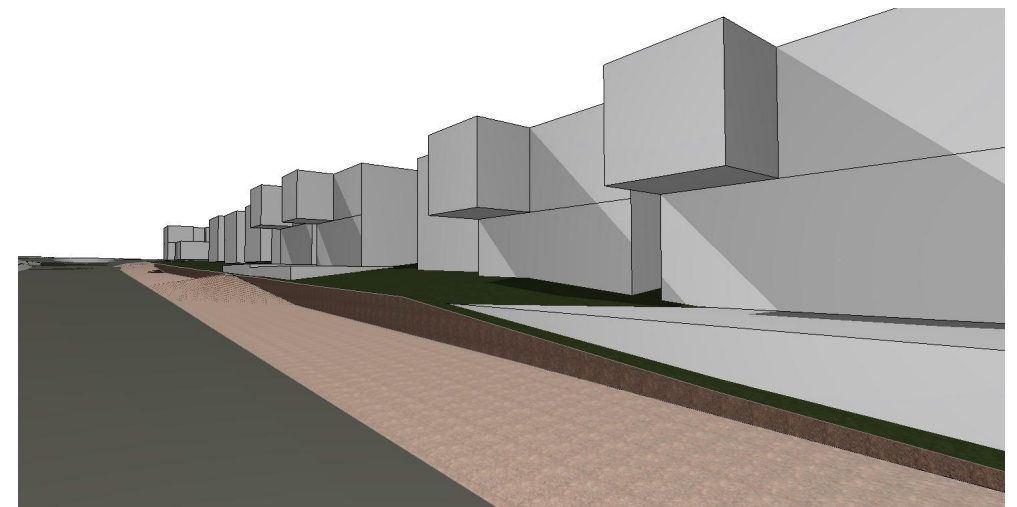
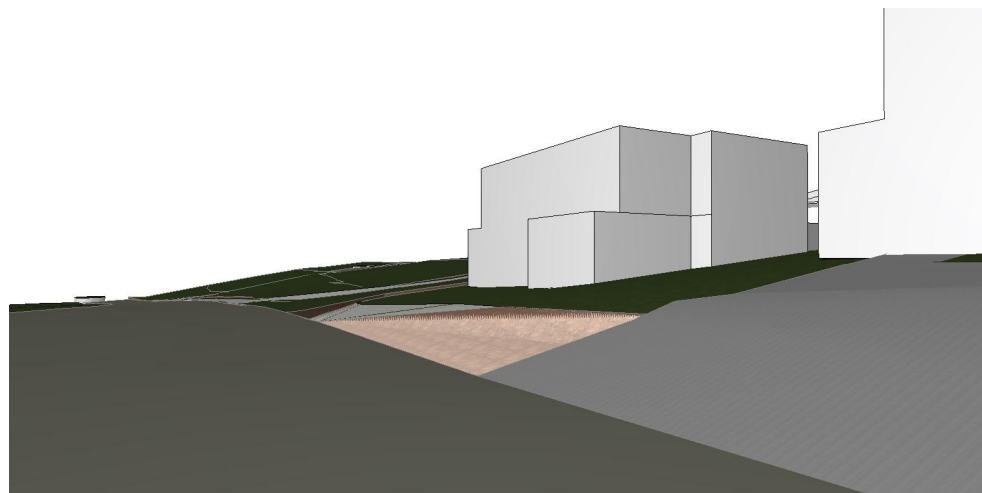




**Street Views - Proposed Massing**

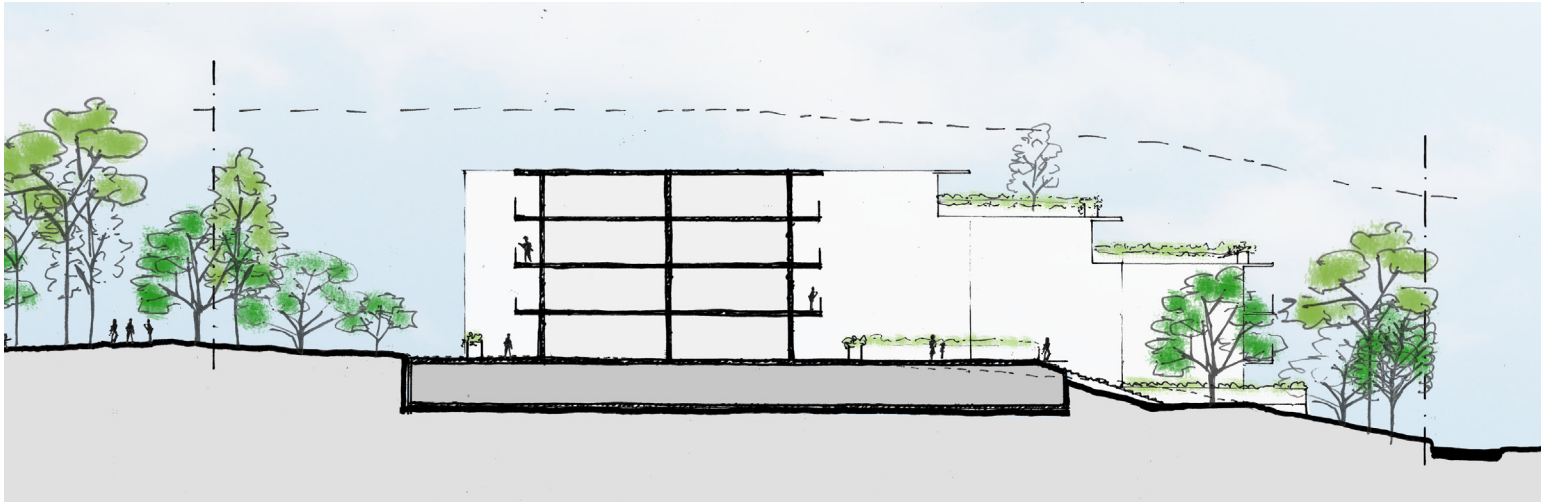


**Street Views - Approved Masterplan (Indicative Massing)**



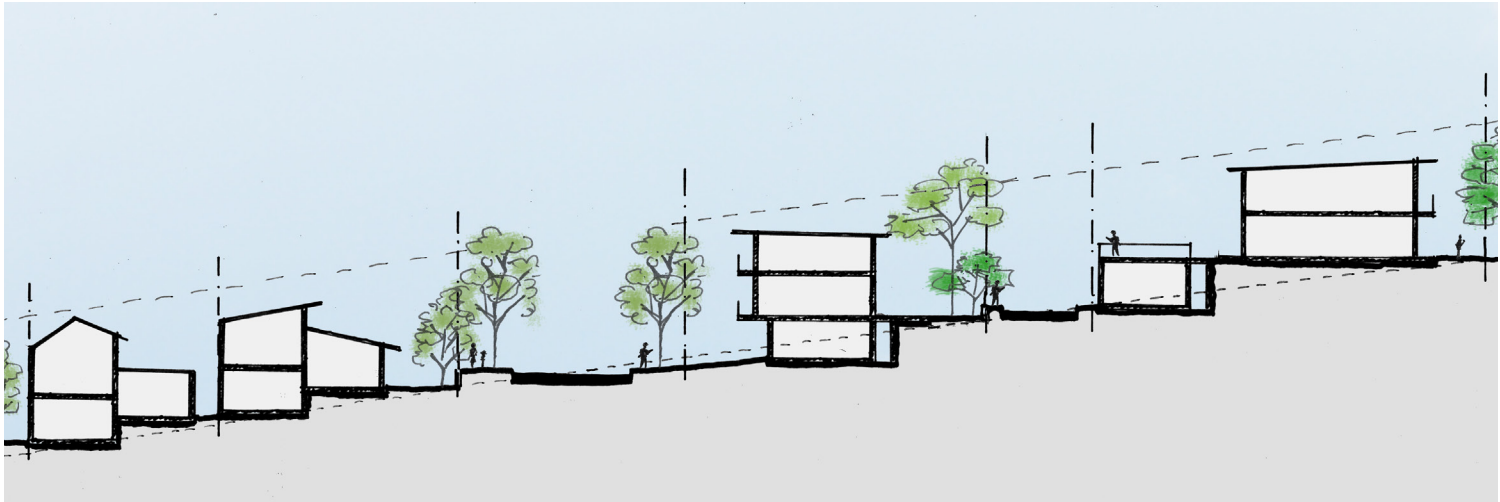


Apartment Typology





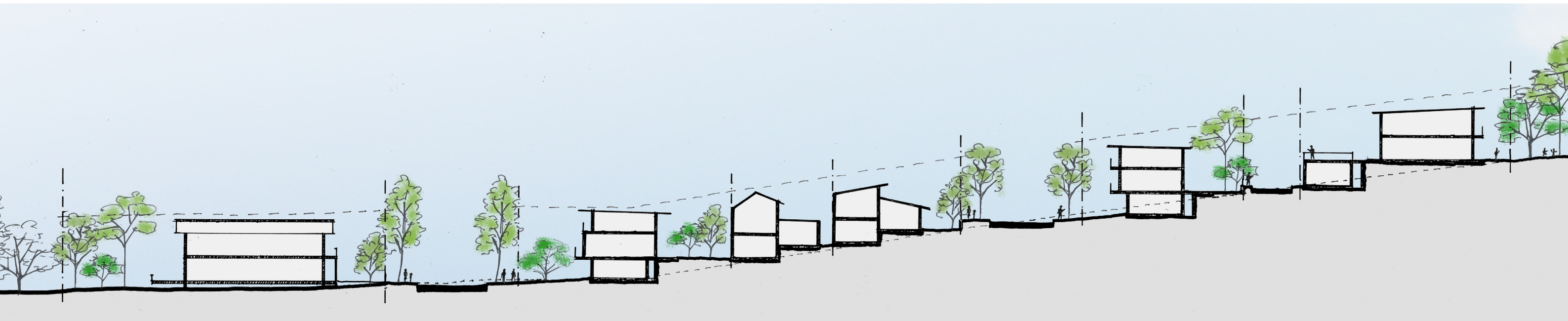
Medium Density Typologies





# Indicative Proposed Masterplan

## Site Sections





# Architectural Response

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# Architectural Response

## Heritage Architecture Analysis

The farmhouse is seen as the key to the site's character, with key views and vistas being sought to be retained and framed, as well as its architecture being appropriated into the new built form surrounding it.

- 1 **ROOF:**  
Visually prominent, low pitch, simple form
- 2 **VERANDAH**  
Deep and shady, wraps around
- 3 **BASE**  
Low, heavy, solid base, fine grain materials
- 4 **WINDOWS**  
Expressed, projecting, decorative element
- 5 **PIERS**  
Masonry veranda pier, prominent but short verticality





# Architectural Response

## Identifying Architectural Character Elements

From taking the key elements that provide the heritage farmhouse with it's distinct character, contemporary interpretations of these can establish an architectural character that both respects the farmhouse and is timeless and relevant in contemporary society.

1. Pitched Roof



2. Veranda/ 5. Piers



3. Brick Base/ 5. Piers

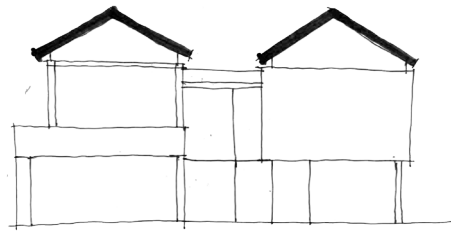


4. Exposed windows

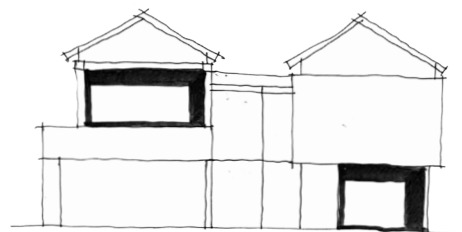




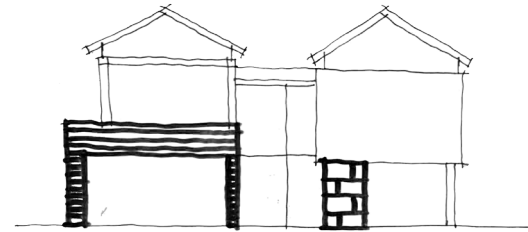
Houses



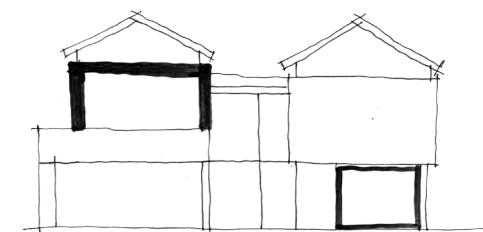
1. Roof



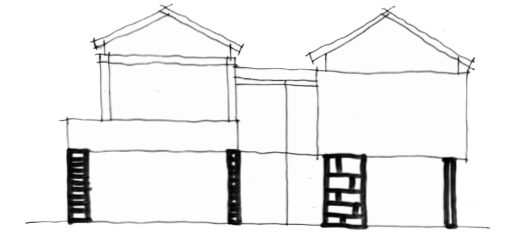
2. Veranda



3. Base

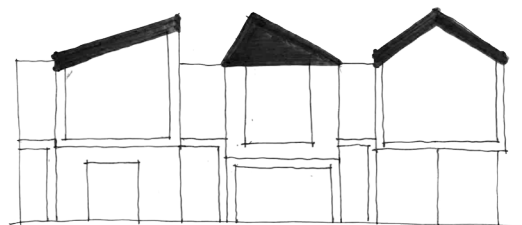


4. Expressed  
Window

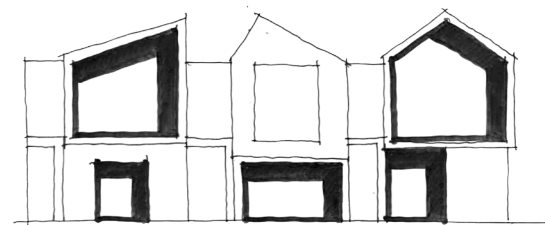


5. Piers

Townhouses



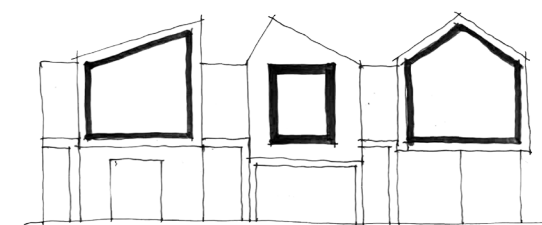
1. Roof



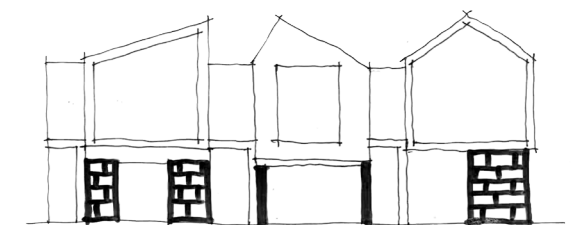
2. Veranda



3. Base



4. Expressed  
Window



5. Piers







# Low Density Typologies

## Indicative Detached Dwelling Sketch Facades



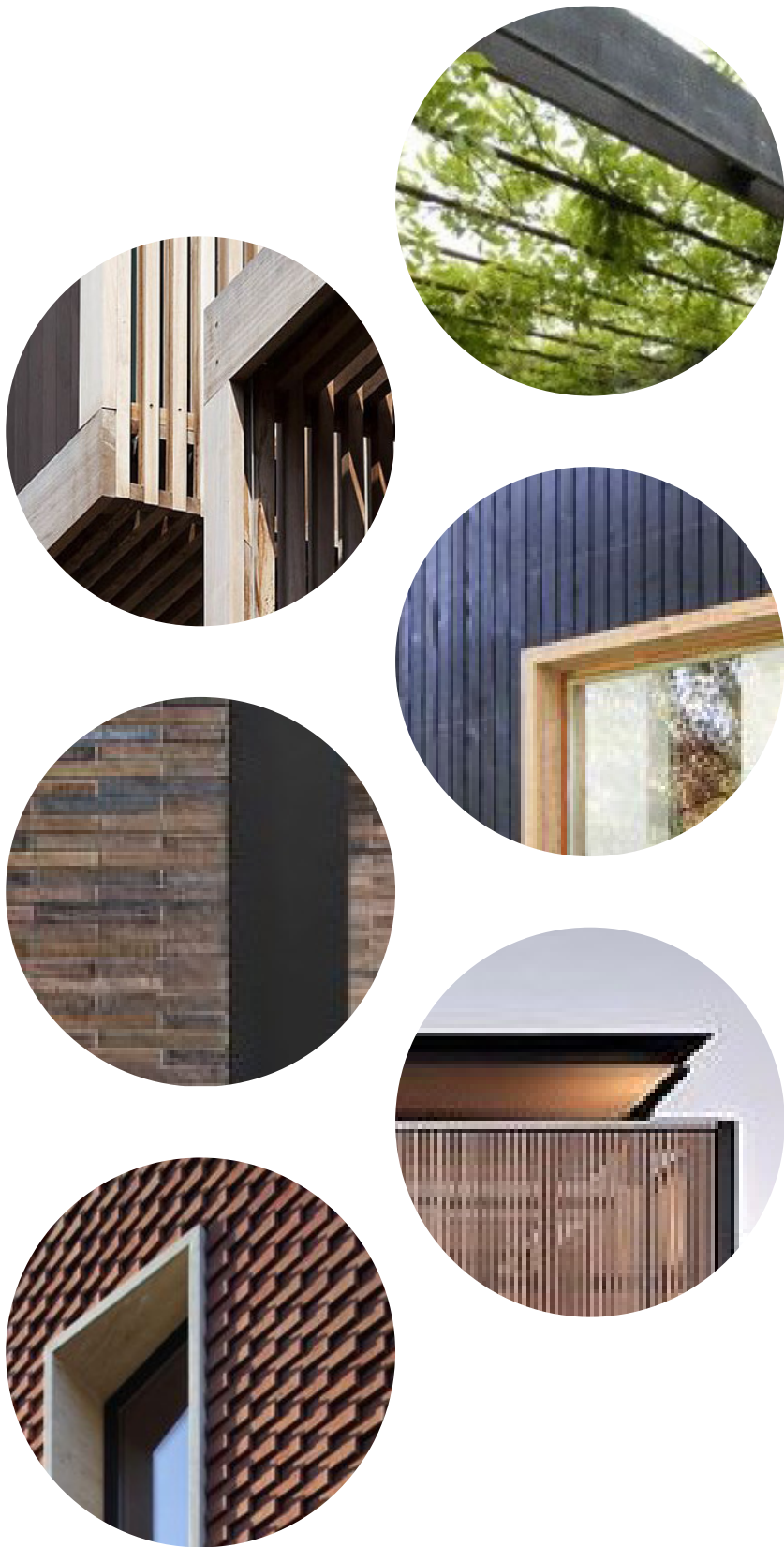
Note: Large lot low density dwellings are as per the approved DA subdivision. Indicative facade sketches are provided only to demonstrate intention to have a holistic architectural character across all dwellings types on the site.





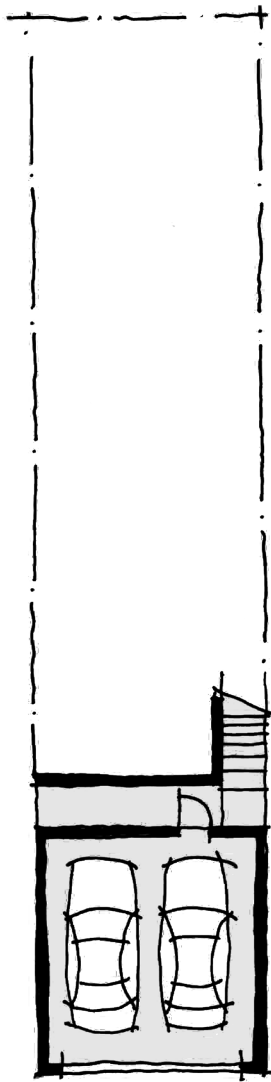


Medium Density Typologies  
Indicative Attached Dwelling Sketch Facades

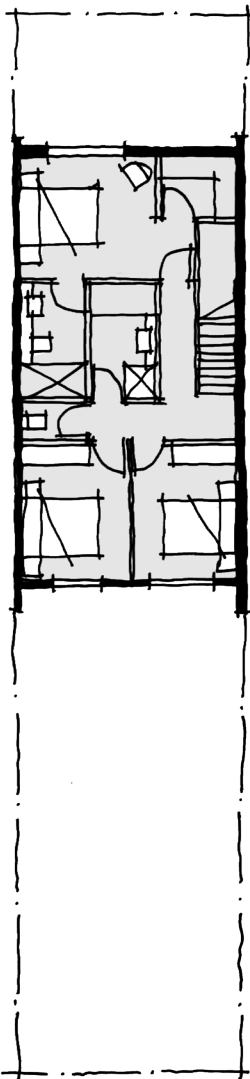




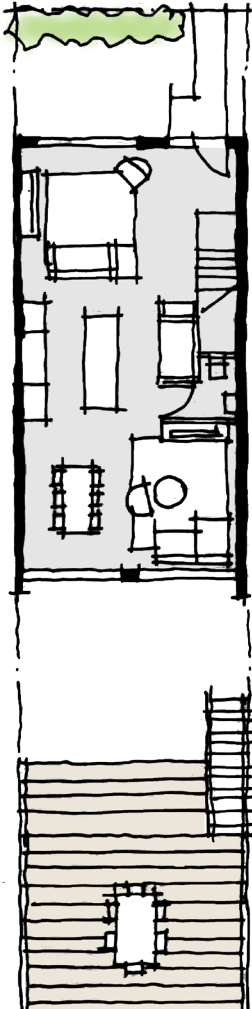
6.5m Attached



Garage Level

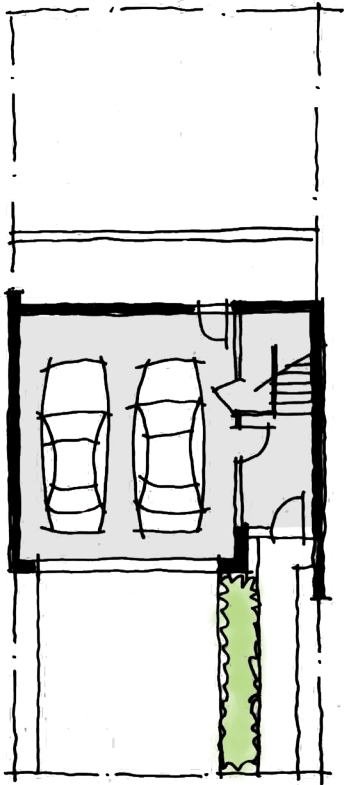


Ground Level

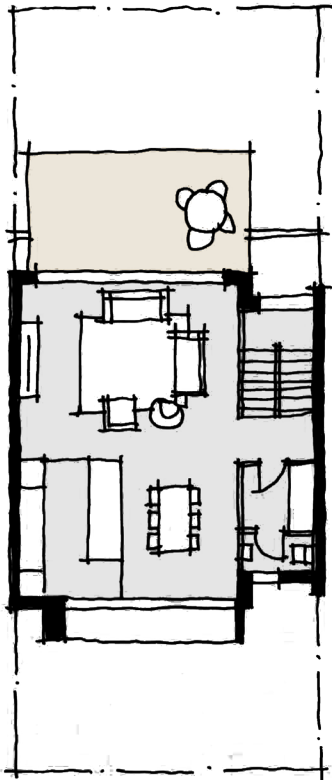


Level 1

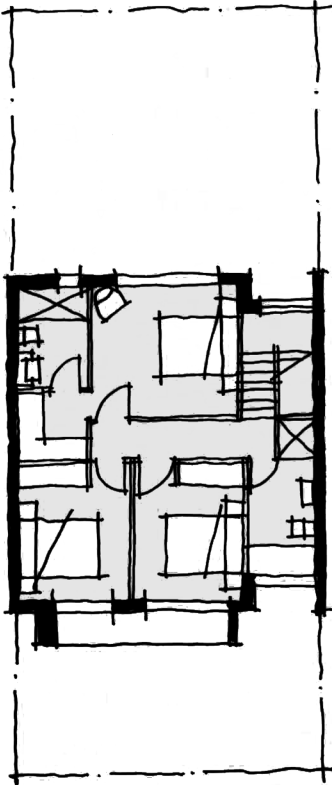
8.5m Attached



Garage Level



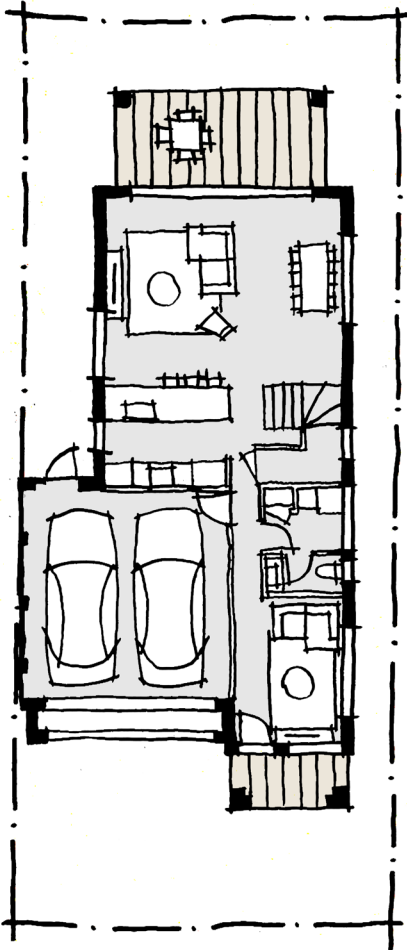
Ground Level



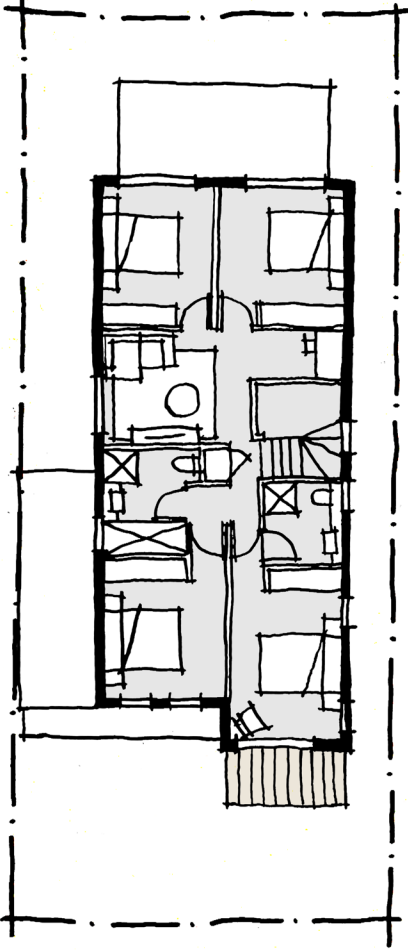
Level 1



10m Zero Lot

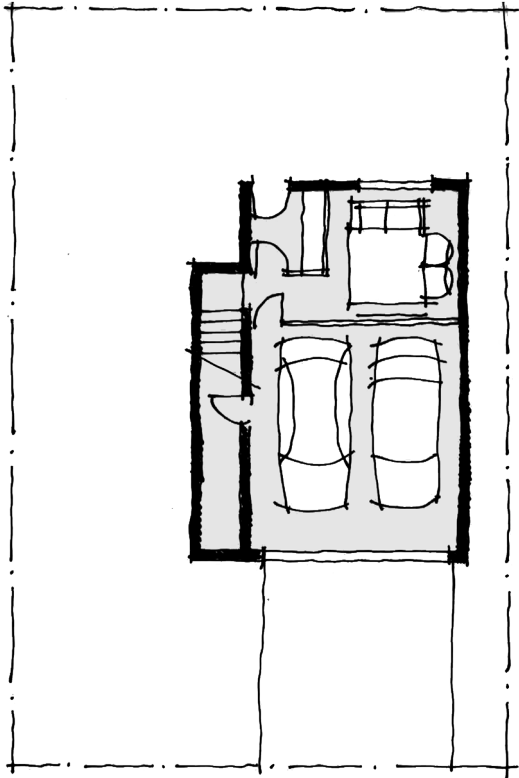


Garage Level

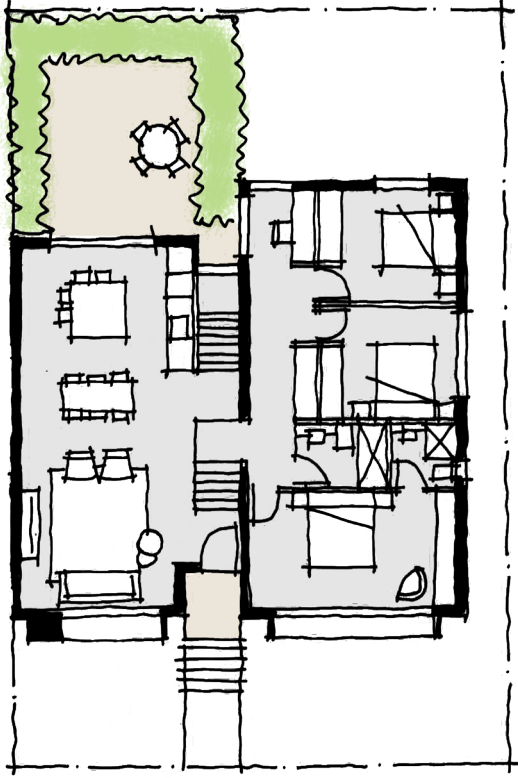


Ground Level

12.5m Zero Lot



Garage Level



Ground Level



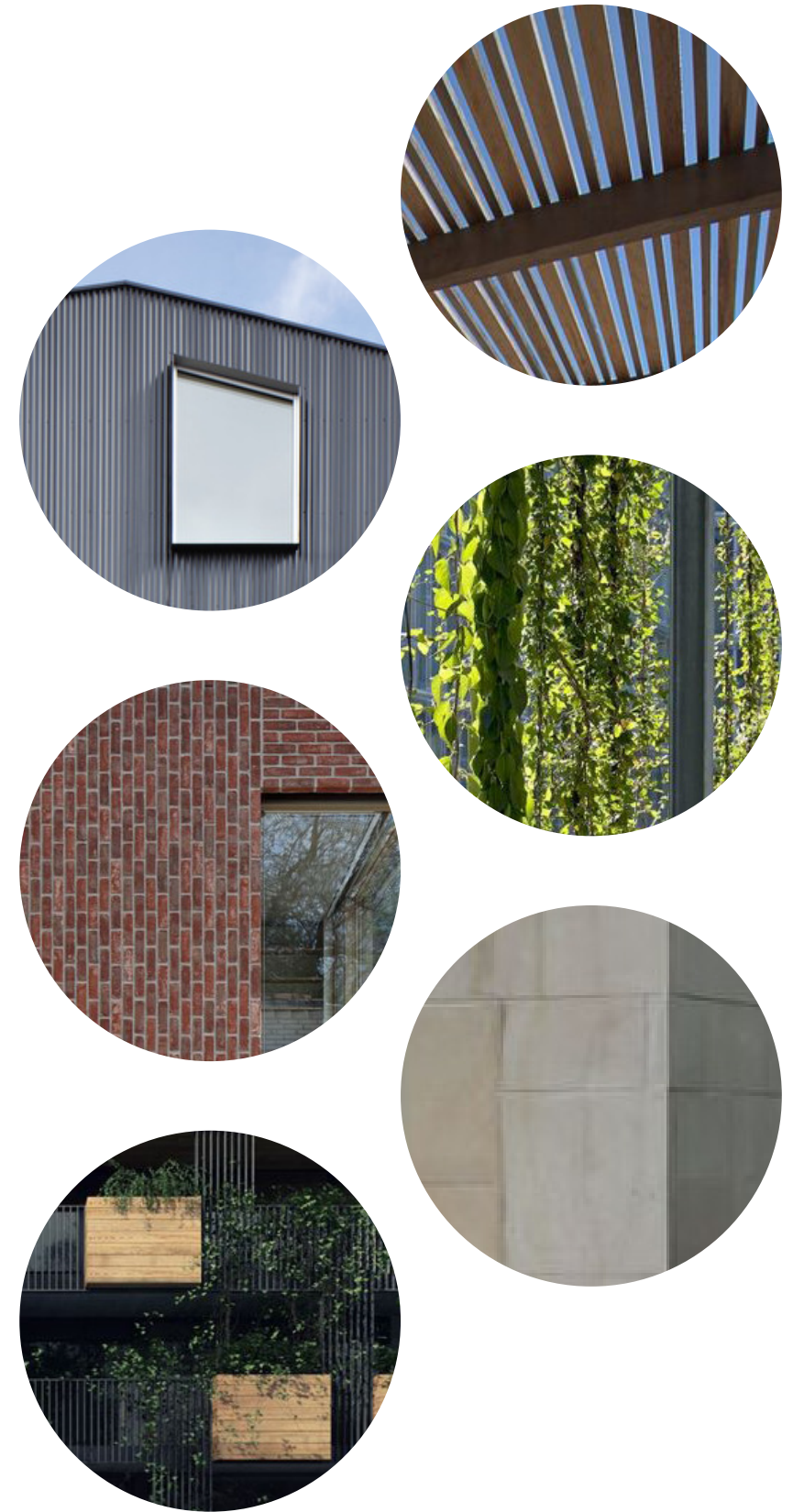






# Apartment Typology

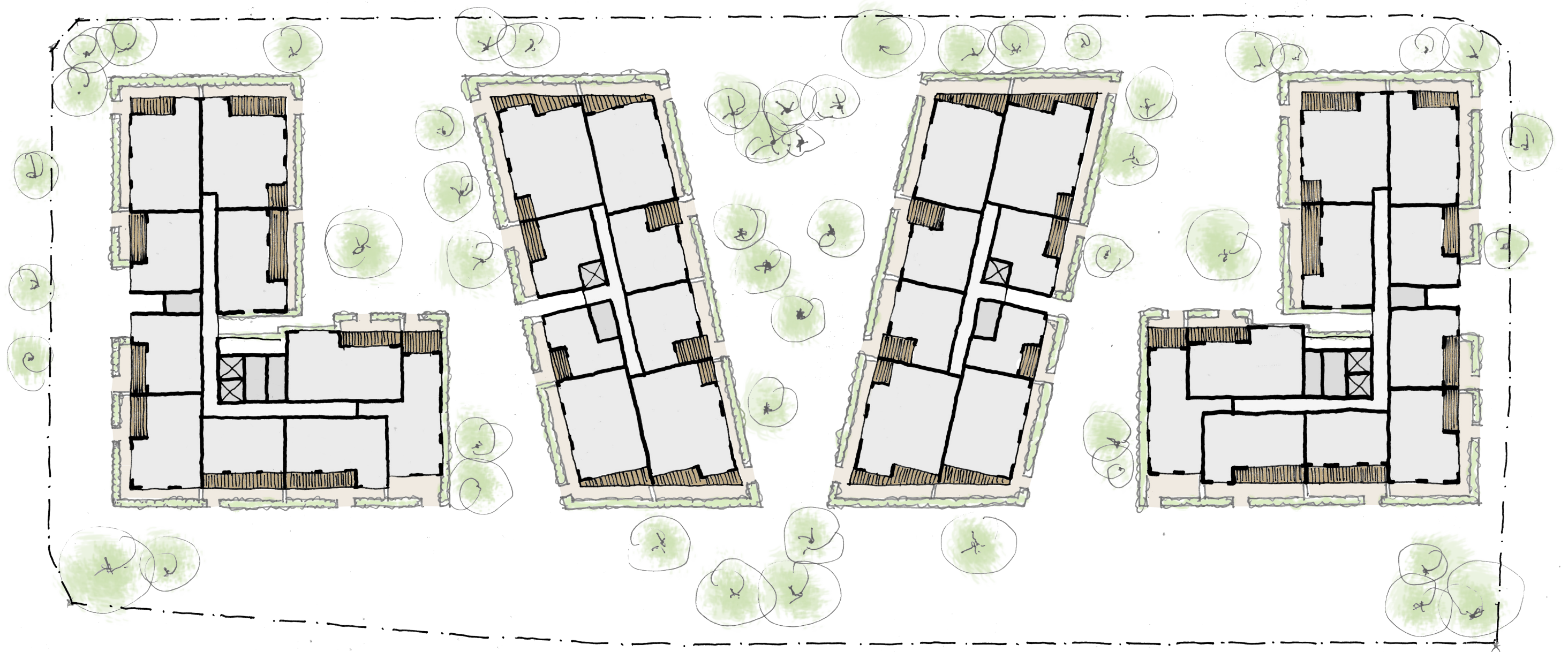
## Indicative Sketch Facades



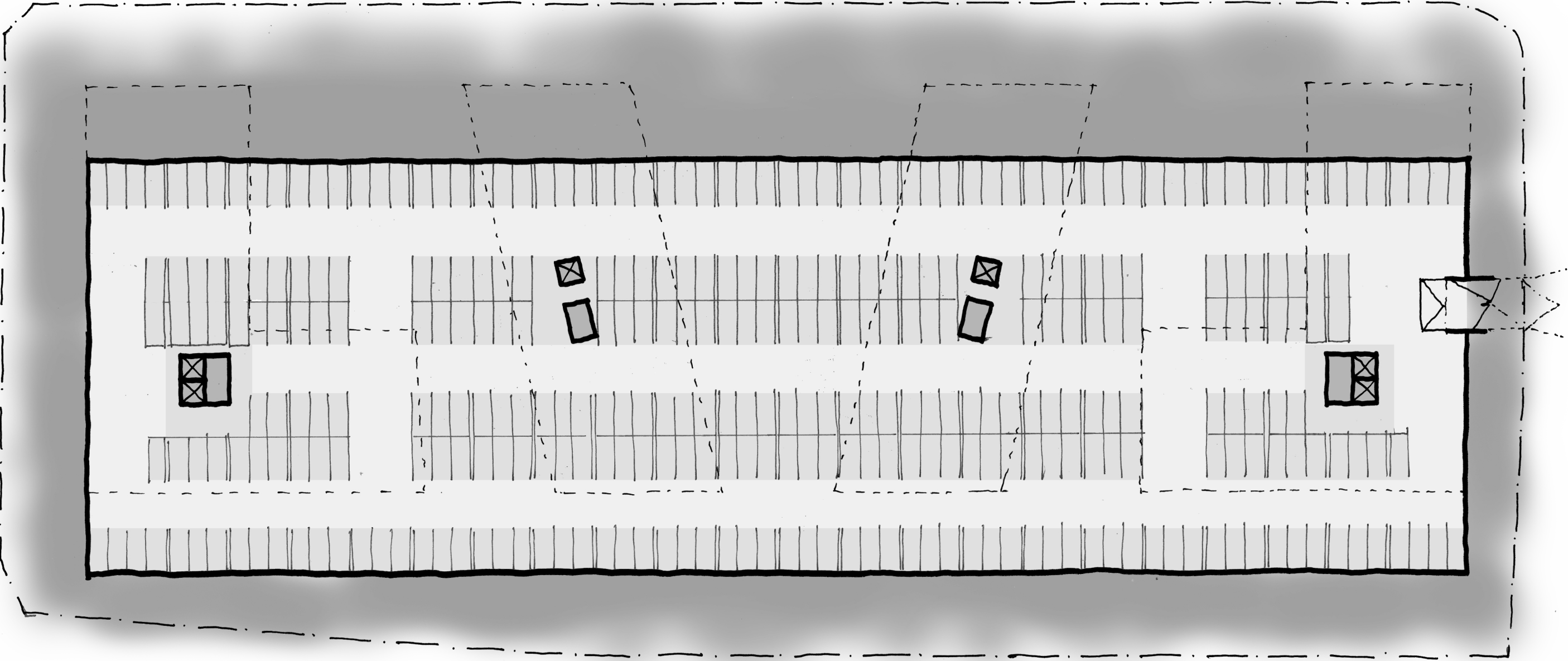


# Apartment Typology

## Indicative Typical Plate Plan











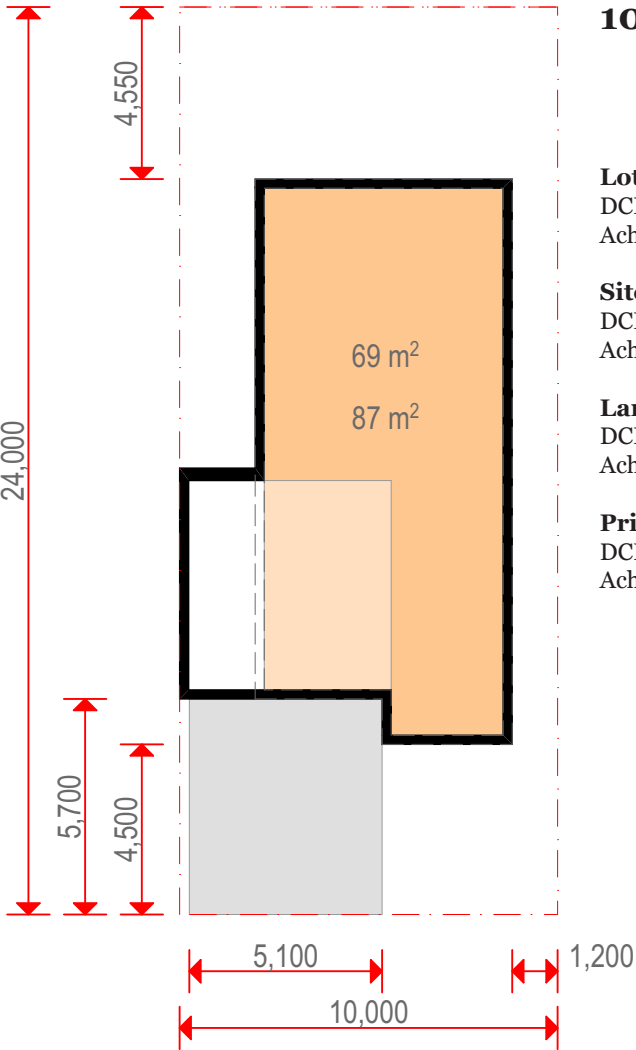


# Compliance

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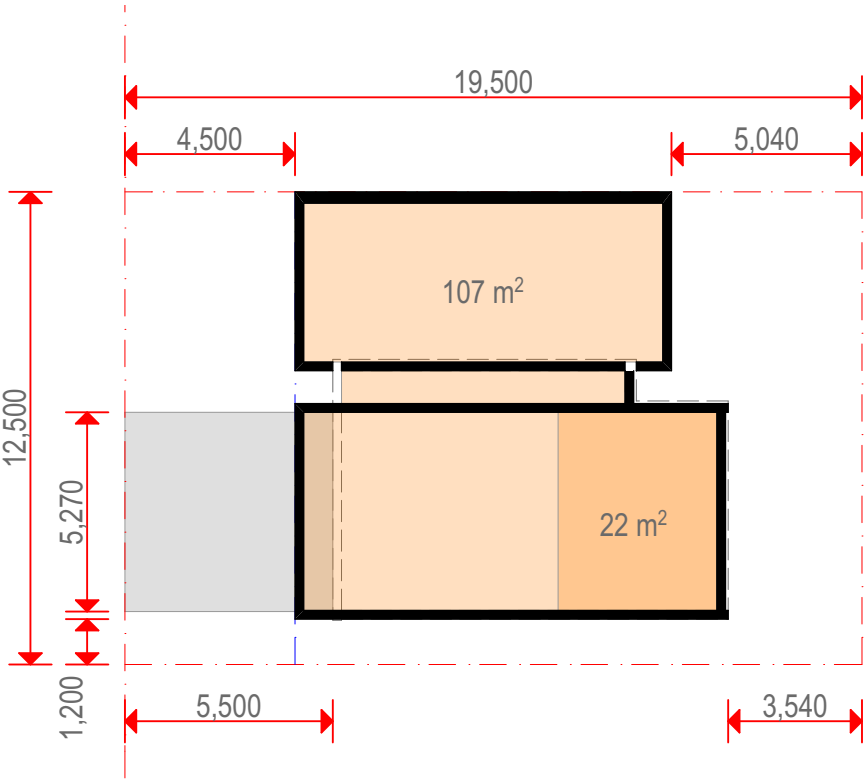
10m Zero Lot

**Lot Size:**  
DCP Requirement: min 240m²  
Achieved lot size: 240m²

**Site Coverage:**  
DCP Requirement: max 65% Site Area (156m²)  
Achieved: 139m²

**Landscaped Area:**  
DCP Requirement: 35% Site Area (84m²)  
Achieved: 82m²

**Private Open Space:**  
DCP Requirement: 25m²  
Achieved: 62m²



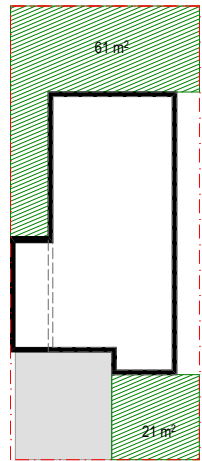
12.5m Zero Lot

**Lot Size:**  
DCP Requirement: min 240m²  
Achieved lot size: 243m²

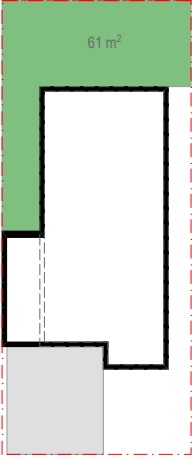
**Site Coverage:**  
DCP Requirement: max 65% Site Area (158m²)  
Achieved: 144m²

**Landscaped Area:**  
DCP Requirement: 35% Site Area (85m²)  
Achieved: 79m²

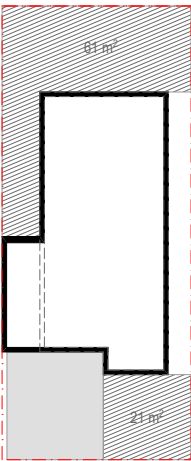
**Private Open Space:**  
DCP Requirement: 25m²  
Achieved: 53m²



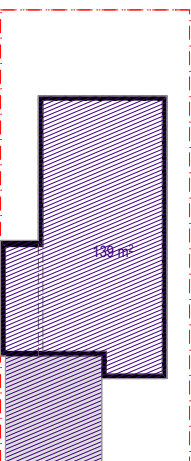
Landscape Area



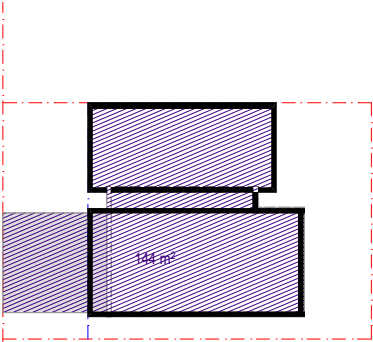
Private Open Space



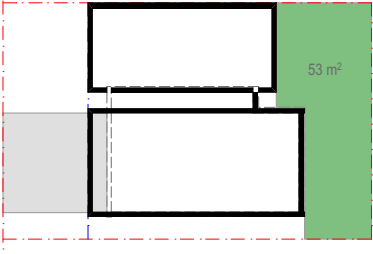
Deep Soil Zone



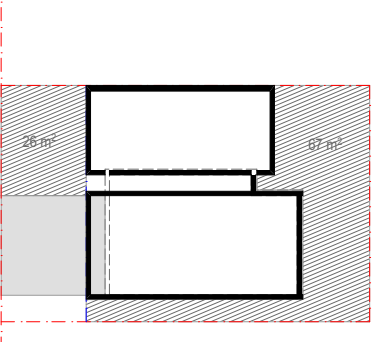
Site Coverage



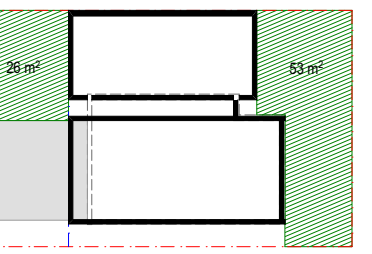
Site Coverage



Private Open Space



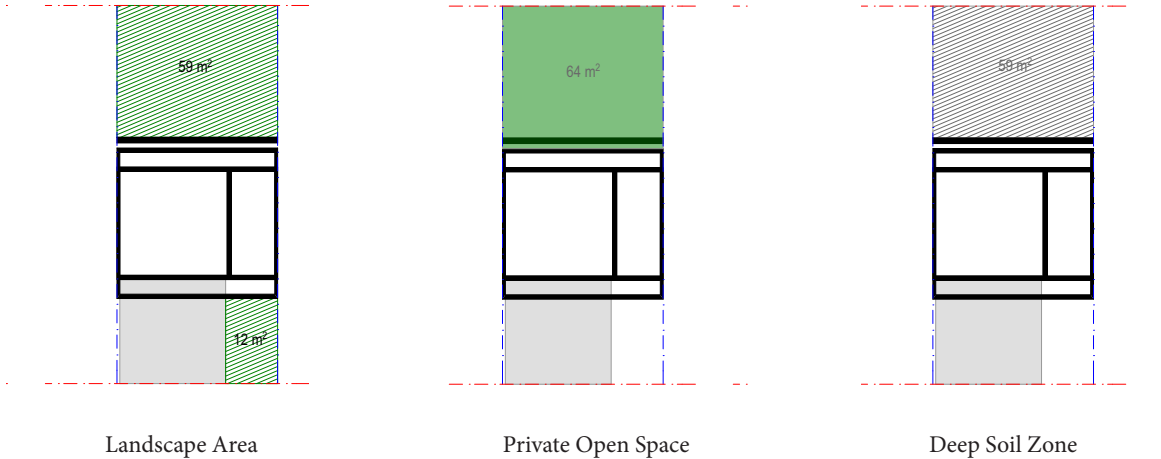
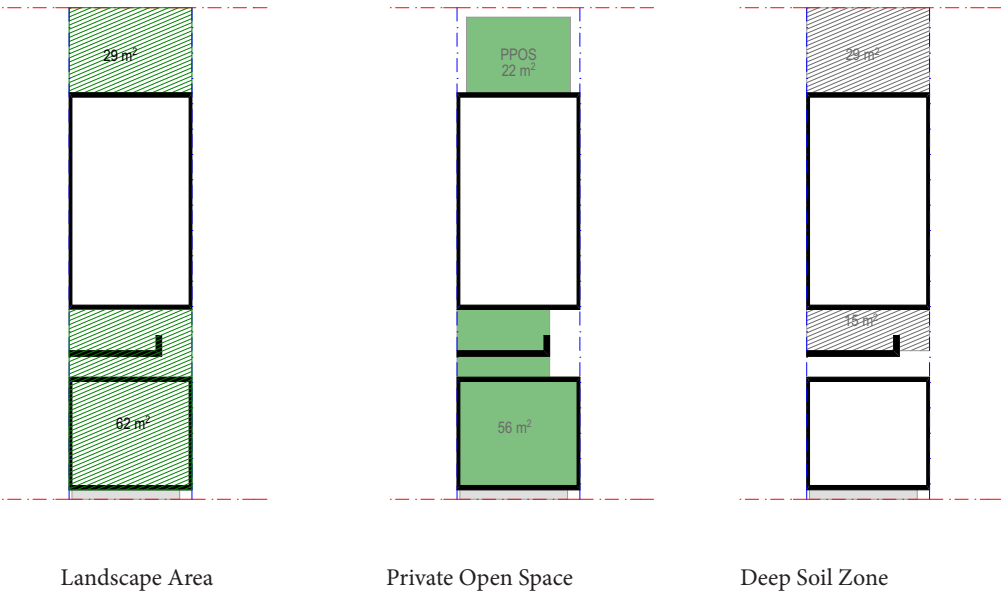
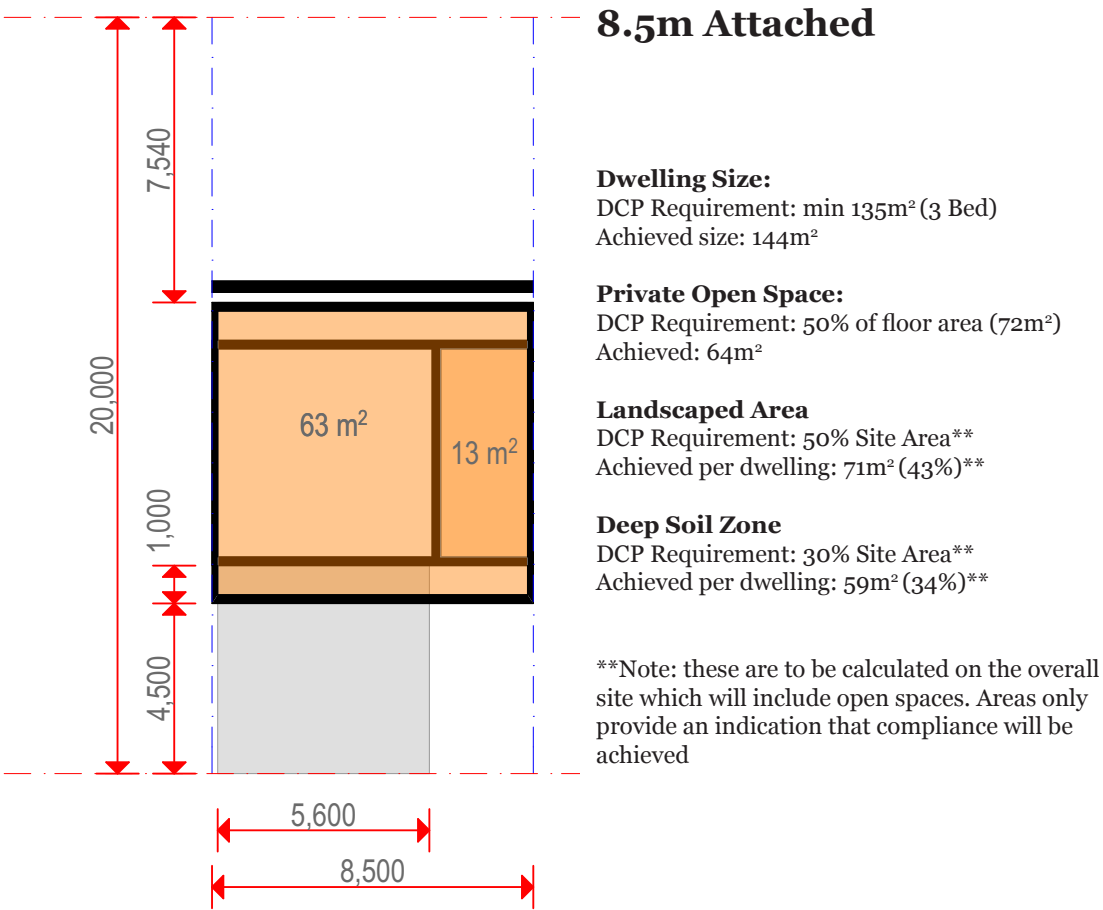
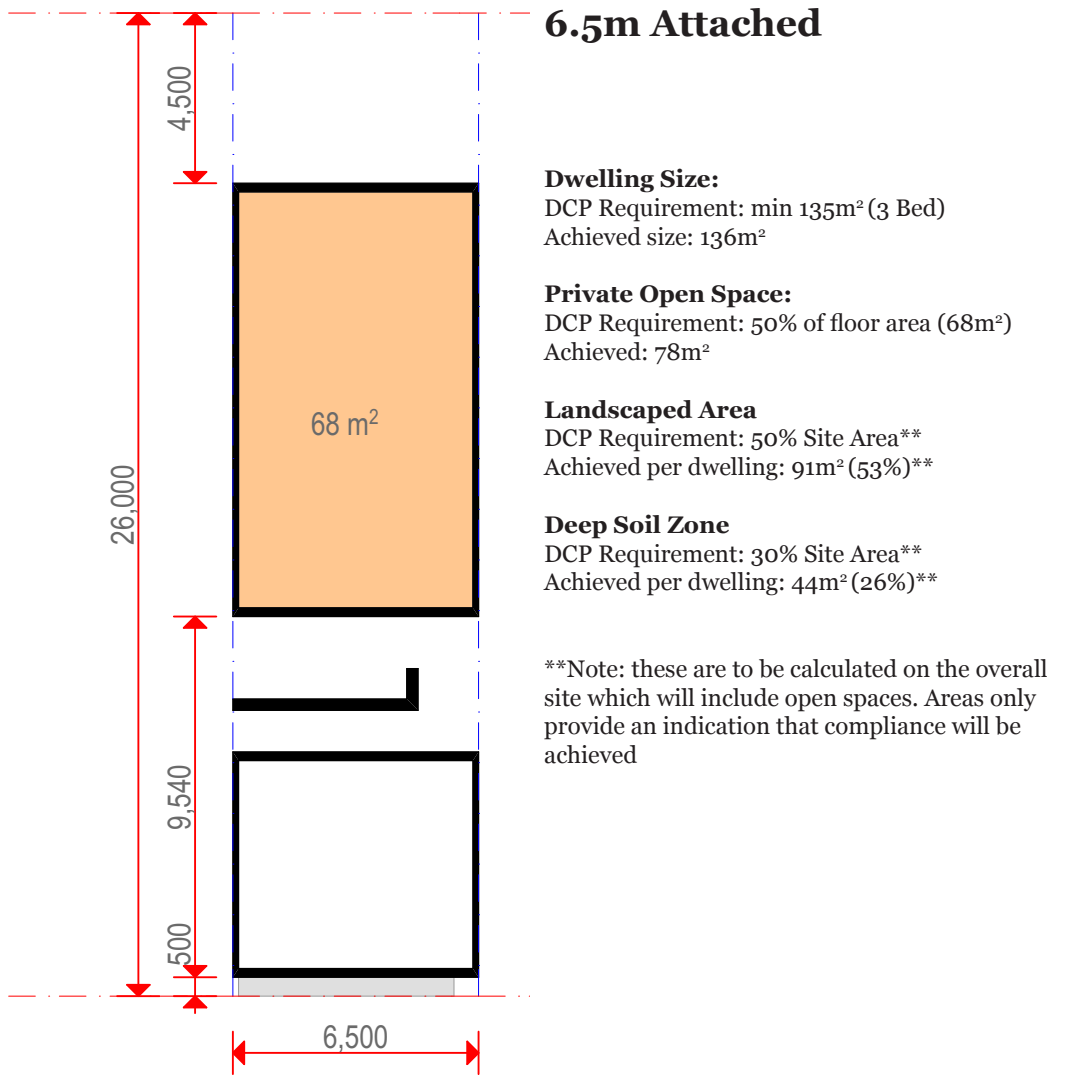
Deep Soil Zone



Landscape Area

Note: Plans and areas are indicative and only included to demonstrate that their intent is consistent with current DCP controls, and that compliance is achievable



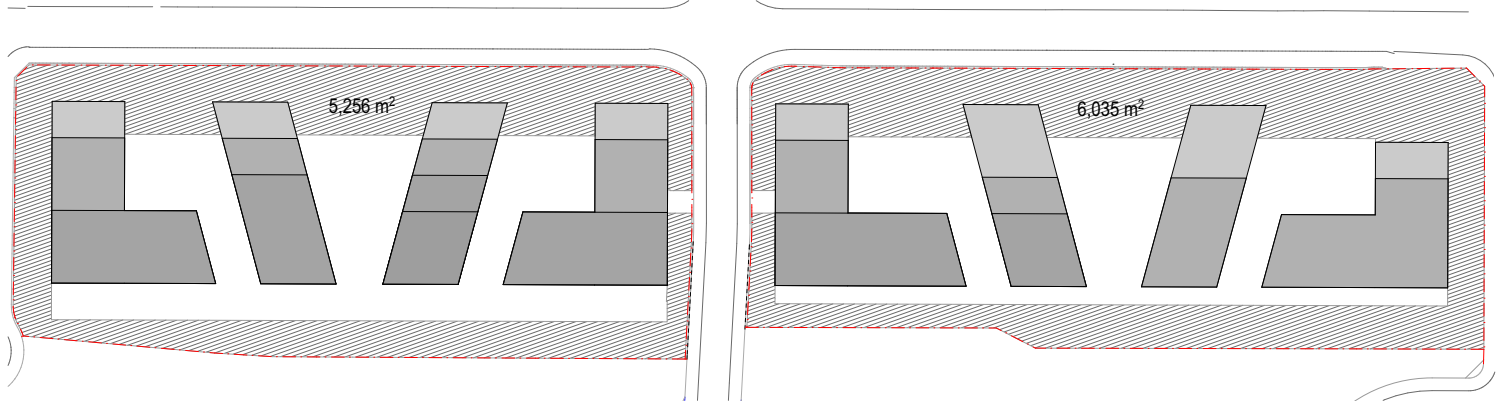


Note: Plans and areas are indicative and only included to demonstrate that their intent is consistent with current DCP controls, and that compliance is achievable

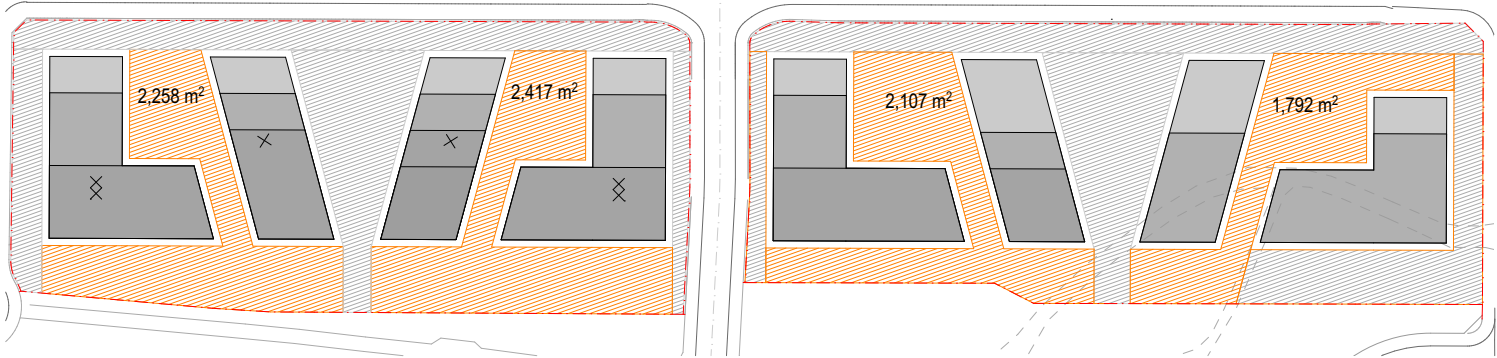


# Dwelling ADG Compliance

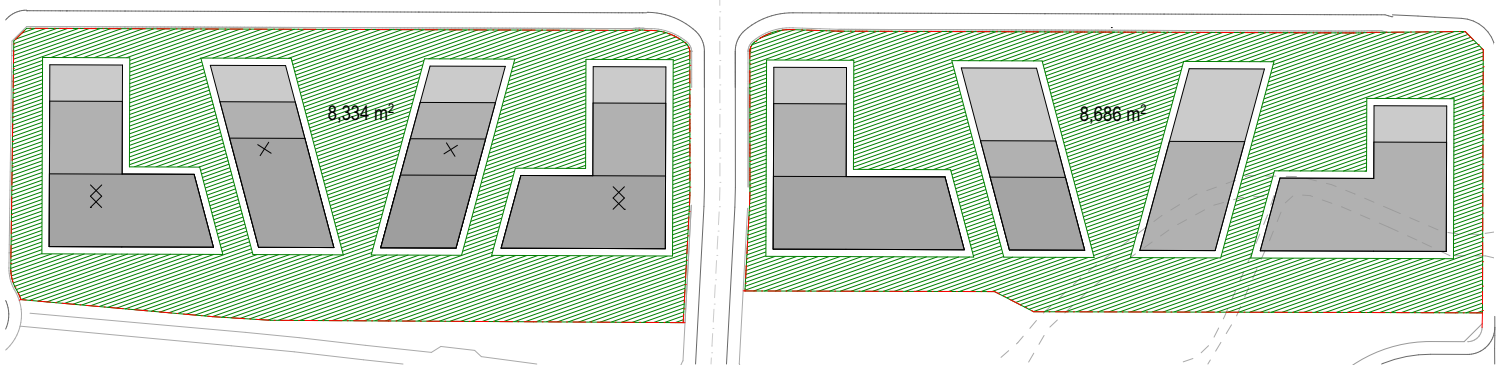
## Indicative Apartment Blocks



ADG Requirement: 7% Site Area (with 6m min width)  
 Achieved: 5783m²/14692m² (39%) and 6035m²/15126m² (39%)

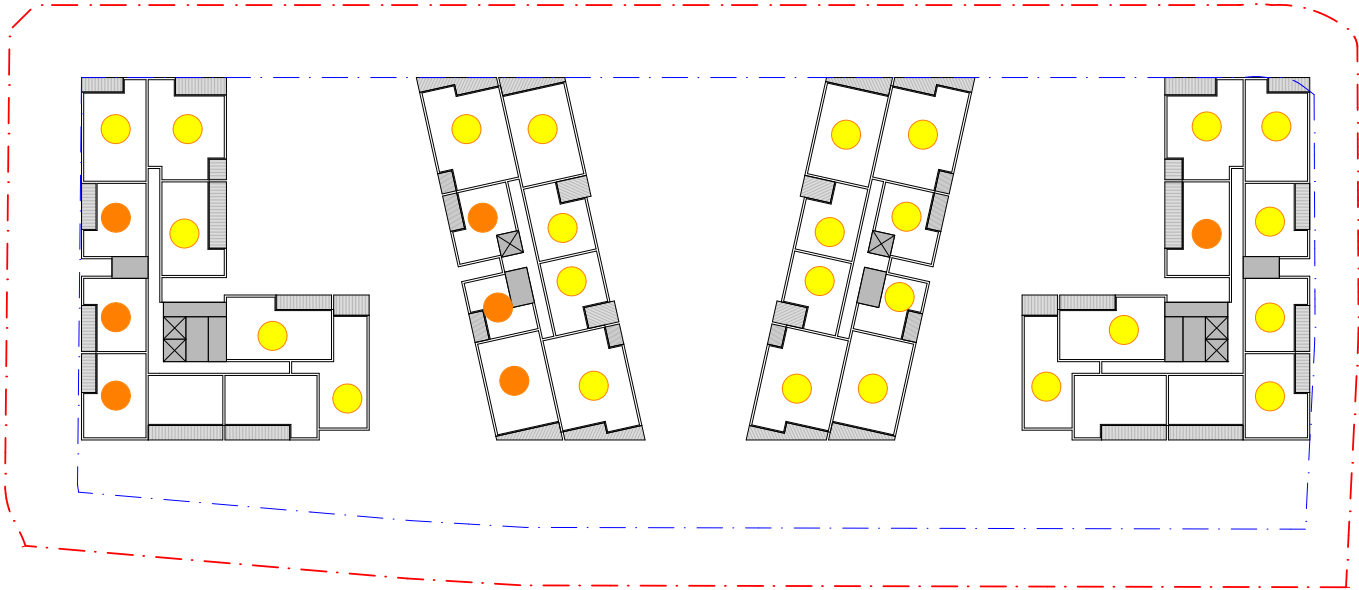


ADG Requirement: 25% Site Area  
 Achieved: 4675m²/14692m² (31%) and 3899m²/15126m² (25%)

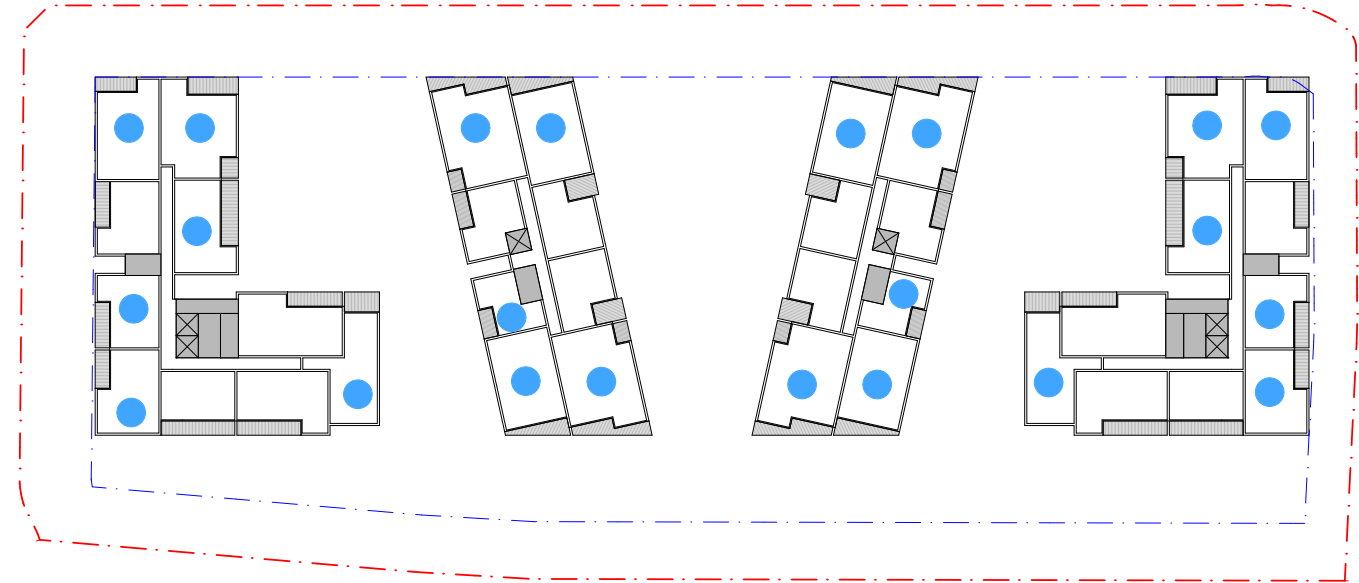


DCP Requirement: 60% Cross Ventilated apartments  
 Achieved: 5783m²/14692m² (39%) and 6035m²/15126m² (39%)

Note: Plans and areas are indicative and only included to demonstrate that their intent is consistent with ADG and current DCP controls, and that compliance is achievable



ADG Requirement: 70% 2 Hrs Solar Access  
 15% No Solar Access  
 Achieved: 25/36 (70%) 2 Hrs Solar  
 4/36 (11%) No Solar



ADG Requirement: 60% Cross Ventilated apartments  
 Achieved: 22/36 (61%)



# Conclusion

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# Conclusion

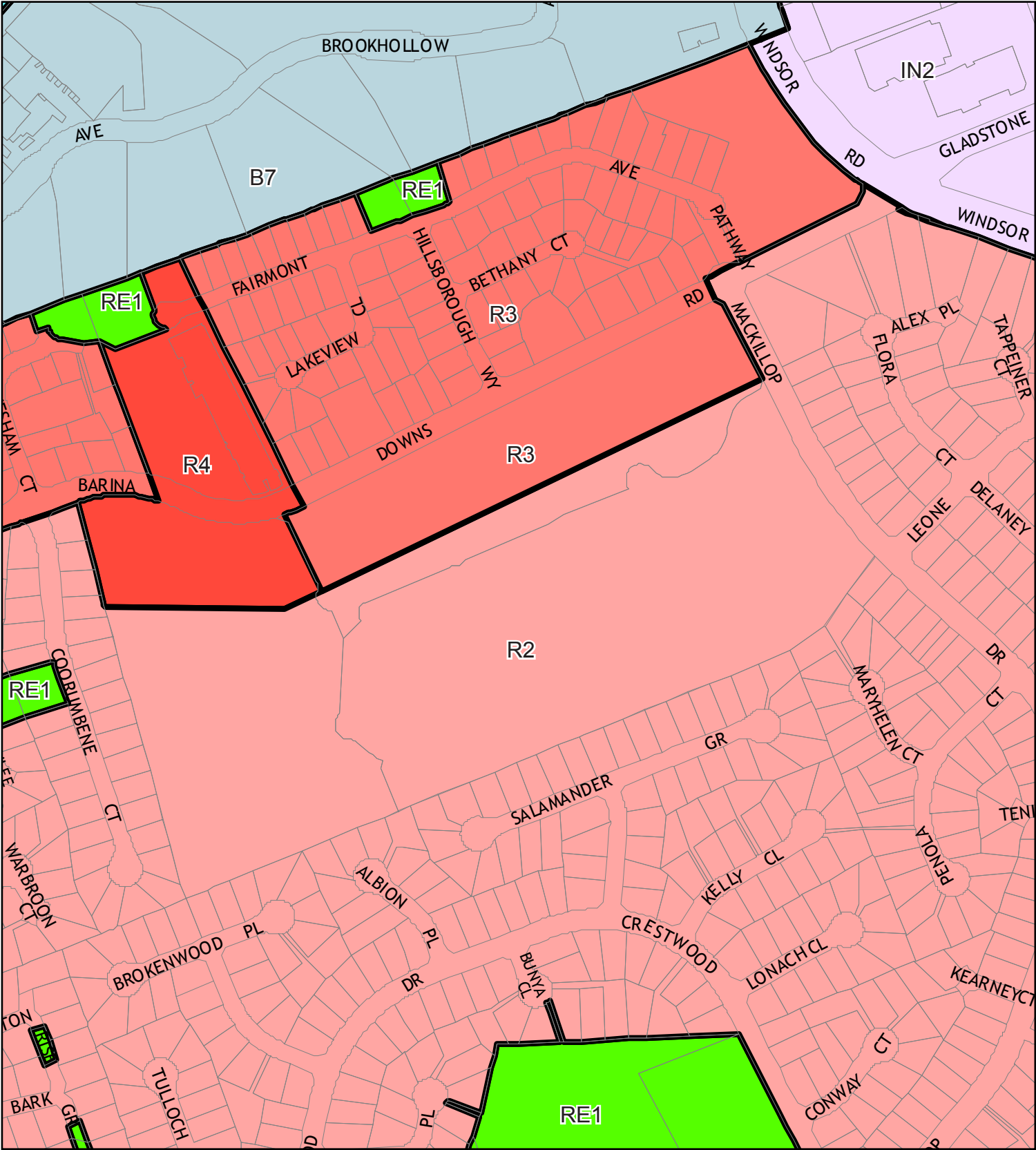
## Indicative Masterplan

- ① Greater permeability along Barina Down Road, with visual connection (and pedestrian access for residents) to ridge line and heritage item
- ② By condensing dwellings into apartment blocks along Barina Downs, this creates viable and well planned open spaces between them and allows the landscape to flow through the site from the ridge line to the street.
- ③ With the condensed building mass of apartment blocks instead of medium density dwellings, in conjunction with a revised civil approach to the Barina Downs Road widening, the intention of the masterplan is to keep as many of the mature trees along the street frontage which assists with strengthening the “gardenesque” character of the site.
- ④ Positioning apartment dwellings along Barina Downs Road relates to the future height and massing of lots on the northern side of Barina Downs Road, as shown in the Corridor strategy.
- ⑤ Through the proposed masterplan and the use of specific dwelling types, all parts of the open space network (parks, pathways and trees lines) are activated and receive passive surveillance to ensure these spaces are safe and viable.
- ⑥ Medium density dwellings result in the ability to shorten public road lengths to minimise affects on the heritage item and mature trees.

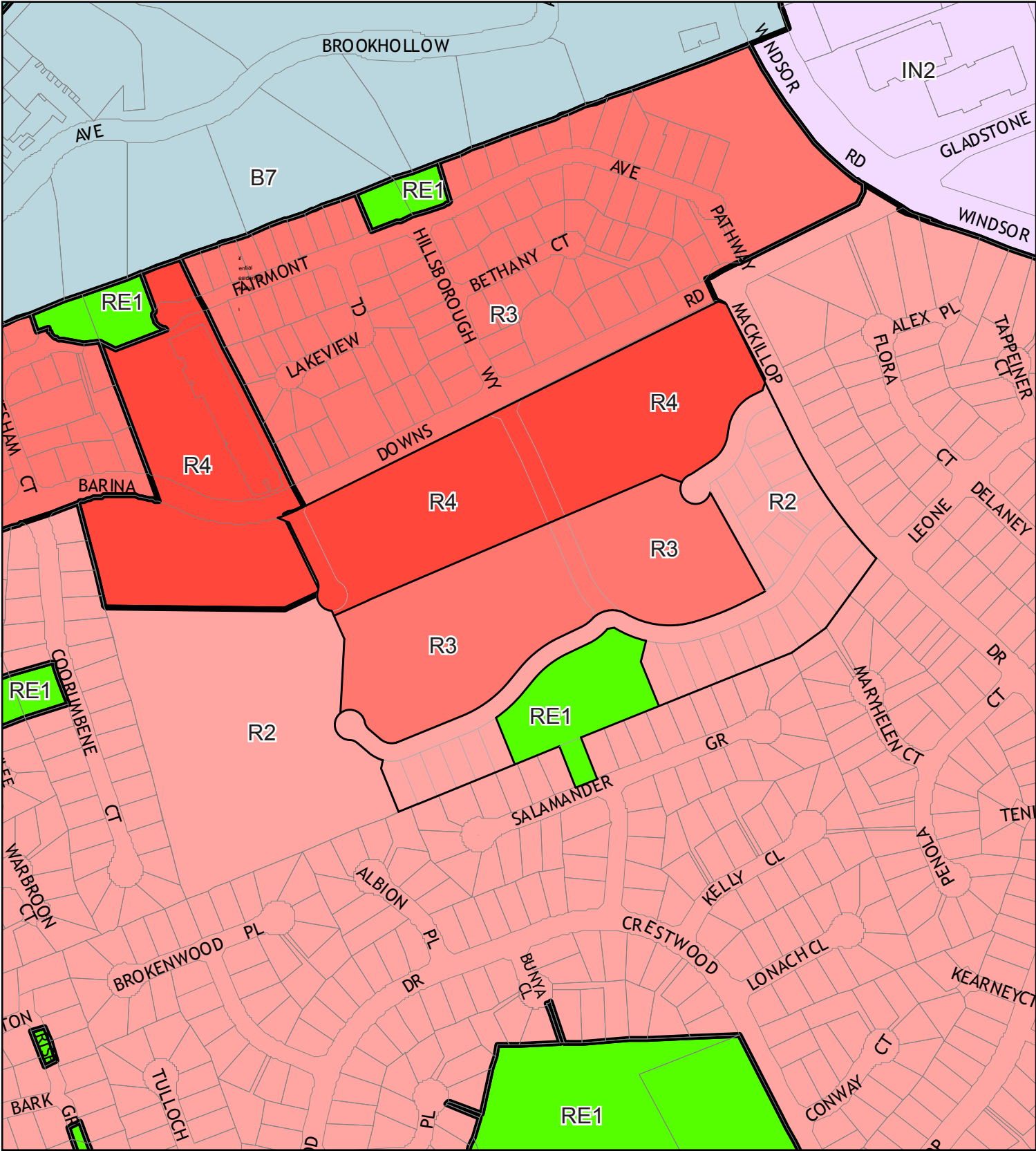




Planning Proposal  
Proposed LEP Land Use Zoning



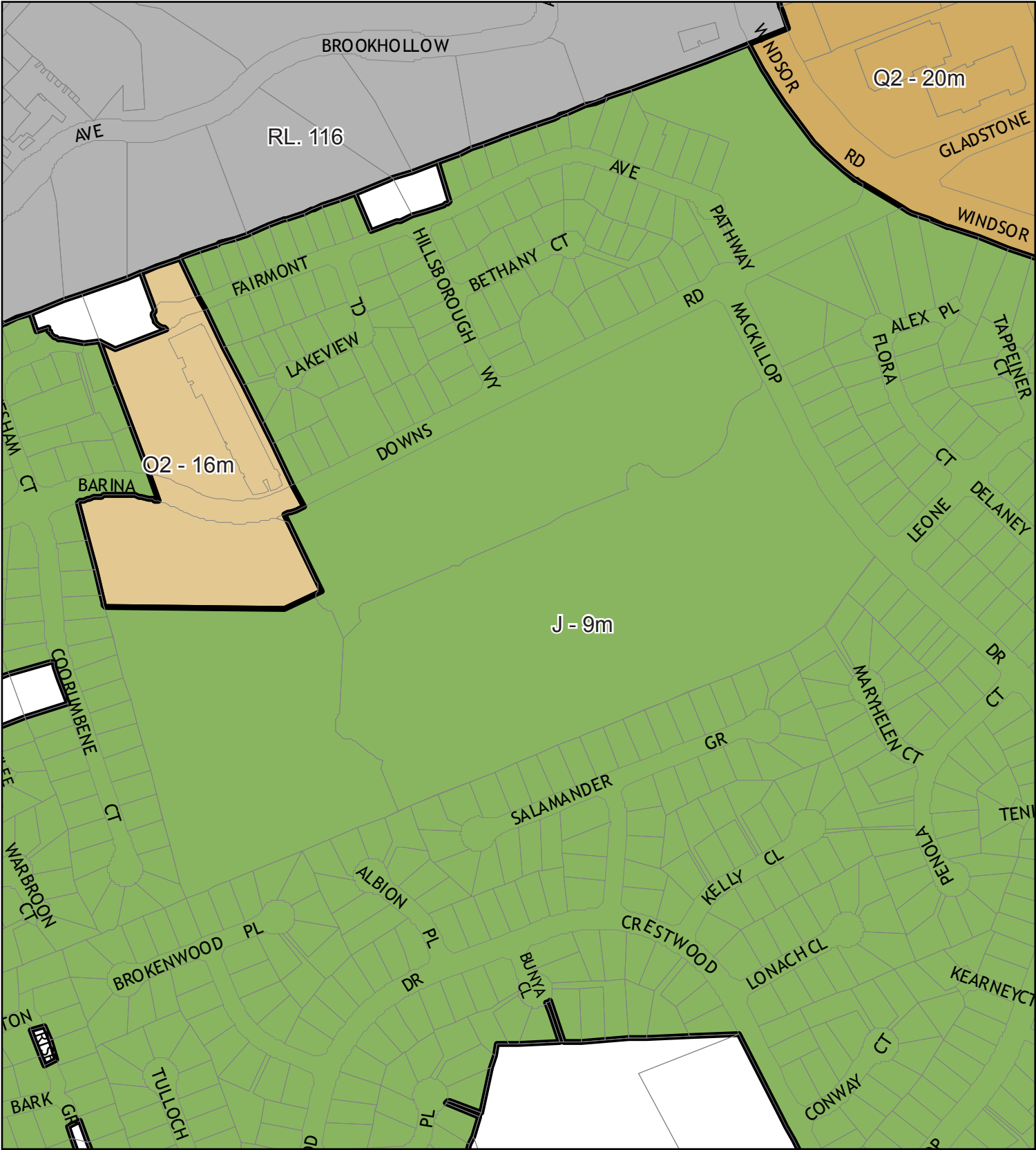
Existing



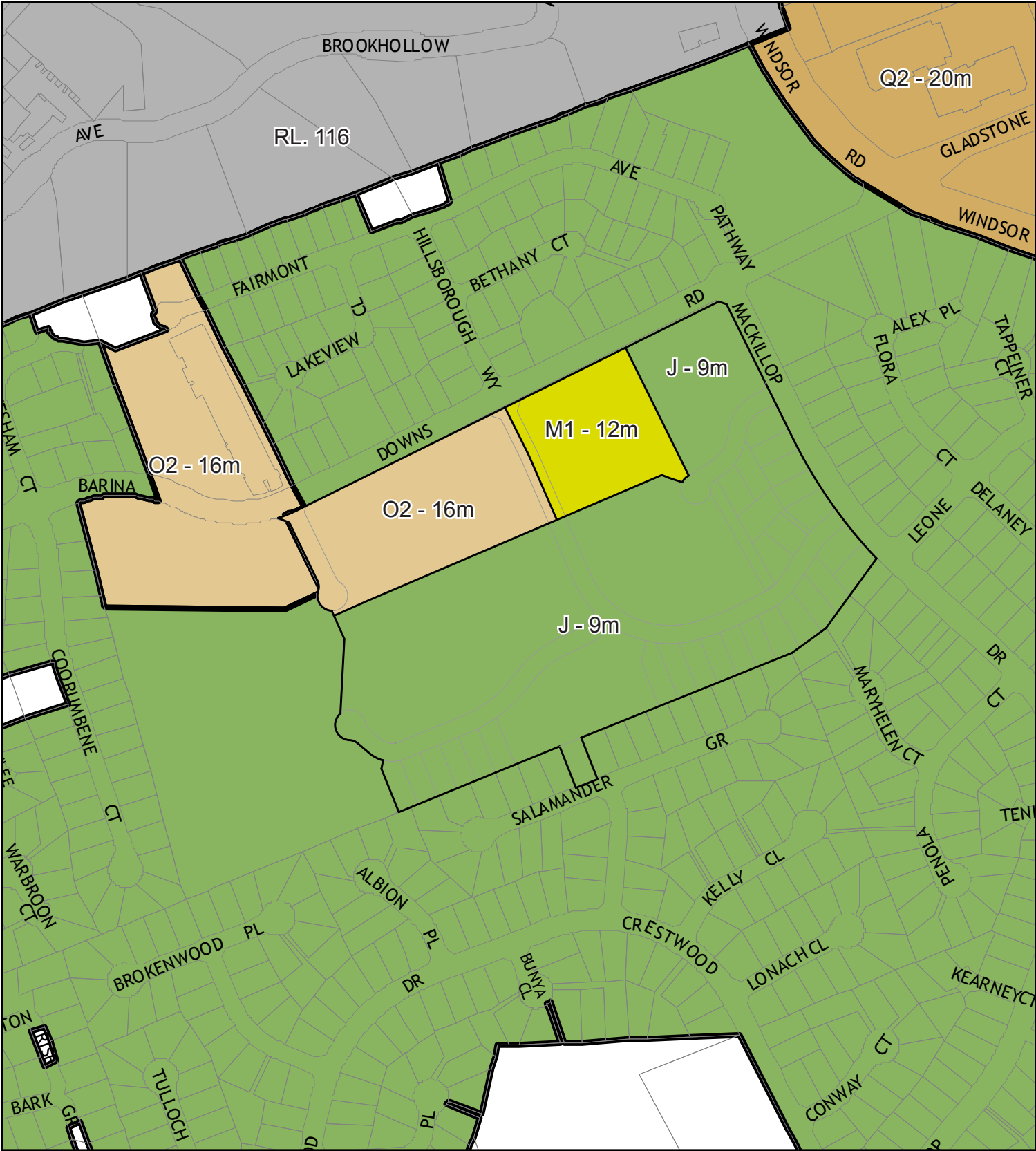
Proposed



Planning Proposal  
Proposed LEP Building Height



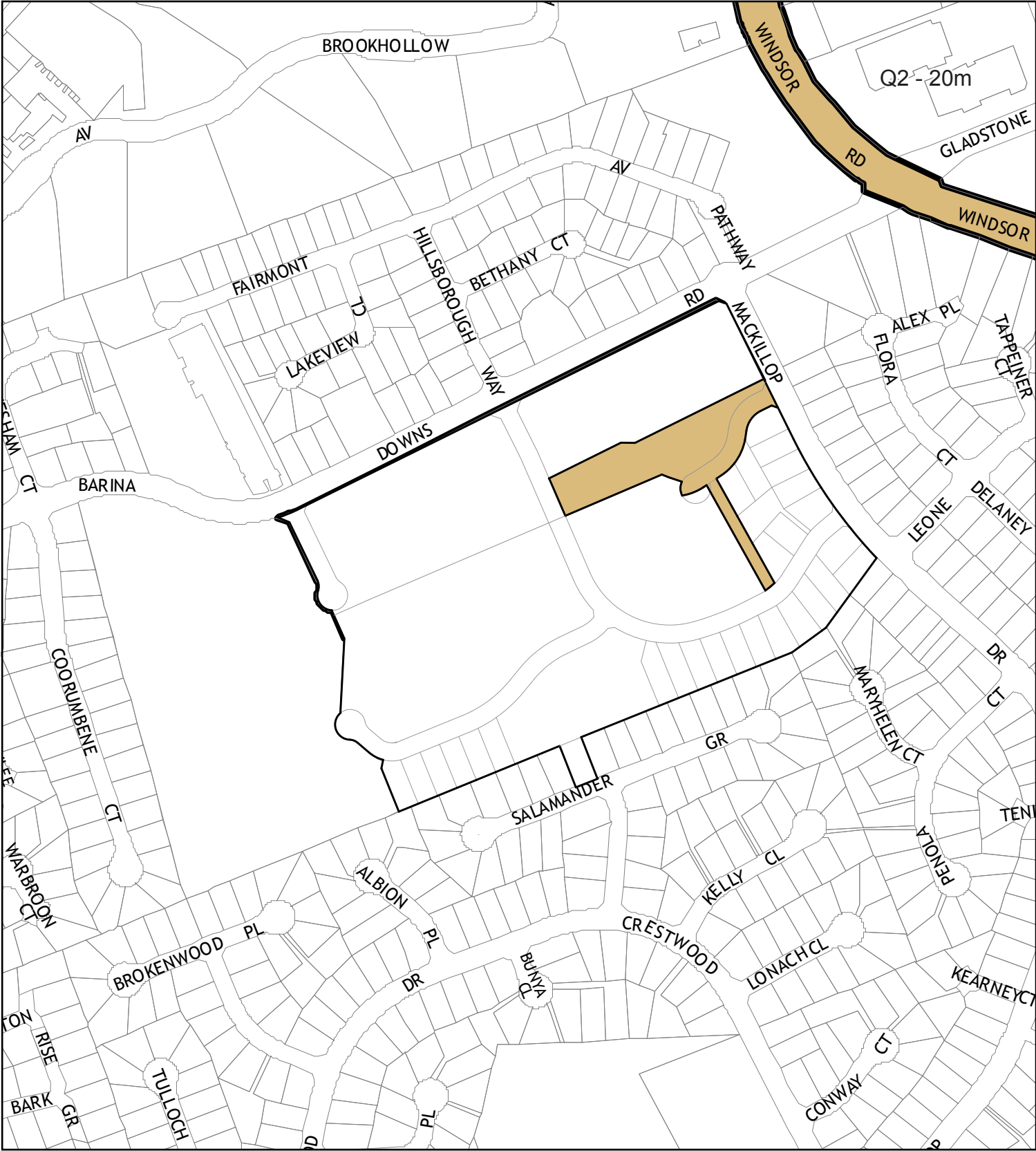
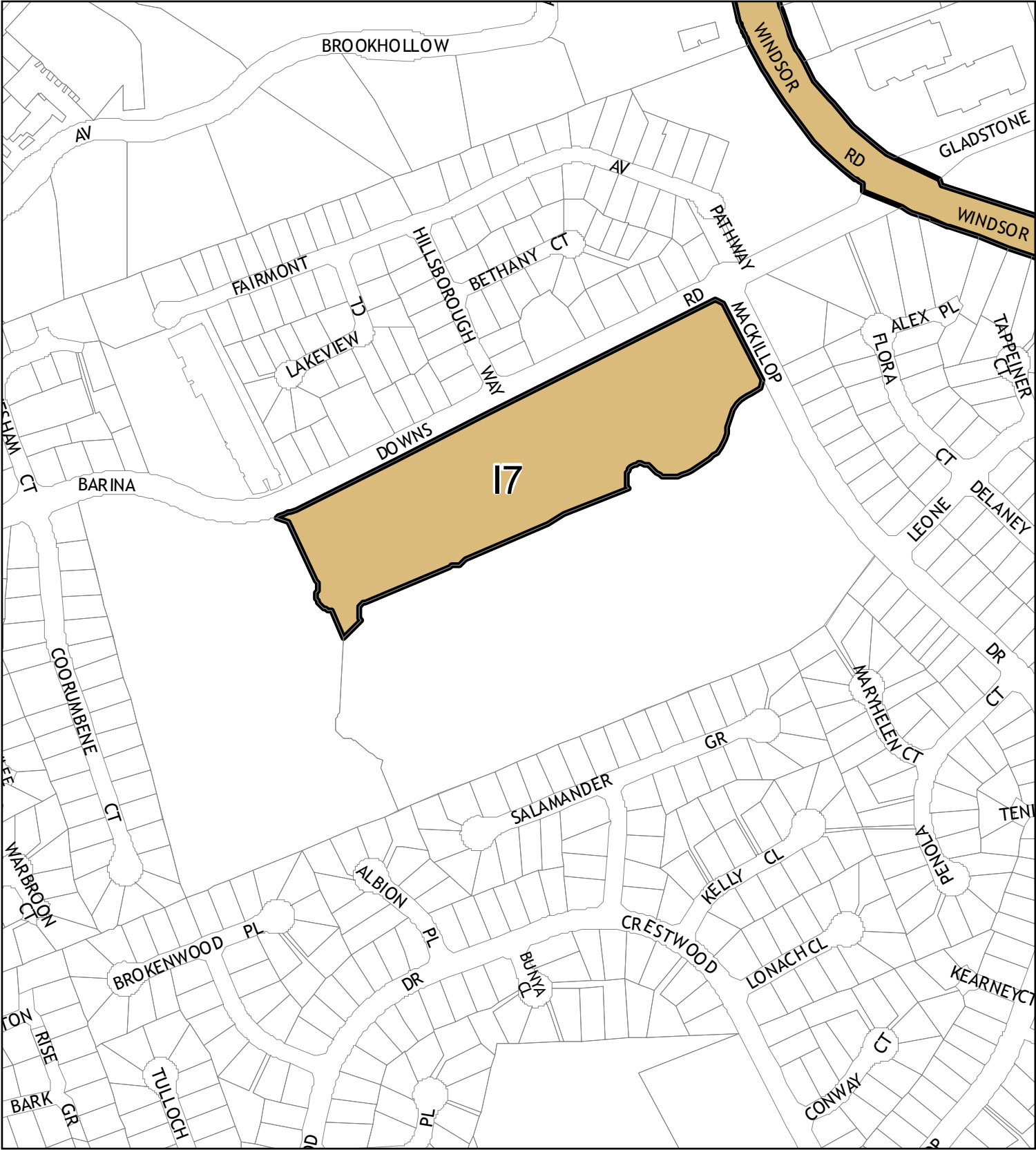
Existing



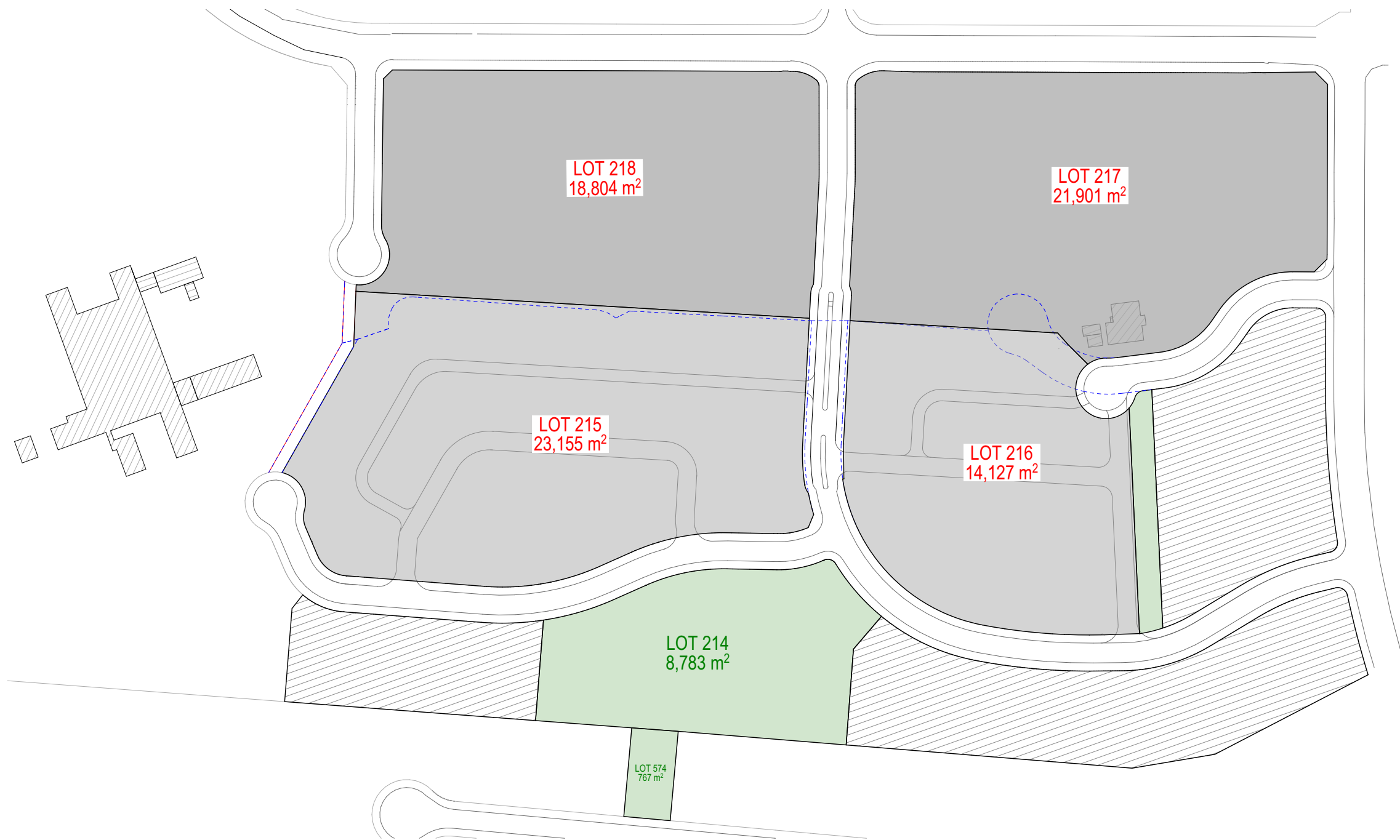
Proposed



Planning Proposal  
Proposed Heritage Zoning Extent







Block	Type	Area (Ha)	Total Dwellings	Dwellings/Ha	1 Bed Dwellings	2 Bed Dwellings	3 Bed Dwellings	4 Bed Dwellings	Approx. Occupancy	Occupancy/Ha (People/Ha)
Lot 215	Small Lot	2.3155	24	30.231	0	0	24	0	189	81.624
	Multi Dwelling		46		0	0	46	0		
Lot 216	Small Lot	1.4127	17	28.315	0	0	17	0	108	76.449
	Multi Dwelling		23		0	0	23	0		
Lot 218	Apartments	1.8804	160	85.088	40	104	16	0	313.6	166.773
Lot 217	Apartments	2.19	110	50.228	28	71	11	0	214.6	97.968
Total		7.7986	380	48.727	68	175	137	0	825	105.807



DKO