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PAGEWOOD GREEN (PART II)
CONCEPT PLAN
URBAN DESIGN REPORT

HASSELL

Prepared for Meriton Properties
10 April 2017

Front cover image: BATA, Pagewood
image by Andrew Tremelling

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Pagewood Green (Part II) Concept Plan
Urban Design Report

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Introduction

Photograph from the State Library of NSW

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01 Aerial view of the concept master plan looking south. Image by Andrew Tremelling

01 Introduction

‘Pagewood is set to become a bustling village hub after Meriton Apartments purchased the British American Tobacco (BATA) site next to Westfield Eastgardens.’

The Daily Telegraph, 13 September 2013

The Pagewood Green Stage II concept master plan is located on the former British American Tobacco Australia (BATA) manufacturing facility. The site was formerly used as the General Motors Holden Factory, with the original brick administration remaining on the corner of Heffron and Bunnerong Roads.

The Site has an area of 8.95ha and is located within a broader site that comprises a parcel of land known as 128 and 130-150 Bunnerong Road Pagewood and are also described as Lots 1 and 2 in DP1187246. This urban design report relates to the whole of Lot 1 and the northern portion of Lot 2. The remainder of the site was subject to a separate development consent, which consisted of a high density residential master plan with associated retail, child care and open space. A number of the principles established in the Stage 1 plan have been used to guide and set a precedent for this concept plan.

Strategic Context

The Pagewood Green site has been identified in ‘A Plan for Growing Sydney’ as a Global Economic Corridor. This corridor is expected to help accelerate housing supply, choice and affordability in Sydney; offering the Site an opportunity to help manage Sydney’s future growth. The Plan for Growing Sydney also highlights the importance of working with Councils to identify suitable locations for housing intensification and urban renewal. Therefore, from a strategic perspective, the site is ideally located for redevelopment to residential use.

The renewal of the Pagewood Green Stage II is supported by the draft Central District plan (November 2016) and Botany Bay Planning Strategy 2031 and accords with previous Department of Planning and Environment (DPE) strategic directions to locate new infill housing close to shops, centres and high frequency bus routes. This Planning Proposal responds to these changes and provides for an intended outcome that will meet future housing needs in the area, providing a catalyst for the Revitalisation of the Eastgardens-Maroubra corridor and complement the urban renewal already commenced within the southern portion of the site. The proposed redevelopment on the site is also estimated to result in a significant increase in direct and indirect employment and economic activity.

The site provides a unique opportunity to contribute to the 20 year planning outcomes envisaged for the Central District. This will be achieved through the transformation of the Eastgardens-Maroubra Corridor into a thriving District Centre and achieving substantial dwelling supply targets in excess of 10,000 new homes in the Bayside LGA alone.

01 **Aerial photograph of existing site, showing Sydney CBD to the north**

01 Introduction

Project Background and Consultation

On 21 June 2013, an amendment to the Botany Bay Local Environment Plan 2013 was made to rezone Lot 2 of the BATA site from industrial uses to residential and mixed use. The document entitled 'Strategic Justification for the BATA site' prepared by Botany Bay Council in support of this earlier rezoning is applicable to this Planning Proposal and stated:

_the urban context of the site makes it suitable for the development of a mixed use residential, retail and commercial precinct with a medium to high density development
_the proposal will contribute to achieving important objectives and directions in NSW State Government strategic planning including contributing to achieving housing and employment targets in suitable locations.
_the site has good public transport links as it adjoins a strategic bus corridor and is adjacent to a bus interchange with numerous bus service connections to and from surrounding parts of Sydney
_the pedestrian and cycling network in the locality will be enhanced by connections through the site in future development
_various design measures have been integrated into the design to manage the interface and mitigate potential impacts between the BATA factory in the industrial zone and the future mix of residential and commercial development proposed on the remaining surplus land

In early 2016, HASSELL was engaged by Meriton to test a number of feasible master plan concepts and ideas for the future form of the second stage of their Pagewood Green project which is already under construction for Stage 1. HASSELL tested and made recommendations for a distribution and framework of uses, densities and building types that are appropriate for the site and its context.

In November 2016, Bayside Council provided feedback on this scheme, and also engaged Hill Thalis to review the master plan and provide an alternative response. This response introduced a large open space in the centre of the site running along a north-south axis.

01 Stage 1, UB5W concept design

02 Stage 1, UB5E concept design

03 Stage 1 approved master plan

01 Introduction

Meriton and HASSELL have adopted and evolved some of the elements of the Hill Thalis scheme at Council's request. These have been tested and built upon to exceed the performance of the Hill Thalis master plan in the following ways:

_The centrally located public open space has been incorporated and rotated to maximise solar access to the open space and adjacent residential

_Elements of the existing buildings along Heffron Road have the capacity to be kept, in medium scale residential buildings to respect the sites heritage and character

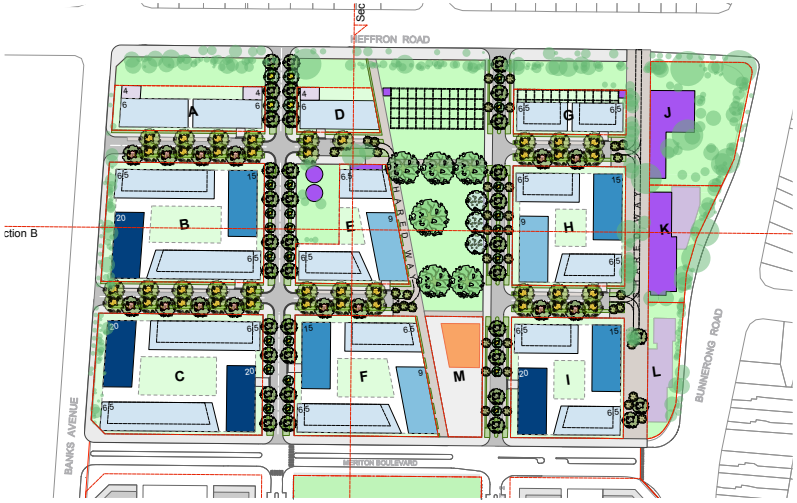
_The concept plan removes the need for non-habitable facades across the entire site with complete compliance with SEPP65/ADG building seperation

_Above ground parking has been used to avoid the need for excessive excavation and landfill

_Provision of civic open space, centrally located with good solar access

_Adopts the streetscape design proposed by Hill Thalis to maximise solar access and pedestrian amenity

_Reduces the road network and connections in line with the traffic report and generates a more pedestrian friendly and walkable environment



01 Hill Thalis concept master plan, November 2016

02 Meriton concept master plan, March 2017

_Adopts a density that is more condusive to the hierarchy of densities in the area, current strategic planning and Government priorities on housing supply.

Report Structure

The concept plan by HASSELL is a high level urban design response that provides a legible and accessible public domain and built form network. It achieves a development yield that is supported with public open space, with the potential to utilise some of the existing buildings to retain the original site character. It is the basis for a Planning Proposal, and includes the following;

_Initial planning policy, site and context analysis

_Design principles emerging from and underpinned by site analysis and the site's strategic context

_A concept master plan, that realises the potential of built form and public open space for the site

_Calculation of yields, dwelling sizes, building types, floor areas and FSR

_A preliminary high level solar access and separation study as per the Apartment Design Guidelines

Analysis

Photograph from the State Library of NSW

02

Pagewood Green is located in the south eastern region of Sydney, 8km from the CBD.

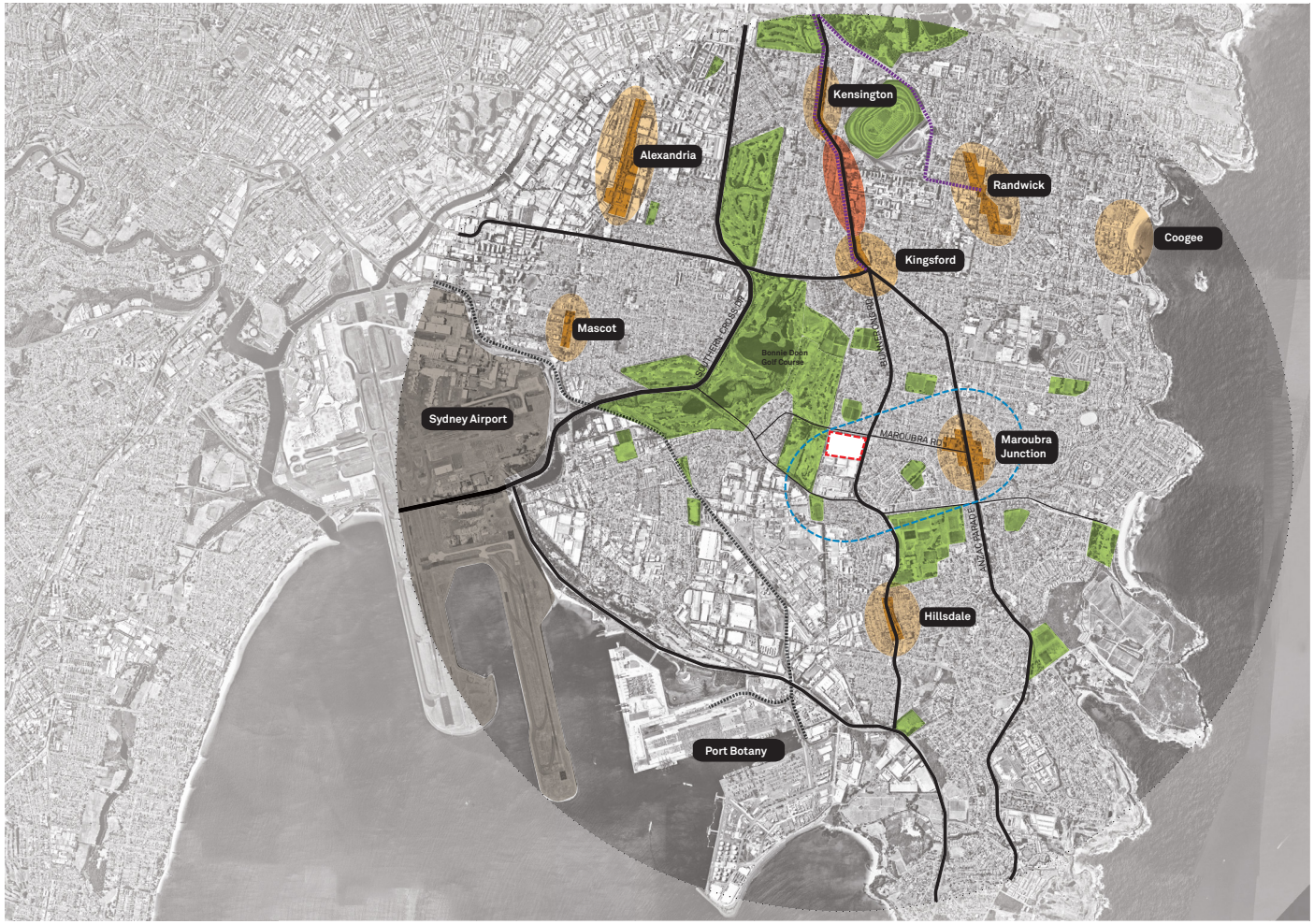
Pagewood Green is located in a growing area of urban diversity. It is within close proximity to a significant health and education precinct (UNSW and Prince of Wales Hospital), the Kingsford to Kensington Corridor, and the heavy industry of Port Botany and Sydney Airport.

To the north and east of the site are the urban villages of Kingsford, Kensington and Maroubra Junction, which comprise of high density residential, commercial, a university and entertainment precincts. To the south of the site, smaller centres act primarily to serve their immediate communities.

The region also contains major community assets, which form a green corridor from the Botany Dams in the south to the Sydney Sports and Entertainment precinct of Moore Park and Centennial Parklands to the north.

While there is an abundant range of public and private open space located in strategic positions across the precinct, Pagewood Green Stage II has the potential to contribute to public open space in the local area.

The site has good access to public transport. A number of major bus routes operate on nearby roads, connecting to the CBD and Kingsford light rail interchange. Bus stops are located on Bunnerong Road near Heffron Road (north east of the site) and at the Westfield Eastgardens bus terminal (south east of the site).



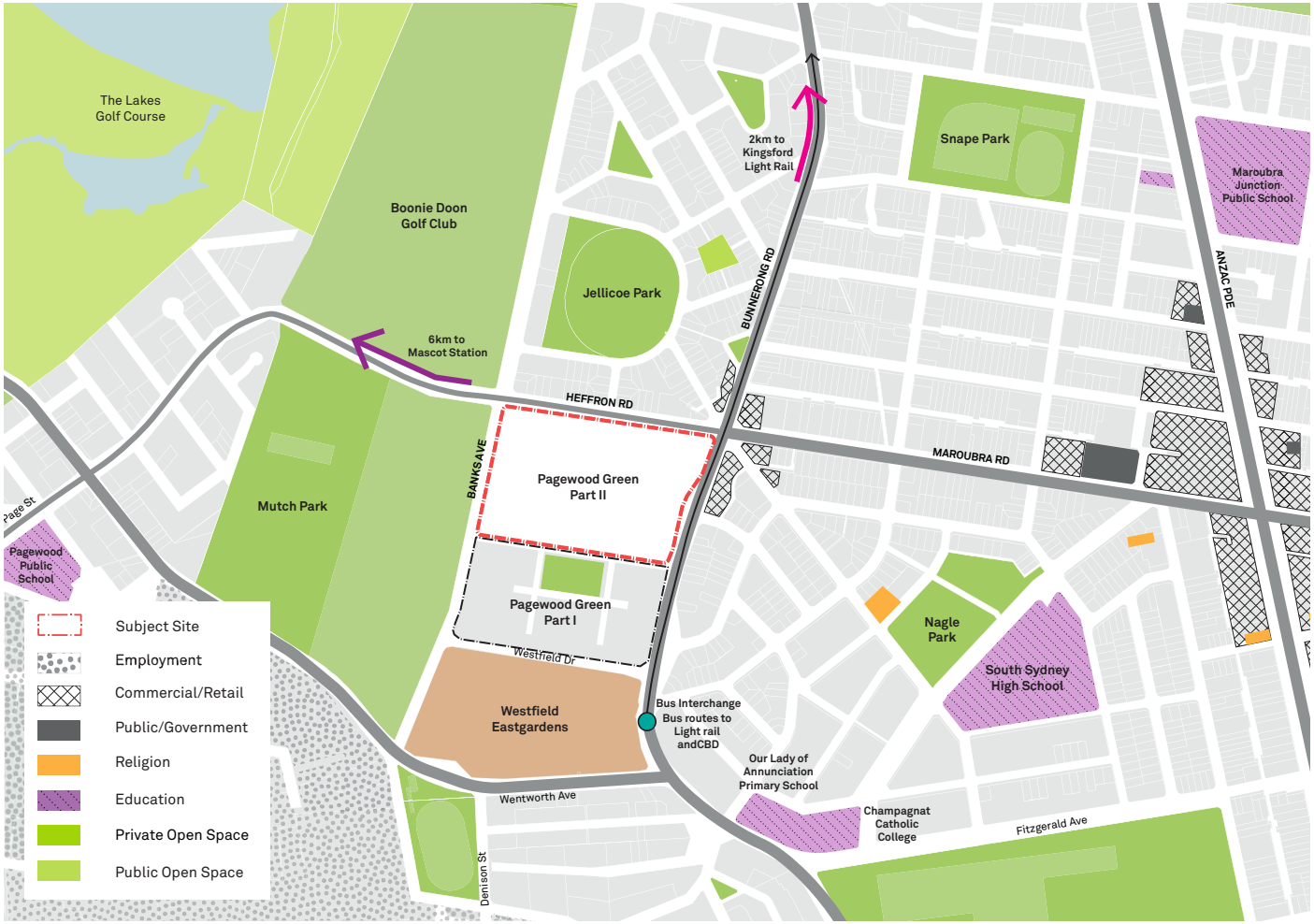
The site has immediate access to transport, open space, education and retail.

Pagewood Green Stage II is bound by Heffron and Bunnerong Roads and Banks Avenue. It is located within walking distance to public transport, schools, significant open space and immediate access to Westfield Eastgardens.

Immediately to the south of the site is the first stage of the Pagewood Green project, which has approval for 2,000 residential units, retail, child care and open space. Internal roads provide a frontage between the two stages of development, and as such stage 1 sets a precedent for this Planning Proposal. The first urban block (comprising 500 units) is currently under construction.

To the north of the site is predominantly low density residential with good quality open space. To the east of the site is Maroubra Junction, an urban village that comprises of retail, high density residential and services.

Large open space characterises the west of the site, which is located adjacent to Bonnie Doon Golf Course and Mutch Park, and facilitates golf, tennis and indoor squash for the region.



In preparing a concept plan for the Pagewood Green Part II site, a number of strategic planning documents and guidelines have been reviewed

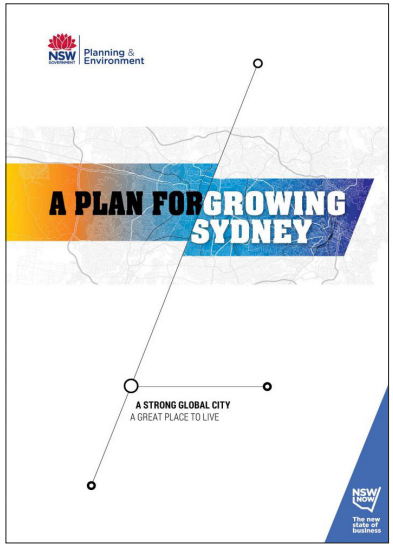
A Plan for Growing Sydney

A Plan for Growing Sydney formulates the NSW Government's vision for Sydney as a 'strong global city, a great place to live'.

In the next 20 years, Sydney's population will grow by 1.6 million people. The strategy provides the foundation for managing the growth of housing, employment and infrastructure. By 2031, Sydney's economic output will almost double to $565 billion a year and there will be 689,000 new jobs.

The Plan identifies six sub regions that will play an important role in shaping the future growth of Sydney. The BATA site, which is located in the Botany LGA is in the Central Sub region. This region, in addition to being in the economic corridor, has been identified as helping to accelerate housing supply, choice and affordability. Therefore, from a strategic perspective, the Pagewood Green Part II site is well located for redevelopment to a residential use.

The Plan also highlights the importance of working with Councils to identify suitable locations for housing intensification and urban renewal.

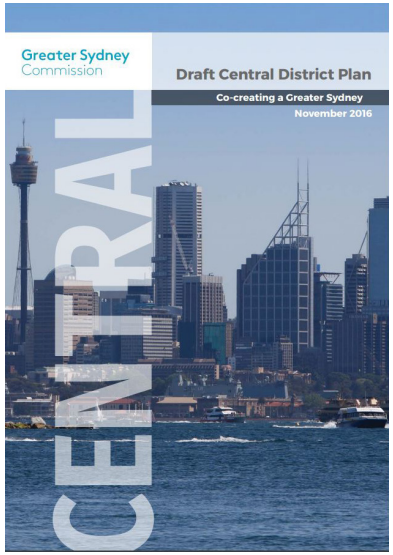


Draft Central District Plan

The site is located in the Central District of Sydney. Draft District Plans were released by the Greater Sydney Commission in November 2016. The priorities for this District relevant to the Planning Proposal include:

A Productive City
- Growing economic activity centres
  - Manage growth and change in strategic and district centres
  - Improving 30 minutes access to jobs and services

A liveable city
- Improve housing choice
  - deliver Central District's housing supply target (157,500 dwellings over the next 20 years)
  - create housing capacity in the Central District
- Improve housing diversity and affordability
  - deliver housing diversity
  - facilitate integrated infrastructure planning
- create great places
  - provide design led planning
  - enhance walking and cycling connections



The built form surrounding the site varies in scale and character.

Stage 1 adopts a clear definition of built form for the site -a high density mixed use development with increased density in the least sensitive (south west) portion of the site. The existing road network provides a buffer of major roads around the site creating an island effect to lower density areas beyond to the north and west.

Single lot residential dwellings are located opposite the eastern edge of the site, along Bunnerong Road and to the north toward Kingsford. To the east, Maroubra and Heffron Roads are more diverse and vary from medium to high density dwellings toward Maroubra Junction. Maroubra Junction, a 900m walk from the site is a high density residential and mixed use centre.

To the south, large land holdings and industrial uses sit adjacent to Westfield Eastgardens, a regional shopping centre that is located within walking distance to the Pagewood Green Stages I and II sites. The Stage I site is currently under construction and comprises of a high density residential development with a centrally located open space.

Large open space characterises the west of the site, with Mutch Park and Bonnie Doon Gold Course are major community assets that provide public open space for the community.

Considerations

- The proposed master plan should have a diverse range of built form heights that are distributed in a way that is complementary to the current and future needs of the context. It should support the future growth of the proposed Eastgardens- Maroubra Junction District Centre.
- The built form should complement the existing approved Stage 1 master plan which supports a high density solution of up to 20 storeys
- Potential to distribute greater height and density toward the west of the site, to maximise views and minimise overshadowing to adjacent residential
- Incorporate green edges to the north and east to respond to ongoing development and maximise retention of existing trees.

The adjacent Pagewood Green approved Master Plan establishes built form, use and density

Immediately to the south of the Pagewood Green Stage II master plan, Stage 1 is currently under construction. The Stage I consent comprised of the following, and has established a precedent for built form, density and use in this planning proposal-

- Subdivision into seven residential urban blocks, with three blocks comprising of podium car parking. The established urban blocks in this stage provide a framework for density and built form in stage II.
- Subdivision between lots for open space and a large Central Park to the north of the site. Open space is located centrally and north facing to provide high quality open space for the residents and community.
- Subdivision of lots into public roads, with both north-south boulevards having the potential for extension into stage two of the concept plan
- Distributes density away from Bunnerong Road to minimise over shadowing to existing residential dwellings to the east.

Approved BATA Stage 1 Concept Plan

02 Analysis
Neighbourhood
Character

The site is located in a designated District Centre and represents a unique island site that is bound by major roads, a major retail centre, a golf course and mature vegetation.

Bunnerong Road
The eastern boundary of the site is located on Bunnerong Road which consists of;
_ Mature trees create a memorable street character
_ Bus interchange at Westfield Eastgardens is located within walking distance
_ Generous street width, 6 lanes with an unplanted median

Heffron Road
Heffron Road is located on the northern boundary of the site. It is adjacent to Daceyville and has the following characteristics;
_ Predominately 1-2 storey low density residential
_ Mature tree planting along both sides of the road
_ Direct north-south connection on Kenny Street to Jellicoe Park
_ On street parking on both sides of the road

Considerations
_ Mature trees can provide a visual buffer to future residential buildings
_ Generous street width will minimise overshadowing on the existing residential
_ North facing green buffer zone will receive good solar access as a buffer to residential properties to the north
_ Retention of heritage buildings and green area to the south to be dedicated to Council compliments the Bunnerong Road buffer and provides a green edge to the development.

02 Analysis
Neighbourhood Character

Meriton Boulevard
Meriton Boulevard is located on the boundary of the approved stage 1 development and stage 2. The approved concept plan establishes built form and density controls that can be integrated into the stage 2 concept plan
_ High density residential streets with a podium and tower configuration
_ Sleeved carparking in above ground podiums

Banks Avenue
Banks Avenue is located along the western boundary of the site. It consists of the following;
_ Existing mature vegetation provides a buffer on both sides of the road
_ There is no on street parking on Banks Avenue.
_ Primary function is a connector road from Wentworth Avenue. It facilitates a large amount of car traffic from a major carpark entry to Westfield Eastgardens

Considerations
_ Uninterrupted open space to the west of the site has the potential for excellent district views and solar access
_ Meriton Boulevard has an established high density residential typology that can inform the stage 2 concept plan
_ Distribute greater height and density towards the less sensitive area of the site
_ Provide green edges to existing roads which could accommodate future light rail connections or other road improvements.

The Site has immediate access to strategic bus corridors, major roads and the future light rail corridor

Pagewood Green Stage II is well connected to strategic bus corridors in the immediate area. A major bus interchange is located 500m away on Bunnerong Road, which is a local hub for several routes. This stop facilitates connections to the CBD, Kingsford, Kensington, La Perouse and Maroubra Junction. Smaller stops located on Heffron Road connect the site to Maroubra Junction and Rockdale.

A significant benefit of the Site is its close proximity to the Kingsford/ Randwick light rail network. Further extensions toward the Pagewood Green sites have been identified in strategic transport planning.

Considerations
_ Facilitate permeability to existing and future transport connections
_ Extend the north-south lot structure from Stage 1, to improve permeability and access across the site
_ Provide dedicated green buffers

01 bus interchange at Westfield Eastgardens on Bunnerong Road

02 bus stop located on Heffron Road, connects to Maroubra Junction and Rockdale

The Site has the potential to improve and connect the existing cycle and pedestrian network

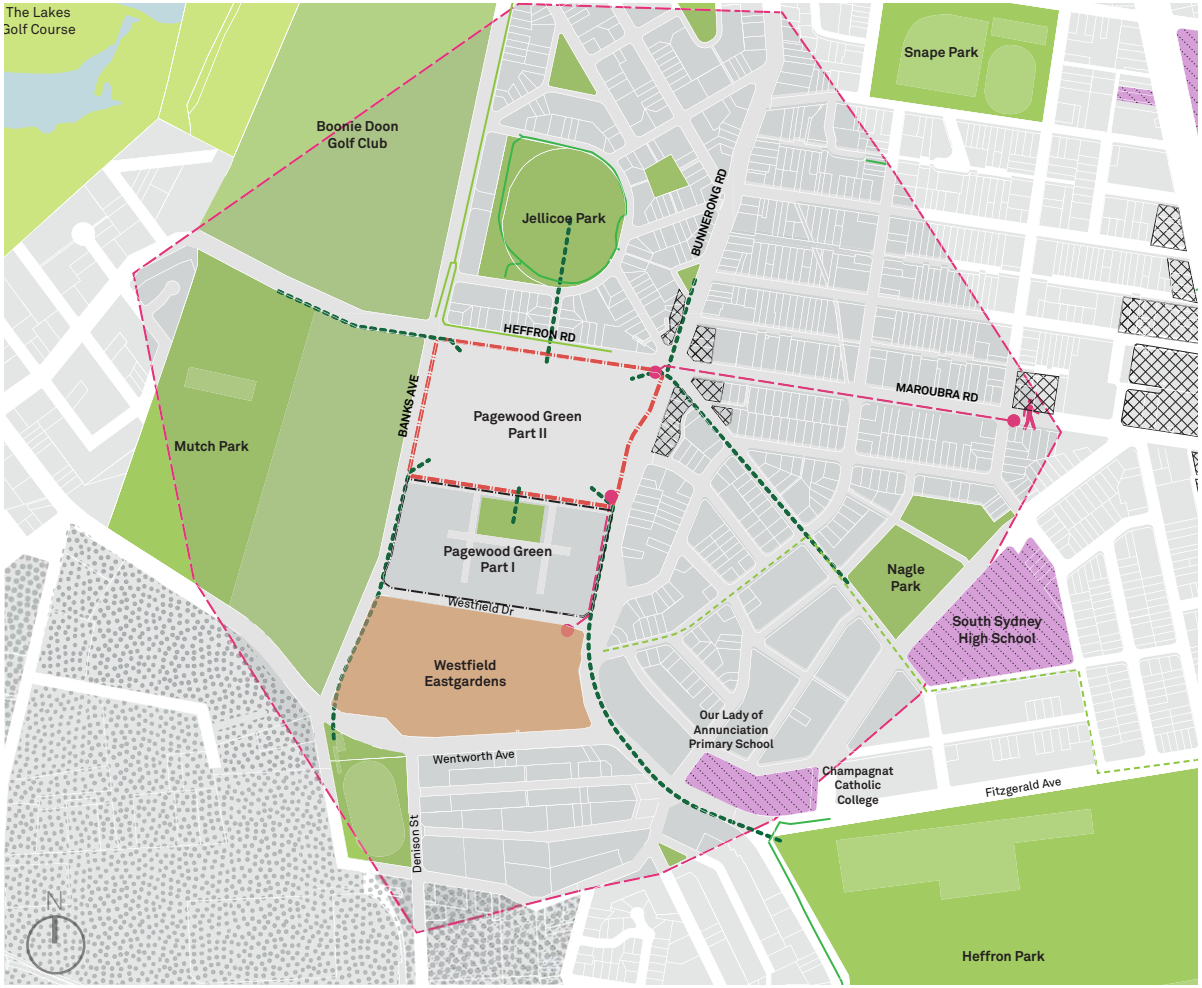
Pagewood Green Stage II is located within a 10 minute walk to a range of open space, schools, retail and services. Surrounding the Site are shaded footpaths that are utilised by pedestrians to connect to bus stops and a bus interchange on Heffron and Bunnerong Roads.

There are limited dedicated cycle lanes in the area, with a connection that runs along Heffron Road and extends north, connecting the site to the future light rail in Kingsford.

Considerations

_ The site is well located for public transport. The future open space and road network has the potential to greatly improve the pedestrian and cycle amenity in the area and better connect people to bus and light rail interchanges

_ Street and lot structure for the Site can contribute to a vibrant residential community that connects and promotes cycle and pedestrian activity.



01 existing footpath along Bunnerong Avenue adjacent heritage building

02 pedestrian path along Banks Avenue to Westfield Eastgardens

- Subject Site
- Green links
- 10 min walk radius
- Bike Friendly roads
- Dedicated Bike lane
- Pedestrian connections

Mature trees line the northern and eastern edges of the site and provide a buffer to future and existing development

The mature trees along Heffron and Bunnerong Roads are between 4-6 storeys high and have the potential to provide a visual buffer for existing development.

The site, while relatively level is surrounded by varied topography. The Bonnie Doon golf course to the west of the site is the highest point.

Significant open space is located around the site, with the Stage 1 approved master plan providing a large public open space along the interface between the two sites.

Considerations

_ consider the Stage 1 approved master plan as a precedent for providing a large, centrally located open space with a northern aspect to maximise solar access
_ the existing mature trees along Bunnerong and Heffron Roads should be retained to provide a visual buffer to future development and traffic
_ potential high level views to the west over the Golf Course and toward the CBD

01 existing mature trees provide a visual buffer to new residential development along Heffron Road

02 varied topography along Banks Avenue, potential for high level views to the west of the site toward the CBD

Subject Site
Existing mature trees
Ridge Line
Topography
Private Open Space
Public Open Space

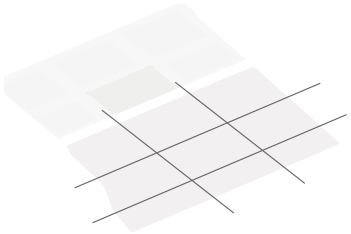
Master Plan Strategy

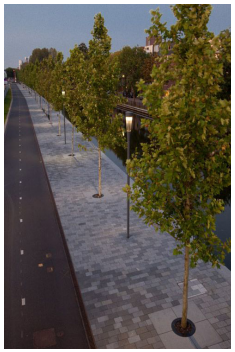
Source: Andrew Tremeling

03

The design principles for stage II will assist in creating an integrated and site responsive approach to the master plan.

1





An accessible and legible site

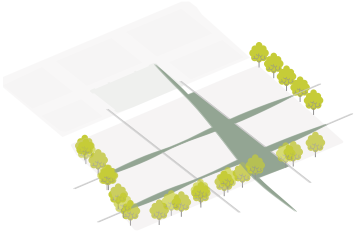
Create a legible network of streets and open spaces for cyclists, pedestrians and cars and provide access for future residents and visitors

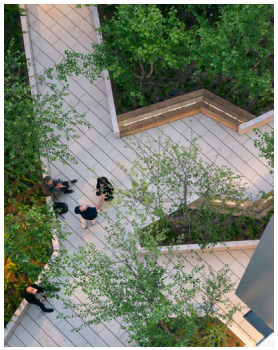
_establish a site structure that connects and integrates the public realm, and prioritises pedestrian access

_ utilise the site structure from stage one to connection north-south to open space and Jellicoe Park

_create a hierarchy of streets within the master plan. North south streets are generous, and connect from stage one to the north. East west streets are local connector streets that encourage pedestrian permeability

2





Diverse and connected open spaces

Create a network of strategically located and connected open spaces for resident and visitor recreation

_provide a large open space that connects stage one Central Park with Jellicoe Park, creating a green link

_provide a community facility along the green link

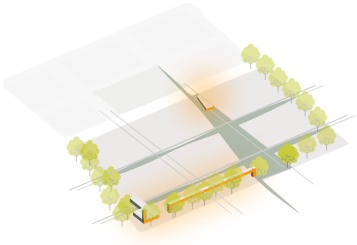
_ the north south park provides outlook and amenity to the apartments located directly adjacent

_create an open space to the north to maximise sunlight along Heffron Road

_ all podiums will have green roofs, to provide outlook and amenity to residents

_retain trees along the northern and western portions of the site (subject to contamination and remediation)

3



Community program

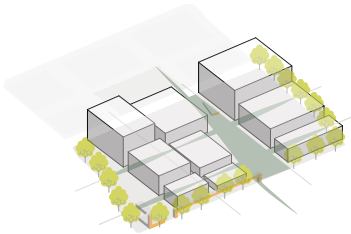
Introduce a community program and facilities on the site for residents and users, to complement the stage one master plan

_provide a new civic open space central to the entire project in the north south park

_explore the potential for re using the existing heritage building at the corner of Bunnerong Road and Heffron Road for community use (In collaboration with Botany Bay Council)

_potential to incorporate pillars and saw tooth structure, along Heffron Road, into residential Buildings

4



A mix of building typologies

Building heights and form are distributed in a way that is complementary to the site and context

_articulated street walls

_minimise bulk and scale of built form where possible

_vary building heights and locate taller buildings to ensure maximum solar access

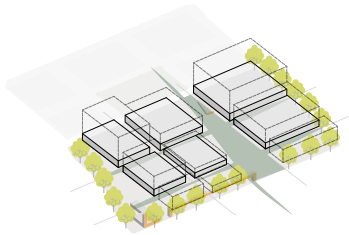
_ balance public space amenity with denser buildings. A significant amount of built form could be located adjacent to the open space to maximise amenity and outlook for apartments

_lower scale buildings along the northern boundary to maximise solar access and complement the existing neighbourhood character to the north

_above ground parking to avoid conflict with contamination, services and infrastructure

_utilise the form and scale from Stage 1, with more flexibility

5



Above ground carparking

The majority of carpaking on the site will be accommodated within the podiums of the proposed buildings to limit, if not avoid excessive excavation of the site for basement levels. This design principle has been established for the site for the following reasons;

_it addresses environmental constraints associated with soil conditions, contamination and groundwater

_reduces excessive excavation of the site and the creation of landfill

_avoids potential conflicts with existing services, infrastructure and utilities

_provides for natural ventilation as opposed to a requirement for mechanically ventilated systems

_provides an opportunity to establish communal areas above the podium, allowing for improved amenity, solar access and security for residents

Master Plan

04

04 Master Plan
Site Plan

Concept Master Plan

The concept master plan realises the design principles established for the site, and builds upon the Hill Thalis concept plan.

A legible network of streets and open space is provided by extending the lot structure established in stage 1. This connects and integrates the public domain, using Meriton Boulevard as an interface between the two sites.

Meriton and HASSELL have adopted and evolved some of the elements of the Hill Thalis scheme at Council's request. These have been tested and built upon to exceed the performance of the Hill Thalis master plan in the following ways:

A network of public open space is strategically located and connected for resident and visitor recreation. The centrally located public open space has been rotated to maximise solar access to the open space and adjacent residential. There is also provision for a civic space, centrally located adjacent to the wedge park which will complement the stage 1 master plan.

04 Master Plan
3D views

Elements of the existing buildings along Heffron Road have the capacity to be kept, to respect the sites heritage and character.

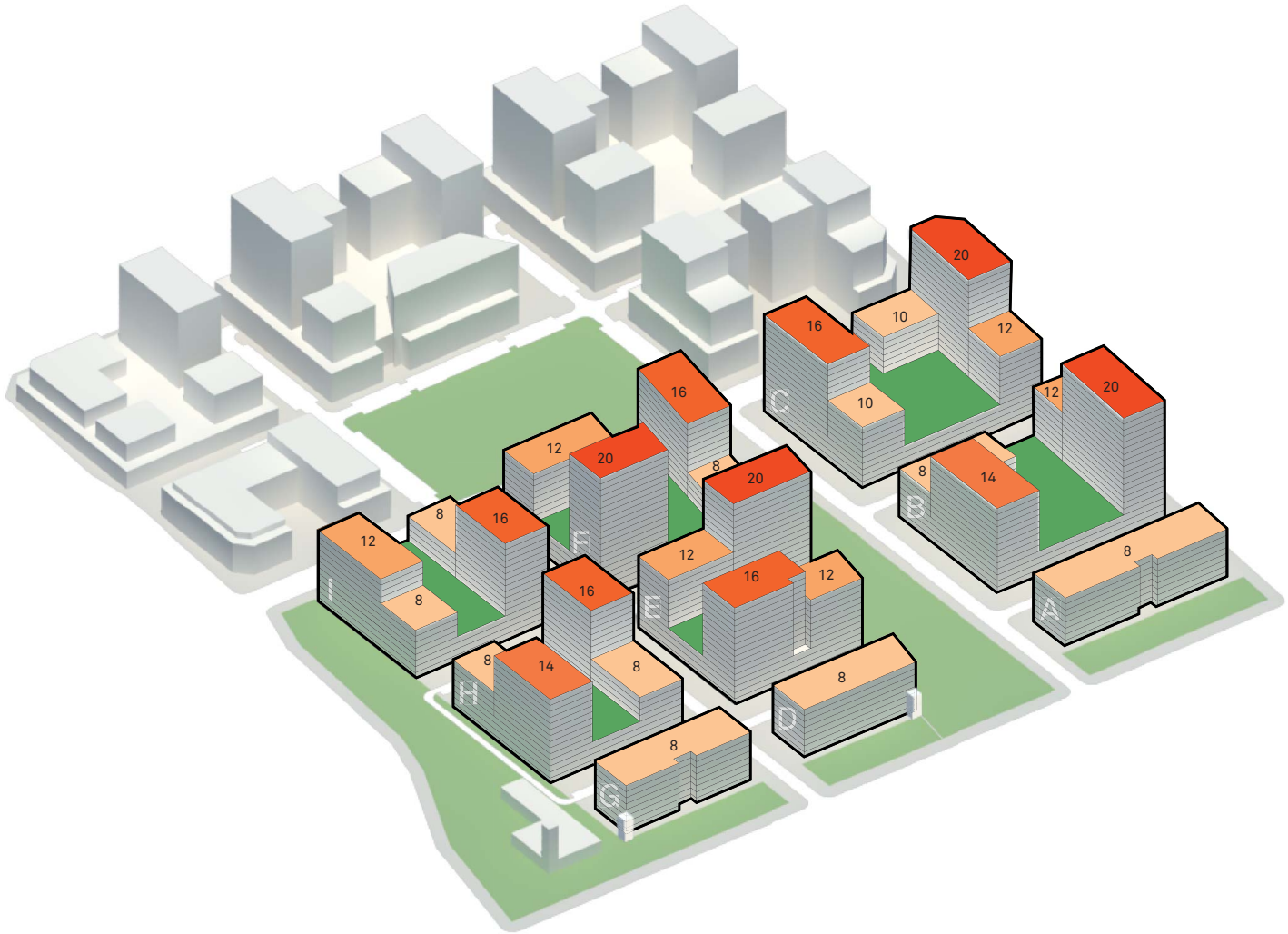
The concept plan removes the need for non-habitable facades across the entire site. All facades in the master plan are habitable, having a 24 metre seperation to allow to maximum solar access.

Above ground parking has been used to avoid the need for excessive excavation and landfill. This addresses environmental constraints associated with soil conditions, contamination and groundwater. It also provides for natural ventilation of parking areas as well as better amenity for the podium communal spaces.

Adopts the streetscape design proposed by Hill Thalis to maximise solar access and pedestrian amenity. Larger setbacks have been provided to the north, east and western building frontages to maximise solar access.

A summary of the site efficiency for the concept plan is below:

Site area	86,574sqm	
Lot Areas	45,448sqm	52%
Community Space	2,060sqm	1%
Open space	26,085sqm	30%
Civic	1,000sqm	1%
Roads (including footpaths and landscape zones outside lot boundary)	17,141sqm	15%



Open space and deep soil areas

Communal or public open space in the Stage II master plan is responsive to the existing pattern and uses of the neighbourhood and stage I master plan. Public open space accounts for approximately 30% of the total site area of the concept plan, and is capable of providing deep soil.

Open space is also provided on residential podiums, above the sleeved residential and car parking. This open space is for residents only, a solar access analysis for these areas is provided on page 39.

As per the ADG, objectives 3D-1, 3D-4 and 3E-1 are met in the adjacent concept plan:

- Communal open space has a minimum area equal to 25% of the site
- Deep soil zones are to meet a minimum requirement of 7% of the total site area.
- The public open space is well connected with public streets along at least one edge
- Solar access should be provided year round with protection for strong winds
- A positive address and active frontages should be provided adjacent to public open space

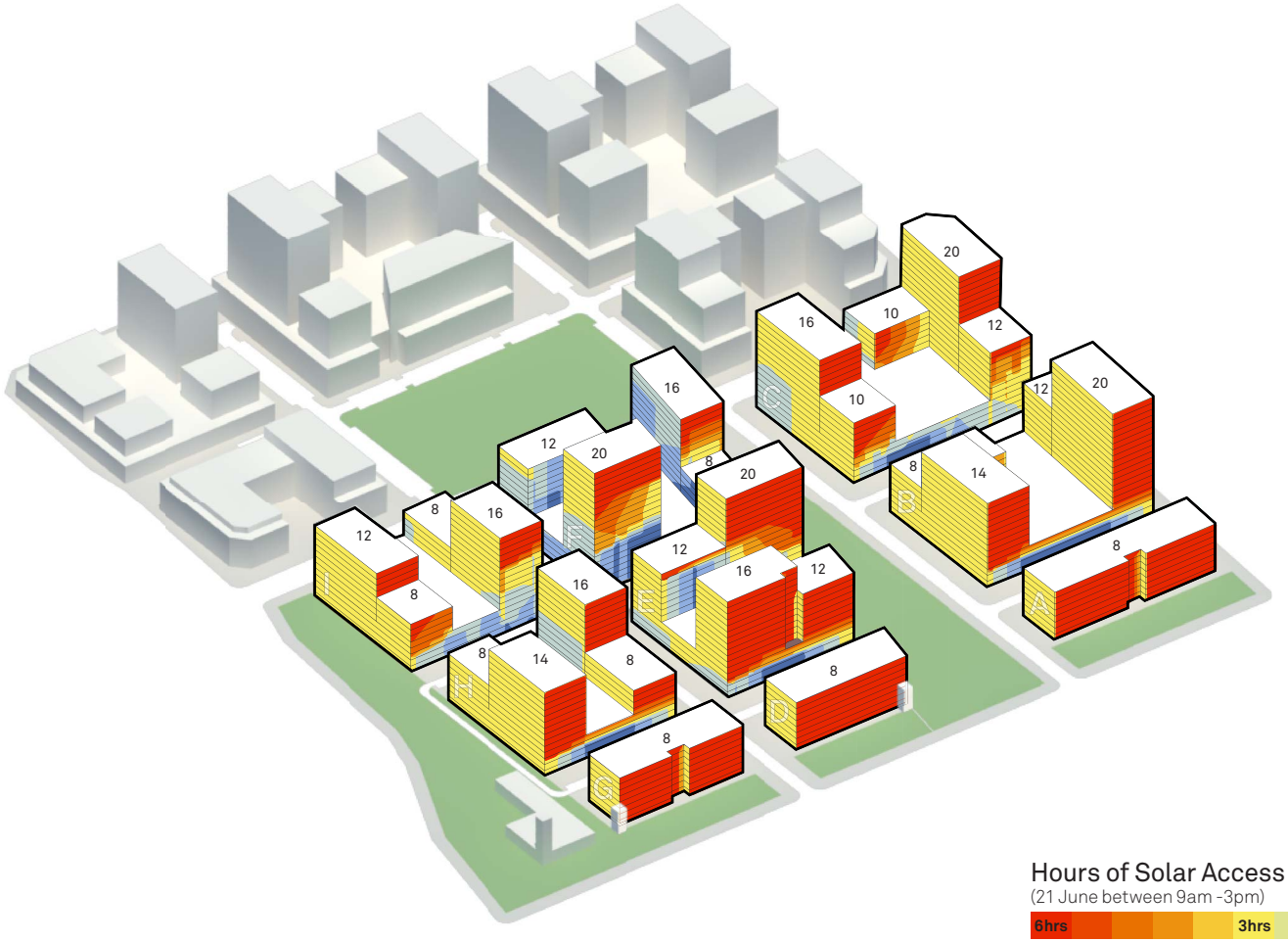
04 Master Plan
SEPP Analysis

Solar Access

Solar access is the ability of a building to receive direct sunlight without obstruction from other buildings or impediments, but excluding trees. The ADG states in objective 4A-1 that:

1. **Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter in the Sydney Metropolitan Area**

A high level facade solar access analysis has been performed on the concept plans for Stage II. This analysis has established that the concept plan provides the framework to comply with the minimum ADG requirements subject to detailed building design. In Meriton's experience on previous projects, any facade analysis showing about 60% is more than capable of achieving 70% at DA stage.



Hours of Solar Access
(21 June between 9am -3pm)

6hrs — 3hrs — 0hrs

Average Facade Solar Access over 2hrs

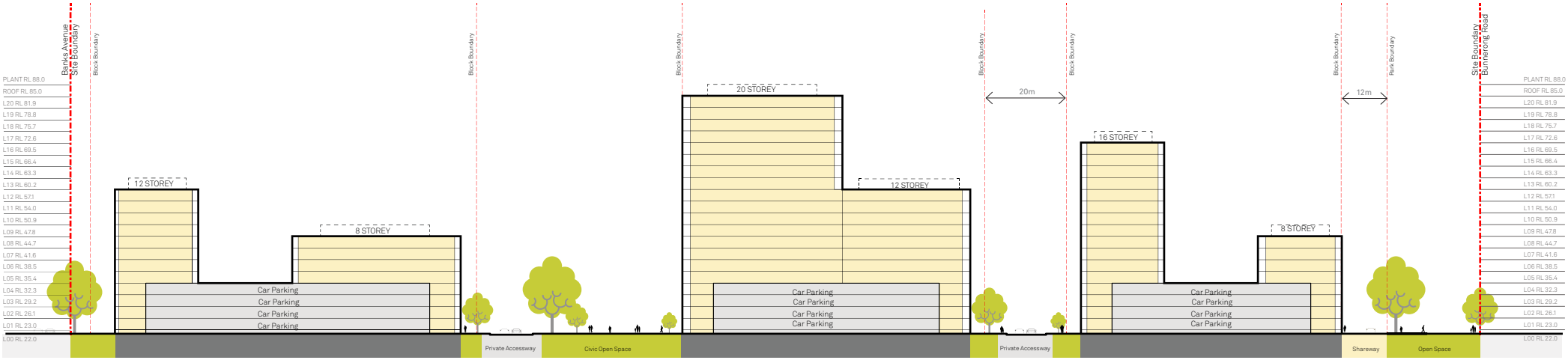
Lot	Area
A	63%
B	80%
C	78%

D	63%
E	60%
F	67%

G	66%
H	79%
I	79%

04 Master Plan
Site Sections

Section A-A



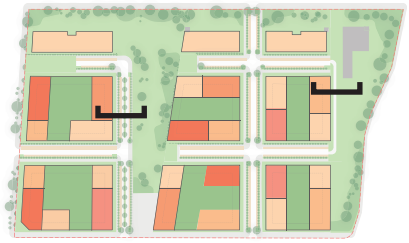
Section B-B

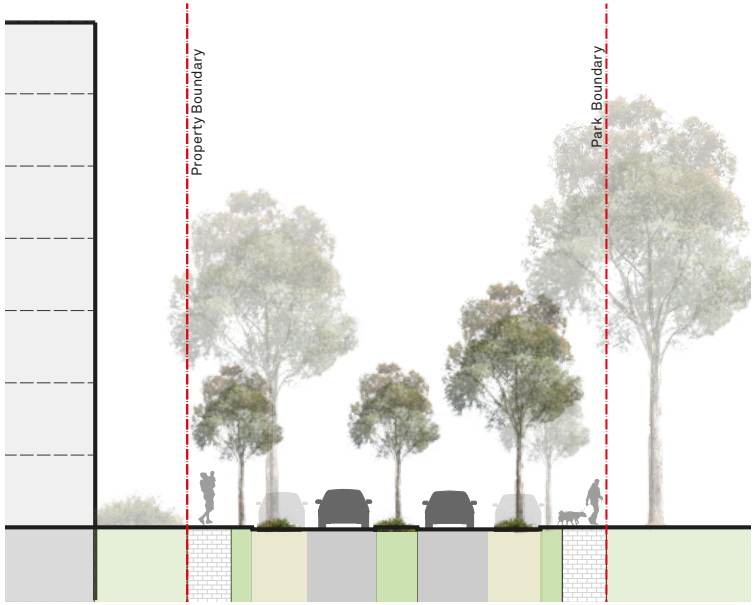
North South Street and share way

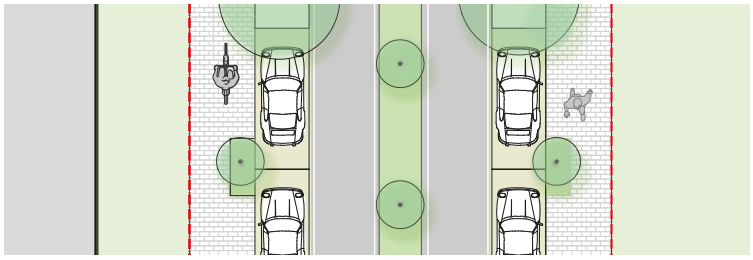
North South Streets provide connections through the development. The street incorporates a shared pathway for pedestrians and cyclists that connects with the Wedge Park and Civic Plaza, while the carriageway accommodates two lanes with parking on either side of the road.

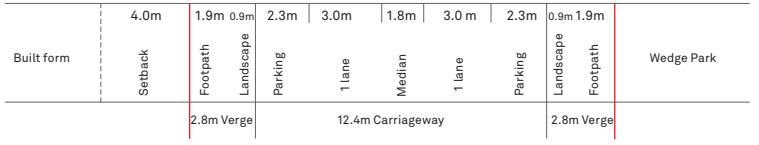
Street sections have been adopted from the approach taken in the Hill Thalis master plan, incorporating setback dimensions established in the Stage 1 approved concept plan.

Some roads have been removed as per traffic advice which increases the amount and function of the open space.

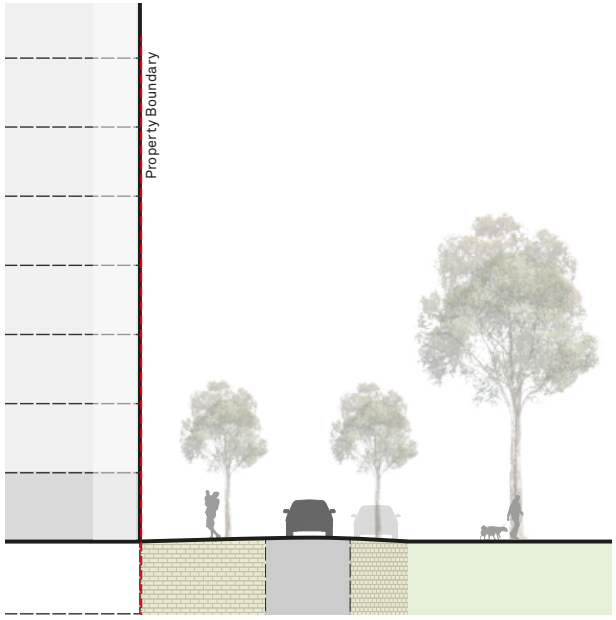


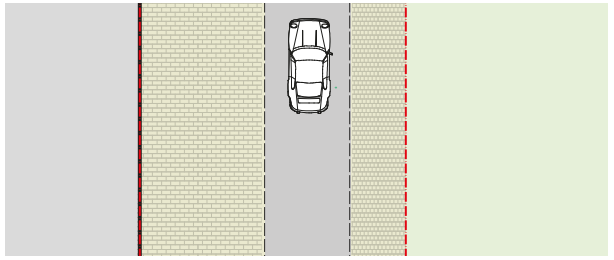






18.0m Road Reserve



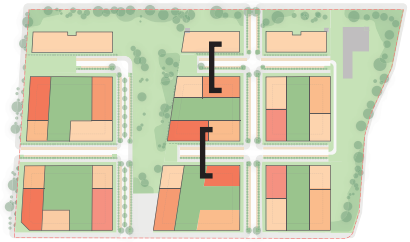


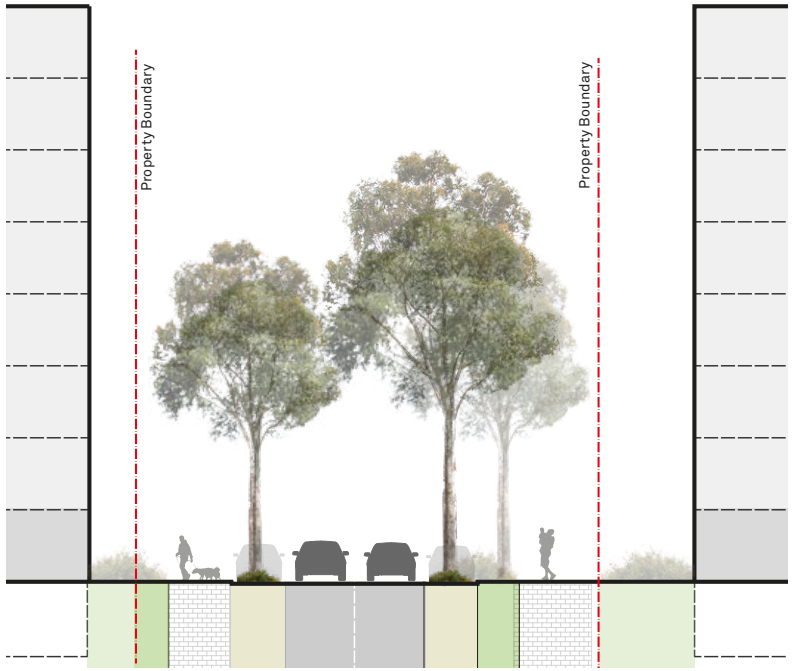
12.0m Road Reserve

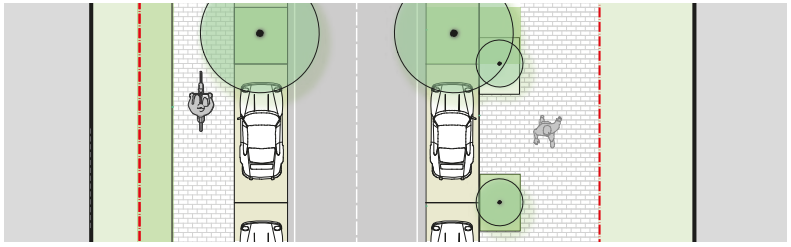
East West Street

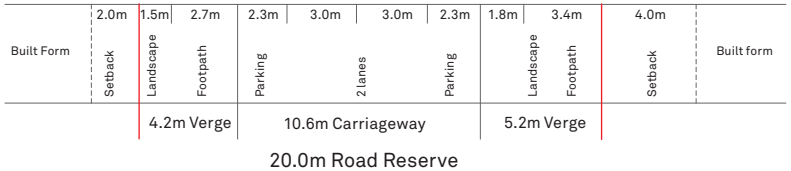
East-West Streets provides a shaded connection from east to west between residential blocks. An appropriate road reserve allows for avenue street trees and on street parking. Landscaped setbacks between the footpaths and the adjacent ground floor apartments will give the street a more generous landscaped proportion while allowing more access to sunlight.

Street sections have been adopted from the approach taken in the Hill Thalis master plan, incorporating setback dimensions established in the Stage 1 approved concept plan.









20.0m Road Reserve

04 Master Plan
Street Sections

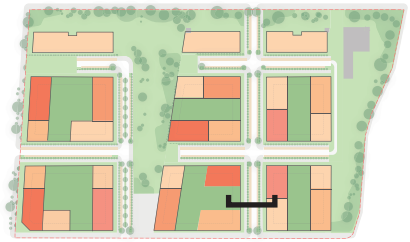
North South Street

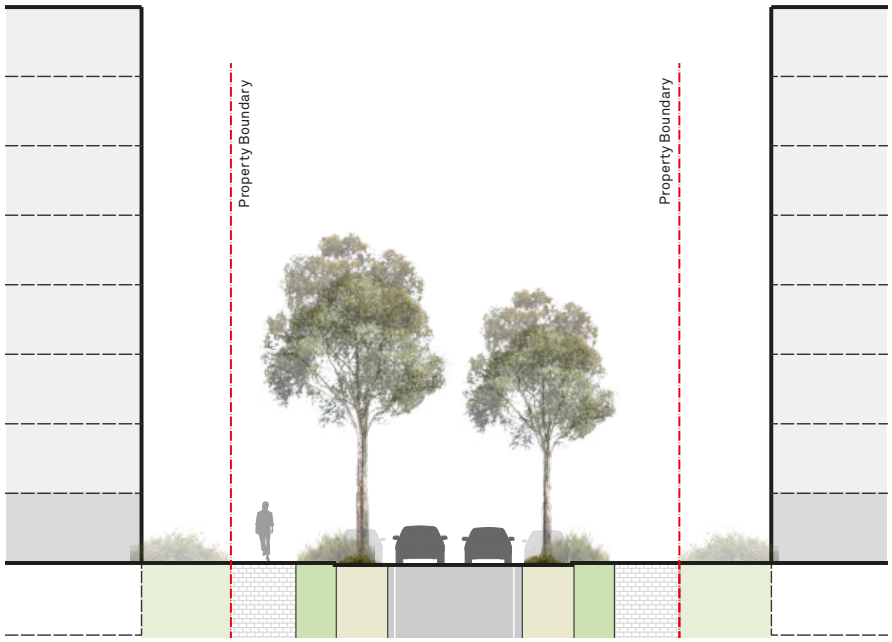
North South Streets provide connections through the development. The street incorporates a shared pathway for pedestrians and cyclists that connects with the Wedge Park and Civic Plaza, while the carriageway accommodates two lanes of thoroughfare with parking on either side of the road.

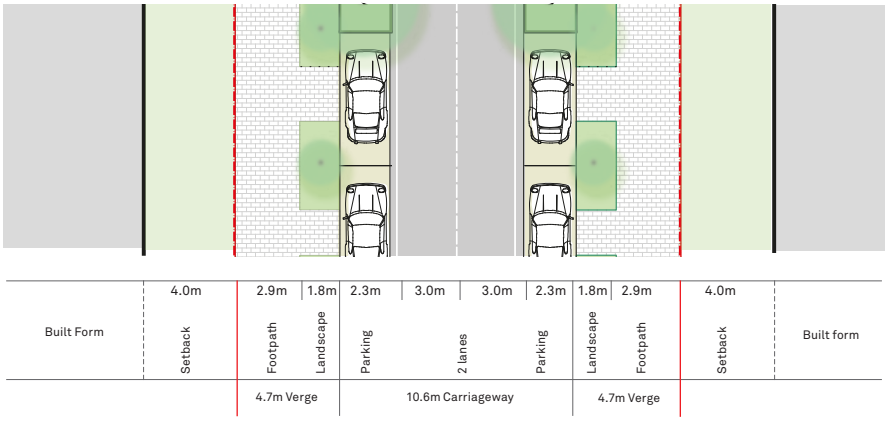
Landscaped setbacks between the footpaths and the adjacent ground floor apartments will give the street a more generous landscaped proportion while allowing more access to sunlight.

Street sections have been adopted from the approach taken in the Hill Thalis master plan, incorporating setback dimensions established in the Stage 1 approved concept plan.

The connection to Heffron Road has been supported by the traffic report.







20m Road Reserve

Building Separation

Building separation assists in providing residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook. It also provide suitable areas for communal open spaces, deep soil zones and landscaping, which has been explored in the master plan strategy. The building separations used meet the minimum requirements set out by the Apartment Design Guide (Section 2F)

Building Heights

Contributing to the quality of a place, building height defines the proportion and scale of streets and public spaces, having a relationship to the physcial and visual amenity of a development.

It is representative of the heights established under Part I and uses the same philosophy to provide low scale buffer on the sensitive edges. The concept plan places the greater height and density on the least sensitive parts of the site to the south and west while still being conscious of shadow impacts on the approved and proposed open space.

04 Master Plan
SEPP Analysis
Shadow analysis

Summer

9am

8% open space overshadowing
26% Private open space overshadowing

10am

8% open space overshadowing
18% Private open space overshadowing

11am

0.5% open space overshadowing
14% Private open space overshadowing

12pm

0.6% open space overshadowing
12% Private open space overshadowing

1pm

3% open space overshadowing
21% Private open space overshadowing

2pm

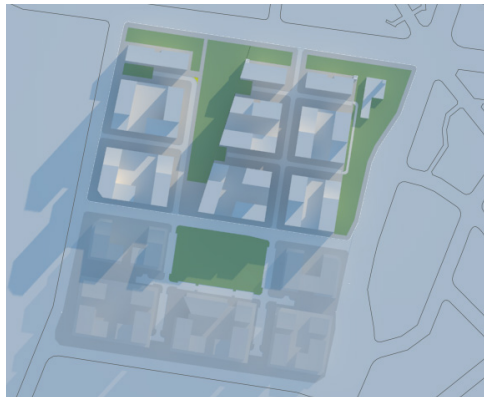
4% open space overshadowing
28% Private open space overshadowing

3pm

8% open space overshadowing
42% Private open space overshadowing

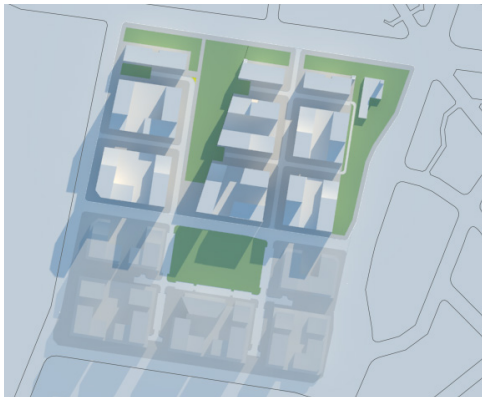
04 Master Plan
SEPP Analysis
Shadow analysis

Winter



9am

22% Public open space overshadowing
60% Private open space overshadowing
76% Stage 01 Public open space overshadowed Stage 02



10am

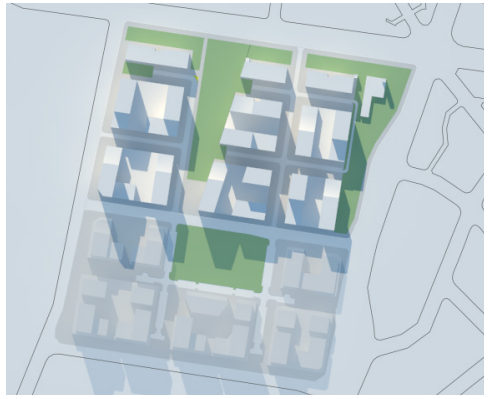
10% Public open space overshadowing
42% Private open space overshadowing
58% Stage 01 Public open space overshadowed Stage 02

11am

0.5% Public open space overshadowing
28% Private open space overshadowing
33% Stage 01 Public open space overshadowed Stage 02

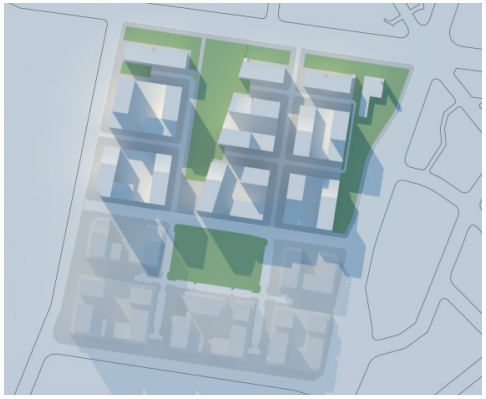
12pm

0.6% Public open space overshadowing
26% Private open space overshadowing
34% Stage 01 Public open space overshadowed Stage 02



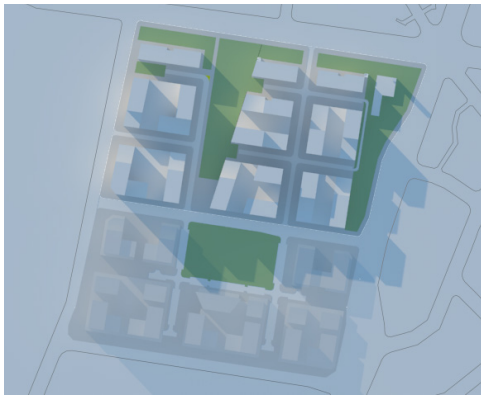
1pm

18% Public open space overshadowing
55% Private open space overshadowing
42% Stage 01 Public open space overshadowed Stage 02



2pm

30% Public open space overshadowing
62% Private open space overshadowing
53% Stage 01 Public open space overshadowed Stage 02



3pm

18% Public open space overshadowing
71% Private open space overshadowing
83% Stage 01 Public open space overshadowed Stage 02

2068 dwellings

210,837sqm² GFA*

FSR 2.35:1

*includes 4,060sqm community use, of which 2,000sqm is in a location and configuration to be determined and therefore not shown on the plan.

Unit Type	Mix	GFA (sqm)	Average (sqm)	CP Rate (spaces)	Average (spaces)
3 Bed	10%	100	10	1.5	0.15
2 Bed	70%	100	70	1	0.7
1 Bed	20%	100	20	0.5	0.1
Studio	0%	100	0	0	0
			100		0.95
				Visitor	1 space per 10 dwellings

Assumed Efficiency	75%
Assumed Area per car space	40 sqm

BLOCK	BUILDING	FOOTPRINT (sqm)	STOREY	EFFICIENCY	GFA (sqm)	YIELD (units)
A	1	1850	8	75%	11,100	111
Sub-total		**1850**			**Sub-total**	**111**
B	1	1035	20	75%	13,662	137
	2	1020	14	75%	8,874	89
	3	995	8	75%	3,881	39
	4	485	12	75%	3,492	35
	Sleeving	976	4	75%	2,928	29
Sub-total		**4511**			**Sub-total**	**328**
C	1	525	12	75%	3,780	38
	2	525	10	75%	2,993	30
	3	990	16	75%	10,098	101
	4	645	10	75%	3,677	37
	5	950	20	75%	12,540	125
	Sleeving	1042	4	75%	3,126	31
Sub-total		**4677**			**Sub-total**	**362**
D	1	1330	8	75%	6,484	65
Sub-total		**1330**			**Sub-total**	**65**
E	1	650	12	75%	4,680	47
	2	855	16	75%	8,721	87
	3	740	12	75%	5,328	53
	4	920	20	75%	12,144	121
	Sleeving	841	4	75%	2,523	25
Sub-total		**4006**			**Sub-total**	**334**
F	1	540	8	75%	2,268	23
	2	800	20	75%	10,560	106
	3	970	12	75%	6,984	70
	4	1000	16	75%	10,200	102
	Sleeving	1126	4	75%	3,378	34
Sub-total		**4436**			**Sub-total**	**334**
G	1	1390	8	75%	6,776	68
Sub-total		**1390**			**Sub-total**	**68**
H	1	760	8	75%	3,192	32
	2	870	14	75%	7,569	76
	3	650	8	75%	2,730	27
	4	750	16	75%	7,650	77
	Sleeving	840	4	75%	2,520	25
Sub-total		**3870**			**Sub-total**	**237**
I	1	770	16	75%	7,854	79
	2	540	8	75%	2,268	23
	3	990	12	75%	7,128	71
	4	750	8	75%	3,150	32
	Sleeving	840	4	75%	2,520	25
Sub-total		**3890**			**Sub-total**	**229**
Existing heritage (corner of Bunnerong Rd & Heffron Rd)					2060	
Additional community floorspace (location to be determined)					2000	
Total		**29960**			**Total**	**2068**
					3 Bed	**207**
					2 Bed	**1447**
					1 Bed	**414**

Total Site Area	**8.9574** ha		
Total GFA	**210,837** sqm		
Average FSR*	**2.35** :1	*indicative only*	
Occupancy per unit	**1.6**		
S94 open space req.	**0.7** ha/1000 person		
Total population	**3308** persons		
Open space req.	**2.32** ha	Achieved	**2.61** ha
	23,159 sqm		**26,085** sqm

Lot	Above ground parking area (sqm)	TOTAL AREA (sqm)	ABOVE GROUND (Levels)	BASEMENT (Levels)	DEMAND (spaces)	SUPPLY (spaces)	NET (spaces)
A	1,850	3,700	0	2.0	117	93	-24
B	3,915	15,656	3-4	0.0	345	391	47
C	4,250	17,000	3-4	0.0	380	425	45
D	1,330	2,660	0	2.0	68	67	-2
E	2,955	11,820	3-4	0.0	351	296	-55
F	3,780	15,120	3-4	0.0	351	378	27
G	1,390	2,780	0	2.0	71	70	-2
H	2,800	11,200	3-4	0.0	248	280	32
I	2,815	11,260	3-4	0.0	241	282	41
Total	**23,235**	**87,496**	**0**	**0.0**	**2,171**	**2,280**	**109**

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