

CARLINGFORD BLOCK STUDY

URBAN DESIGN REPORT

PREPARED FOR
BAPTISTCARE & SPD
MAY 2017 FINAL REPORT

REVISION 2, ISSUED 8 JUNE, 2017 : RESPONDING TO COUNCIL'S
REVIEW OF THE URBAN DESIGN STUDY SUBMITTED 8 MAY 2017

**THE BLOCK STUDY PRECINCT
IS LOCATED IN A DESIRABLE
LOCATION UNDERGOING RAPID
CHANGE. IT IS CLOSE TO
TRANSPORT, GOOD SCHOOLS,
SERVICES AND AMENITIES.**

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CONTENTS

1	CONTEXT _____	4
2	ANALYSIS _____	6
3	ORGANISING PRINCIPLES _____	24
4	MASTER PLAN _____	32
5	RECOMMENDED CONTROLS _____	49

1 CONTEXT

1.1 BACKGROUND

For the past year, BaptistCare and SPD have worked in partnership with the City of Parramatta (CoP) to undertake further studies in order to prepare a 'block analysis' of the study area to address the key issues in relation to the planning proposal submitted to Council for the site at 264-268 Pennant Hills Road comprising approximately 27,493sqm excluding 792sqm of land owned by BaptistCare on the corner of Homelands Avenue and Martins Lane. Another planning proposal was lodged by SPD for land at 258-262 Pennant Hills Road and 17 and 20 Azile Court comprising 6,298sqm.

About this Study

In October 2016, Urbis, in collaboration with technical consultants, were appointed by DFP Planning to undertake a high-level master planning investigation to identify the appropriate built form and recommend controls for the block study precinct.

This Urban Design Block Study responds to the key issues identified by Council and outlines the rationale for arriving at the proposed density and provides key urban design principles to support the built form for an intended outcome that will meet future housing needs in the area close to public transport, facilities and services.

1.2 CONSULTATION

As part of this Block Study Precinct investigation, there has been ongoing consultation with Council to arrive at a recommended built form and design controls for the site.

In collaboration with CoP, on the 8th of December, a community consultation meeting with the proponents and landowners within the precinct was undertaken to present a first draft of the block study. This session occurred approximately one month into the study with feedback compiled by the CoP.

Whilst there as was some divergent views, the consultation generally found that:

- A majority supported rezoning of the land;
- A common perspective was shared that growth in Sydney is inevitable, and that it needs to be accommodated in strategic locations
- General support for multi-storey apartments up to 6 storeys with a transition to 2 storeys at the bottom of the hill.
- The desire to improve pedestrian access, and safety and mobility around the area. This was particularly prevalent in discussion around Pennant Hills Road and other key intersections where pedestrian access and safety can be enhanced

1.3 PROCESS

Additional to the community consultation processes, the Block Study Precinct's recommended controls have been formed by extensive consultation with Councils planners and urban designers through the urban design block study investigation process.

The recommended controls are aimed at providing sufficient flexibility to encourage residential development whilst ensuring good urban design and design quality outcomes

THE BLOCK STUDY INVESTIGATION FINDS THAT THE PRECINCT HAS CAPACITY TO ACCOMMODATE UP TO 770 NEW DWELLINGS CENTRED AROUND PROXIMITY TO CONNECTIONS, AMENITIES, SERVICES AND EMPLOYMENT

The Precinct enables increased proximity to amenity and overall benefits to the local community - key outcomes for the Precinct include:

- A new street and intersection at Pennant Hills Road connecting Baker and Grace Street;
- New link roads and an overall increase in connectivity and permeability for all street users;
- A widened public domain for Martins Lane;
- A new public park that is centrally located;
- Opportunities to provide a variety of private and public activities centred around key nodes and interfaces;
- Retention of high value ecological vegetation an mature trees, maintaining the precincts' distinctive landscape character

1.4 THE BLOCK STUDY PRECINCT

1.5 Location

The Block Study Precinct is located in Carlingford and is generally bounded by Pennant Hills Road to the north, Martins Lane to the east, Homelands Avenue to the south and Tintern Avenue to the west. The area for the Block Study Precinct total to approximately 69,280sqm or 7 hectares including Azile Court and Council access way.

Large land holdings within the block study area have lodged planning proposals, with the largest on the existing BaptistCare facility at 264-268 Pennant Hills Road. The site comprises 27,493sqm (excluding 792sqm of land owned by BaptistCare on the corner of Homelands Avenue and Martins Lane). Another planning proposal has been lodged by SPD for land at 258-262 Pennant Hills Road and 17&20 Azile Court. This land comprises 6,298sqm.

In addition to the above the following 36 other properties also fall under the block study area:

- 250 to 254 Pennant Hills Road
- 2-12 Tintern Avenue
- 1A to 15 Azile Court
- 2 to 18 Azile Court
- 5 to 15 Homelands Avenue



Figure 1 Block Study Precinct

2 ANALYSIS

PLANNING POLICY AND CONTEXT

IN PREPARING A BLOCK STUDY FOR THE CARLINGFORD 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 districts which will play important roles in shaping the future growth of Sydney. The Carlingford site, which is located in the Parramatta LGA is in the Western Central District. This district, in addition to being in the global economic corridor, has been identified as helping to accelerate housing supply, choice and affordability.

A key component of A Plan for a Growing Sydney is to accelerate the delivery of new housing in Sydney to meet the needs of a bigger population and to satisfy a growing demand for different types of housing. Over the next 20

years, the population in Sydney will grow much faster than in the last 20 years. Projections indicate that Sydney will need around 664,000 additional homes over the next 20 years. New housing will be needed in greenfield locations as well as established urban areas. Providing housing in a variety of sizes, types and locations will be essential to meeting Sydney's future housing need. Increasing housing supply will boost economic activity and generate viable infrastructure and business investment opportunities.

An increase in the density within the Block Study Precinct will allow for additional housing in an area undergoing change. The Precinct has the capacity to provide approximately 770 dwellings in a location which is well serviced by public transport, close to facilities and amenities.

The Plan also highlights the importance of working with Councils to identify suitable locations for housing intensification and urban renewal. Therefore, from a strategic perspective, the Carlingford precinct is ideally located for redevelopment to a residential use.

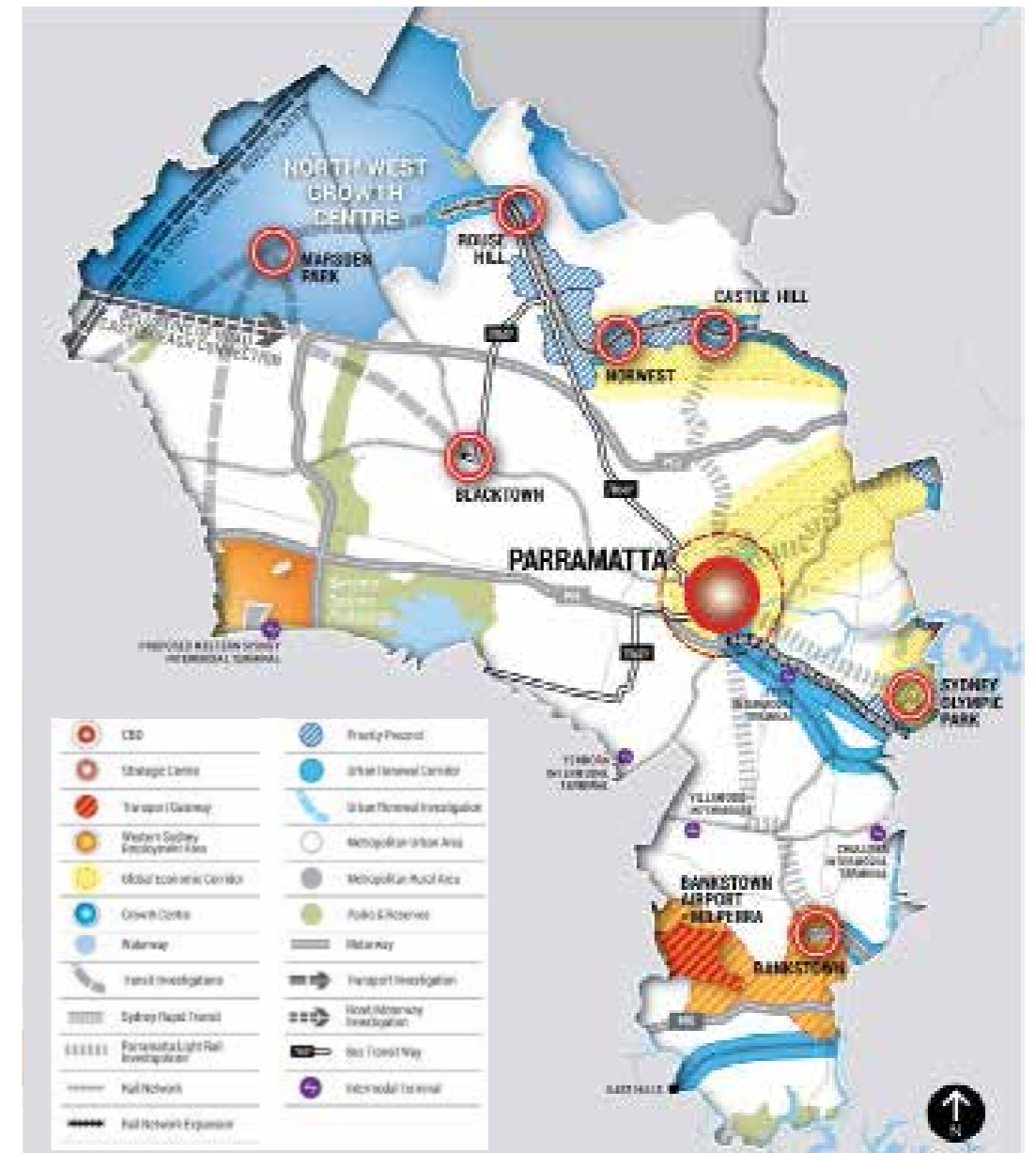


Figure 2 West Central Subregion (Source: APFGS)



DRAFT WEST CENTRAL DISTRICT PLAN

The draft West Central District Plan identifies the NSW Government's key actions and priorities for the next 20 years with housing targets to deliver over 200,000 new homes.

Relevant objectives identified in the planning priorities for the West Central District include:

- Improving access to a greater number of jobs and centres within 30 minutes
- Improve housing choice
- Improve housing diversity and affordability
- Coordinate and monitor housing outcomes and demographic trends
- Create great places
- Foster cohesive communities
- Respond to people's need for services
- Enhancing the West Central District in its landscape
- Protecting the District's waterways
- Protecting and enhancing biodiversity
- Delivering Sydney's Green Grid

An increase in density in the Block Study Precinct will contribute to the delivery of housing targets within this district providing approximately 770 dwellings in a location which is well serviced by public transport, close to facilities and amenities.



Figure 3 West Central District (Source: GSC Draft West Central District Plans)

“ THE WEST CENTRAL DISTRICT IS ONE OF THE MOST DYNAMIC AND RAPIDLY GROWING REGIONS IN AUSTRALIA. THIS DISTRICT PLAYS A PIVOTAL ROLE IN GREATER SYDNEY'S FUTURE AS AN ECONOMIC AND EMPLOYMENT POWERHOUSE, A CORE HUB FOR TRANSPORT AND SERVICES AND THE HOME OF VIBRANT AND DIVERSE CENTRES AND COMMUNITIES. IT WILL BE AT THE CORE OF GREATER SYDNEY'S 'CENTRAL CITY' ”

PARRAMATTA LIGHT RAIL

In order to accommodate the rapid growth of the Greater Parramatta to Olympic Peninsula (GPOP) region, a vision to deliver an integrated light rail service has been proposed within walking distance of the block study area. The proposed Parramatta Light Rail Corridor will improve the connectivity between Parramatta and Carlingford and create a greater connection between Carlingford to other key precincts, such as Telopea, Camellia, Newington, Burwood and Macquarie Park. The majority of the precinct is situated within ten minutes walking distance to two future light rail stops at Telopea and Carlingford Station. **An increase in density in the Block Study Precinct will provide more housing close to transport and services.**

“**PARRAMATTA LIGHT RAIL IS ONE OF THE NSW GOVERNMENT’S LATEST MAJOR INFRASTRUCTURE PROJECTS BEING DELIVERED TO SERVE A GROWING SYDNEY. PARRAMATTA LIGHT RAIL STAGE 1 WILL CONNECT WESTMEAD TO CARLINGFORD VIA PARRAMATTA CBD WITH A TWO-WAY TRACK SPANNING 12 KILOMETRES.**



Figure 4 Parramatta Light Rail

1.6 REGIONAL CONTEXT

The Block Study Precinct is located in Carlingford. The site is strategically located in its local context with excellent access to public transport.

Carlingford is a suburb that is well positioned for change to accommodate more housing close to transport and services. It is only ten minutes north of Parramatta and is in close proximity to several major retail centres such as Westfield Parramatta and Carlingford Court; and employment precincts including Rydalmere, Parramatta CBD, Macquarie Park and Norwest. It has convenient access to a range of public and private schools and nearby bushland and park areas.

The site is located approximately 800 metres southwest from Carlingford Station and approximately 850 metres north of Telopea Station. Both stations are situated along the T6-Carlingford line connecting the site to the priority urban renewal precinct of Camellia and the Rydalmere education precinct.

The NSW Government's commitment to the Parramatta Light Rail that will provide more frequent services and better connections to facilities and services along this line which will facilitate the opportunity to increase housing supply within the walking catchment of this corridor.






Additionally, the block study site benefits from its location situated along the high frequency bus route on Pennant Hills Road. Pennant Hills Road is an arterial route connecting to Parramatta (west), Carlingford and Macquarie Park and Macquarie university to the east.



Figure 5 Regional Context

“ THE BLOCK STUDY PRECINCT IS CLOSE TO PUBLIC TRANSPORT AND ARTERIAL ROADS WHICH PROVIDE CONNECTIONS TO EMPLOYMENT, GOOD SCHOOLS, KEY SERVICES, FACILITIES AND AMENITIES

LEGEND

-  Block Study Precinct
-  10 Minutes Walk from Train Station
-  Hospital/Medical
-  Education
-  Parks & Recreation

1.7 LOCAL CONTEXT

Land Use

The surrounding area is occupied by a number of existing land uses including: schools to the north and west; commercial uses along Pennant Hills Road at Carlingford Railway Station; open space; low density residential development to the west and south, comprising predominantly 1-2 storey houses; and medium to high density (under construction) to the north and east of the precinct.

Carlingford Town Centre and Amenities

There is a small shopping strip near Carlingford Railway Station. The major retail and commercial areas in Carlingford are located 800m from the precinct on Pennant Hills Road, approximately 20 minutes walk away. There are two medium sized shopping centres, Carlingford Court and Carlingford Village.

The precinct is close to a number of public and private schools. Schools within walking distance to the site include:

- James Ruse Agricultural High School
- Cumberland High School
- Carlingford West Primary School

Changing Character of Carlingford

Carlingford is currently undergoing change in density and built form character. East of the Block Study Precinct and adjacent to Carlingford station, new residential flat buildings up to 18 storeys are currently under construction and with the development of the light rail line, access to services and employment centres will ensure that more people in Carlingford will be better connected in future.

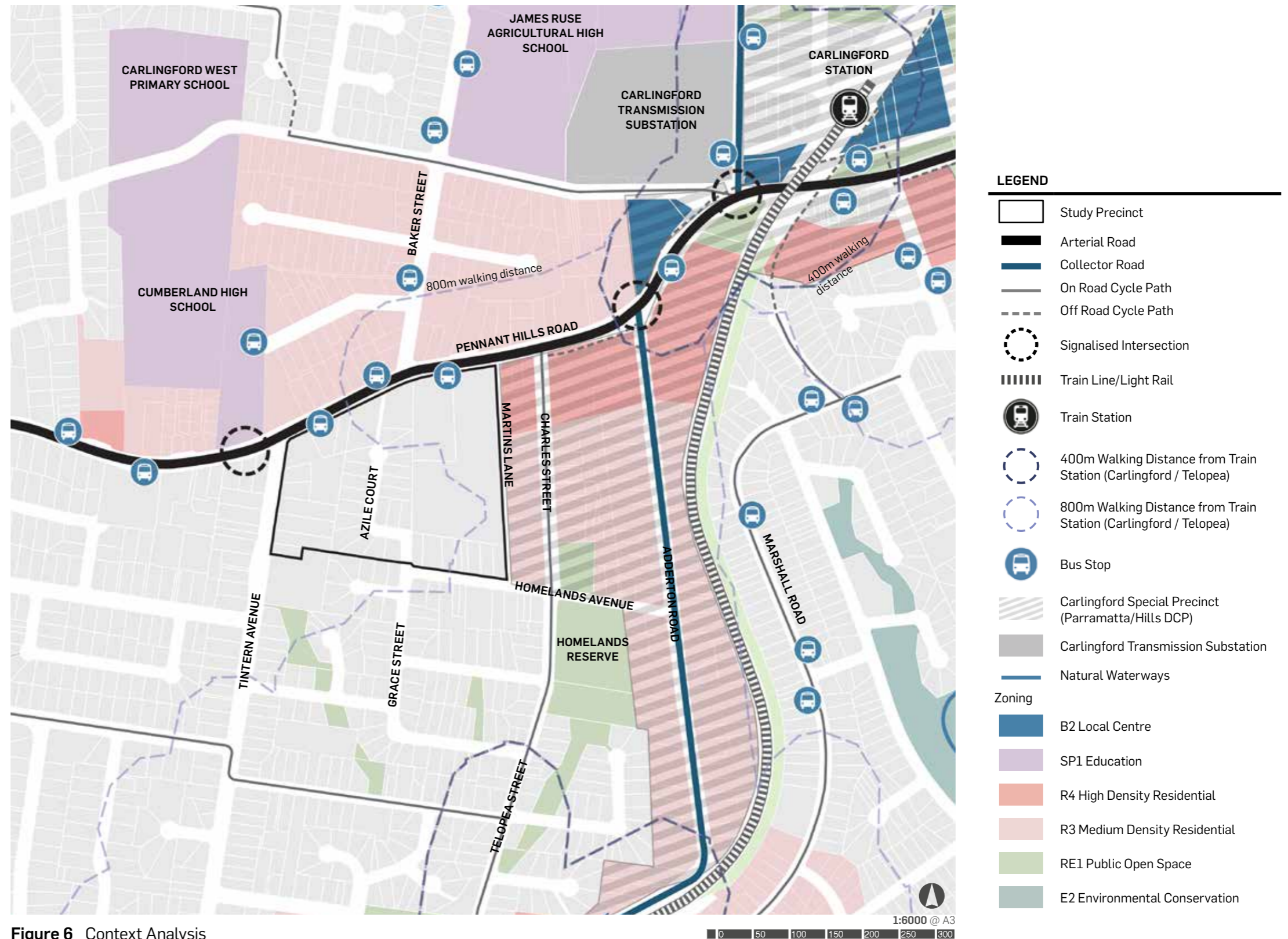


Figure 6 Context Analysis

1.8 PLANNING CONTEXT

The precinct is subject to the provisions of Parramatta Local Environment Plan (LEP) 2011. The land to the north and west of Pennant Hills Road is located within Parramatta LGA but subject to the The Hills LEP 2012. The land use zoning plan (LZN), floor space ratio plan (FSR) and height of building plan (HOB) are a compilation of both the Parramatta LEP 2011 and The Hills LEP 2012 maps.

The following controls currently apply to the site:

LAND USE ZONING

The Block Study Precinct is currently zoned **R2 - Low Density Residential**. Permissible uses include: *Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health consulting rooms; Home-based child care; Home businesses; Home industries; Hospitals; Hostels; Neighbourhood shops; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Roads; Seniors housing; Water recycling facilities.*

Floor Space Ratio

The subject precinct currently allows for a FSR of **0.5:1**

Height of Buildings

The subject precinct currently allows for a maximum height of 9 metres equivalent to approximately 3 storeys.

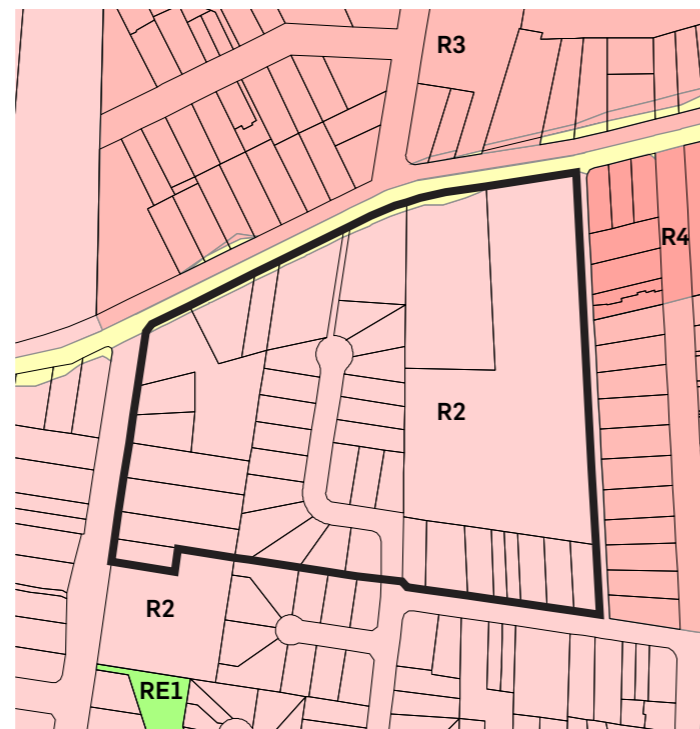


Figure 7 Existing Land Use Zoning (LZN)

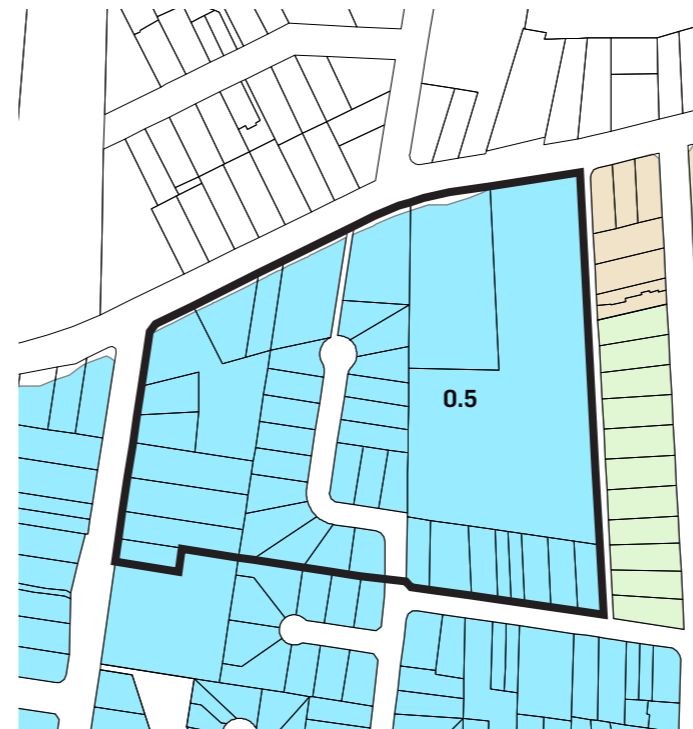
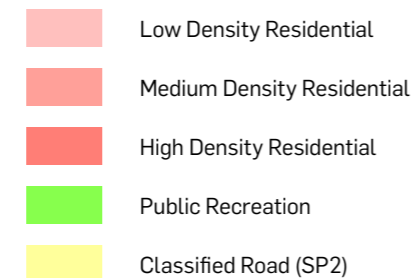


Figure 8 Existing Floor Space Ratio (FSR)

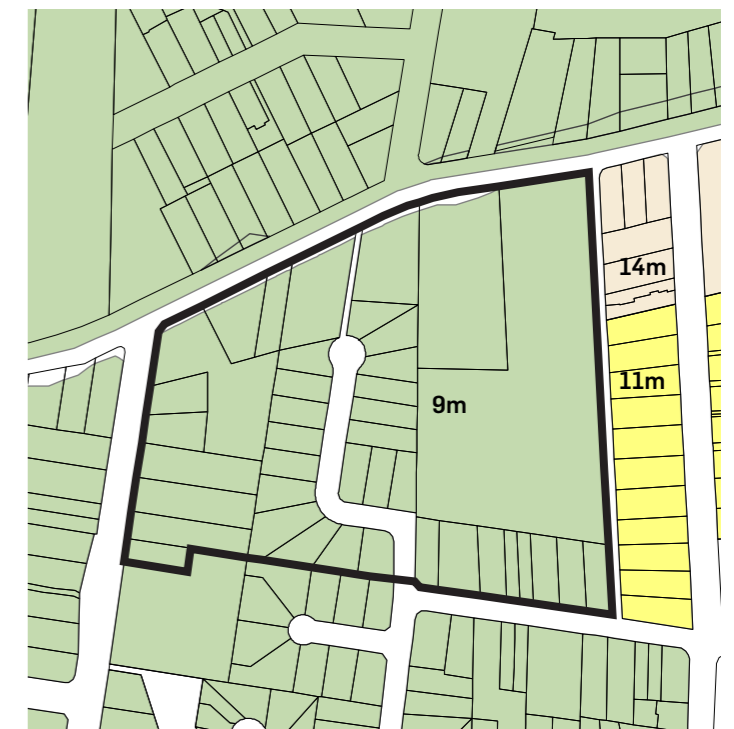
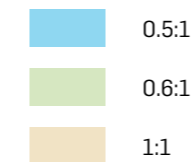
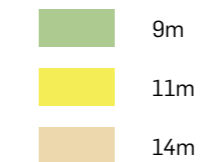


Figure 9 Existing Height of Building (HOB)



1.9 NEIGHBOURHOOD CHARACTER

The surrounding neighbourhood of the Block Study Precinct is generally characterised by single and two storey dwellings to the west and south of the precinct. However, the land to the east and north-east of the precinct is planned for more intensive residential development such as proposed high density apartments located on Charles Street and the 18-storey development on Jenkins Road, currently under construction.

The subject Precinct itself comprise three larger amalgamated landholdings comprising the BaptistCare site and 258-262 Pennant Hills Rd that can accommodate higher density. The remaining Precinct areas comprise of land with fragmented ownership constraints accommodating low-rise single and attached residential typologies.

The Precinct is close to key transport corridors and has potential to act as a transition between Carlingford centre and the lower density development to the west and south of the Block Study Precinct.

Pennant Hills Road

The northern boundary of the site is located on Pennant Hills Road which consists of;

- A 20.2m wide arterial road with 4 traffic lanes and high frequency buses;
- Future road widening with SP2 land zoning on the northern boundary of the Block Study Precinct under private ownership; and
- Typically one-two storey single dwellings, west of and within the precinct;
- Townhouses and attached dwellings occur between Charles and Adderton Road;
- The changing nature of the built form in Carlingford is evident in the denser forms of apartment developments occurring and currently under construction east towards the railway station.



Pennant Hills Road fronting BaptistCare site looking west



Pennant Hills Road fronting BaptistCare site looking east



West directional bus stop immediate to the Block Study Precinct on Pennant Hills Road



Corner of Martins Lane with restricted entry from Pennant Hills Road

BAPTISTCARE SITE

The BaptistCare site is the largest single land holding in the Block Study Precinct with an area of approximately 28,286 m². The BaptistCare site is situated on 264-268 Pennant Hills Road and currently accommodates an existing aged care facility that is vacant and no longer in use.

Other key characteristics of this site are listed below.

- There are ten buildings across the site ranging between 1 - 3 storeys typically orientated north along the length of the building.
- The site accommodates a number of mature trees of up to 40m in height on the southern most boundary as well as on the frontage of Martins Lane.
- High points occur on northern most boundary of the site along the ridge-line occurring on Pennant Hills Road.
- There is significant cross-fall occurs across the site formed by natural topography and large existing building footprints that were cut into the site.
- Previous earthworks that involved cutting and filling to accommodate large building footprints formed large embankments through the middle of the site.
- Existing drainage channels that accommodate overland flow are also located throughout the site.



View of southern boundary with mature tree clusters approximately 40m height.



Interfaces illustrating landform and interface between accommodation units and landscape



Existing pedestrian circulation paths, building interfaces and drainage channels



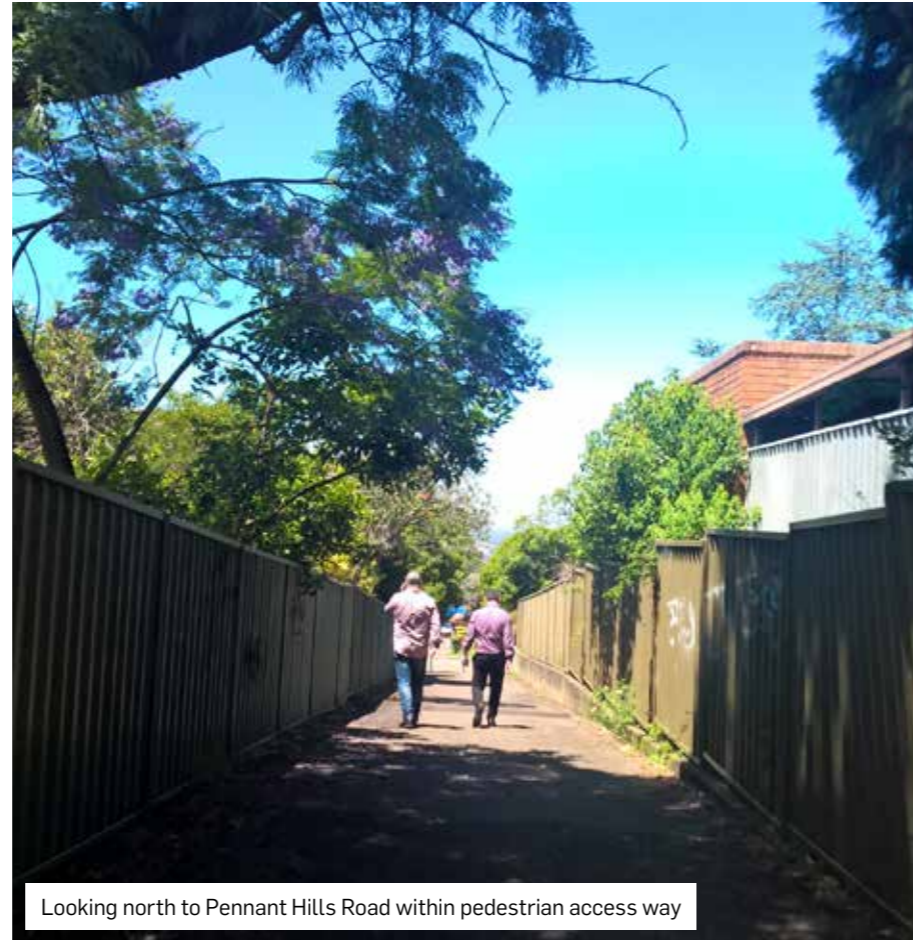
Existing earthworks addressing level changes and run-off

AZILE COURT

Azile Court runs generally north-south within the centre of the block study area, terminating at a cul-de-sac fronting 13, 15, 17 and 20 Azile Court, and, 258 and 262 Pennant Hills Road.

Azile Court comprises:

- A 15.5m wide road reserve with two lanes of traffic on either direction and on-street car parking;
- A 4m wide pedestrian access-way at the northern end of the cul-de-sac that connects to Pennant Hills Road;
- A dogleg on the southern end that intersects with Grace Street and connects to Homelands Avenue
- One to two storey dwellings; and
- District views south towards Camellia and the Parramatta River



Looking north to Pennant Hills Road within pedestrian access way



20 Azile Court and the moderate value vegetation located on the western boundary



View southwards toward Camellia and the greater Parramatta area



View southwards toward Camellia from the lower section of Azile Court

TINTERN AVENUE

The western boundary of the block study area is located on Tintern Avenue which consists of:

- A 21.5m wide carriageway with 2-way traffic travelling on either direction and on-street car parking on both sides of the street;
- One to two storey single residential dwellings;
- Some higher density residential developments; and
- District views south towards Camellia and the Parramatta River.



View southwards toward Camellia from Tintern Avenue



Looking at the moderate value vegetation constraint bounding the western boundary between Azile Court and Tintern Avenue properties



View north towards the intersection of Pennant Hills Road as viewed from Tintern Avenue



View north towards 16 Tintern Avenue villas



View eastwards from the corner of Martins Lane and Homelands Avenue



View westwards looking at 3-15 Homelands Avenue



View northwards from Martins Lane at the intersection of Homelands Avenue

HOMELANDS AVENUE

The southern boundary of the site is located on Homelands Avenue which consists of;

- A 15.5m wide carriageway with 2-way traffic travelling on either direction and on-street car parking on both sides of the street
- One to two storey single residential dwellings and recent attached housing developments on 9-11 Homelands Avenue

MARTINS LANE

Martins Lane is located on the eastern boundary of the block study area providing access for the BaptistCare site and adjacent dwellings on the eastern side.

- Martins Lane currently accommodates a 5.5m wide carriageway with 2-way traffic travelling on either direction from Homelands Avenue up to the northern entry road up to the BaptistCare site.
- Access to Martins Lane from Pennant Hills Road is restricted allowing northbound left out traffic only.
- The eastern side of Martins Lane accommodates rear vehicular access to carports for properties fronting Charles Street.
- The western side of the lane within the BaptistCare site accommodates entry into the superlot as well as 90° car-parking at the edge of the ownership boundary.
- It contains high value ecological vegetation on its western edge within the BaptistCare site.
- Martins Lane is wider at the intersection of Homelands Avenue.

MATURE CANOPIES ALONG MARTINS LANE IS A GREAT AMENITY FOR THE PRECINCT, PROVIDING A DISTINCTIVE STREET CHARACTER



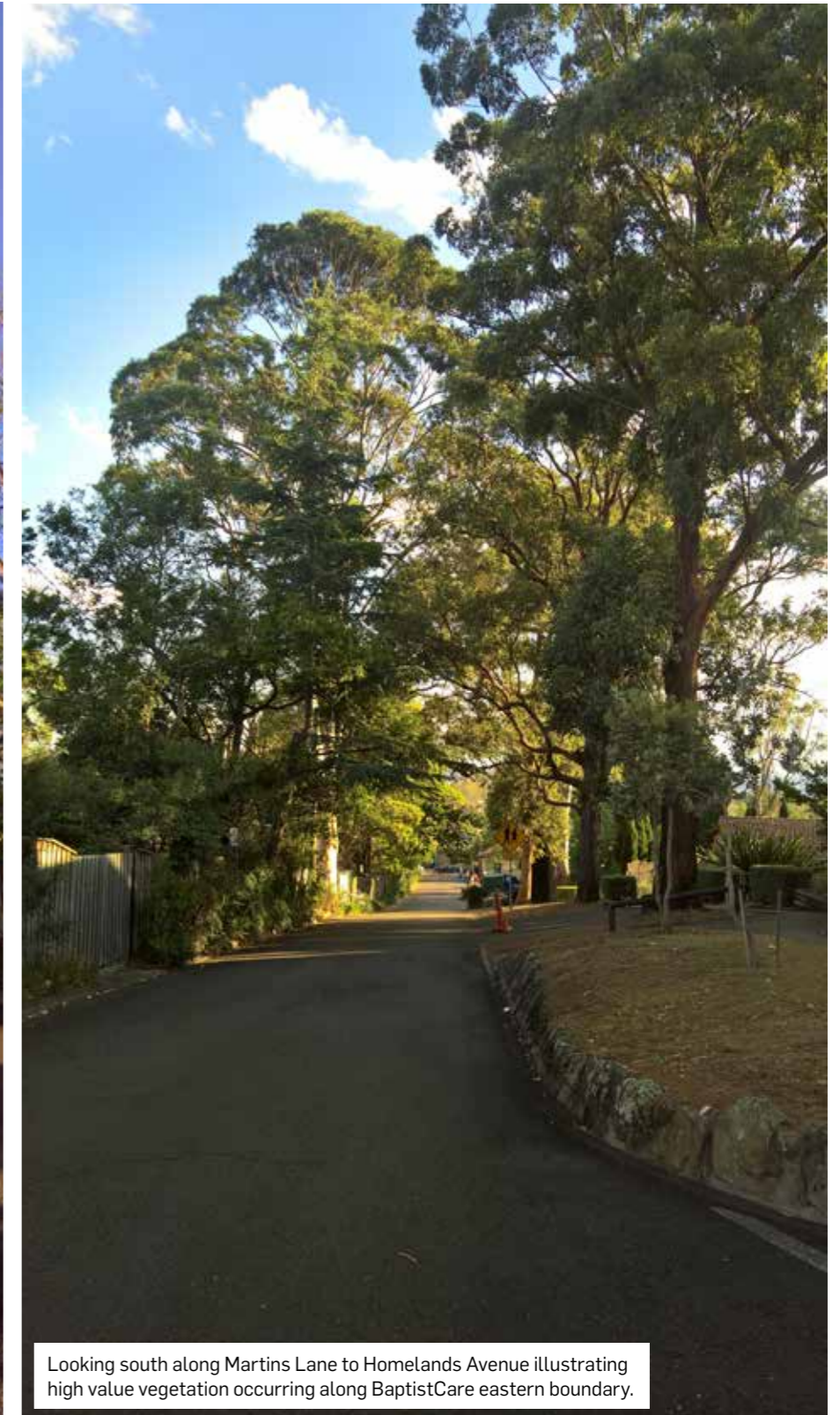
Looking north-east from the corner of the vehicular entry of the BaptistCare site and western interface of 3 Charles Street along Martins Lane.



Looking north-west along Martins Lane to Pennant Hills Road at the rear of 5 Charles Street with car-parking within BaptistCare site.



Looking north along Martins Lane to Pennant Hills Road illustrating 90° car-parking within the BaptistCare site (left) and rear interface of Charles Street properties.



Looking south along Martins Lane to Homelands Avenue illustrating high value vegetation occurring along BaptistCare eastern boundary.

EXISTING ROAD NETWORK

The site is located on the major arterial link of Pennant Hills Road connecting south-west to Parramatta and greater Western Sydney and Hornsby and Macquarie Park to the north-east. Proximate to the study area, Pennant Hills Road comprises:

- A four lane undivided carriageway with two traffic lanes in each direction and a 60 kilometre per hour speed limit.
- Clearway operating for southbound traffic during weekday peak periods.
- Bus stops on both sides of the road close to the site and a right turn bay in Pennant Hills Road for turns into Baker Street
- Un-signalised t-intersections with Tintern Avenue, Baker Street, Martins Lane and Charles Street.
- A signalised intersection with Adderton Road east of Charles Street

On the eastern boundary of the study area, Martins Lane provides a carriageway width of approximately 5.5 metres, with a wider carriageway at its southern end intersecting Homeland Avenue. Turns at the intersection of Pennant Hills Road/Martins Lane are restricted to left turns only from Martins Lane onto Pennant Hills Road with no entry permitted into Martins Lane from Pennant Hills Road. It provides for two-way traffic, however, turning restrictions at Pennant Hills Road mean that most traffic in the lane is northbound. Some angle parking is provided adjacent to Martins Lane, within the BaptistCare site.

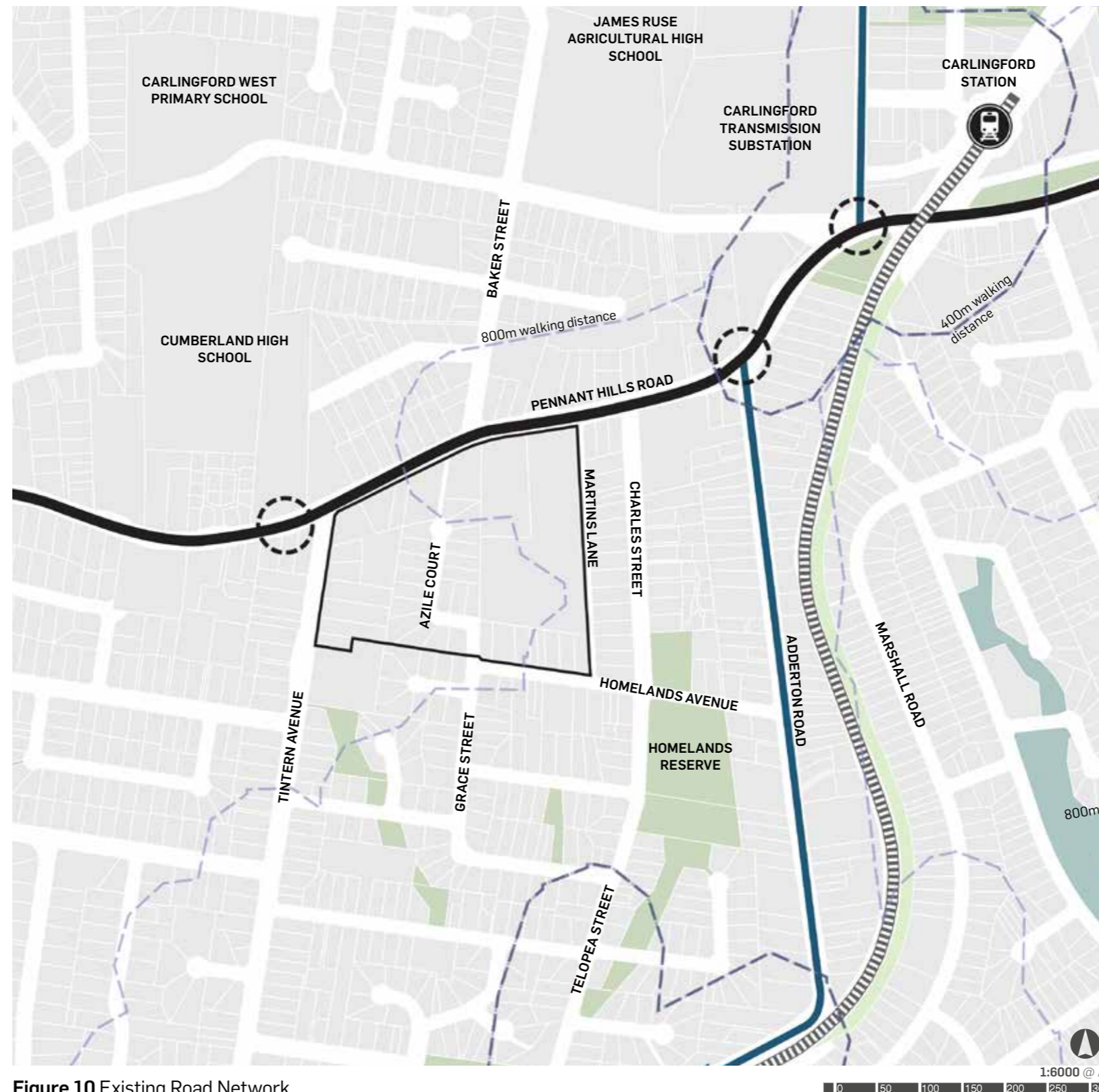


Figure 10 Existing Road Network

Homelands Avenue runs along the southern side of the block study, connecting to Adderton Road in the east with Grace Street in the west. It provides for two-way traffic, with on-street parking permitted, and a 50km/hour speed limit. The intersection of Homelands Avenue with Martins Lane is an un-signalised t-intersection with a landscape median and all turns permitted. The intersections of Homelands Avenue with Grace Street and Adderton Road are Un-signalised t-intersections.

Azile Court runs north from the intersection of Homelands Avenue with Grace Street. It is a dead end and provides access to a number of residential properties within the precinct.

Pennant Hills Road carried some 2,750 to 3,700 vehicles per hour two-way during the surveyed morning and afternoon peak hours. Adderton Road carried lower flows of some 950 to 1,150 vehicles per hour two-way.

Baker Street carried some 200 to 500 vehicles per hour two-way during the surveyed peak hours. Flows on Felton Road, Charles Street, Telopea Street and Tintern Avenue were in the range 50 to 300 vehicles per hour two-way.

Homelands Avenue carried less than 150 vehicles per hour two-way, with flows decreasing toward the west. Martins Lane, Grace Street and Azile Court carried low flows of some 20 vehicles per hour or less.

LEGEND

- Study Precinct
- Major Road
- Main Road
- Signalised Intersection
- Train Line/ Light Rail Line
- Train Station
- 400m Walking Distance from Train Station (Carlingford / Telopea)
- 800m Walking Distance from Train Station (Carlingford / Telopea)

1.10 PUBLIC TRANSPORT

The majority of the precinct is within some 10 minutes' walking distance of Carlingford and Telopea railway stations. Both stations are on the Carlingford Line (Carlingford to Clyde).

Services on the Carlingford Line operate on a 60 minute headway in each direction.

The Parramatta Light Rail project is planned to provide a light rail connection to Carlingford, replacing the existing heavy rail line, and connecting to Parramatta and Westmead via Telopea, Dundas and Rydalmere. Construction of the light rail is expected to commence in 2018. It will provide a high frequency service in both directions along the route.

Local bus services are provided by Sydney Buses and Hillsbus. As illustrated in the diagram, there are bus stops on Pennant Hills Road within immediate walking distance to the site. Currently safe pedestrian crossings on Pennant Hills Road are provided at the traffic lights west of Tintern Avenue and at the Adderton Road intersection totalling to a liner distance of approximately 550 metres.

Route 625 operates along Pennant Hills Road and connects Parramatta with Pennant Hills via Carlingford. It operates on an hourly basis in each direction, Monday to Saturday, with a limited Sunday service. During weekday peak hours, services are more frequent.

Route M54 is a cross regional service connecting Parramatta, Carlingford, Epping and Macquarie Park. It operates on a 10 minute headway in each direction during peak periods, a 15 minute headway in each direction during weekday off-peak and a 20 minute headway in each direction in the evening and on weekends.

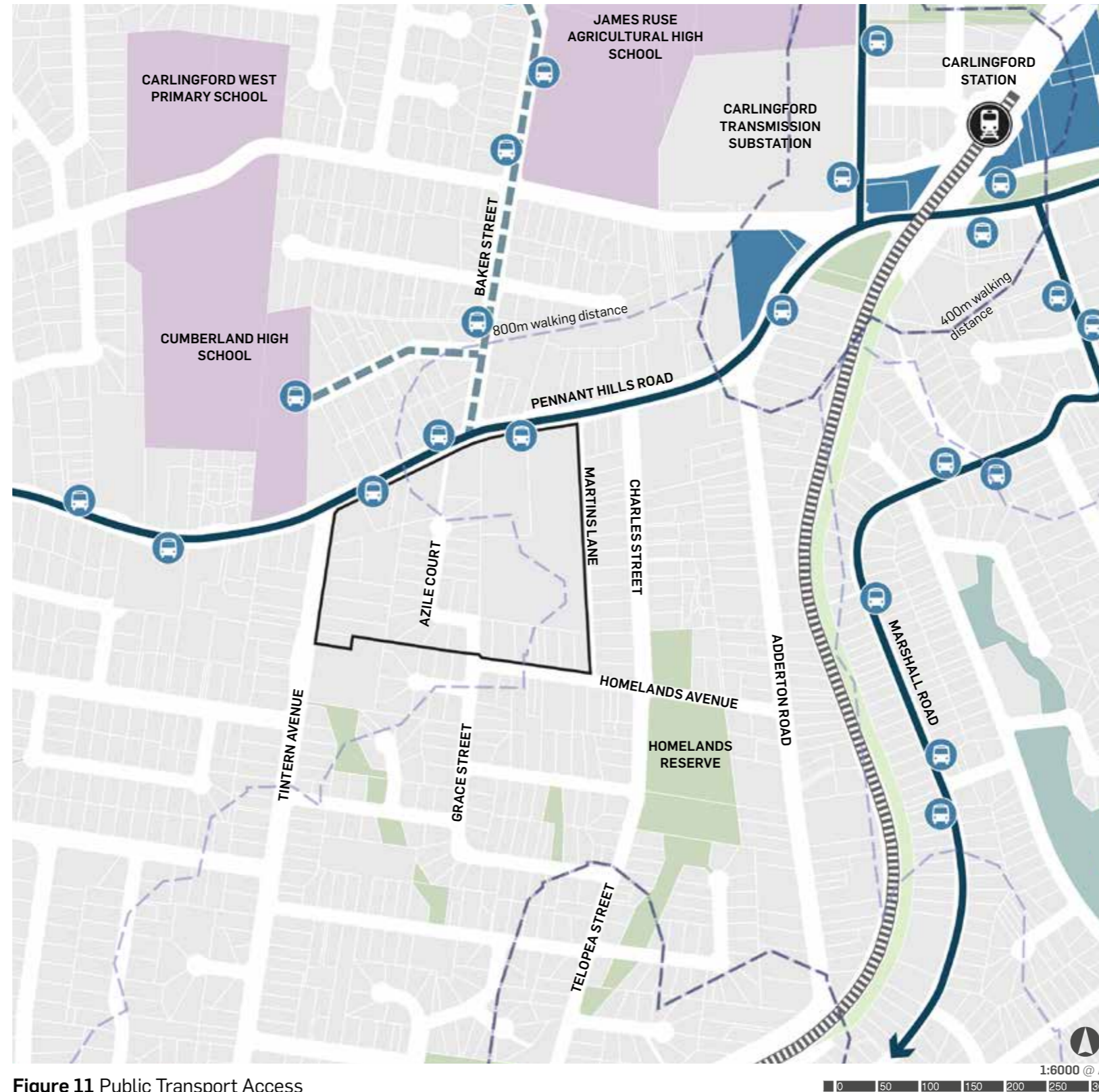


Figure 11 Public Transport Access

THE SITE HAS IMMEDIATE ACCESS TO STRATEGIC BUS CORRIDORS, MAJOR ROADS AND IS WITHIN TEN MINUTES WALKING DISTANCE FROM THE FUTURE LIGHT RAIL CORRIDOR

LEGEND

- Study Precinct
- Train Line/ Light Rail Line
- Train Station
- 400m Walking Distance from Train Station (Carlingford / Telopea)
- 800m Walking Distance from Train Station (Carlingford / Telopea)
- Bus Stop
- Bus Routes
- School Bus Services
- B2 Local Centre
- SP1 Education
- RE1 Public Open Space
- E2 Environmental Conservation

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0 50 100 150 200 250 300

1.11 CYCLE AND PEDESTRIAN MOVEMENT

The block precinct generally possesses good pedestrian links between the site and surrounding areas. Much of the Precinct is within ten minutes walk from two railway stations and is within a comfortable walking distance to schools and services located east of the precinct at Carlingford Centre.

Opportunities for safe crossing across Pennant Hills Road is constrained by the 550m distance between safe pedestrian crossings provided at the traffic lights west of Tintern Avenue and at the Adderton Road intersection. Pedestrian movements within and through the Block Study Precinct are provided via the 4m wide Council access way connecting Azile Court and Pennant Hills Road on the north and Azile Court to the south. The interface of this access way could be improved with the development of 258 and 262 Pennant Hills Road to improve perceptions of safety for pedestrians

There are limited dedicated cycle lanes in the block study precinct, however, there are on-road and off-road cycle paths close by that connect to parks, facilities, schools and transport nodes. There is an off-road cycle-path east of the site on Pennant Hills Road connecting to Carlingford to the east and south of the Block Study Precinct via Charles street and continuing along Telopea Street and Wilkinson Lane.

There is opportunity to provide better connections (pedestrian and cycle) through the Precinct connecting north to Baker Street to good schools, east to Carlingford via Pennant Hills Road and south via Telopea Street

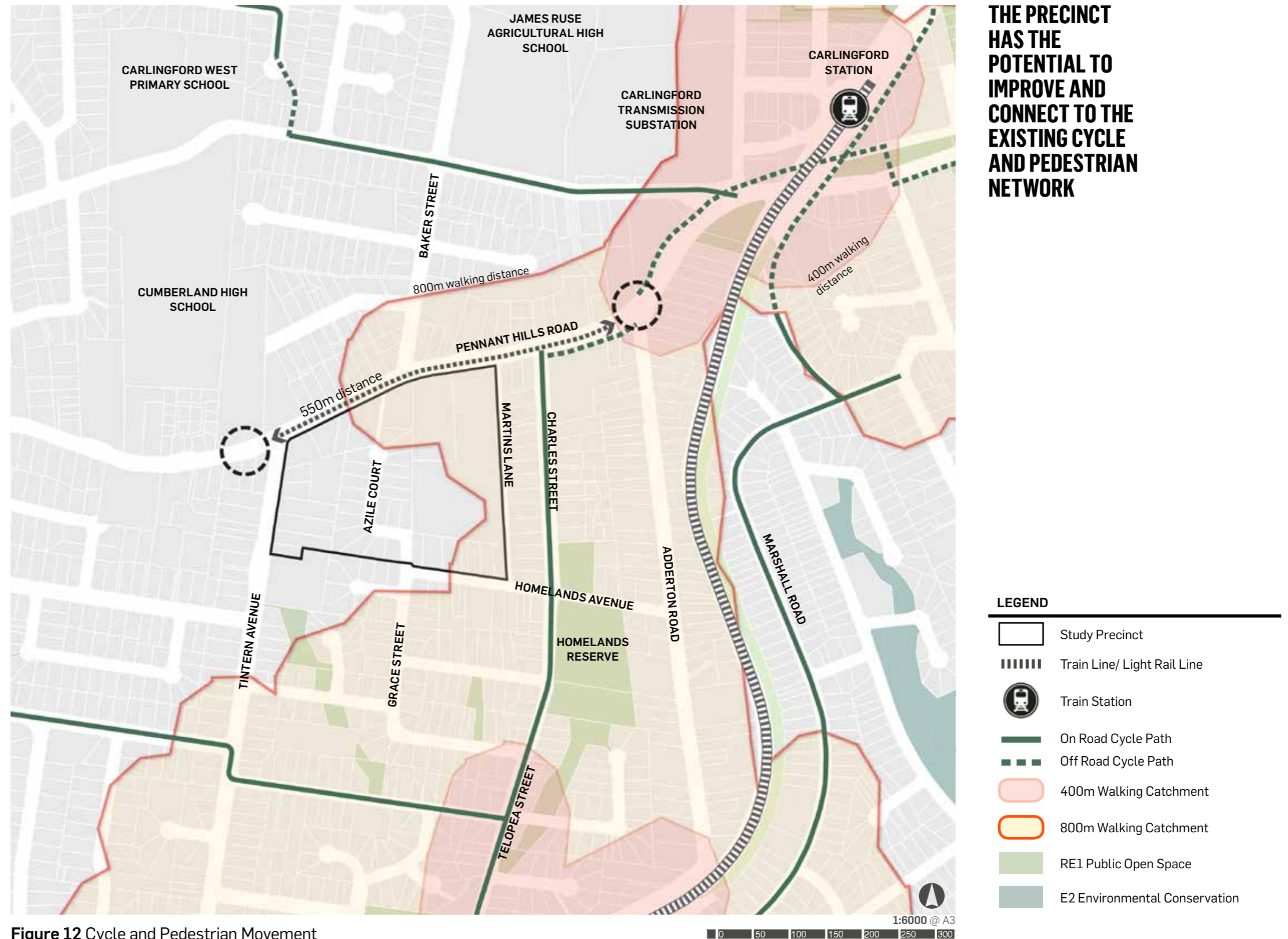


Figure 12 Cycle and Pedestrian Movement

THE PRECINCT HAS THE POTENTIAL TO IMPROVE AND CONNECT TO THE EXISTING CYCLE AND PEDESTRIAN NETWORK

1.12 LANDSCAPE AND TOPOGRAPHY

The block study area is located on a ridgeline that runs along Pennant Hills Road on its northern most edge. High points occurring along this area provide view points located along Pennant Hills Road looking to the lower slopes southwards. There is a fall across the precinct of approximately 23m from Pennant Hills Road to Homelands Avenue.

The sloping nature of the block study area allows for district views to the south and Camellia precinct.

Martins Lane, on the eastern edge of the site, rises from RL74.50 at Homelands Ave to approximately RL98.00 at Pennant Hills Road. This represents an average gradient of approximately 1 in 13.

Views

The topography of the precinct allows for district views to the south and the precinct of Camellia. Within the block study precinct, these views are interrupted by existing mature vegetation up to 40 metres high on the block study area, particularly on the southern boundary of the BaptistCare site.

Views of the site from Pennant Hills Road vary due to the undulating and winding nature of the road.

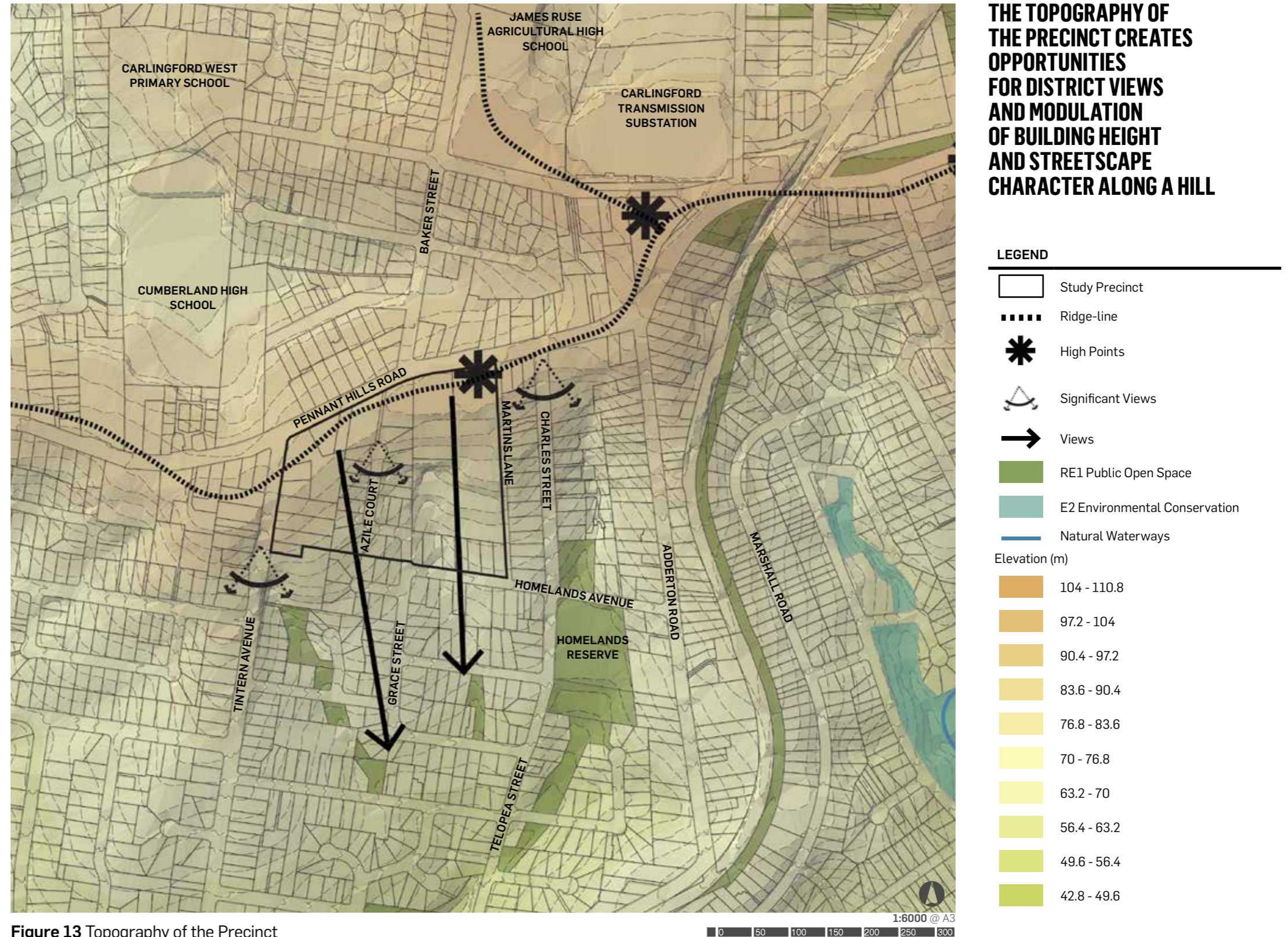


Figure 13 Topography of the Precinct

THE TOPOGRAPHY OF THE PRECINCT CREATES OPPORTUNITIES FOR DISTRICT VIEWS AND MODULATION OF BUILDING HEIGHT AND STREETScape CHARACTER ALONG A HILL

1.13 EXISTING VEGETATION

MATURE TREES AND TALL CANOPIES ARE PRESENT IN THE BLOCK STUDY PRECINCT AND PROVIDE A BUFFER TO FUTURE AND EXISTING DEVELOPMENT

Cumberland Ecology (Final Report, November 2016) undertook an ecological assessment of the Block Study Precinct and identified areas of 'High' constraint present within patches of remnant Blue Gum High Forest located at 264-268 Pennant Hills Road, 10 Tintern Avenue and 8 Azile Court. The presence of Blue Gum High Forest at these locations represents a potential constraint.

Areas of 'Moderate' ecological constraint are present within 264-268 Pennant Hills Road and lots to the north, west and south of 20 Azile Court. These areas consist of mature vegetation containing tree hollows, or large trees potentially containing hollows. The constraints placed on land identified as 'Moderate' would likely require offsetting in the form of replanting and/or the installation of nest boxes to ensure suitable habitat features (i.e. hollows) remain within the area.

To minimise impacts on the biodiversity values of the study area as a result of future development, Cumberland Ecology has recommended that all areas of 'High' and 'Moderate' constraint be avoided where possible. Avoiding all areas of 'High' and 'Moderate' constraint will result in reduced impacts on biodiversity.



LEGEND

- Block Study Precinct
- Lot Boundaries
- Vegetation Community:**
- Blue Gum High Forest
- Habitat Trees:**
- Moderate Value Vegetation
- Habitat Tree
- Threatened Flora Records:**
- *Eucalyptus nicholii*
- *Wollemia nobilis*

Figure 14 Vegetation Communities, Threatened Species and Habitat Features within the Precinct (Source: Cumberland Ecology)

1.14 SUMMARY OF OPPORTUNITIES & CONSTRAINTS

The Precinct consists of a number of issues for consideration and they include:

- The precinct contains steeper terrain. Towards the middle of the Baptist Care site there is a significant level change of approximately 18-20m.
- The Precinct contains remnant areas of endangered ecological community Blue Gum High Forest and clusters of high and moderate ecological value.
- The area is undergoing change - consider the future character of the area and the transition to lower density areas towards the south.
- Understanding the edge treatment to Pennant Hills Road and its future widening and mitigating of potential road noise.

The key opportunity for the Block Study Precinct is the changing character of Carlingford. The majority of the Precinct is within 10 minutes walking distance to railway stations or bus stops along Pennant Hills Road. Additionally:

- Pennant Hills Road will be widened changing the character and edge condition of sites on this corridor with a relatively gentle slope along the northern boundary of the precinct.
- Investigate the opportunity for a signalised intersection and pedestrian crossing at Baker Street and Pennant Hills Road to provide greater permeability through the precinct.
- Consider public domain upgrades on the western side of Martins Lane by providing adequate setback to retain high amenity vegetation.
- Consider opportunity to provide better connections through the block study precinct and improving the interface of the pedestrian access way from Azile Court.
- Retain the amenity of existing mature trees/ high value vegetation throughout the precinct.

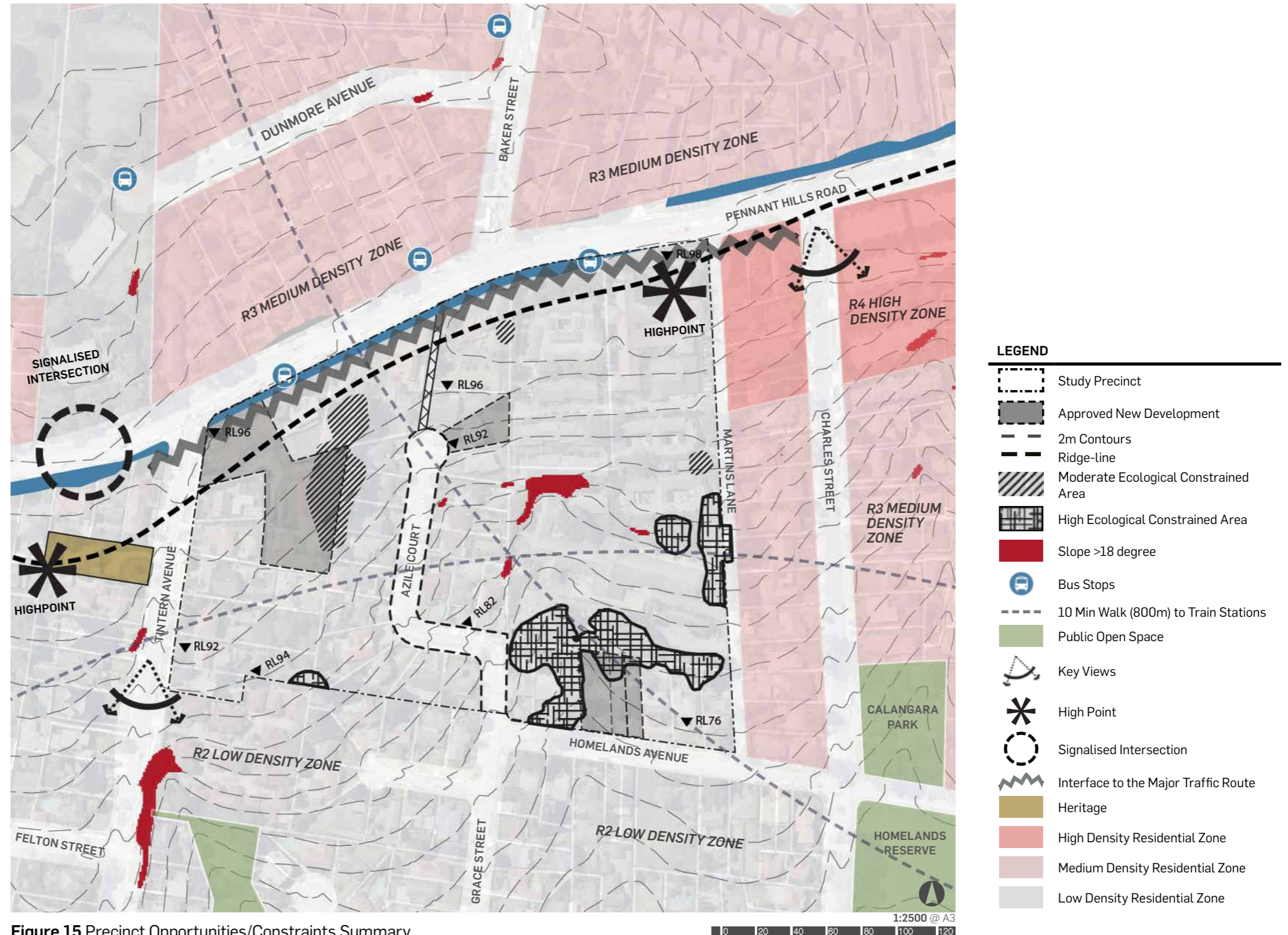


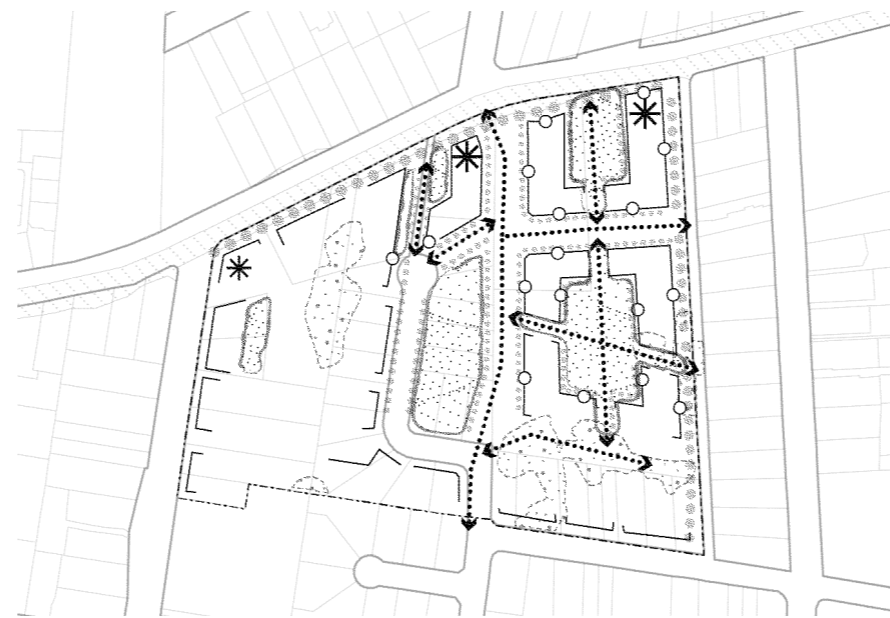
Figure 15 Precinct Opportunities/Constraints Summary

3 ORGANISING PRINCIPLES

DESIGN PRINCIPLES

THE DESIGN PRINCIPLES FOR THE CARLINGFORD BLOCK STUDY WILL ENSURE AN INTEGRATED AND SITE RESPONSIVE APPROACH.

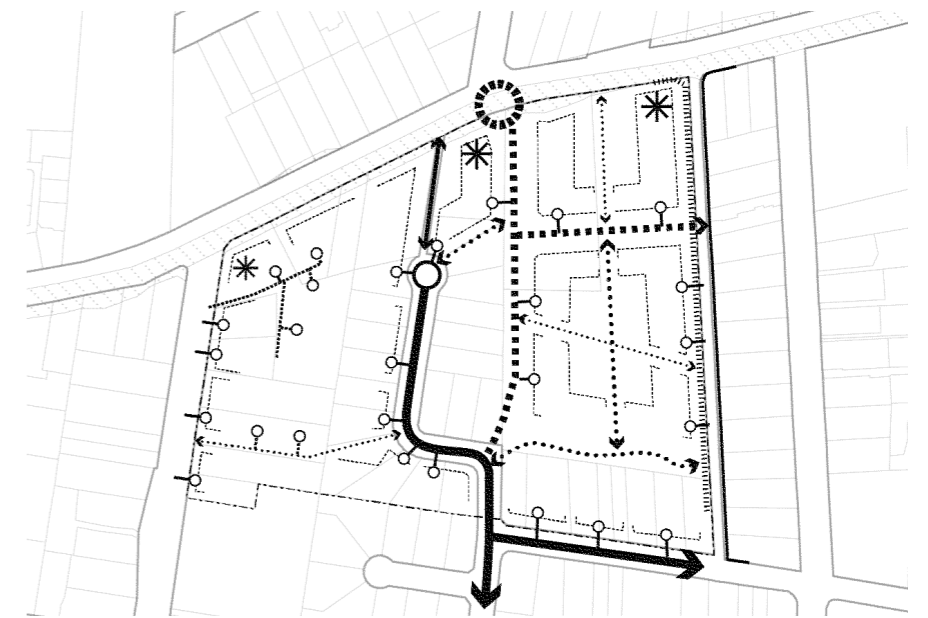
CAPITALISE ON THE PRECINCT'S EXISTING PLACE VALUES



Retain and build on the precinct's special characteristics that provide value and amenity for residents.

- Keep mature trees of significant height, spread and ecological value to provide amenity to residents.
- Use these trees as opportunities for landscape nodes or links. Provide a variety of soft, hard, shallow and deep landscape.
- Understand how water will flow through the site, maximising on permeable surfaces and a variety of landscape treatments.
- Maximise district views to the south.

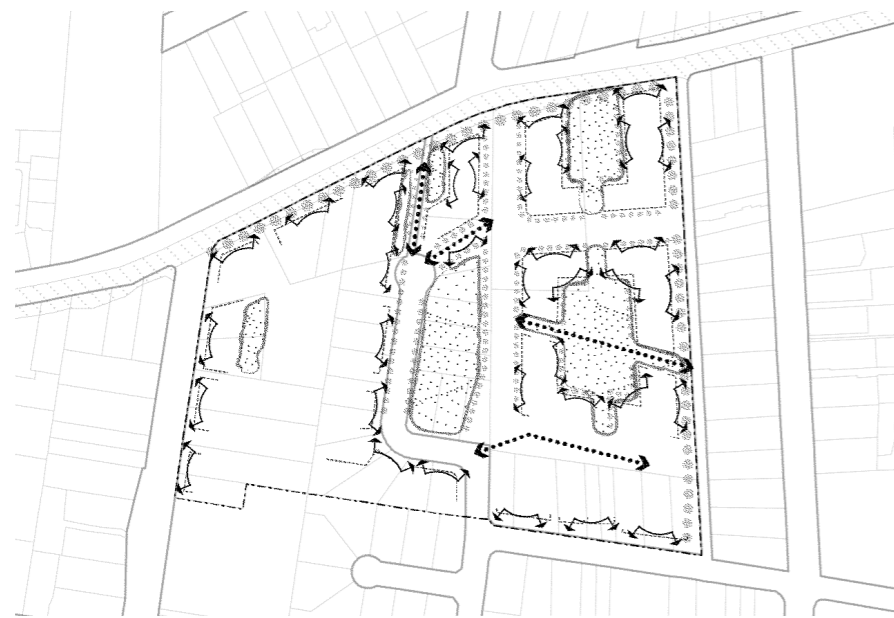
CREATE ACCESSIBLE, CONNECTED & LEGIBLE SITES



Create a legible network of streets and open spaces for cyclists, pedestrians and cars that provide access and good street address for residents and visitors.

- Promote northwards movement to Baker Street with a new signalised intersection;
- Consider public domain improvements along the western edge of Martins Lane to provide a defined streetscape edge to the precinct centred on retaining existing mature trees.
- Encourage permeability through the precinct for pedestrians and cyclists by providing through-site connections where possible.

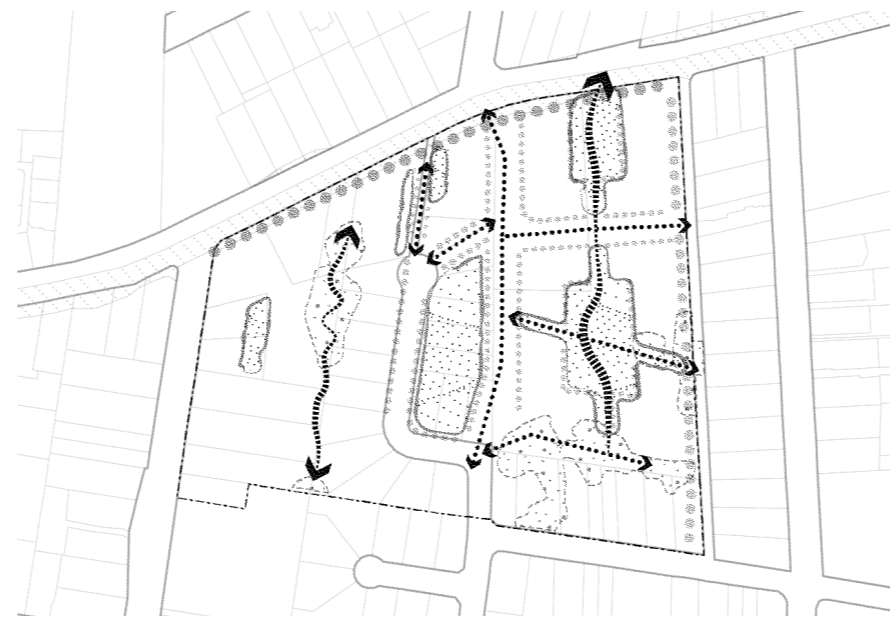
ENHANCE STREET CHARACTER & ADDRESS



Orientate buildings and entrances to the street to which it addresses and clearly define the territorial boundaries of the public and private realm.

- Buildings to address the primary street frontage with clear entrances and articulation
- Provide areas for landscaping to demarcate boundaries between the public and private domain
- Mature trees of significant height, spread and ecological value to be retained to provide amenity to residents;
- Use these trees as opportunities for landscape nodes or links. Provide a variety of soft, hard, shallow and deep landscape;

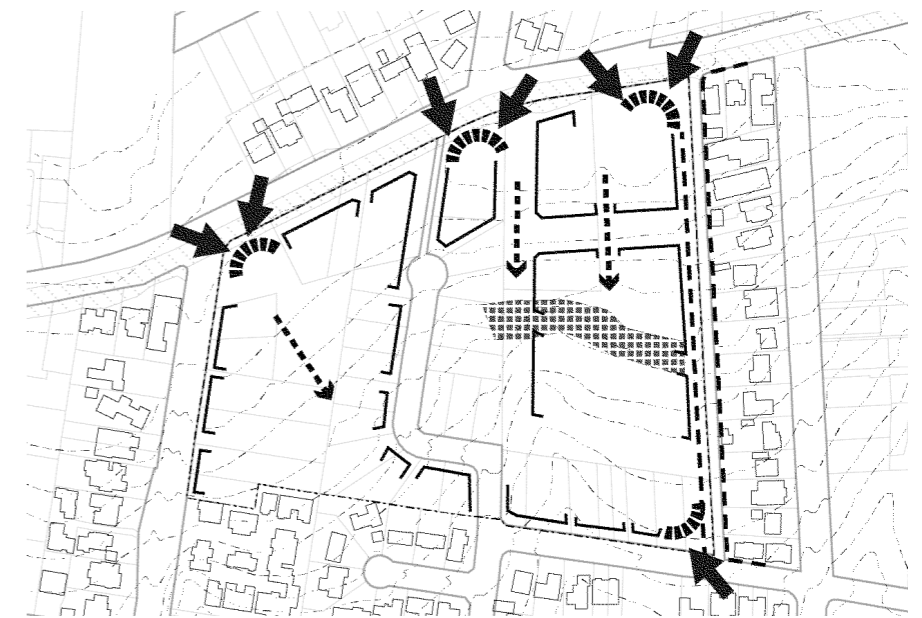
CONTRIBUTE TO GOOD OPEN SPACE ACCESS & NEIGHBOURHOOD AMENITY



Create a network of strategically located and connected communal open spaces for resident and visitor enjoyment, including a new park located at the centre of the precinct.

- Keep mature trees of significant height, spread and ecological value to provide amenity to residents;
- Use these trees as opportunities for landscape nodes or links. Provide a variety of soft, hard, shallow and deep landscape;
- Control water run-off by providing a good quantum of permeable surfaces, retaining mature trees and planting new trees;
- Provide a centrally located public park to ensure proximity to amenity for the Precinct.

ENSURE GOOD BUILT FORM OUTCOMES



Create building heights and form that are distributed in a way that responds to the landform and the emerging built form context

- There is a fall of 26 metres across the precinct from Pennant Hills Road to Homelands Avenue. Consider siting buildings to minimise cut and fill, overshadowing and visual bulk;
- Taller building forms as visual markers should be distributed and sited on prominent edges such as along Pennant Hills Road and corner sites.
- Consider the future character and density on Pennant Hills Road given the road widening and connection to public transport.

RECENT BUILT FORM EXAMPLES DEVELOPING IN CARLINGFORD

Built form across the Parramatta LGA has evolved significantly over recent years, particularly with taller buildings and higher densities in areas which were previously low density in character but have good access to public transport. These higher densities allow for more people to live in places that are accessible to employment, education and other services benefiting from the proximity to urban amenities.

Some examples of higher density developments have been assessed to identify potential approaches to built form in the Precinct such as the examples shown in the following pages.

The following images illustrate the changing character within Carlingford in areas that were previously low density in character but are transitioning to medium and higher density built form.

Larger amalgamated sites in the area have also experienced a significant uplift in density for redevelopment to high and medium density apartments on former single residential allotments or larger sites that are no longer in use.



7-8 storeys apartment on Boundary Road



6 storeys apartments on Young Road



18 storeys mixed use (residential/retail) development at 2-14 Thallon Street (under construction)



6 storeys apartments on Donald Street



4 storeys new apartments along Pennant Hills Road

Figure 16 Recent built residential developments in Carlingford (Sourced from Google Maps)

BUILT FORM PRECEDENTS

The future built form for the Block Study Precinct will likely comprise a variety of housing options including:

- High density residential apartments
- Medium density residential apartments
- Attached housing

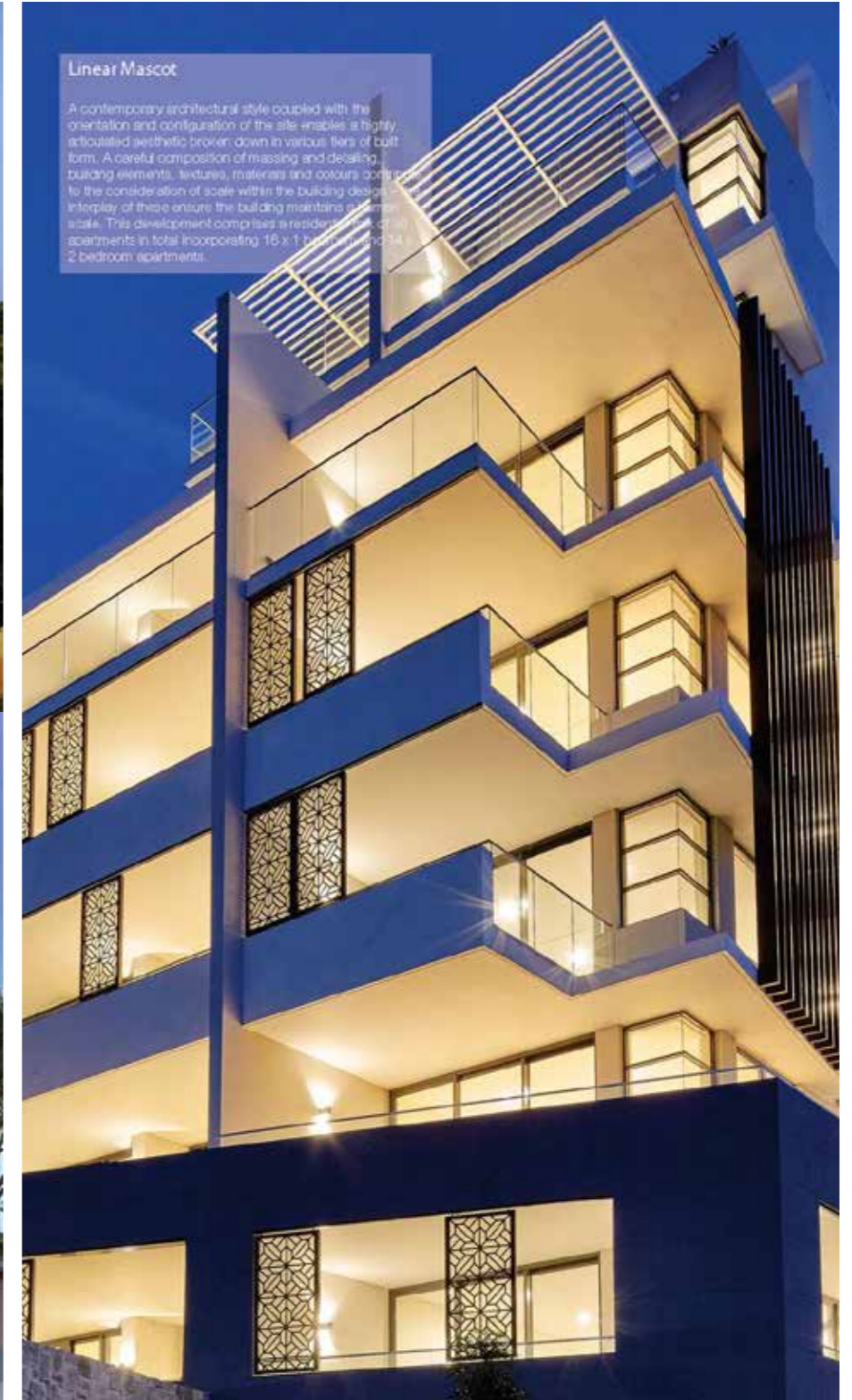
PRECEDENT IMAGES - HIGH DENSITY

The Apartment Design Guide aims to achieve better design and planning for residential apartment development by providing benchmarks for designing and assessing these developments.

- Higher density apartment buildings of between 6 to 8 storeys located in areas close to public transport and arterial road corridors.
- Suitable for larger lots and/or consolidated sites above 2000m² or with a minimum 24 metre frontage providing good quality communal open space.
- Dwelling outlooks are principally orientated fronting the street or rear landscape/open space to provide passive surveillance.
- Ensure long building forms over 45m are well articulated, provide recesses, setbacks or variety of height to break up visual bulk, mass and provide visual interest.
- Provide adequate building separation to ensure privacy and amenity.
- Ensure boundaries between public and private realms are well defined and celebrate building arrival/entrances with landscaping and visual definition
- Ensure corners are designed to define edges and public domain.



Source: PBD Architects



PRECEDENT IMAGES - MEDIUM DENSITY

- Medium density apartment buildings of up to 4 storeys located on the periphery of walkable transport nodes to provide built form transition to lower scale building typologies and neighbourhoods.
- Provide entrances, outlook and address to the street and communal open space to ensure passive surveillance.
- Ensure articulation towards the street frontage and communal open space to inform the streetscape and open space characters.
- Provide articulation on upper storeys and the roof levels to provide visual interest on the skyline.
- Ensure setbacks and siting of buildings to provide good areas for deep soils/permeable surfaces, communal and private open spaces.



Source: PBD Architects & SJB Architects



PRECEDENT IMAGES - ATTACHED HOUSING

The draft Medium Density Design Guide and draft Medium Density Housing Code have been developed to ensure a consistent approach to the design and delivery of quality low rise medium density housing in neighbourhoods across NSW. It provides a framework whereby medium density developments can be assessed as complying development such as attached dwellings (2) terrace houses and manor houses.

- Within the block study precinct, medium density attached dwellings of up to 2-3 storeys are proposed on land fronting Tintern and Homelands Avenue to provide a transition to existing low density dwellings west and south of the Precinct.
- Provide clear entrances, outlook and address to the street and communal open space to promote passive surveillance.
- Provide building articulation and visual interest with material selection to inform good streetscape character.
- Utility of good soft and hard landscape strategies to reinforce territorial edges and street definition.
- Provide areas of permeable surfaces on front yards and ensure that hard surfaces for car parking do not dominate the frontage
- Locate building mass towards the street frontage and further from rear boundaries to allow for private open space.
- Attached housing allows flexibility to provide more housing on smaller lots as well as large master planned subdivisions within areas that were previously low density in character.



Source: Draft Medium Density Housing Code

BAKER STREET INTERSECTION AND NEW NORTH-SOUTH ACCESS ROAD

Baker Street Intersection

The proposed Baker Street Intersection has been designed to accommodate the movement of a 9.5m long rigid vehicle in a north south direction from Baker Street to the Proposed North South Access Road and vice versa..

Similarly entry from Pennant Hills Road and the exit from the North South Access Road has been designed to cater for the movement of a 9.5m long rigid vehicle for both the existing Pennant Hills Road reserve configuration and the future proposed Roads and Maritime Services (RMS) road widening requirements based on the concept layout.

North South Access Road

The site access road has been designed in accordance with generally accepted longitudinal grades for roads of this status given the relatively steep grades that exist along its length.

The road has been designed to accommodate traffic lanes of 3.2m and a combined cycleway/footpath along its eastern edge. Car parking bays interspersed with street tree planting will be provided in the section south of the new east west link road.

At the location in the north south road where the east west pedestrian link is located a longitudinal grade of 2% (1:50) has been provided to allow for disabled access movement across road.

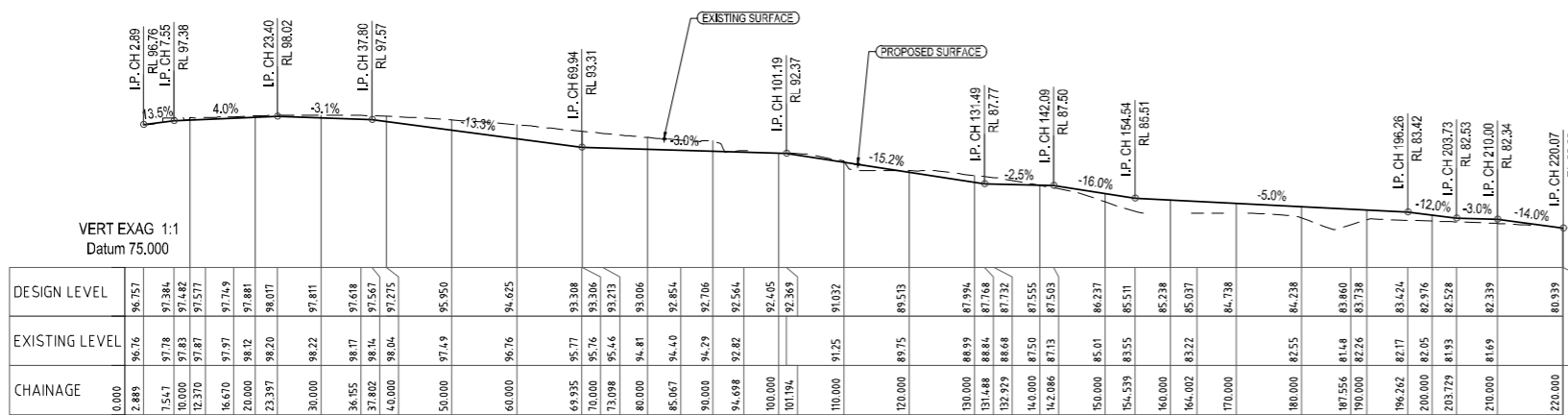


Figure 17 Section of Proposed North-South Street extension of Baker Street

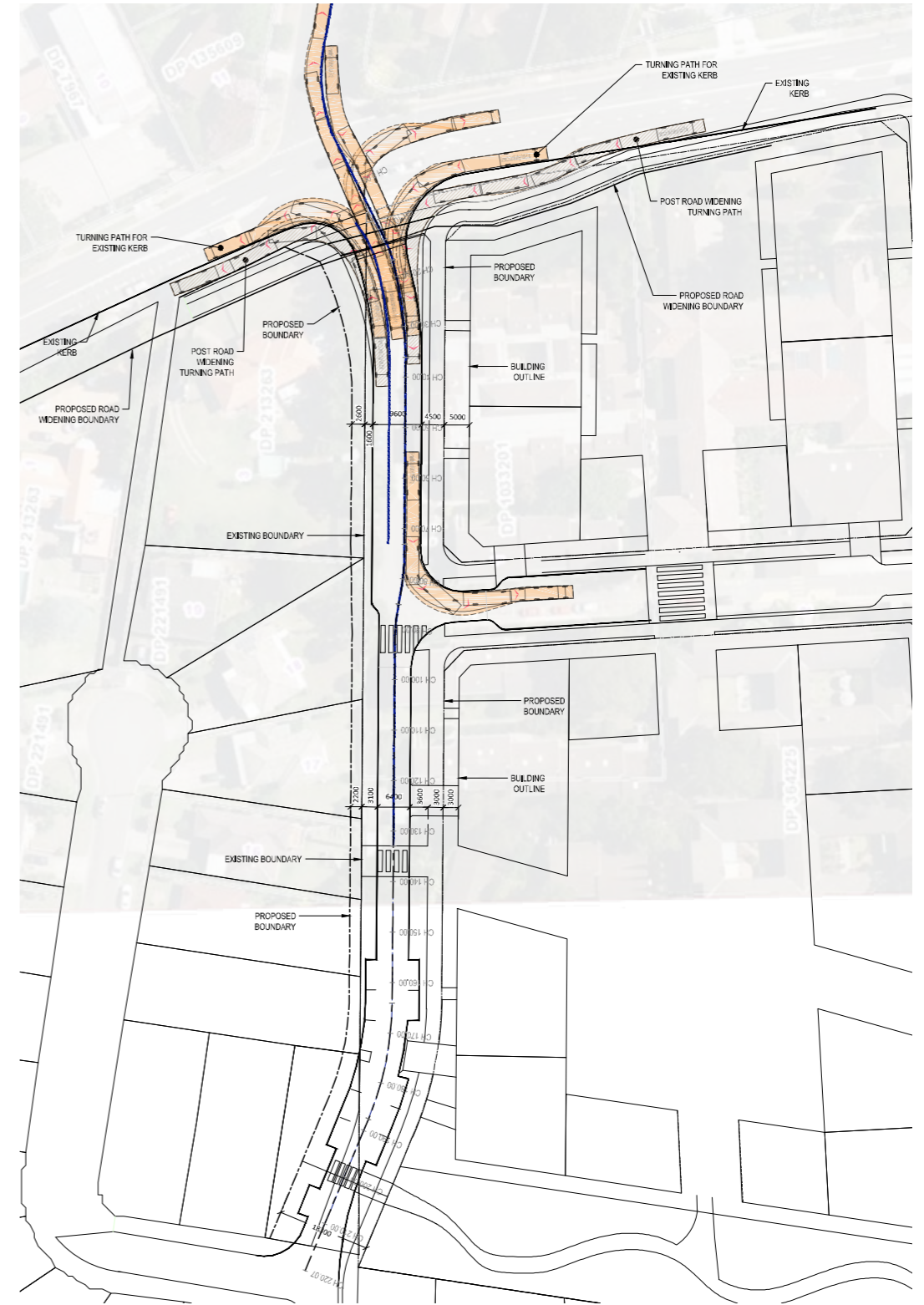


Figure 18 Concept designs and Proposed North-South Street extension of Baker Street and New Intersection

OPEN SPACE OPTIONS INVESTIGATED

As part of Block Study, the City of Parramatta, recommended the investigation of opportunities for dedicated open space. Councils' open space team identified a minimum of 5000sqm of new open space to be provided within 400m of 'most dwellings' in the block study precinct.

There were four options identified as part of the review. **Option 1 was the considered by all parties to be most appropriate location for a future park.**

- Option 1 is located on land centrally located within the Block Study Precinct area. It totals an approximate area of 4900sqm and would require the acquisition of land between as 1A to 15 Azile Court. It contains habitat trees and is approximately 160m from the furthest block study dwelling.
- Option 2 proposes the acquisition of land within the Block Study Precinct between 3 to 15 Homelands Avenue with an approximate area of 5500sqm. It contains areas of 'high' ecological value on the northern boundary and between 13 and 15 Homelands Avenue. It is approximately 250m from the furthest block study dwelling.
- Option 3 proposes the acquisition of land outside of the Block Study Precinct between 23 and 27 Charles Street with an approximate area of 2700sqm. It connects areas of high ecological value within the Block Study Precinct eastwards to Calangara Park. It is approximately 360m from the furthest block study dwelling.
- Option 4 proposes the acquisition of 4 lots outside of the Block Study Precinct between 135 and 137 Adderton Road and 2 Homelands Avenue. It has an approximate area of 3100sqm. It expands Homelands Reserve and is approximately 530m from the furthest block study dwelling.

All Options assume the acquisition of land by Council. Further detailed investigations will be required to determine cost, funding mechanisms and/or contribution plan.



Figure 19 Options for location of Open Space

4 MASTER PLAN

KEY OUTCOMES

Site response and orientation

- Proposed built form envelopes respond to landform. Where building lengths run north-south height distributed and articulated with landform. East-west building lengths run along contour lines and are sited to ensure overshadowing onto open spaces is minimised.
- Building envelopes are oriented to address the street providing passive surveillance and territorial definition.
- Building envelopes are located to retain areas of high ecological value and provide quality streetscape response on Martins Lane.

Landscape, Communal Spaces and Ecology

- The stand of existing mature trees in Martins Lane will be retained where it is identified as high constraint ecological vegetation.
- The Block Study Precinct is to provide a new centrally located park.
- Landscape network and footpaths are to be planned around existing mature vegetation such as on Martins Lane.
- Proposed communal open spaces are centralised and maintain passive surveillance.
- Landscape and tree planting to provide filtered views and minimise overlooking from Martins Lane frontage.
- Consider opportunity to provide green link through to Calangara Park (to the east).
- Future development should avoid impacts on areas identified as having high and moderate ecological value.

Built Form

- Siting of buildings to minimise overshadowing to public domain areas and communal open space.
- Six storeys along the northern boundary of the block precinct between 262-268 Pennant Hills Road, given the proximity to transport services.
- Six storeys within the BaptistCare site east of the new open space and new street address providing passive surveillance and address.
- Transition to four storeys on 258 Pennant Hills Road and 17 Azile Court, between 10-18 Azile Court and the lower-eastern edge of the BaptistCare site fronting Martins Lane.
- Two-three storeys towards the western and southern edge of the precinct on Tintern Avenue, Homelands Avenue and 2-8 Azile Court to provide transition to low density areas to the west and south.
- New internal street off Pennant Hills Road provides access and address buildings on BaptistCare site, fronting the new park.

Traffic

In accordance with the recommendations of traffic consultants Colston Budd Rogers and Kafes, the following traffic management improvements are recommended:

- New signalised intersection of Baker Street and Pennant Hills Road provides improved access and connection to amenities and schools north of the precinct;
- New traffic lights on Baker Street intersection will provide safer pedestrian crossing across Pennant Hills Road;
- Providing a new street as an extension of Baker Street through the Block Study Precinct improves overall permeability of the Block Study Precinct
- The existing carriageway on Martins Lane to remain unchanged, but include widening for public domain improvements such as footpaths, street planting and indented parallel parking bays.
- At intersection with Pennant Hills Road and within the public domain set-out, Martins Lane has the potential to be widened to provide for left in/left out movements .
- The proposed new street connections, public domain upgrades will provide increased connectivity for pedestrians and cyclists.

**THE MASTER PLAN
WILL PROVIDE UP TO
770 NEW DWELLINGS,
NEW CONNECTIONS
AND A CENTRALLY
LOCATED PUBLIC
PARK**

PUBLIC DOMAIN SET-OUT PLAN

Connectivity and permeability in the Preinct will be provided through new street reserves, public domain upgrades and a new park.

The proposed public domain set-out plan identifies the following land to be provided as additional public domain areas within the Block Study Precinct:

- Land Zoned SP2 within privately owned land on between 250 to 268 Pennant Hills Road.
- Land proposed to deliver a new park between 1A and 15 Azile Court and the BaptistCare Site on 264-268 Pennant Hills Road.
- Land from 1A to 17 Azile Court and between 262 to 268 Pennant Hills Road to deliver proposed new street.
- Land subject to new Public Domain widening of Martins Lane on BaptistCare landholdings 264-268 Pennant Hills Road excluding BaptistCare land on the western corner of Martins Lane and Homelands Avenue. Martins Lane would be widened on the eastern side of the precinct, to provide a six metre carriageway, suitable for two-way traffic. At its intersection with Pennant Hills Road, Martins Lane could be widened to provide for left in/left out movements. Parking could be provided on one side of the road, in indented bays.

The public domain set-out proposed is indicative only and will require detailed survey investigations, road design, confirmation of RMS road widening and proposed new kerb alignment on Pennant Hills Road at DA stage.

Nett Site Areas are approximates, subject to detailed survey at subdivision stage



LEGEND

- New Street Reserve
- New Open Space
- Martins Lane Public Domain Widening
- SP2 Zoned Land in Private Ownership

Figure 20 Public Domain Set-out Plan

1:750 @ A3

0 10 20 30 40

SITE SECTIONS

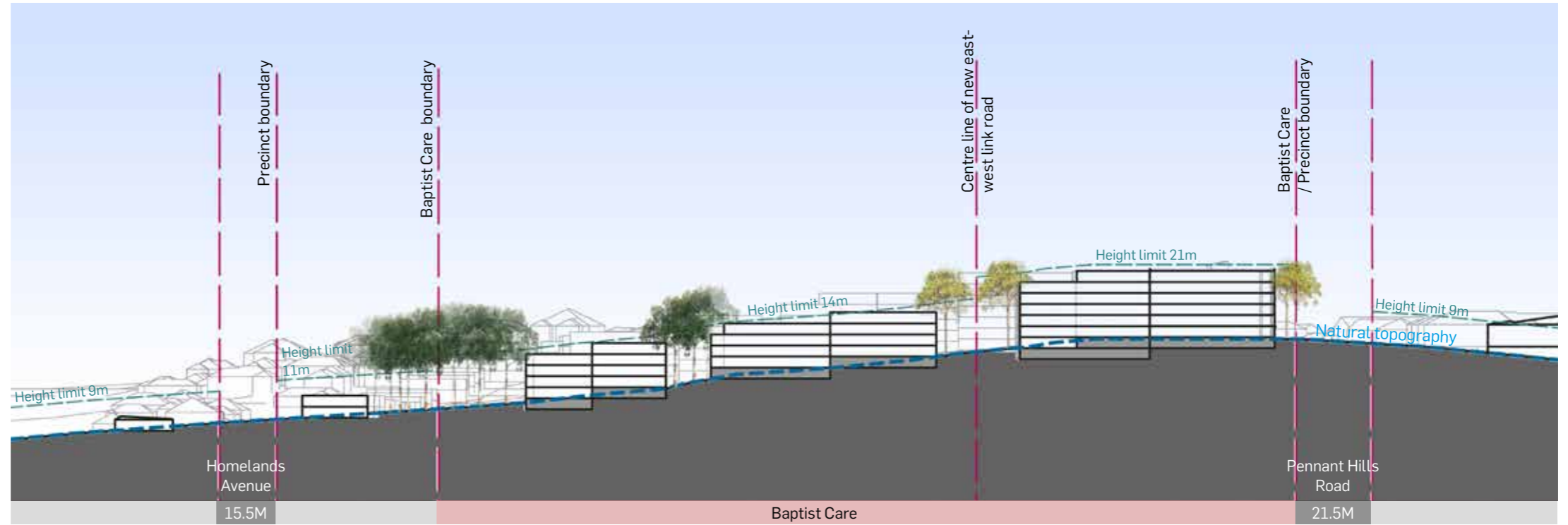


Figure 21 Section A-A'

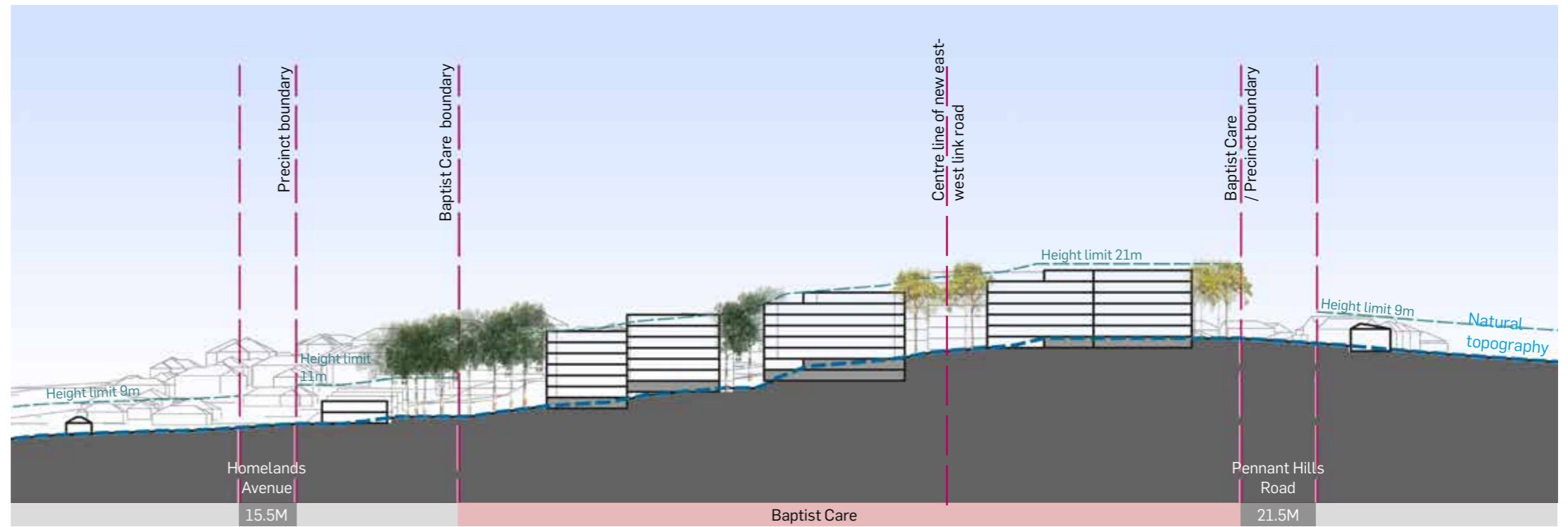
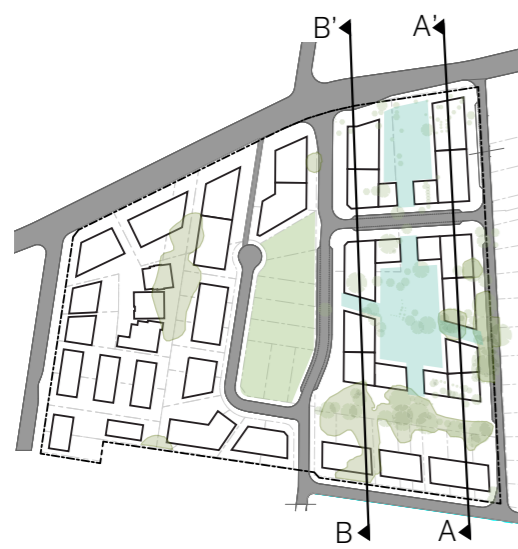


Figure 22 Section B-B'





Existing trees to retain



Indicative new trees

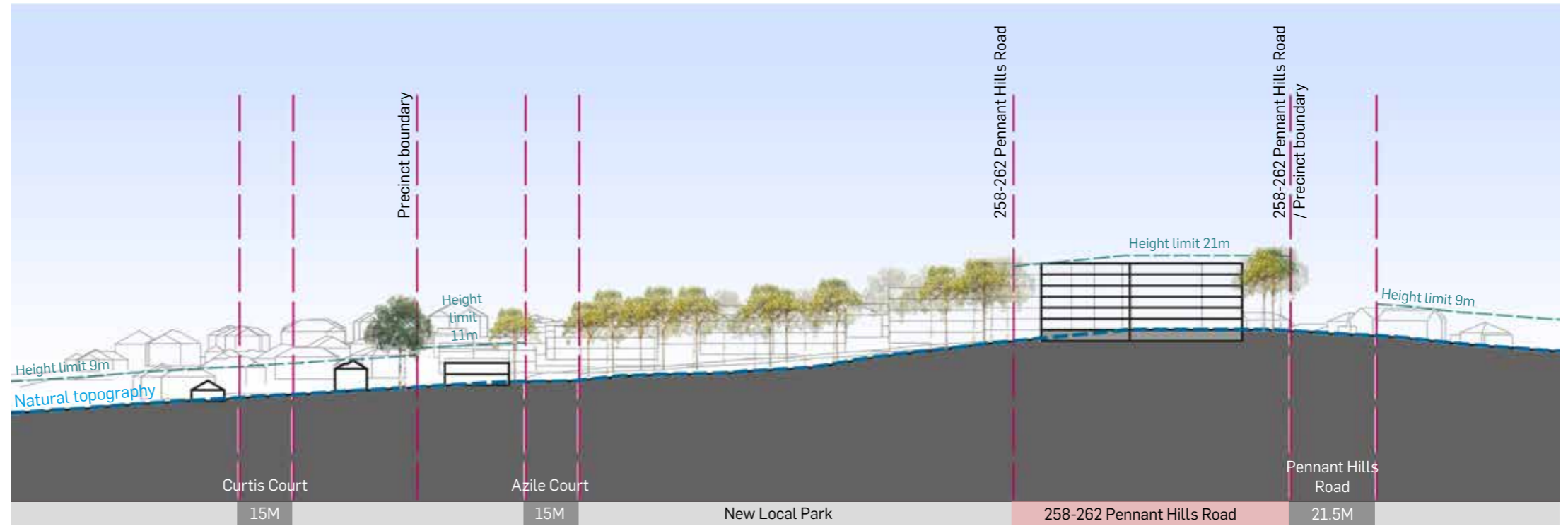


Figure 23 Section C-C'

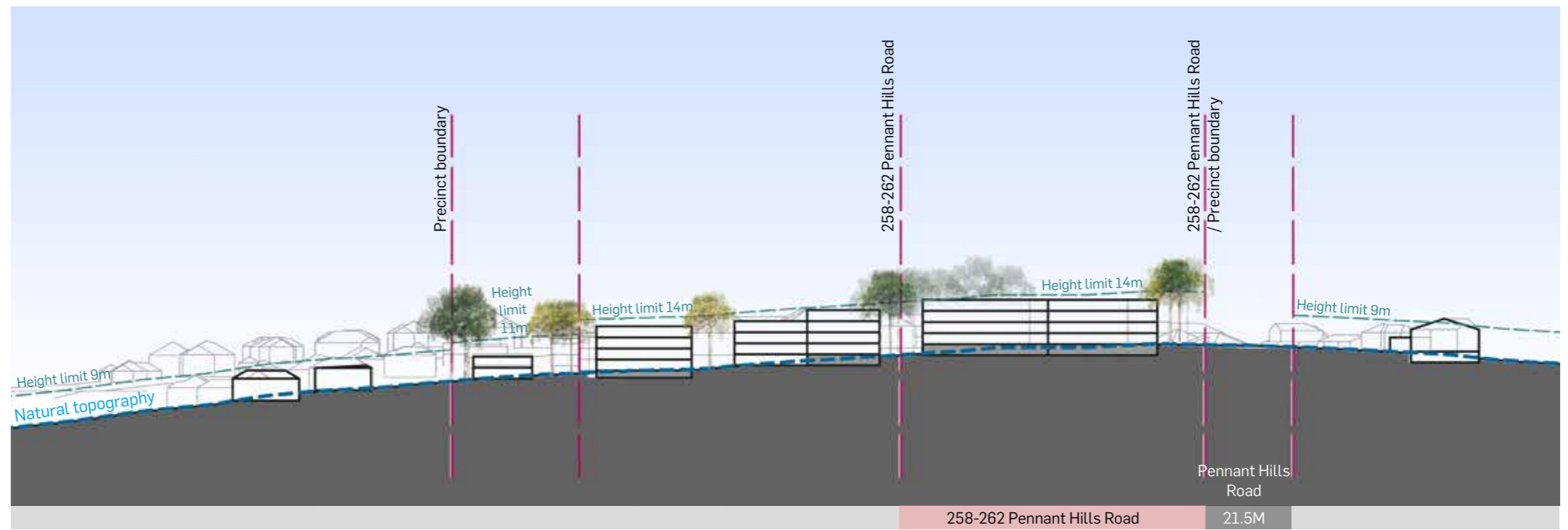
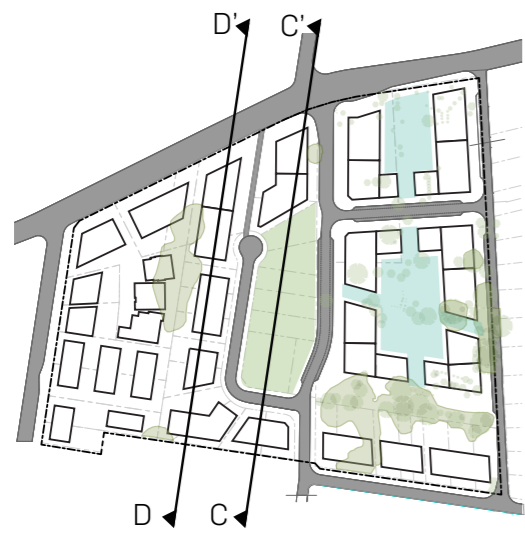


Figure 24 Section D-D'

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0 20 40 60 80 100

STREET SECTIONS

The proposed new street sections in consultation with the Council provides greater permeability and street address in the block study precinct.

The new North-South 18.3m wide street is proposed connecting Baker Street to Grace Street improving permeability through the development. The street incorporates a shared pathway for pedestrians and cyclists that connects with the new Central Park while the carriageway accommodates two lanes of traffic with parking on either side of the road south of the new East-West street. Closer to the new signalled intersection at Pennant Hills Road, the carriageway transitions into three wtraffic lanes.

The new east-west street provides a shaded connection through the BaptistCare site. On Martins Lane an increased public domain reserve allows the retention of mature trees and for planting of new 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.

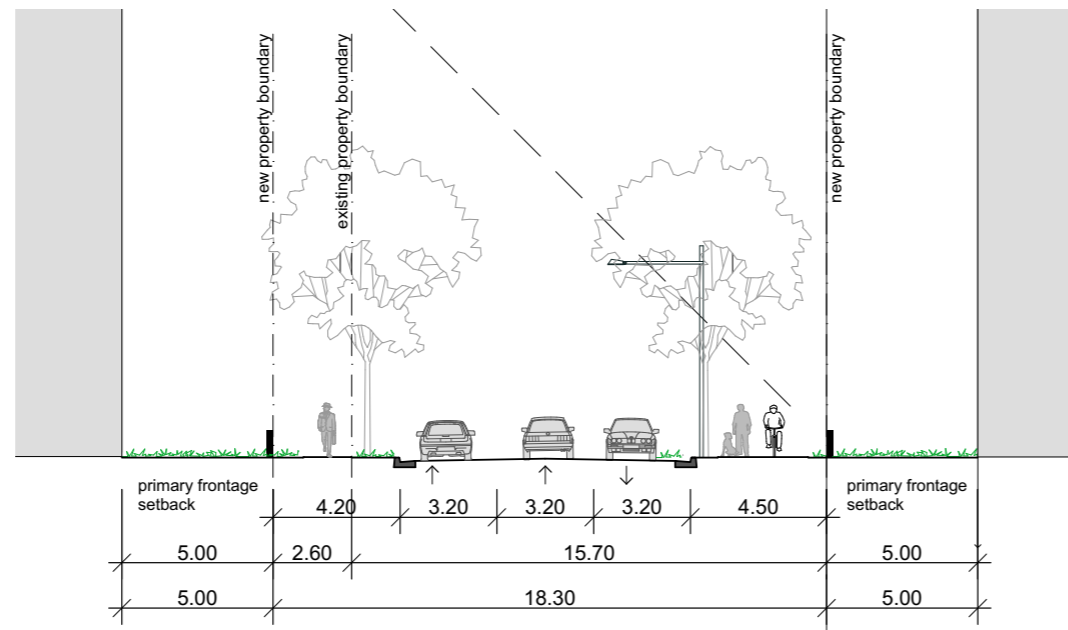


Figure 21 Extended Baker Street- A

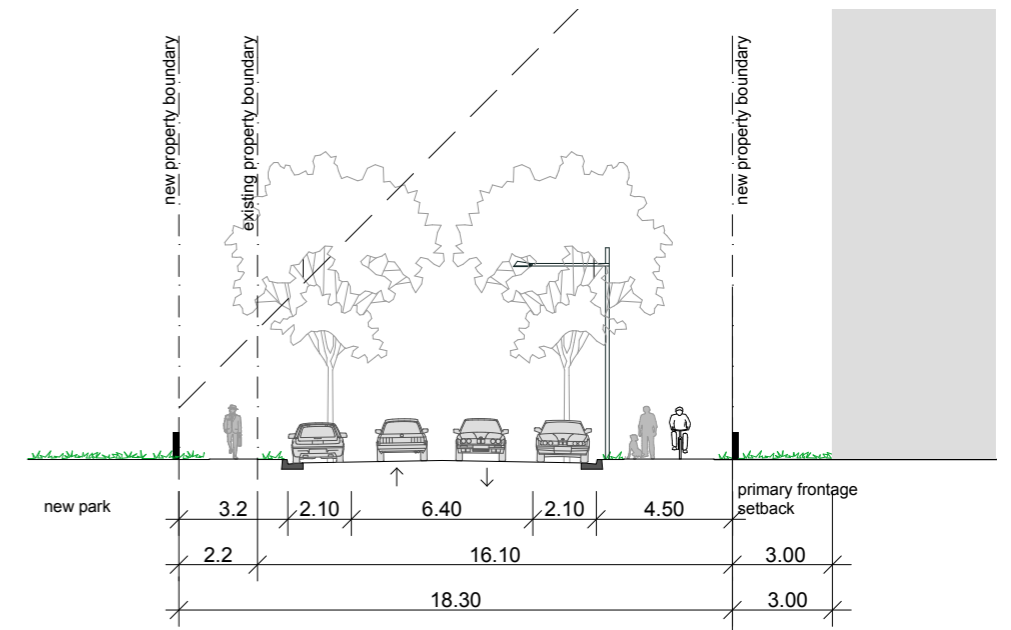


Figure 22 Extended Baker Street- B

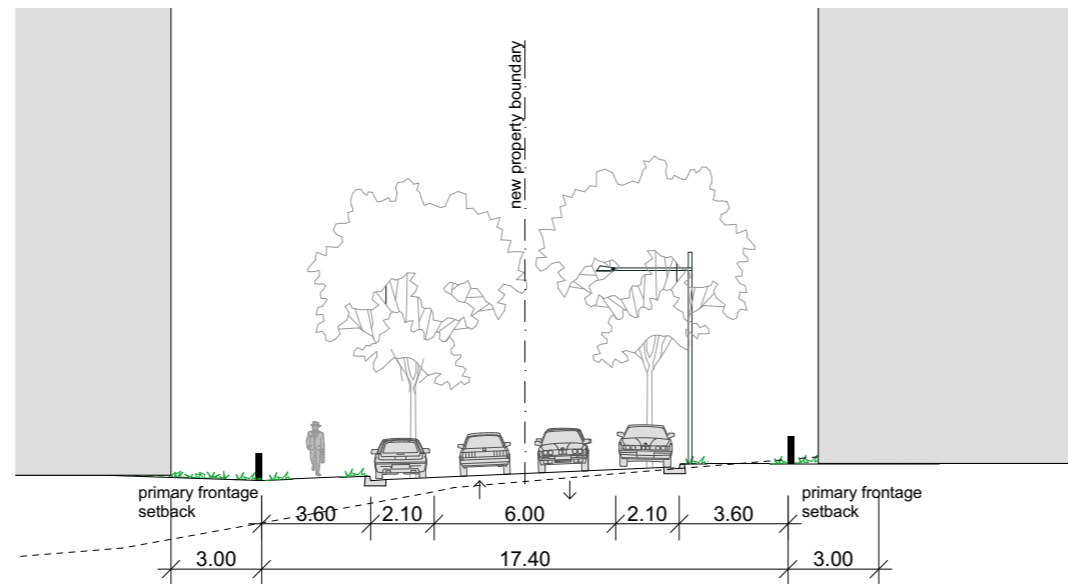


Figure 23 New Street- C

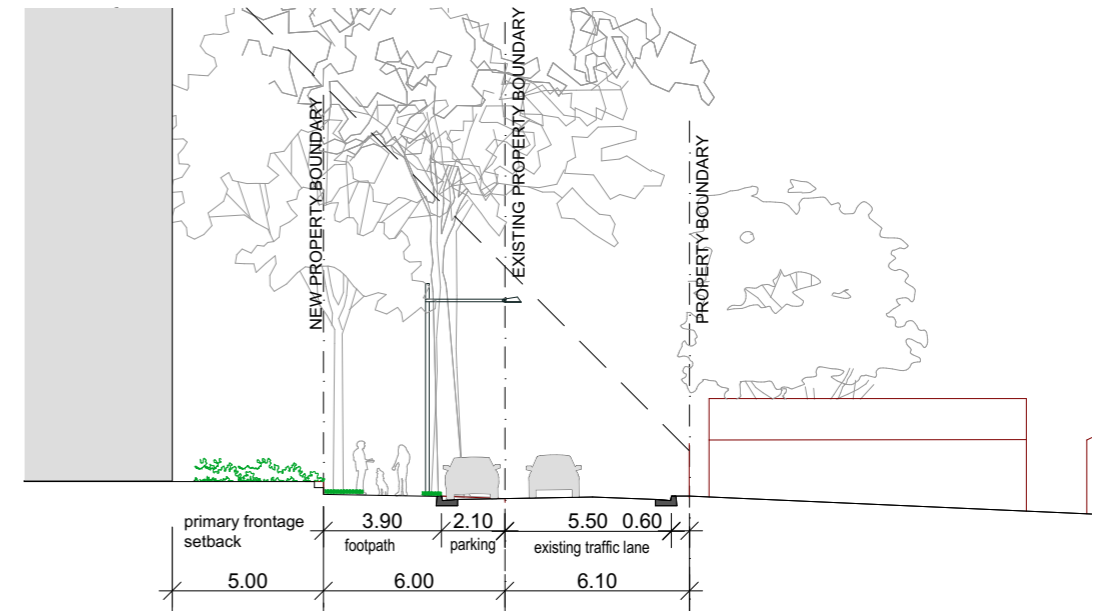


Figure 24 Martins Lane- D

1:250 @ A3
 .E 1:250 0 2.5 5 7.5 10 12.5

STREET TYPOLOGY EXEMPLARS

Streets within the precinct have been designed to suit their purpose. They are sufficiently wide to accommodate their functions and the design makes clear the hierarchy of these roads within the overall network. A legible street network provides a flexible framework to support a variety of development options within the Block Study Precinct

Street Treatment

The following images are examples of a variety of street treatments for the new street. For the Block Study Precinct it is recommended that integration of water sensitive urban design principles be applied where possible to mitigate overland flow and run-off.





BAKER STREET

PENNANT HILLS ROAD

CHARLES STREET

MARTINS LANE

HOMELANDS AVENUE

GRACE STREET

TINTERN AVENUE

AZILE COURT

3st

3st

4st

6st

6st

6st

2st

3-4st

3-4st

6st

4st

2st

2st

6st

4st

4st

2st

2st

2st

SITE REFERENCE PLAN



SITE AREA A	9,598 M²
Site Coverage	35%
FSR	1.56: 1
Total GFA	14,994 m ²
Potential residential yields	205 units
SITE AREA B	17,522M²
Site Coverage	31%
FSR	1.11: 1
Total GFA	19,413 m ²
Potential residential yields	220 units
SITE AREA C	5,818 M²
Site Coverage	48%
FSR	1.8: 1
Total GFA	10,566 m ²
Potential residential yields	124 units
SITE AREA D	3,604 M²
FSR	0.89: 1
Potential residential yields	43 units
SITE AREA E	10,261 M²
FSR	0.6: 1
Potential residential yields	71 units
SITE AREA F	3,193 M²
FSR	0.6: 1
Potential residential yields	22 units
SITE AREA G	3,382 M²
FSR	1.1: 1
Potential residential yields	43 units
SITE AREA H	5,426 M²
Proposed public open space	
SITE AREA I	5,824 M²
FSR	0.6: 1
Potential residential yields	40 units

Figure 25 Reference Design Plan



BUILT FORM TESTING

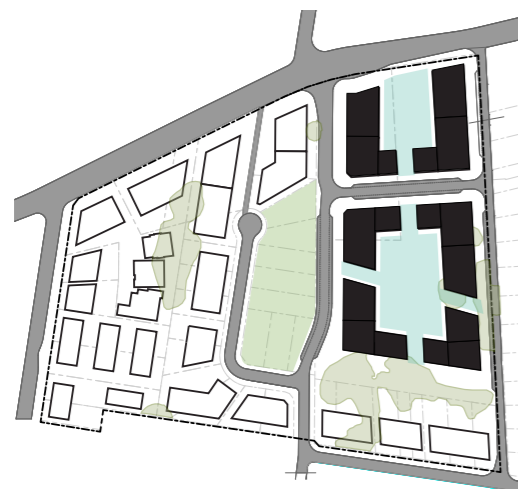
To examine the feasibility of layout and building footprint plans, the proposed building envelopes were tested against ADG criteria for the large amalgamated sites to ensure that the building envelopes proposed can satisfy the design principles in SEPP 65 and deliver appropriate built form outcomes in terms of efficiencies, SEPP 65 compliance, sufficient solar access and cross ventilation.

264-268 PENNANT HILLS ROAD

The built form outcomes for the BaptistCare site has been developed in consultation with Council as part of the Block Study. The proposed built form enables the ability to achieve good urban design and design quality outcomes.

The proposed controls and configuration of the BaptistCare site results in achieving the following key benefits:

- New connections and linkages provide increased permeability for the Precinct;
- High value vegetation for the site is retained, maintaining the distinctive landscape character for the precinct and providing good quality green spaces for the community;
- It enables good frontage and activation to streets and open space providing opportunities for passive surveillance and defining the private and public realm.
- Building interfaces are well defined ensuring good streetscape character, territorial definition and enabling supporting positive outcomes for private and public open space.



Based on the recommended built form and site strategy agreed by all parties, the following yields have resulted from the Block Study for the BaptistCare site:

- The estimated yield for Site A totals to approximately 205 units at 14,994 GFA with a Nett FSR of 2.14 :1, equating to a Gross FSR of 1.56:1
- The estimated yield for Site B totals to approximately 219 units at 19,332GFA with a Nett FSR of 1.64 :1, equating to a Gross FSR of 1.10 :1
- The total Gross FSR for the existing BaptistCare landholding is 1.25 :1
- Up to 6 storeys on Pennant Hills Road with a 6 metre setback from SP2 on Site A to provide activation and increased density on land within walkable transport catchments, facilities, amenities.
- Up to 6 storeys with a 3m setback fronting the new public park and extended Baker Street connection to provide passive surveillance, activated street character on land with proximity to the new park.
- Up to 4 storeys on the lower-eastern portion fronting Martins Lane to provide an appropriate transition and interface for the Lane and to lower scale residential to the south.



Figure 26 Concept Built Form testing by AJ+C Architects

**BAPTISTCARE CARLINGFORD
GFA CALCULATIONS**

AJ+C
8-May-17

Option 3 with Modified Council Controls						
Typology and building (refer to 'Massing Study' Drawing)	No. of storeys	GBA per floor (m2)	GBA - (100%)	GFA - (75% of GBA)	NSA - (85% of GFA)	Indicative no. of dwellings
Building 1a	6	205	1230	923	784	13
Building 1 b	6	698	4,188	3,141	2,670	44
Building 1c	6	595	3,570	2,678	2,276	30
Building 2a	6	264	1,584	1,188	1,010	17
Building 2 b	6	770	4,620	3,465	2,945	49
Building 2c	6	800	4,800	3,600	3,060	51
Site A totals		3,332	19,992	14,994	12,745	205
Building 3a	6	863	5,178	3,884	3,301	44
Building 3b	6	280	1,680	1,260	1,071	14
Building 4a	4	260	1,040	780	663	9
Building 4b	4	656	2,624	1,968	1,673	22
Building 4c	4	736	2,944	2,208	1,877	25
Building 5 a	6	570	3,420	2,565	2,180	29
Building 5 b	6	479	2,874	2,156	1,832	24
Building 5c	4	364	1,456	1,092	928	12
Building 6a	4	455	1,820	1,365	1,160	15
Building 6b	4	409	1,636	1,227	1,043	14
Building 6c	4	276	1,104	828	704	9
Site B totals		5,348	25,776	19,332	16,432	219
Total		8,680	45,768	34,326	29,177	424

GROSS FLOOR SPACE RATIO

Total Site Area	27,493 sqm**
Total GFA	34,326 sqm
Total Gross FSR	1.25 :1

NETT FLOOR SPACE RATIO xx

Site A - GFA	14994 sqm
Site A - GFA/7000sqm	2.14 :1
Site B GFA	19,332 sqm
Site B - GFA/13978sqm	1.38 :1
Total Nett FSR	1.64 :1

**Note total site area excludes house site on Homelands Avenue
xx Nett Site Area does not include new roads

For Council submission - not excluding new roads

Site	GFA	Site Area	FSR
A	14,994	9,582	1.56 :1
B	19,332	17,517	1.10 :1

A high-level review of the layout plan in accordance with the ADG is summarised below

- The layout plan for BaptistCare site has been designed to achieve at least 60% cross ventilation in all buildings.
- The layout is capable of achieving 70% solar access, and all but one building achieves over 70%. The average across 6 buildings is 75.66%
- There are less than 15% apartments not receiving any solar access between 9am and 3pm mid-winter (Approx 12% on Site A- 4 out of 34. Less than 4% on Site B - 2 out of 51)
- Deep soil is easily achieved as all carparking proposed to be basement parking
- Communal open space meets the requirements of the ADG – 25% site area minimum
- Separation of buildings are in accordance with ADG.
- 2 hours of Solar access to a minimum 50% communal open space is achieved as illustrated in the shadow diagrams for the BaptistCare site.

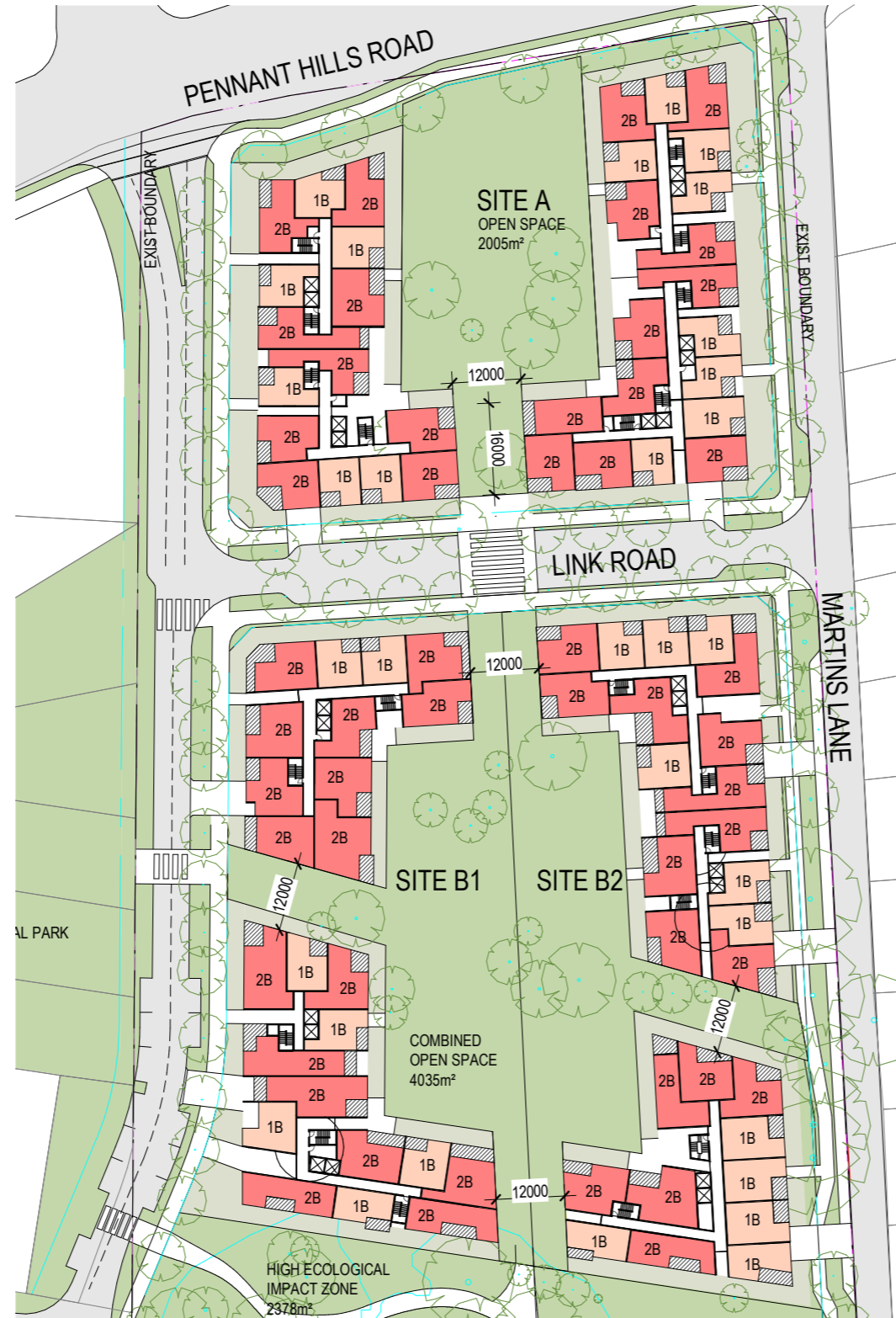


Figure 27 Concept floor plan designed by AJ+C Architects



Figure 28 Site A Concept floor plan designed by AJ+C Architects

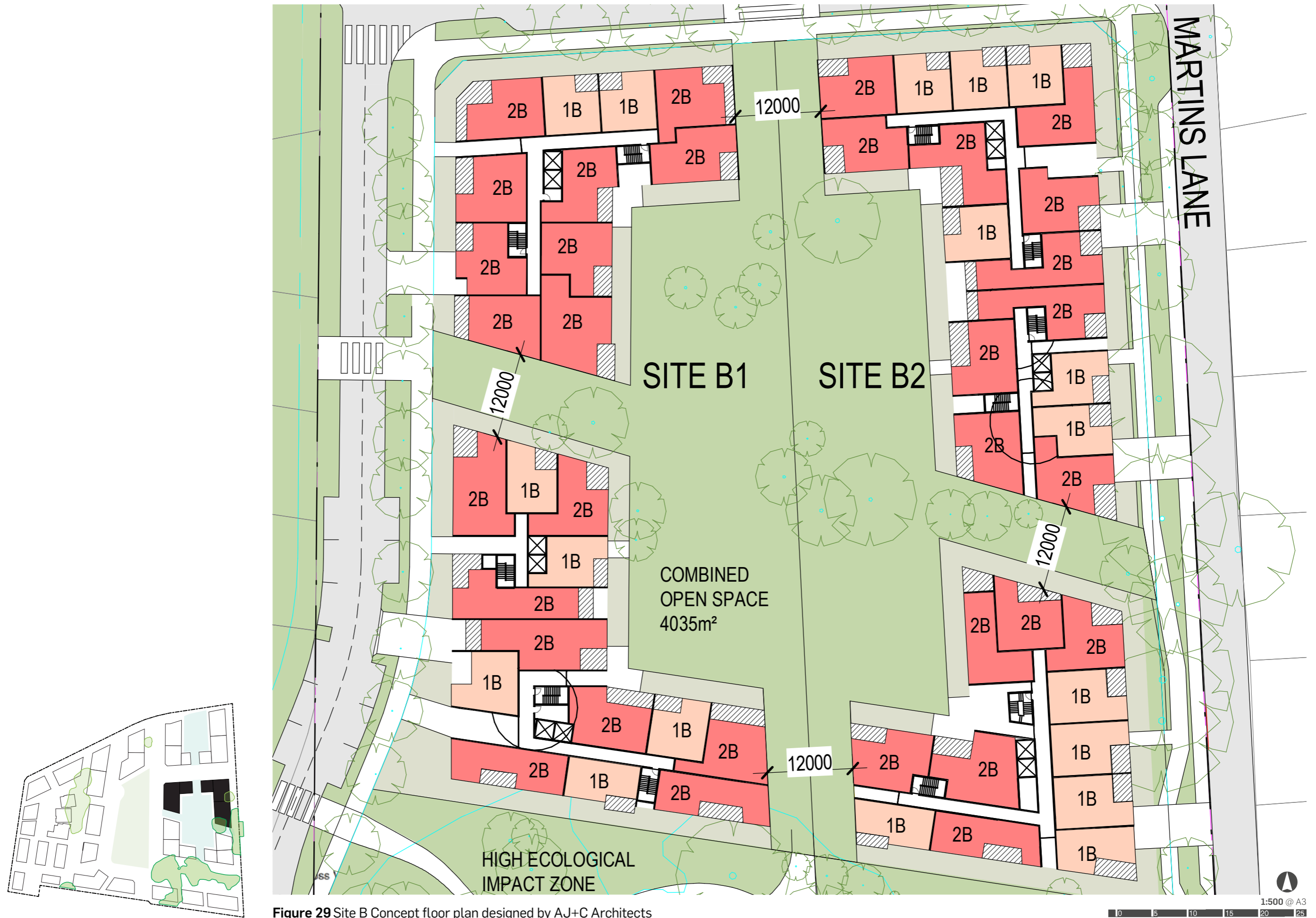
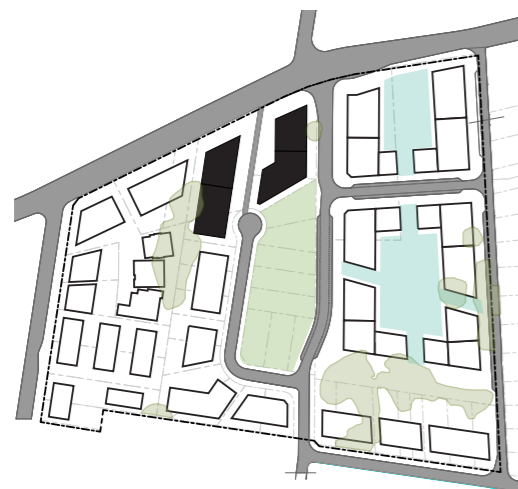


Figure 29 Site B Concept floor plan designed by AJ+C Architects

262 PENNANT HILLS ROAD & 17 AZILE COURT

The built form outcomes for the site have been developed in consultation with Council as part of the Block Study process with 6 storeys proposed for this site fronting Pennant Hills Road to the north and the new street extension on its eastern interface .

- Projected yield for this site totals to approximately 71 units at 6,071 GFA with a Nett FSR of 2.30 :1
- The proposed uplift in density and height is appropriate given its location at new intersection at Pennant Hills Road and the Baker Street extension providing activation on this frontage and legibility on a new prominent corner.
- The key frontage and entrance point for this layout is intended to interface the pedestrian access way that connects Azile Court to Pennant Hills Road. To improve the public domain/landscape interface for this pedestrian way, detailed design for this interface should encourage activation and passive surveillance in accordance with the general principles of *Crime Prevention Through Environmental Design* (CPTED).
- The new public park to the south will provide amenity outlook, enabling district views, passive surveillance and direct proximity to the new amenity for residents.
- Carparking will be provided at basement level accessed via the new street on the eastern frontage .



258 PENNANT HILLS ROAD & 20 AZILE COURT

As per consultation with Council up 4 storeys is recommended on this site to ensure appropriate transition to medium density dwellings to the west and south of the site.

- Projected yield for this site totals to approximately 51 units at 4,296sqm with a Nett FSR of 1.44 :1
- The double loaded layout design will ensure flexibility for interfaces on Pennant Hills Road, the new street east of the site and the pedestrian access way.
- The key entrance and frontage for the site will be the pedestrian access way with public domain upgrades and legible interfaces to be encouraged.
- Consideration of the interface with moderate value vegetation on the western boundary would likely require further investigations by an arborist at DA stage. Noting that the recently developed dwellings on 250 Pennant Hills Road are situated directly under the moderate value vegetation with trunks located on the western boundary, setbacks for the western boundary is recommended at 6m.
- Carparking will be provided at basement level accessed via Azile Court given the improved permeability and connectivity of the Block Study Precinct and existing low traffic flows of 20 vehicles per hour or less at peak.

General Commentary

- To support transport oriented development and providing greater accessibility by bicycles, appropriate bicycle parking, in accordance with ADG is to be provided.
- To address building lengths, facades are to be modulated and/or articulated in form by providing height variation on sloping land or dynamic roof forms for building lengths greater than 45m.
- Provide recess/visual breaks at key intervals or include multiple recesses in the form of vertical slots. Different façade typologies are to be incorporated into the design to promote visual interest inhibiting homogeneous built form outcomes.
- The proposed building lengths do not compromise ground floor permeability.

Building Separation

Building setbacks and separation assist in breaking up building bulk and provide residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook.

Building separation allowances also provide suitable areas for communal open spaces, deep soil zones and landscaping, which has been explored in the block study. The building separations used meet the minimum requirements set out by the Apartment Design Guide (Section 2F).

This study has established that the block study precinct provides the framework to comply with the minimum ADG requirements, subject to detailed building design at DA stage. Additionally

- The layout plan for SPD site has been designed to achieve at least 60% cross ventilation in all buildings;
- The layout is capable of achieving 70% solar access;
- There are less than 15% apartments not receiving any solar access between 9am and 3pm mid-winter;
- Deep soil is achieved at 7% of nett site area as all car-parking proposed to be basement parking;
- Communal open space meets the requirements of the ADG – 25% site area minimum;
- There is sufficient separation of buildings in accordance with ADG between the adjoining sites; and
- 2 hours of Solar access to minimum 50% communal open space is achieved as illustrated in the Precinct wide shadow diagrams.

YIELD CALCULATIONS OPTION with 6 & 4 storey RFBs

	SQM	
TOTAL FOR ALL SPD LANDS	6,291	
TOTAL SITE AREA IN ORIGINAL BOUNDARY	473	
SP2 ZONED WITHIN TOTAL SITE AREA	5,818	
GROSS SITE AREA	267	*not included in calculations
COUNCIL ACCESS WAY (excl. SP2 zoning)	204	4%
LAND AFFECTED BY NEW RESERVES	5,614	
NET SITE AREA		

Proposed Controls
 Setbacks from Pennant Hills Road
 Setbacks from New Martins Lane
 Setbacks from Primary Frontage
 Setbacks from Secondary Frontage

PLAN REFERENCE:

6m from new boundary
 5m from new boundary
 5m
 3m

SPD Total Site Summary	Gross	Net
Total GFA	10,367	
Total Resi Units	122	
Total FSR	1.78	1.85
Site coverage	0.48	0.50
Max. Height of Building	19.6	

Common Open Spaces (ADG)	Gross	Net
COS 25%	1,455	1,404
Deep Soil	407	393

	SQM	
Site C1 258 Pennant Hills Road and 20 Azile Court	3,218	
TOTAL SITE AREA IN ORIGINAL BOUNDARY	240	
SP2 ZONED WITHIN TOTAL SITE AREA	2,978	
GROSS SITE AREA	134	*not included in calculations
COUNCIL ACCESS WAY (excl. SP2 zoning)	0	
LAND AFFECTED BY NEW RESERVES	2,978	
NET SITE AREA		

Site C1-258 Pennant Hills Road Area Schedule	Floorplate	GFA	Levels	Total GBE	Total GFA	Height	Resi Units	Car Spaces Req'd
Residential, R14	659	495	4	2,637	1,978	12.4	23	31
Residential, R15	773	580	4	3,091	2,318	12.4	27	37
Total	1,432			5,728	4,296	12.4	51	68

Summary	Gross	Net
Total GFA	4,296	
Total Resi Units	51	
Gross FSR	1.44	1.44
Gross Site coverage	0.48	0.48
Max. Height of Building	13.4	

Common Open Spaces (ADG)	Gross	Net
COS 25%	745	745
Deep Soil	208	208

	SQM	
Site C2 262 Pennant Hills Road and 17 Azile Court	3,073	
TOTAL SITE AREA IN ORIGINAL BOUNDARY	233	
SP2 ZONED WITHIN TOTAL SITE AREA	2,840	
GROSS SITE AREA	134	*not included in calculations
(1) COUNCIL ACCESS WAY (excl. SP2 zoning)	204	88%
(2a) LAND AFFECTED BY NEW STREET RESERVES (Council suggested widths)		
NET SITE AREA (less 2a)	2,636	

Site C2-262 Pennant Hills Road Area Schedule	BEA	GFA	Levels	Total GBE	Total GFA	Height	Resi Units	Car Spaces Req'd
Residential, R16	1,349	1012	6	8,094	6,071	18.6	71	96
Total	1,349			8,094	6,071	18.6	71	96

Summary	Gross	Net
Total GFA	6,071	
Total Resi Units	71	
Total FSR	2.14	2.30
Site coverage	0.48	0.51
Max. Height of Building	19.6	

Common Open Spaces (ADG)	Gross	Net (2a)
COS 25%	710	659
Deep Soil	199	185

Assumptions	
Efficiency, Gross Building Envelope to GFA	75%
GFA per Residential Unit - 2 Bdrm average	85
GFA per car park space	30
Floor to Floor Height, Residential	3.1
Car Spaces per Residential Unit (Includes 0.25 for visitor)	1.35
1 space per 30m2 GFA, Retail	30 (CoP)
Private Open Space Requirement	25% 10 sqm per dwelling with minimum dimension of 2.5m
Common Open Space Requirement	25% 10 sqm per dwelling
Landscape Area	- 40% of common open space
Deep Soil Zone Requirement	7% 30% of common open space with minimum dimension 4x4m
min 6m min	
Apartment Design Guide	ADG
Building Envelope Area	BEA
Floor Space Ratio	FSR
Gross Building Envelope	GBE
Gross Floor Area	GFA
Residential Flat Building	RFB
Parramatta Development Control Plan 2011	PDCP2011



Figure 30 Sketch Layout Plan of Typical Level for 258-262 Pennant Hills Road (Source: PBD Architects/Urbis)

MEDIUM DENSITY HOUSING FOR R3 ZONED LOTS

To ensure an appropriate transition to lower scale residential dwellings west and south of the Precinct, it is recommended that the study edge to Tintern Avenue and Homelands Avenue be rezoned to R3 Medium Density with a maximum height of building at 11m and an FSR of 0.6:1. This results in an overall yield of 116 dwellings for these sites (16,664sqm site area) based on 9,898sqm GFA.

Lots within this site are constrained by fragmented ownership and recently constructed dwellings. However, there is significant opportunity to provide more housing on lots that require no amalgamation as the majority of the lots identified for medium density in the Precinct are substantially above 600m².

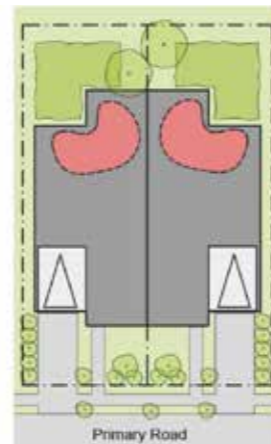
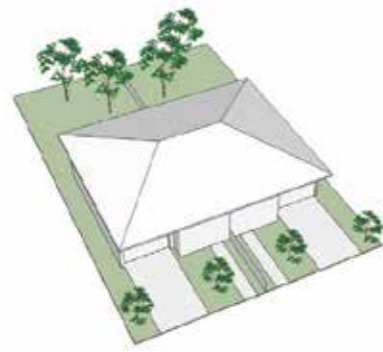
Key Considerations :

- Minimum frontage 15m (7.5m for each dwelling); 12m for sites with two street frontages
- A minimum width of 100m² of private open space is to be provided at ground level, with a minimum dimension of 6m.
- Buildings can be carried out as a Strata titled development when individual lots do not meet the minimum size requirement.

As per the draft Medium Density Design Guide, of these types are examples of development that could be carried out under the Design Guide either as a development application or as complying development



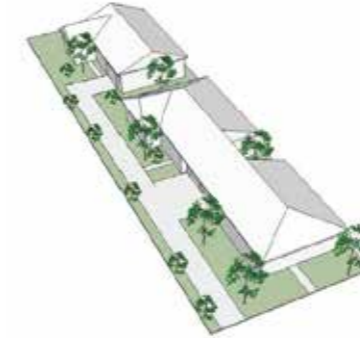
2 Dwellings Side by Side



Manor House



Multi Dwelling Housing - Row housing



Multi Dwelling Housing - Courtyard housing



Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	200m ²
FSR:	0.55 - 0.70:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m
Front setback	Average of neighbourhood or 5.5m
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear: 3.6m plus 45° height plane
Car parking	1-2 spaces

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	600m ²
FSR:	0.45 - 0.60:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m
Front setback	Average of neighbourhood or 5.5m
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear 15m: 3.6m plus 45° height plane
Car parking	0.5 - 1 space per dwelling

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	on average about 300m ² per dwelling
FSR:	0.45-0.5:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m
Front setback	Average of neighbourhood or 5.5m
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear: 4m
Car parking	1-2 spaces

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	120m ² per dwelling
FSR:	0.8 - 1.2:1
Landscaped area	10- 15%
Building height	8.5m (2 storey) - 10m (3 storey)
Front setback	Average of neighbourhood or 3.5m
Rear setback	3 - 6m
Side Setbacks	Ground floor - 0m First floor - 3m
Car parking	1 spaces

Figure 31 Source: Medium Density Design Guide

MEDIUM DENSITY HOUSING FOR R3 ZONED LOTS WITH AMALGAMATION

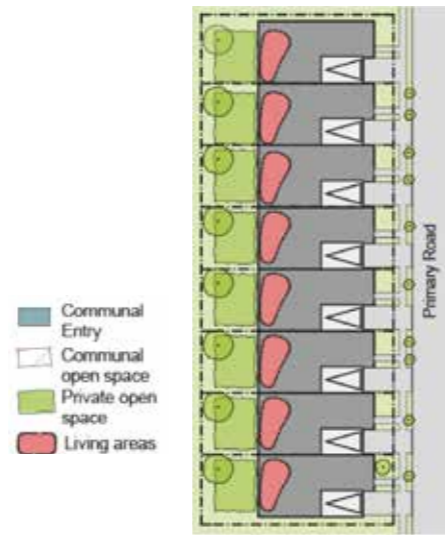
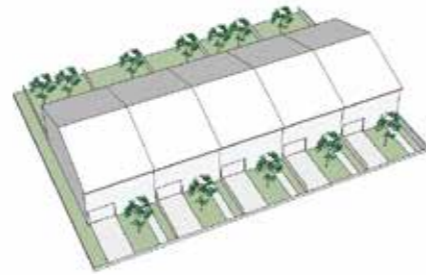
Some lot shapes and sizes are more suitable for intensification whilst others will require amalgamation. Requiring lot amalgamation can add a significant cost to new development and may require higher densities to ensure the development remains feasible.

Key Considerations :

- For deep amalgamated lots with no 'street address' ensure blocks have sufficient setback between dwellings to provide landscaped area, and dwelling 'address'.
- Minimise impact of driveways by limiting one driveway per street frontage and keep width to a minimum
- Minimum frontage 24m, including for each street frontage on a corner site.
- 30% deep soil zone (minimum dimensions 4m x 4m) of which:
 - at least 50% is to be located at the rear of the site,
 - at least 15% is to be located at the front of the site, and
 - at least 10% must be communal landscaped open space.
- A minimum of 40m² contiguous area of private open space is to be provided at ground level, with minimum dimensions of 4m.

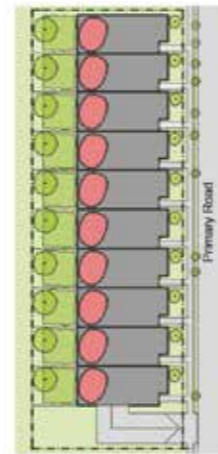
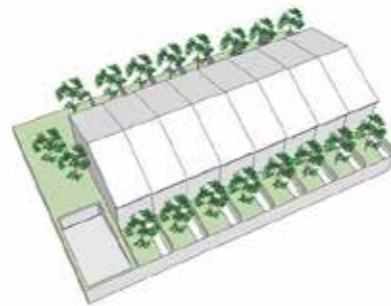


Terrace Houses
- Car Parking Primary Rd



- Communal Entry
- Communal open space
- Private open space
- Living areas

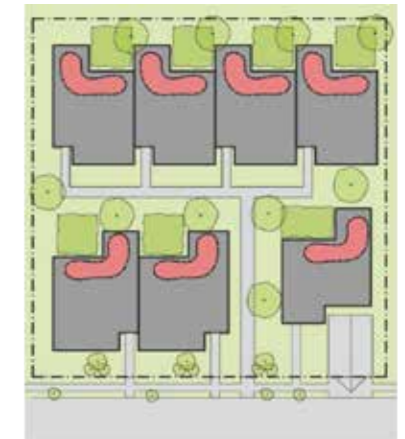
Terrace Houses
- Basement Car Parking



Multi Dwelling Housing
- Mews



Multi Dwelling Housing
- Basement Car Parking



Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	150m ²
FSR:	0.55 - 0.75:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m (2 storey) - 10m (3 storey)
Front setback	Average of neighbourhood or 5.5m 3.5m min allows for landscaped front setback.
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear: 3.6m plus 45° height plane 0m setbacks for internal boundaries
Car parking	1-2 spaces

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	100m ²
FSR:	0.70 - 1.0:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m (2 storey) - 10m (3 storey)
Front setback	Average of neighbourhood or 5.5m No less than 3.5m
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear: 3.6m plus 45° height plane 0m setbacks for internal boundaries
Car parking	1-2 spaces

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	1250m ²
FSR:	0.45-0.7:1
Landscaped area	20 - 50% increases with lot size
Building height	8.5m (2 storey) - 10m (3 storey)
Front setback	Average of neighbourhood or 5.5m
Rear setback	3 - 6m
Side Setbacks	Front 15m: 1.2m at front Rear 15m: 2.5m plus 45° height plane
Car parking	1-2 spaces

Typical principal development controls	
Land title:	Torrens or strata
Minimum Lot size	600m ²
FSR:	0.6 - 1.0:1
Landscaped area	20 - 50% increases with lot size and side and rear setbacks
Building height	8.5m (2 storey) - 10m (3 storey)
Front setback	Average of neighbourhood or 5.5m
Rear setback	3 - 6m
Side Setbacks	If landscape desired on side boundary: 3 - 6m Where more urban context is desired: - Front 15m: 1.2m at front - Rear 15m: 2.5m plus 45° height plane

Figure 32 Source: Medium Density Design Guide

PRECINCT WIDE SHADOW ANALYSIS

Increased density and building height will generally result in additional shadow impacts. However, buildings can be further refined at DA stage and orientated to minimise overshadowing impacts, particularly on key public spaces and streets to deliver a level of comfort for pedestrians. Potential shadows of concept building footprints are shown in the following diagrams.

Access to sunlight within apartments and private open spaces is measured at midwinter (21 June) from 9 am to 3 pm, as this is when the sun is lowest in the sky. This represents the 'worst case' scenario for solar access.

The diagrams illustrate that the proposed park located at the centre of the precinct will have at least 3 hours solar access between 10 and 2pm.

Communal open space areas within the Block Study Precinct maintain solar access between 10 am and 1pm for most sites.

Overshadowing on the adjacent Charles Street dwellings is limited to after 2 -pm.

The impact of shadows and solar access to residential units will be assessed in detail as the design for residential buildings is further developed at DA stage.

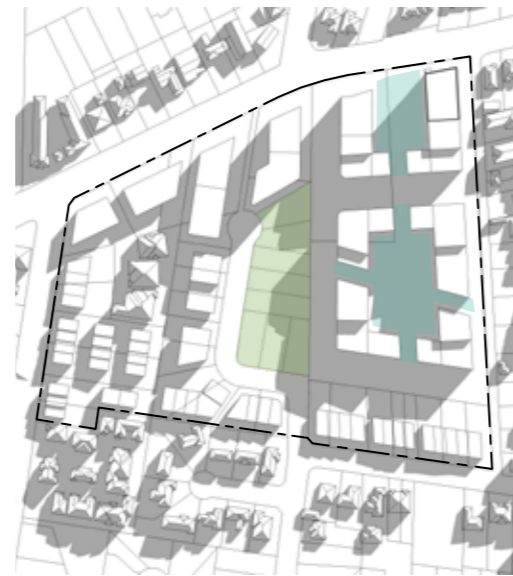


Figure 33 June 21 - 9am

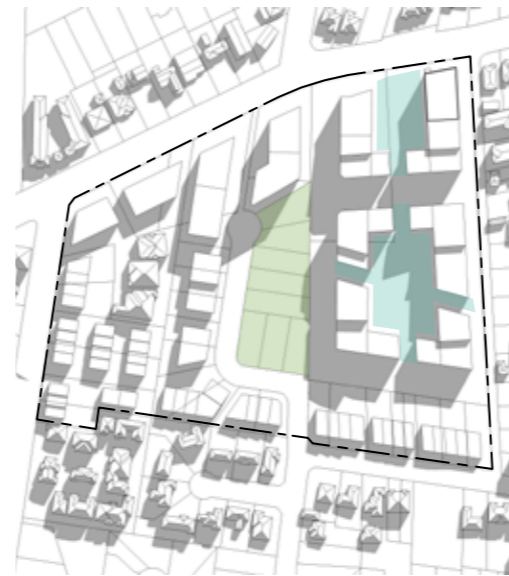


Figure 34 June 21 - 10am



Figure 35 June 21 - 11am



Figure 36 June 21 - 12pm

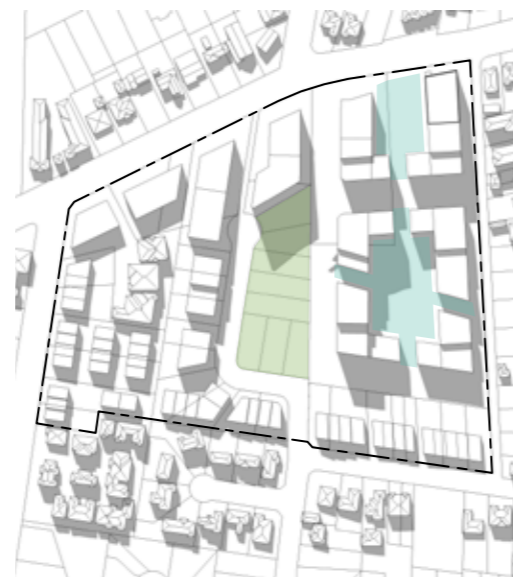


Figure 37 June 21 - 1pm



Figure 38 June 21 - 2pm

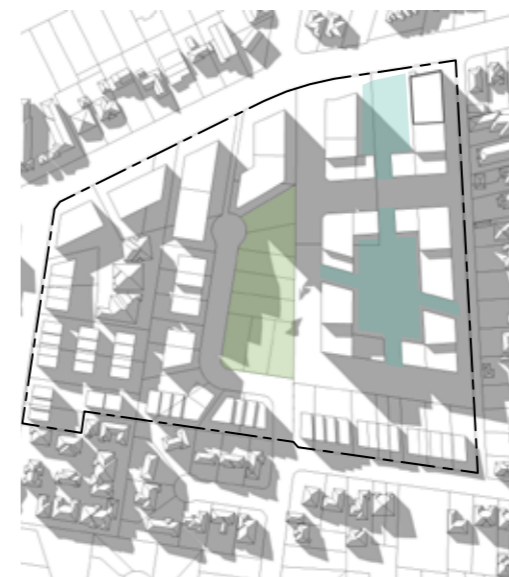





Figure 39 June 21 - 3pm

LEGEND

-  Study Precinct
-  Proposed Public Open Space
-  Proposed Communal Open Space

5 RECOMMENDED CONTROLS

The Block Study Precinct's recommended controls have been informed by ongoing consultation with Councils planners and urban designers through the urban design block study investigation process.

The recommended controls are aimed at providing sufficient flexibility to encourage residential development whilst ensuring good urban design and design quality outcomes.

PROPOSED LEP CONTROLS

LAND USE ZONING

The precinct is recommended for re-zoning to accommodate a growing population and provide more housing options, including medium and high density residential that is located close to transport, services and amenities. The Block Study Precinct contains large amalgamated sites that are capable of accommodating higher density developments with appropriate amenity.

R3 - Medium Density Residential. Under the PLEP 2011, permissible residential uses in the R3 zone include: Attached dwellings; Boarding houses; Dual occupancies; Dwelling houses; Exhibition homes; Group homes; Home businesses; Multi dwelling housing; Semi-detached dwellings; Seniors housing.

R4 - High Density Residential. Under the PLEP 2011, permissible residential uses in the R4 one include: Attached dwellings; Boarding houses; Dual occupancies; Dwelling houses; Exhibition homes; Home businesses; Multi dwelling housing; Residential flat buildings; Seniors housing; Shop top housing.

RE1 - Public Recreation. Under the PLEP 2011, relevant permissible uses include: Community facilities; Environmental facilities; Information and education facilities; Kiosks; Markets; Recreation areas, Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Restaurants or cafés; Roads; Take away food and drink premises.

To enable the provision of the preferred location for public open space, the properties identified are to be re-zoned RE1 -Public Recreation. The rezoning of land to RE1 would require the acquisition of the land by Council.

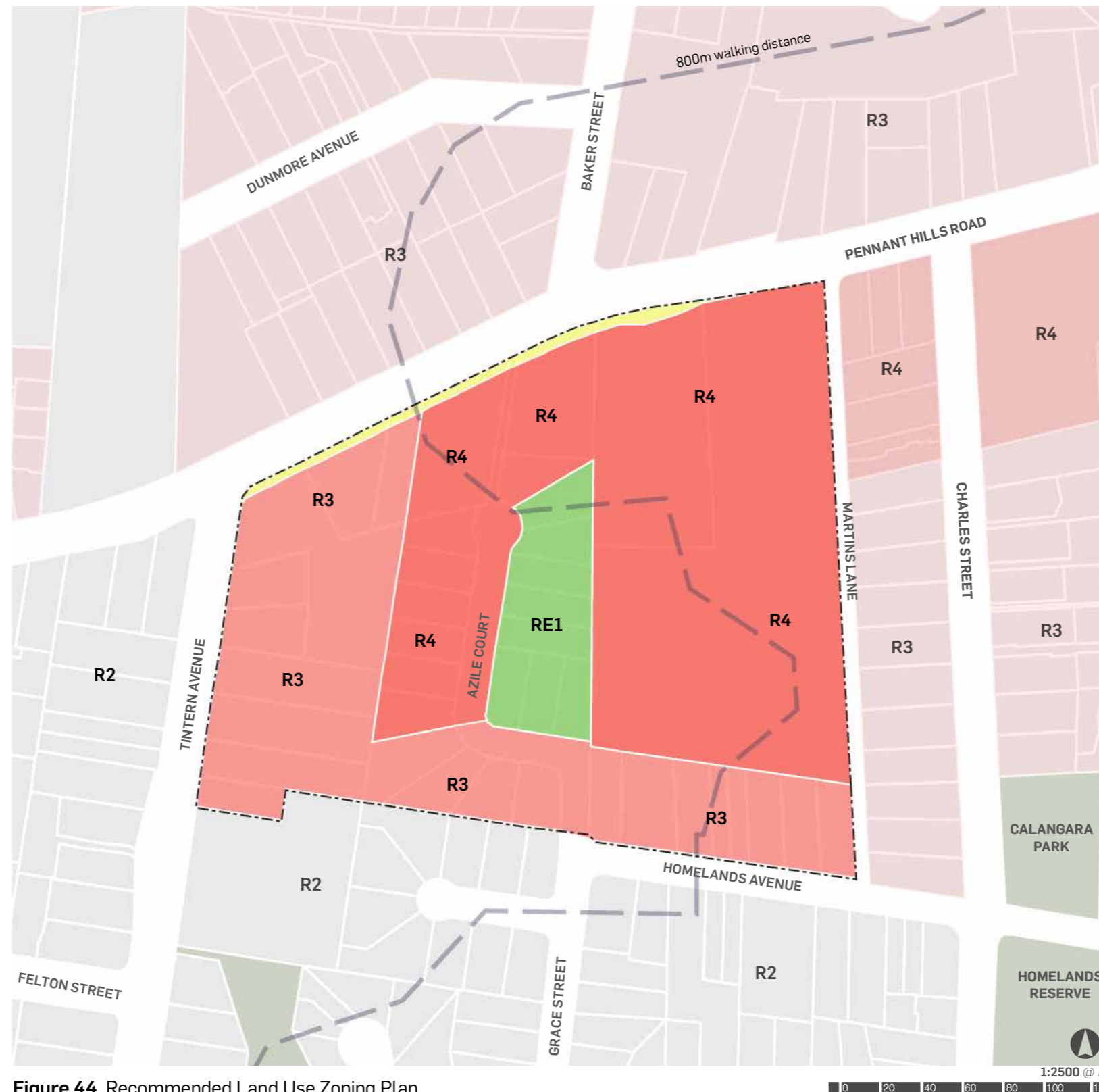







Figure 44 Recommended Land Use Zoning Plan

TO ENCOURAGE TRANSPORT ORIENTED DEVELOPMENT, IT IS ACKNOWLEDGED THAT LAND IMMEDIATELY EAST OF THE BLOCK STUDY PRECINCT COULD POTENTIALLY BE REDEVELOPED TO ALLOW FOR A GREATER DENSITY THAN THAT IS CURRENTLY PERMISSIBLE. THIS COULD BE INFORMED BY A STUDY AT A LATER STAGE.

LEGEND

-  Block Study Precinct
-  R4 High Density Residential
-  R3 Medium Density Residential
-  RE1 Public Recreation
-  SP2 Classified Road

FLOOR SPACE RATIO

The precinct is recommended for an increase in density as illustrated in the diagram to enable sufficient flexibility to deliver a variety of housing choice located close to transport, services and amenities. Given the changing character of Carlingford, the priority precincts within the GOPP and the proposed new light rail line an uplift in density is appropriate for the block study precinct.

*These FSRs are expressed as Gross based on the original ownership boundary.

Refer to Built Form Testing on page 40 for Nett yield calculations for larger sites within the block study precinct.

Nett FSR is expressed following boundary adjustment of the sites excluding new streets and public domain reserves.

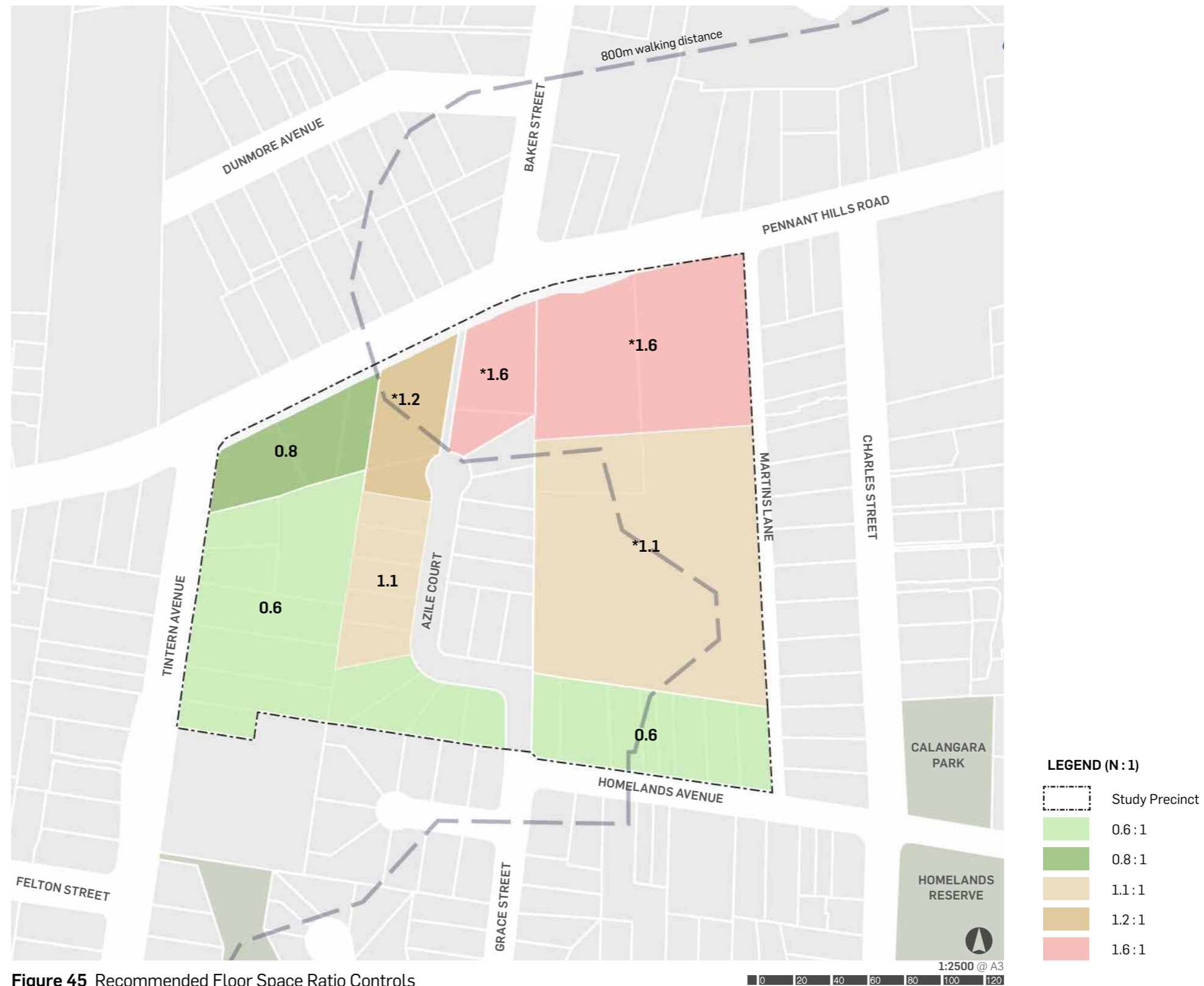


Figure 45 Recommended Floor Space Ratio Controls

HEIGHTS OF BUILDINGS

Contributing to the quality of a place, the recommended building heights will define the proportion and scale of buildings to streets and public spaces.

The precinct will have a diversity of forms and heights that respond to the emerging context of Carlingford. The recommended building heights aim to create flexibility to provide choice and design quality while ensuring appropriate transitions to lower density areas to the south and west.

The proposed maximum heights of buildings allow for topography, visually interesting roof forms and mechanical services on roof over-runs.

The proposed building heights generally translate to the following number of storeys:

- 21m - 6 storeys
- 14m - 4 storeys
- 11m - 3 storeys

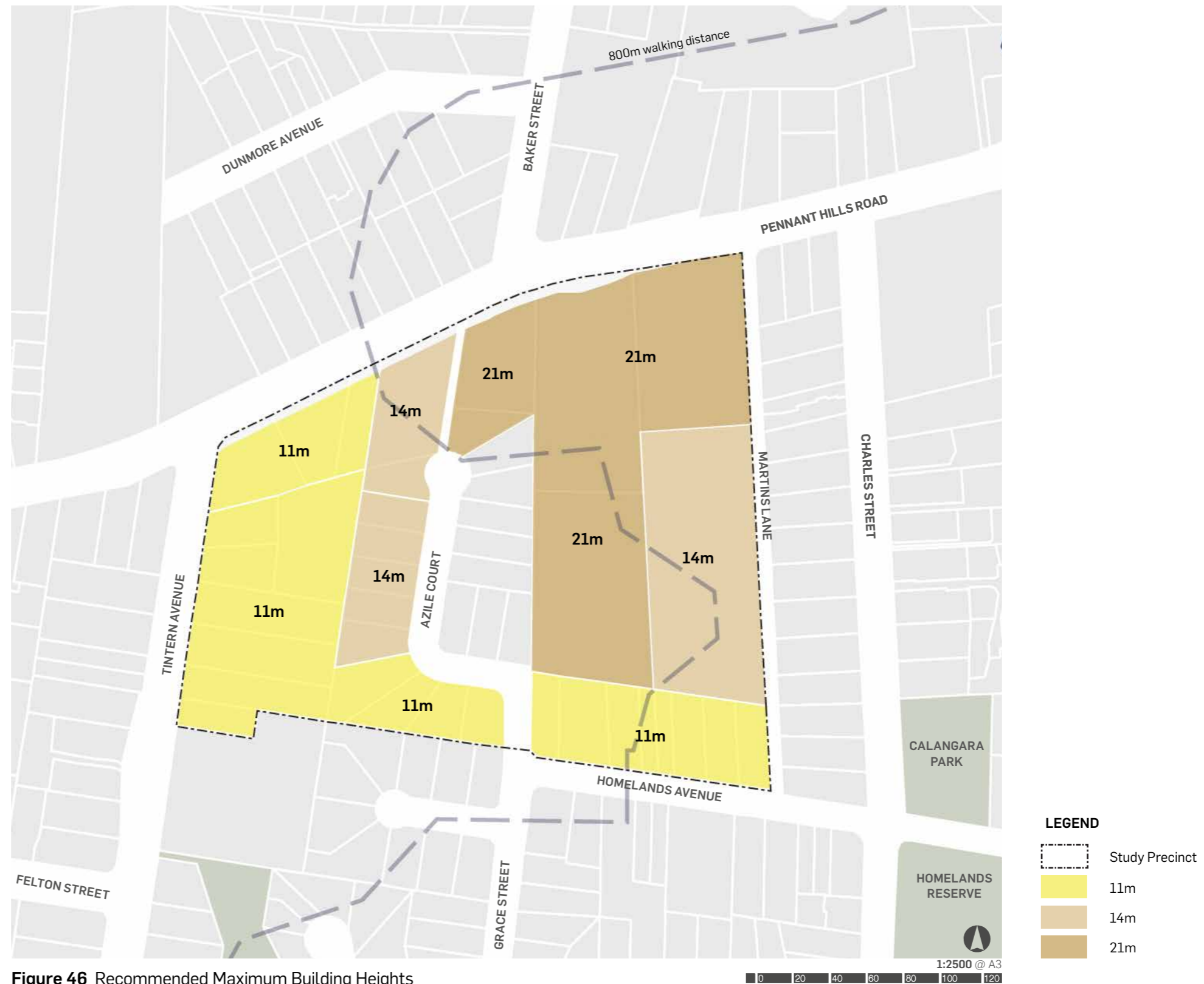


Figure 46 Recommended Maximum Building Heights

RECOMMENDED DEVELOPMENT CONTROLS

In addition to the existing development controls contained in Parramatta Development Control Plan (DCP) 2011, it is recommended that some precinct specific controls be introduced to ensure an appropriate built form outcome as a result of any amendment to the planning controls for this precinct.

Street Setbacks

For street setbacks within the Block Study Precinct the following is recommended:

- **Pennant Hills Road:** all the new developments along the road will be required to have minimum 6m setback from SP2 zoned land.
- **Martins Lane:** a 6m setback along the western side of the street to maintain the existing vegetation community.
- **Primary frontage:** a minimum 5m and consistent setback along the street.
- **Secondary street frontage / service access:** minimum 3m setback from the street.
- **Public open space:** a minimum 5m setback for the properties immediately adjacent to the public open space.

For areas with moderate and high value ecological constraint to be retained, consider mitigation of impacts and minimum distances from these clusters at detailed design stage.



Figure 40 Recommended Setback Controls

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IN CONSULTATION WITH COUNCIL, THE BLOCK STUDY PRECINCT ACHIEVES THE FOLLOWING URBAN DESIGN PRINCIPLES

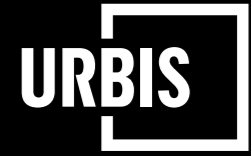
CAPITALISE ON THE PRECINCT'S EXISTING PLACE VALUES

CREATE ACCESSIBLE, CONNECTED & LEGIBLE SITES

ENHANCE STREET CHARACTER & ADDRESS

CONTRIBUTE TO GOOD OPEN SPACE ACCESS & NEIGHBOURHOOD AMENITY

ENSURE GOOD BUILT FORM OUTCOMES



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