SJB Architects

ASPECT Studios™

Cherrybrook Station Precinct
Urban Design Study
State Significant Precinct Proposal

Prepared for
Landcom

Issued
25 May 2022

Level 2, 490 Crown Street
Surry Hills NSW 2010
Australia
T. 61 2 9380 9911
architects@sjb.com.au
sjb.com.au

We create amazing places

ASPECT Studios™

At SJB we believe that the future of the city is in generating a rich urban experience through the delivery of density and activity, facilitated by land uses, at various scales, designed for everyone.

Ref: 6082
Version: 11
Prepared by: JM, MG, EG
Checked by: MG , SM ,BO

Contact Details:

SJB Architects
Level 2, 490 Crown Street
Surry Hills NSW 2010
Australia

T. 61 2 9380 9911
architects@sjb.com.au
sjb.com.au

SJB Architecture (NSW) Pty Ltd
ABN 20 310 373 425
ACN 081 094 724
Adam Haddow 7188 John Pradel 7004

Issued

V01 Work in progress for consultant input	03.11.2020
V02 First draft for comment	13.11.2020
V03 Interim final issue	18.12.2020
V04 Final issue for exhibition	27.01.2021
V05 Amended issue following bushfire advice	09.02.2021
V06 Amended deep soil requirement	15.02.2021
V07 First draft with revised 5 storey proposal	24.02.2022
V08 Draft for review	28.03.2022
V09 Final draft for lodgement	06.04.2022
V10 Final version addressing ToA requirements	10.05.2022
V11 Final version for lodgement	25.05.2022

Contents

ASPECT Studios™

1 Executive summary 5

2 Introduction 6

2.1 Background 7
2.2 SSP Study requirements 8
2.3 The Developable Government Land 9
2.4 Design process 10
2.5 Stakeholder engagement 11

3 Policy context 12

3.1 Planning Policy Context 13
3.2 The Hornsby Local Strategic Planning Statement 2020 14
3.3 The Hills Shire Council Local Strategic Planning Statement 2019 15
3.4 Local Environmental Plan 16
3.5 Movement and Place 17
3.6 Design Guidelines 18
3.7 NSW Government and Council Policies, Strategies for Open Space 19
3.8 Local Character and Place Guideline 2019 20

4 Previous studies 21

4.1 North West Rail Link 2013 22
4.2 The Hills Corridor Strategy 2013 23
4.3 The Cherrybrook Station Structure Plan 2013 25
4.4 TfNSW Station Precinct Study 2013 27

5 Contextual analysis 31

5.1 Geology and topography 32
5.2 Natural and ecological setting 33
5.3 Indigenous use of the land 33
5.4 The transformation of the landscape and European history 34
5.5 Listed heritage items 35
5.6 Urban context 36
5.7 Demographics 37
5.8 Shifting community needs 38
5.9 The street network 39
5.10 Public transport 40
5.11 District and local open space 41
5.12 Local development interest 42

6 Site analysis 44

6.1 Site topography 45
6.2 Site drainage 49
6.3 Edge conditions 50
6.4 Tree canopy cover analysis 51
6.5 Asset Protection Zones and flooding 52
6.6 Land use and community infrastructure 53
6.7 Adjoining site conditions and existing character 54
6.8 Precinct level access and connectivity 58
6.9 Local access 59
6.10 Infrastructure and utilities 60
6.11 Transmission lines electrical easements 61
6.12 Sydney Metro Underground Corridor Protection Plan 62

7 Synthesis 63

7.1 Constraints 64
7.2 Developable portions 65
7.3 Opportunities 66
7.4 Developing a brief for the site 67

8 Towards a vision **68**

8.1 The landscape narrative 69
8.2 Site qualities and assets 70
8.3 Overarching development principles 71
8.4 Design parameters and directions 72

9 Options studies **73**

9.1 Precinct benchmarking 74
9.2 Initial conceptual options 75
9.3 Masterplan options 76
9.4 Interim master plan 77

10 Stakeholder engagement and scheme evolution **81**

10.1 Responses from stakeholder to the draft reference scheme 82
10.2 Five storey investigations 83

11 Development strategies and principles **86**

11.1 Principle structuring elements 87
11.2 Character and identity 88
11.3 Landuse 89
11.4 Yield 91
11.5 Public domain and open space principles 92
11.6 Open space network 93
11.7 Water management and sustainable urban drainage 94
11.8 Deep soil 95
11.9 Tree and planting strategy 96
11.10 Open Space Typologies 97
11.11 Pedestrian and cycle access 99
11.12 Vehicular access and servicing 101
11.13 Active frontages, building interface and setbacks 102
11.14 Building heights 104
11.15 Built form massing and articulation 105

12 The reference scheme **107**

12.1 Development concept 108
12.2 Illustrative masterplan 109
12.3 Conceptual landscape plan 114
12.4 Water and drainage 115
12.5 Landscape typologies 116
12.6 Deep soil 117
12.7 Tree canopy and urban forest strategy 118
12.8 Tree Canopy - Indicative Species Selection 119
12.9 Access 121
12.10 Sections through the landscape 122
12.11 Detailed Landscape Considerations 124
12.12 Indicative floor plans 131
12.13 Built form and building separation 134
12.14 Site sections 136
12.15 Solar access to public open space 140
12.16 Shadow study 141
12.17 Solar Insolation 143
12.18 Compliance with the Apartment Design Guide 144

13 Conclusion **146**

Executive summary

This urban design study has been prepared to support a State Significant Precinct (SSP) submission for the rezoning of the Developable Government Land (DGL) around Cherrybrook Station. It presents a vision for the site as a mixed use local centre including a convenience retail, a community hub and residential apartments.

The urban design study builds on the vision for the precinct that was set out in the Cherrybrook Station Structure Plan, which was developed by the Department of Planning and Environment (DPE) and approved by the Minister in 2013. DPE are currently reviewing the Structure Plan through a Place Strategy process, and this is being exhibited concurrently with this SSP. Every effort have been made to align these two processes so as to ensure a consolidated vision and development strategy.

Landcom and Sydney Metro are committed to collaborative planning and pursuing design excellence and the preparation of the SSP has included extensive engagement with the local community, key stakeholders and design review panels. A Project Working Group comprising of representatives from Hornsby Shire Council, The Hills Shire Council, the DPE and Transport for New South Wales (TfNSW) was established to guide and provide input to the SSP proposal.

This urban design study presents a reference scheme and set of development controls for a mixed use precinct that creates a vibrant, transit-oriented and community focused local centre. This includes:

- Approximately 33,350m² of residential GFA, with a yield of 390 dwellings across 12 buildings ranging in height from two to five storeys (when viewed from Bradfield Parade).
- A multi-purpose community hub with a GFA of approximately 1,300m².
- Between 3,000 and 3,500m² of retail GFA.
- Over 1 hectare of public open space, comprising:
  - > A village square space with an area of approximately 1,250m², flanked by active retail and community uses.
  - > A community gathering space with an area of approximately 3,250m².
  - > An environmental space around the pond and Blue Gum High Forest with an area of approximately 8,450m².
  - > Green corridors and pedestrian through site links, providing opportunities for potential future precinct-wide integration and linkages to the north.

The proposed changes to the development controls include:

- The rezoning of the site from R2 Low Density Residential to a combination of RE1 Public Recreation, B4 Local Centre and R4 High Density Residential to allow for a mix of uses
- FSR controls of 1.25:1 and 1:1 on the Developable Government Land intended for development
- An increase in Height of Buildings controls from 8.5m to 18.5m and 22m on the Developable Government Land to allow for mixed use buildings ranging in height from four to five storeys (when viewed from Bradfield Parade), with the opportunity for an additional storey at lower ground floor level in the centre of the precinct when viewed from the north.

The principles and strategies presented in this report have been translated into site specific Design Guidelines that will be approved and guide the future development of the site.

Early options testing considered a range of different development outcomes for the site to optimise the value created through the Metro North West Line by providing homes close to transport services. The design and planning approach responds to stakeholder and community feedback on preferred building heights for the precinct and the resulting SSP zoning application requests a maximum building height of five storeys when viewed from Bradfield Parade.

Figure 01: Visualisation of the reference scheme from the north (illustrative only)

Introduction

2

This chapter provides a broad background to the project and outlines the process through which the proposal for the Developable Government Land was developed.

2.1 Background

In May 2019 the Metro North West Line opened between Tallawong and Chatswood, with a driverless metro train linking communities in the northwest with a service every four minutes in the peak. The Metro North West Line, with 13 stations is a catalyst for urban renewal, providing connections to areas that will be transformed through both NSW Government and private investment.

NSW Government-owned land surrounding the metro stations includes land that is no longer required to support operation.

These sites have been made available for development that supports NSW Government priorities of housing affordability, local infrastructure delivery and economic development.

Landcom is the master developer for government land around new stations.

As master developer, Landcom is leading studies to support planning for project sites, work with local councils, DPIE, other government agencies, local businesses and communities to shape plans for projects.

Landcom will appoint private sector development partners to deliver projects across the program

The Sydney Metro Northwest (SMNW) Places Program will deliver vibrant and integrated precincts surrounding the new metro stations that will facilitate the renewal and delivery of a greater supply and diversity of housing, new employment opportunities and new public and community facilities.

In 2019 SJB were appointed by Landcom as part of a multi-disciplinary team, including landscape architects Aspect Studios, to prepare an urban design study that would support a State Significant Precinct Proposal for the Government owned land around Cherrybrook Station.

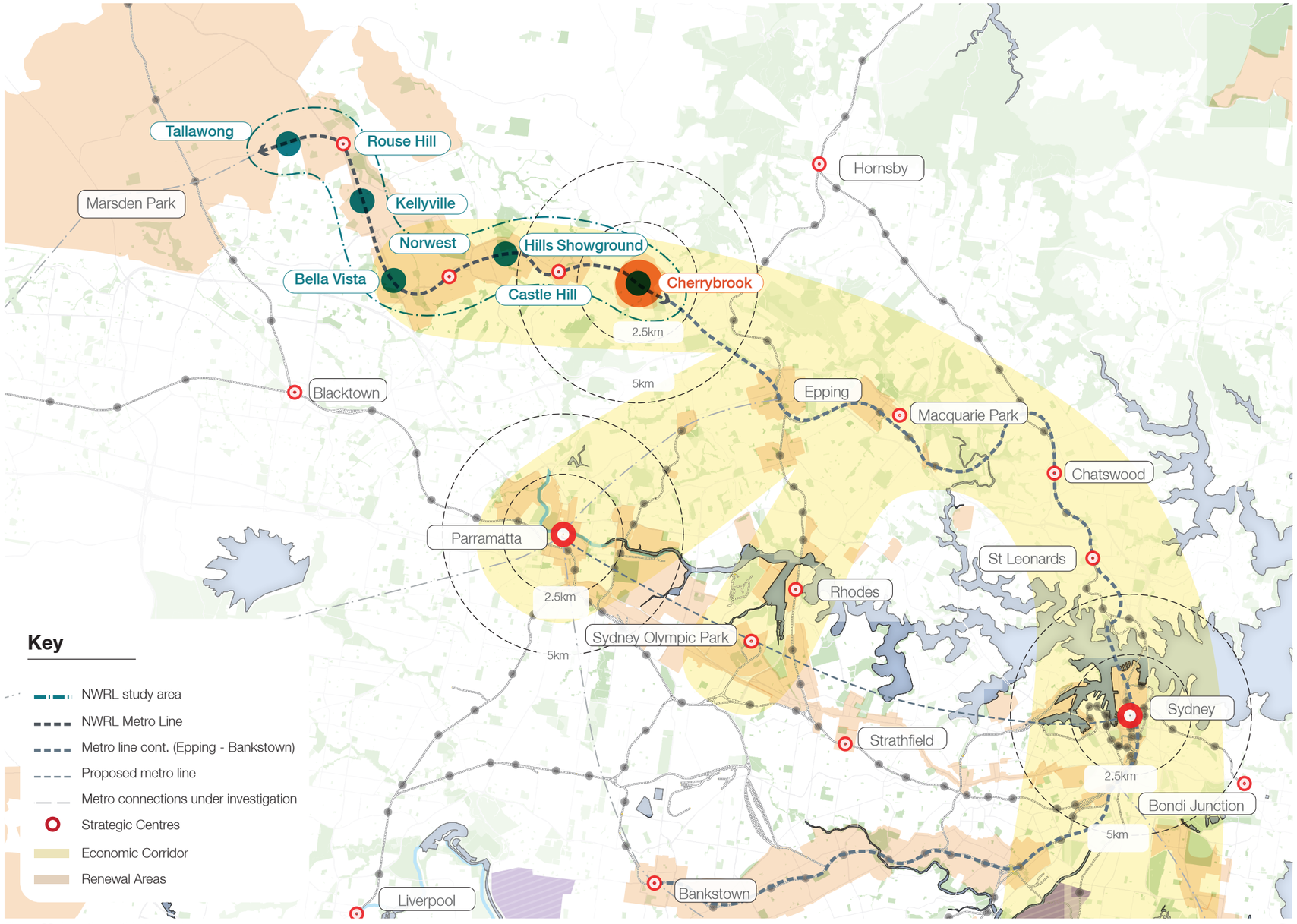


Figure 02: Location within the region (source - SJB)

2.2 SSP Study requirements

After engagements between DPIE, TfNSW, Hornsby Shire Council and The Hills Shire Council a set of study requirements for the SSP was agreed. This urban design study addresses a number of, but not all of these requirements. For ease of reference the adjacent table illustrates in which section of this report the study requirements have been addressed, and where these have been addressed elsewhere, these documents are referenced.

	SSP Study requirement	Chapter of the Urban Design Report
1	**Vision Strategic context and justification**	
1.1	Draft vision, principles options	Chapters 7, 8, 9, 10 and 11
1.2	Strategic planning context	Chapters 3 and 4
1.3	Desired outcomes	Chapters 8 and 11
1.4	Final place based vision	Chapter 11
2	**Urban Design**	
2.1	Site and context analysis	Chapters 5 and 6
2.2	Design Principles	Chapter 8 and 11
2.3	Development options	Chapters 9 and 10 and Annexure A
2.4	Preferred option	Chapters 11 and 12
2.5	Plans - massing, landuse sections etc	Chapters 11 and 12
2.6	Distribution of yield, height	Chapter 11.4, 11.14 and 12
2.7	Visual assessment	Dealt with in separate VIA study by Ethos Urban , January 2021
2.8	Sun access and shadow	Chapters 12.12, 12.13, 12.14
2.9	Distribution of yield	Chapter 11.4, 11.14 and 12
2.10	ADG compliance	Chapter 12.12 and 12.16
2.11	3D massing	Chapter 12.12
2.12	Draft controls	Chapter 11 and septate DCP controls - see Ethos Urban, January 2021
2.13	Ecological sustainable development	Chapters 8, 11, 11,5, 11.7, 11.8,11.9
2.14	Vision for NWRLCS	Chapters 4.3, 8 and 11
2.15	Integration with adjacent land uses	Chapter 11

	SSP Study requirement	Chapter of the Urban Design Report
3	**Public domain and open space**	
3.1	Public domain plan	Chapters 11.5 ad 12.2
3.2	Public domain and access	Chapters 11.5,11.6, 11.11
3.3	WSUD	Chapters 11.7, 12.3
3.4	Active mobility	Chapters 11.11 and 12.2
3.5	Increase homes within 10min walk	Chapters 8, 11, 11.2, 11.3, 11.4
3.6	Access - active mobility	Chapters 11.1, 12.2
3.7	Create and extend green links	Chapters 11.5, 11.6
4	**Urban Forest**	
4.1	Tree audit	See separate study Ecological 2020
4.2	Tree and planting strategy	Chapters 11.6, 12.4, 12.5, 12.5, 12.7
4.3	Tree canopy targets	Chapters 12.6, 12.7
4.4	Green policy alignment	Chapters 3.6, 11.5, 11.6,11.8, 11.9 12.6, 12.7

Table 01: SSP study requirements table

2.3 The Developable Government Land

The SSP study is seeking amendments to the planning controls for all government owned land around the station. The extent of this area is 7.7Ha and includes the metro station and of the adjoining land. The focus of this report is the Developable Government Land (the Site) that will be developed by Landcom and future development partners and excludes the metro station, commuter car parking and associated landscaping and facilities. The intention of the rezoning is to regularise the controls around the metro station which will remain in the ownership of Sydney Metro and obtain new development rights for the DGL.

The two developable portions are located off Castle Hill Road directly to the north and east of Cherrybrook Station and comprises of:

- Portion A (33/DP1253104) is the larger of the two and irregularly in shape. It accommodates a stormwater basin for the metro station and surrounding roads and is 32,910m² in area
- Portion B (32/DP1253104) is smaller 6,715m² and accommodates a 132KV power line pylon and its associated overhead power lines .

The combined area of the site is 39,625m².

Prior to the development of the metro station and its associated transport facilities the site accommodated a number of detached houses. These were acquired and the metro station and Bradfield Parade were constructed. The remaining sites are no longer required for transport purposes and intended for development.

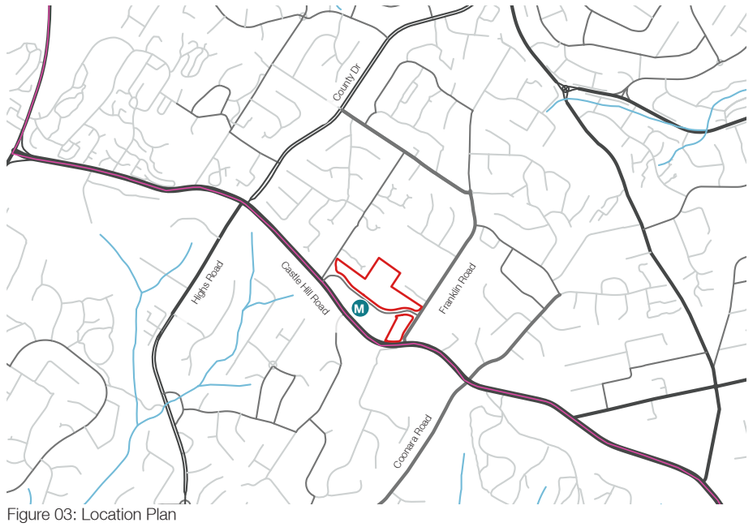


Figure 03: Location Plan



Figure 04: Site plan

2.4 Design process

The design process adopted for this study has been linear and iterative, allowing for evolution of a draft reference scheme into development principles and a final reference scheme. It also ensured that inputs from key stakeholders and the broader consultant team could be integrated into design thinking.

The six stages of the design process are illustrated in Figure 05 and comprised of the following:

1. **Project appreciation**- this included a review of previous technical studies, a policy review and contextual analysis of the site to better understand the constraints and opportunities for the project
2. **Vision** - a high level vision for the site emerged through the project appreciation as well as through engagements with the client and multi disciplinary professional team. This was enriched through the initial period of community engagement, especially the findings of a telephone and online surveys.
3. **Conceptual options** - four conceptual options were explored with view of experimenting to see how the arrangement of built form could create a distinct character and identity for the precinct
4. **Masterplan options** - The four conceptual options were refined into three masterplan options that tested various options for the location of the key components of the development (community facility, open space and mini retail anchor) and built form.
5. **Interim Masterplan** - The best elements of the three options were consolidated into a draft reference scheme that was subject to community engagement
6. **Urban design framework, development strategies and principles** - Interim masterplan was refined following stakeholder and community engagement into a 5 storey proposal that is the subject of this application. A set of development strategies and principles was subsequently prepared which have informed the SSP application and new LEP and DCP controls for the site

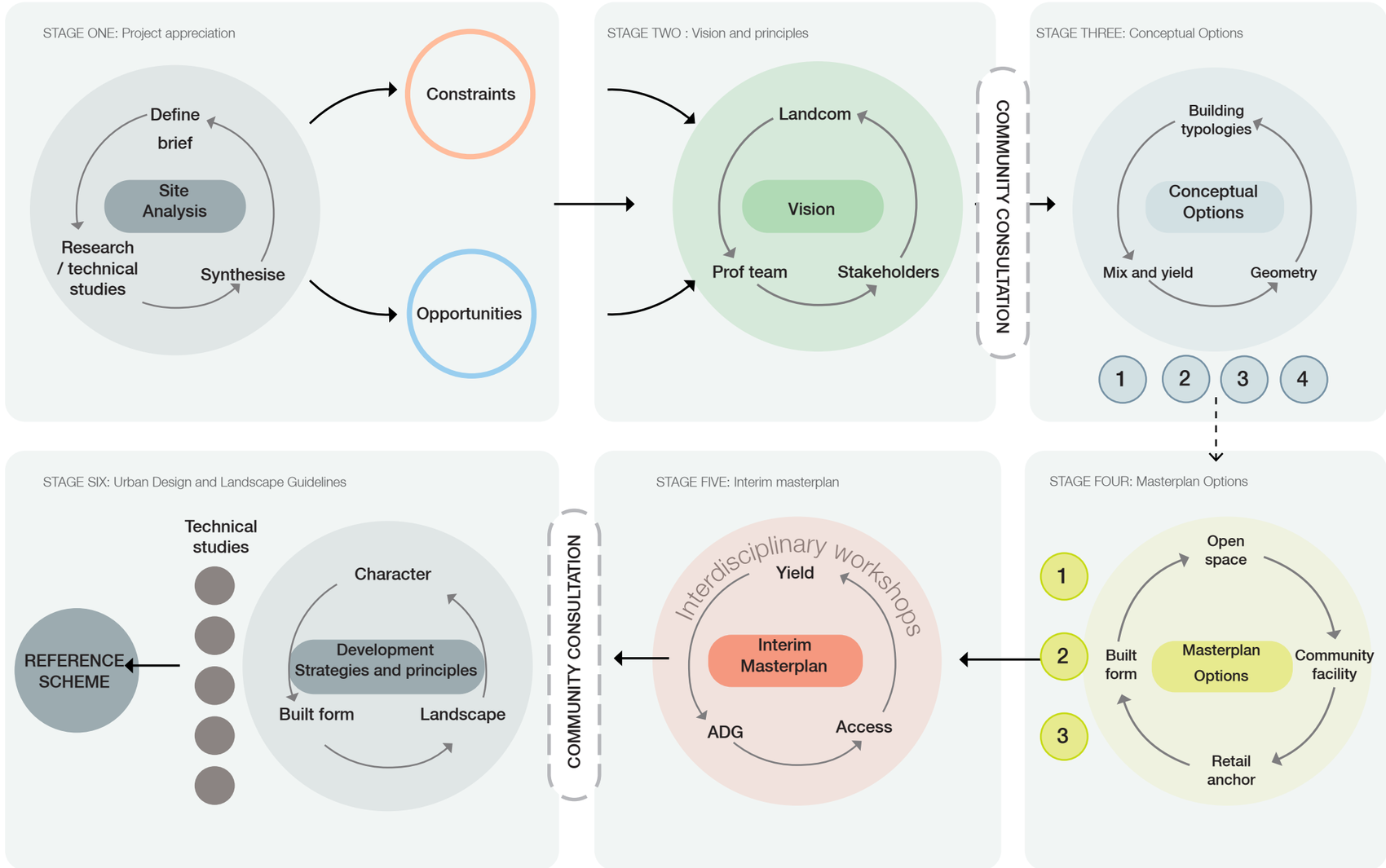


Figure 05: Design process diagram

This design process is reflected in the structure of the report.

2.5 Stakeholder engagement

The lodgement of the SSP submission was preceded by extensive stakeholder engagement that can broadly be divided into three categories. A short summary of these forums and engagements is provided below:



Project Working Group

To facilitate and integrate the work of the DPE and Landcom a Project Working Group (PWG) was established comprising representatives from DPE, Local Councils (The Hills and Hornsby Shire Council), Transport for NSW, Sydney Metro and Landcom. The proposed development was presented at key stages and input was taken on board.

In addition, Councillor Briefing sessions were held with elected representatives.

The emerging ideas and concepts for the site were shared at the following meetings:

Meeting with Hornsby Shire Council officials	20.11.2019
Meeting with DPE	14.01.2020
PWG 1	28.05.2020
PWG 2	18.06.2020
Councillor Briefing Session (Hornsby)	06.07.2020
PWG 3	20.08.2020
PWG 4	10.09.2020
PWG 5	22.10.2020
PWG 6	12.11.2020
PWG 7	17.11.2021
PWG 8	03.03.2022



Independent Design Review

The proposal was also presented to Landcom's Design Advisory Panel (DAP) composed of distinguished built environment professionals including representatives from the Government Architects office NSW, former directors of development companies, architects, landscape architects, planners and officials. The DAP provided design and development advice at key stages that has been integrated into the final proposal.

A record of DAP meetings is as follows:

DAP 1	07.08.2019
DAP 2	01.07.2020
DAP 3	05.08.2020
DAP 4	10.09.2020



Community consultation

An extensive community consultation was delivered to gain feedback from the community on the rezoning proposal, and associated draft reference scheme design. A separate consultation report has been prepared that documents the community consultation approach and findings.

Policy context

3

The following chapter reviews current strategic policy documents to create a frame of reference for the Cherrybrook Station Precinct. These are approached from the metropolitan level down to the local level.

3.1 Planning Policy Context

Greater Sydney Regional Plan

In March 2018, the Greater Sydney Commission (GSC) released the Greater Sydney Region Plan, A Metropolis of Three Cities ('the Plan'). The Plan is built on a vision of three (3) cities where most residents live within 30 minutes of their jobs, education, health facilities and services (refer to Figure 06). This vision seeks to bring together land use and transport patterns to boost Greater Sydney's liveability, productivity and sustainability by spreading the benefits of growth.

In the Plan, Cherrybrook is identified as a Transit Oriented Centre that, together with other centres such as Kellyville, Bella Vista and Norwest, will support the Central City of Parramatta. Future links directly to Parramatta are indicated on the plans.

The Central City and Northern City District Plan

Although the government owned land is located in the Hornsby Local Government Area the Cherrybrook Station Precinct sits on the boundary of two district plans - the Central City and Northern City District Plans. Both District Plans were approved in March 2018 and guides the transition of the District within the context of greater Sydney's Three Cities.

The Central City District Plan expects that growth will be fuelled by previously unparalleled levels of city-scale infrastructure investment including transport, public realm and sporting and cultural institutions, which will attract new and exciting business to Greater Parramatta and Olympic Peninsula (GPOP) and beyond. It states additional capacity for housing is being investigated in the North West Priority Growth Area, which includes Cherrybrook.

The Northern City Plan places a heavy emphasis on Macquarie Park as an employment and residential growth area with strong links along the metro line to the Harbour City

Both plans place an emphasis on increasing land use intensity in areas that enjoy high levels of accessibility. As such, future growth in the short to medium term is seen as being concentrated in a number of Transit Orientated centres related to the Metro North West line that links Tallawong to Sydney CBD via Chatswood.

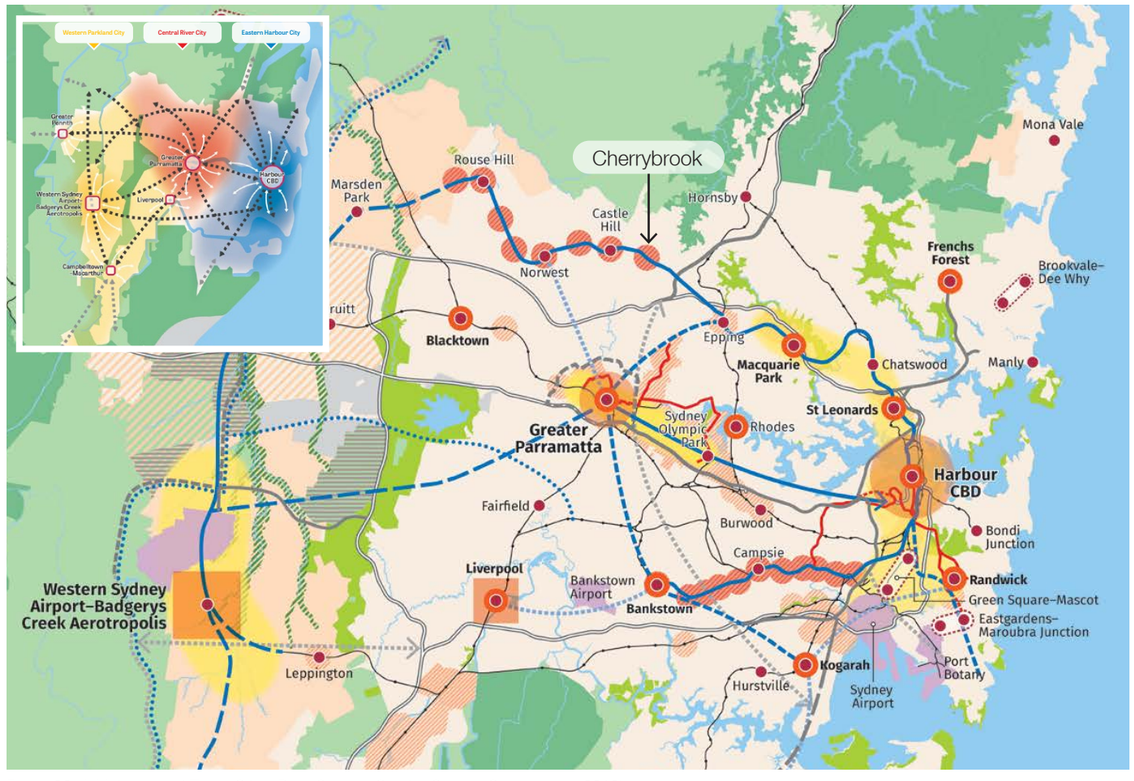


Figure 06: A Metropolis of Three Cities Plan (Source: Greater Sydney Commission, 2018)

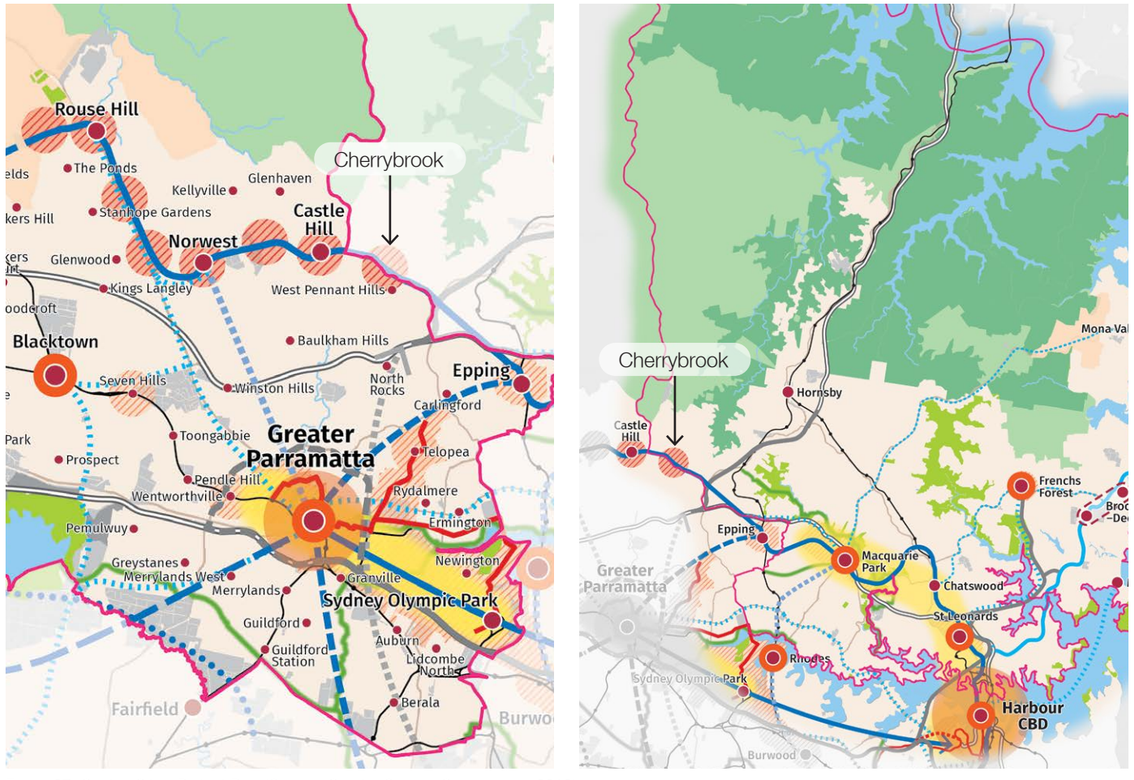


Figure 07: Central Cities District Plan (Source: Greater Sydney Commission, 2018)

3.2 The Hornsby Local Strategic Planning Statement 2020

The Hornsby Local Strategic Planning Statement (LSPS) was approved in March 2020 and sets out a 20-year vision for the LGA. It outlines the qualities and values that needs to be preserved and developed and sets out steps for how Hornsby Shire Council will manage growth and change. It outlines a policy position on land use planning matters under the themes of *Liveable*, *Sustainable*, *Productive* and *Collaborative*.

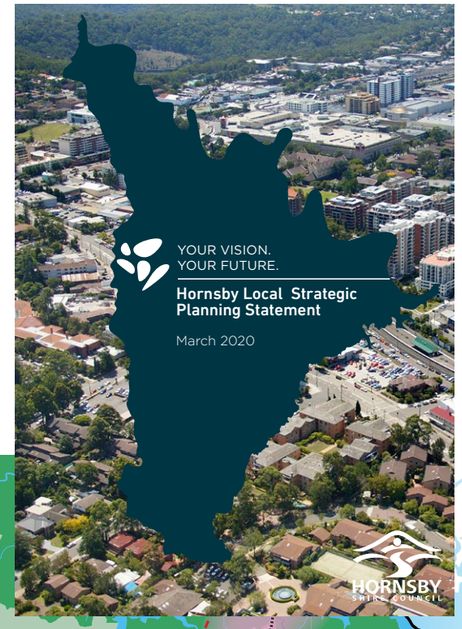
The LSPS states that the population of Hornsby is expected to rise and this will be primarily be achieved through an increase in housing stock. The main areas of growth in the short term are stated as Asquith, Waitara and Hornsby (non-Town Centre area). It anticipates further growth in Hornsby Town Centre.

The LSPS acknowledges a shortage of affordable housing in the LGA for families on low incomes and considers new levies for the construction of new Affordable Housing Rental Schemes. It recognises that key workers currently struggle to find affordable accommodation in the LGA and are essential to the provision of essential services central to the area's safety, vitality, sustainability and social diversity. Key workers include teachers, nurses, police, ambulance officers, fire and emergency workers.

The LSPS recognises that the opening of the North West Line with a station at Cherrybrook will benefit the local community and change the way people move across the Shire. It goes on to state that Council will collaborate with the State Government and Landcom around the planning for government-owned land adjoining the Metro North West Line corridor.

The Liveable Priorities that would support development intensification in Cherrybrook include:

- **LP6** - Providing housing in the right locations that meets the needs of the local community with regard to housing type, mix, design, sustainability, affordability and safety
- **SP1** - Improving the overall health of the natural environment and ecosystem PP2. Supporting sustainable economic growth based on the Shire's built and natural assets, infrastructure and locational advantages
- **PP7** - Supporting place-making initiatives that will complement and improve the function and role of the local centres and river settlements
- **CP1** - Resolving the local and regional infrastructure issues facing Cherrybrook and the wider surrounding areas as a result of the opening of Cherrybrook Station
- **CP2** - Investigating potential place based opportunities aimed at improving the amenity and public spaces for local residents throughout the Shire
- **CP3** - Delivering substantial improvements to the function, design and accessibility of State infrastructure assets within town centres throughout the Shire



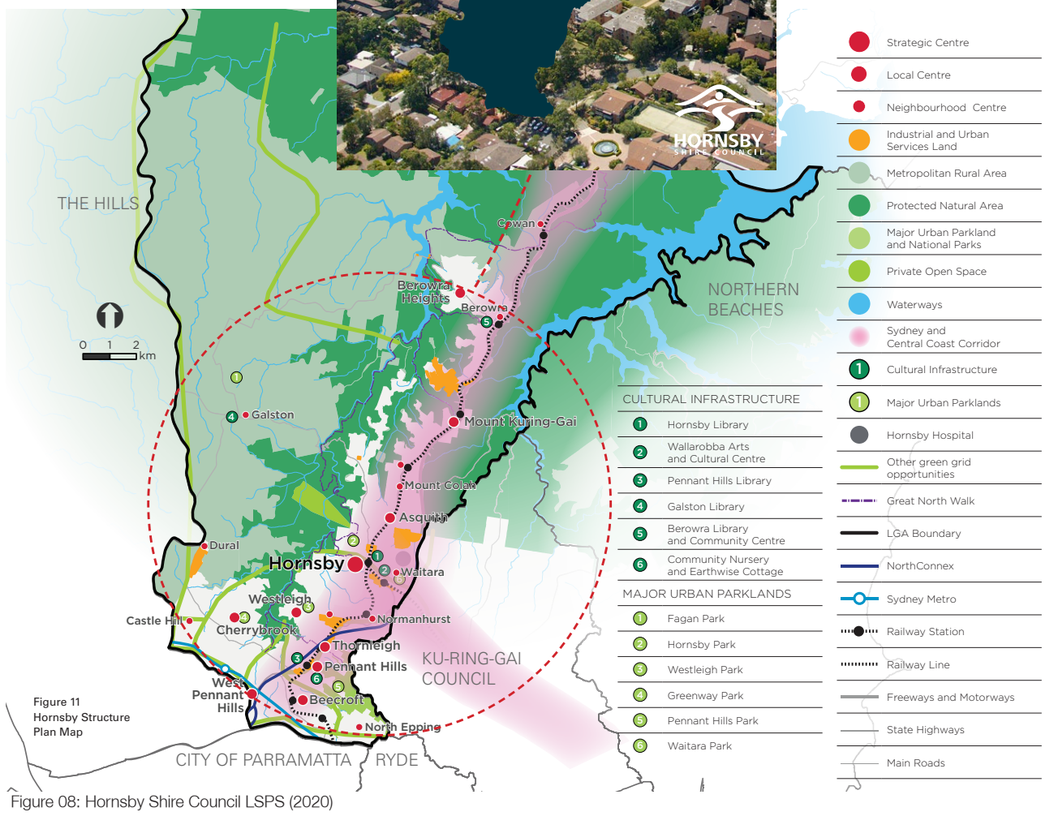


Figure 11
Hornsby Structure Plan Map

Figure 08: Hornsby Shire Council LSPS (2020)

Policy context

3.3 The Hills Shire Council Local Strategic Planning Statement 2019

The Hills Shire Council Local Strategic Planning Statement (LSPS) provides the basis upon which The Hills Shire Council will make planning decisions and drive future land use planning and the management of growth based on the LGA's economic, social and environmental needs over the next 20 years.

The LSPS sets out planning priorities and corresponding actions for the next 5 years with the view of providing for more housing, jobs, parks and services for a growing population.

The plan includes 23 Planning Priorities across the themes of:

- A Vibrant Community & Prosperous Economy
- Shaping Growth
- Delivering & Maintaining Infrastructure
- Valuing Surroundings
- Proactive Leadership

Cherrybrook is mentioned under "*Planning Priority 7 - Facilitate Housing in the Right Locations*" where transit oriented development is promoted around the new metro stations of Bella Vista, Kellyville, Castle Hill and Rouse Hill. It envisages the delivery of 400 units in the area south of Castle Hill Road, closest to Cherrybrook Station.

Like the Hornsby LSPS, it places particular emphasis on improving housing diversity, ensuring that communities have access to public infrastructure and services whilst delivering affordable housing for low income families and key workers.



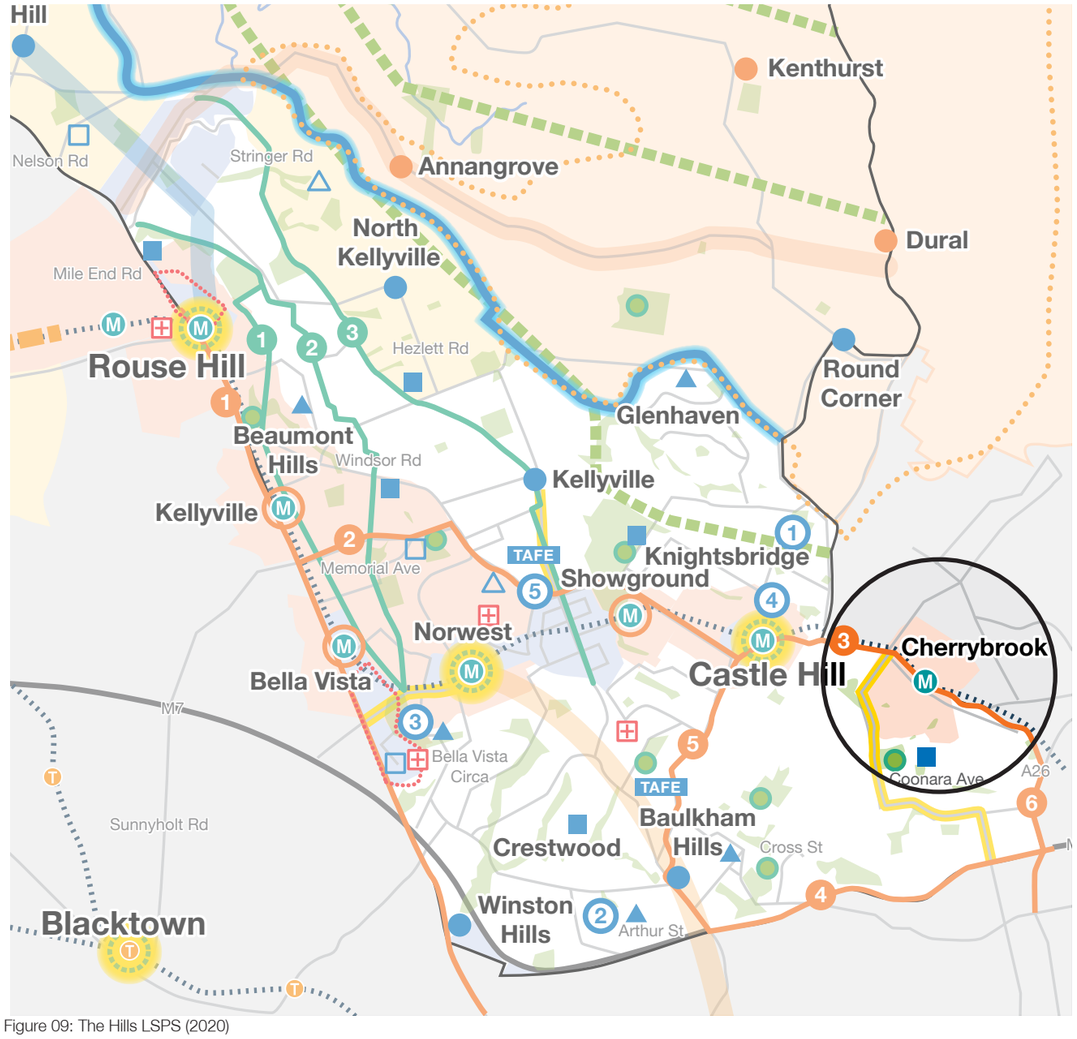


Figure 09: The Hills LSPS (2020)

3.4 Local Environmental Plan

The adjacent inserts illustrate the LEP controls that pertain to the site. As the site is located on the boundary of the two LGAs, it is important to appreciate the different way each Council may amend their respective LEPs in response to the development opportunities afforded by the new station and the approved structure plan.

Zoning

Currently all the land around the station on the Hornsby Shire Council side of Castle Hill Road is zoned for Low Density Residential development. The land to the south of Castle Hill Road, within Hills Council's LGA, is zoned for Environmental Living which supports low density residential development that is sensitive to the bushland environment.

Height of Buildings

The Height of Buildings development controls stipulate a maximum height of 8.5m in the Hornsby LGA and 9m within The Hills. This only permits developments of up to two storeys.

Heritage

There a number of existing heritage assets that enjoy protection under the LEP. These are presented in greater detail later on in the report. The three assets in closest proximity to the SSP Site include:

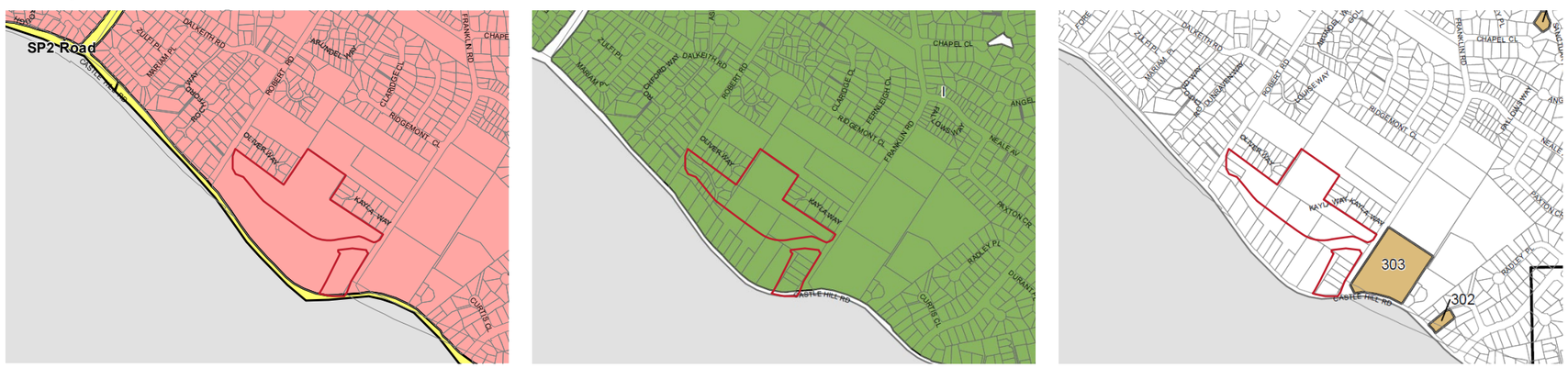
- Inala School (Original House) - 160-168 Castle Hill Road
- Glenhope - 113 Castle Hill Road
- Duranth - 139 Castle Hill Road

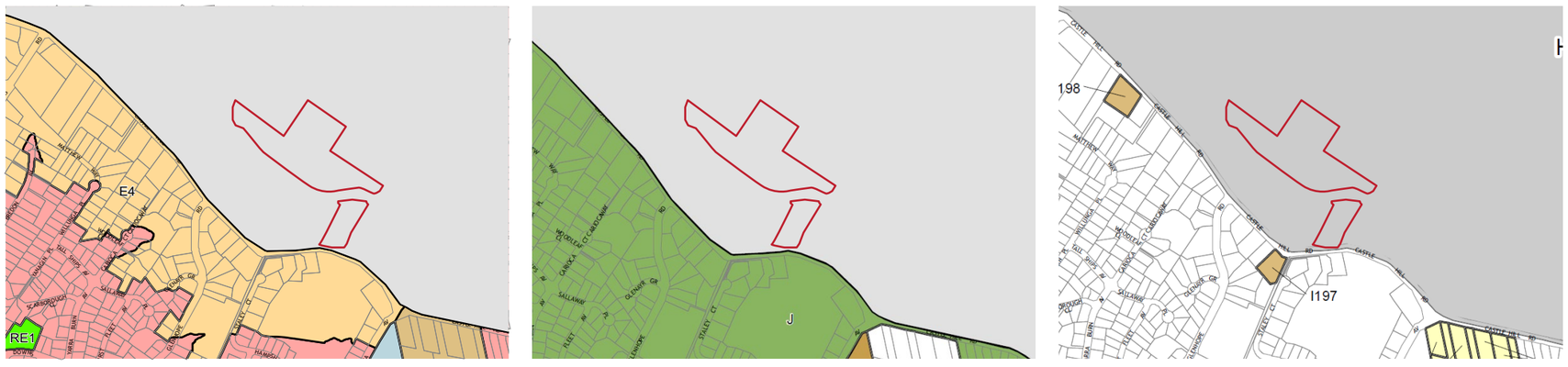
Floor Space Ratio Controls

There are no Floor Space Ratio controls related to the site of the broader precinct in either LEP.

Hornsby Shire Council LEP 2013

The Hills LEP 2019





Land Zoning

- DGL Boundary
- B2 Local Centre
- B7 Business Park
- E1 National Parks / Nature Reserves
- E2 Environmental Conservation
- E4 Environmental Living
- R2 Low Density Residential
- R3 Medium Density Residential
- R4 High Density Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU3 Forestry
- SP2 Infrastructure

Height of Buildings

- DGL Boundary
- I 8.5m (Hornsby)
- J 9m (Hills)

Heritage

- DGL Boundary
- Item - General
- Item - Archaeological

Figure 10: Existing LEP controls (Hornsby LEP 2013, The Hills Shire 2019)

3.5 Movement and Place

The Movement and Place Practitioner's Guide signals State Governments commitment to public space and place-based planning within within State and local government. It responds to emerging challenges of adapting to a changing climate, changing demographics, population growth, and supporting healthy lifestyles and social interaction.

The objective of Movement and Place is to achieve roads and streets that:

- contribute to the network of public space within a location, where people can live healthy, productive lives, meet each other, interact, and go about their daily activities
- are enhanced by transport and have the appropriate space allocation to move people and goods safely and efficiently, and connect places together. Balancing movement and place recognises that trade-offs may be required to achieve a best fit for the objectives.

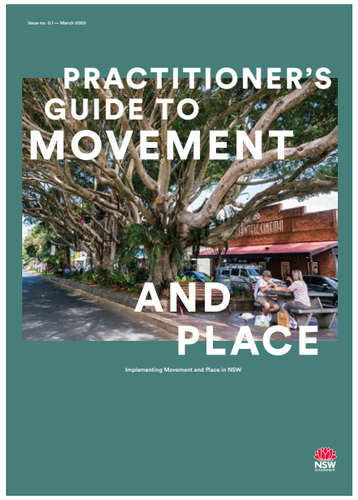
The guide establishes a process and language that sets the conditions for successful places to occur around roads and streets. It introduces:

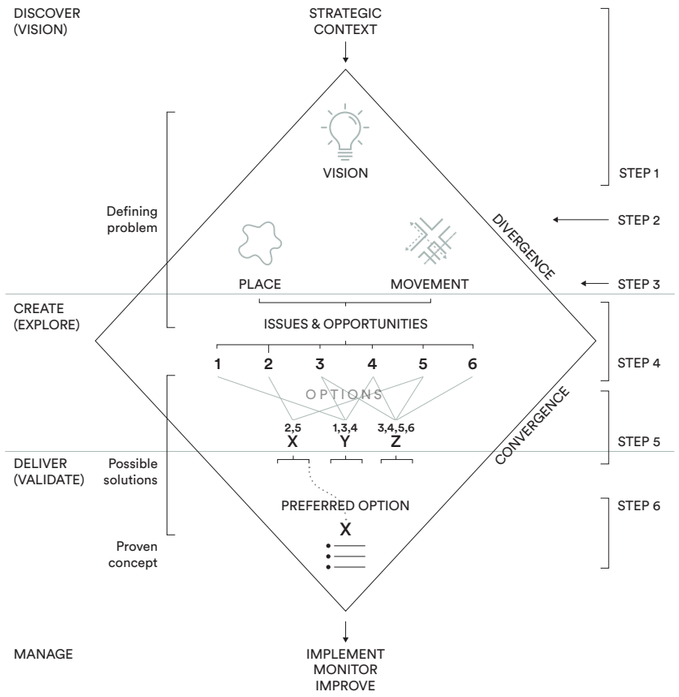
1. A six-step process of collaboration has been established as the means of taking a Movement and Place
2. New methods are advanced for understanding place through "form, activity and meaning" and movement in its relationship to,through, and within places
3. Performance indicators have been defined for all projects to report against, grouped into five built environment themes, including core and supplementary indicators for evaluating options
4. Classification of street environments has been adapted, and its role and purpose redefined

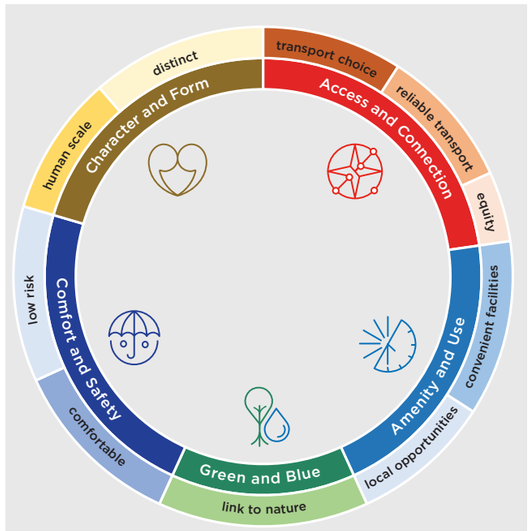
Key implications for the study

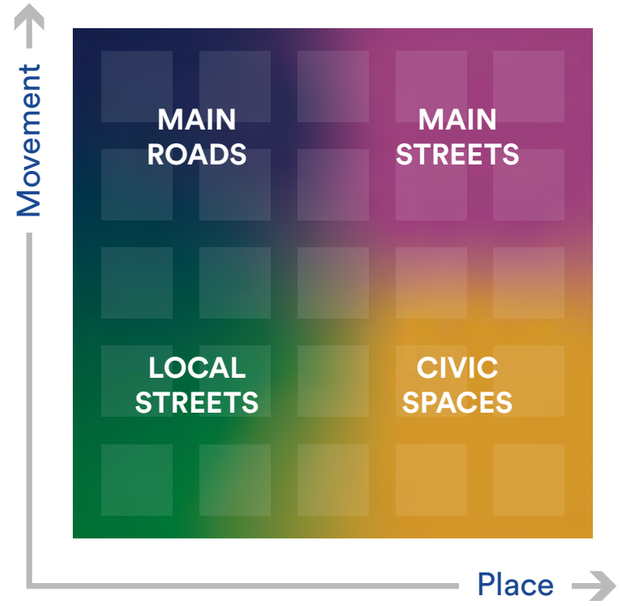
While no public streets will be delivered as part of this development, it will be critical to ensure the place function of Bradfield Parade is maintaned and protected. As such, private vechilar traffic should be discouraged with a focus on improving the experience of intermodal transfer between public transport services.

Castel Hill will remain a Main Road function and Frankin and Robers Road will perform as local streets.









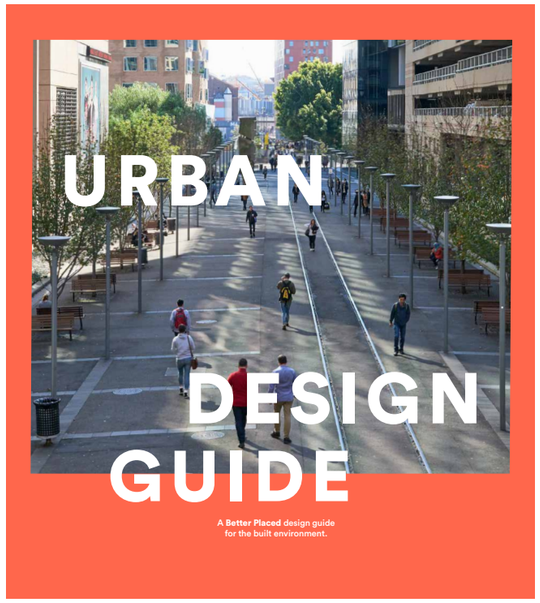
3.6 Design Guidelines

A suite of new strategies and frameworks has been created by the Government Architect New South Wales (GANSW) to promote good design. The genesis of this suite is Better Placed that approaches design from a 'place' based understanding, to ensure that development is integrated, contextual and beneficial to the existing local community. Better Placed "establishes a baseline of what is expected to achieve good design, across all projects in NSW. Good Design is a phrase that encapsulates the aspirations of Better Placed including its vision for NSW, its definition of good process, and its outline of objectives for the built environment." (Better Placed, 2017)

It is based on the following seven objectives:

- **Better fit:** contextual, local and of its place
- **Better performance:** sustainable, adaptable and durable
- **Better for community:** inclusive, diverse and connected
- **Better for people:** safe, comfortable and liveable
- **Better working:** functional, efficient and fit for purpose
- **Better value:** creating and adding value
- **Better look and feel:** engaging, inviting and attractive









3.7 NSW Government and Council Policies, Strategies for Open Space

There are a wide range of NSW Government and Council policies that are used to inform design and planning around open space. Some of these include Greener Places (2020), Hornsby LEP(2013), Hornsby Shire Council DCP (2013), Vegetation management and Restoration plan, Hornsby Shire Council (2008), and Flora and Fauna Assessment Guidelines for Development Applications, Hornsby Shire Council (2006) and draft Urban Forest Strategy, Hornsby Shire Council. Policies specifically relating to the public domain and landscape of the site specifically are listed and summarised below.

Greener Places - GANSW (2020)

Greener Places is a design framework for urban green infrastructure. It seeks to capture the State's collective aspiration and expectations in planning, designing and delivering green infrastructure in urban areas across NSW. The aspiration is to create a healthier, more liveable, and sustainable urban environment by improving community access to recreation and exercise, supporting walking and cycling connections, and improving the resilience of our urban areas. The guide places a particular emphasis on open space quality and fit for purpose criteria.

Design guides for Open Space for Recreation – Green infrastructure for people, Urban Tree Canopy – Green infrastructure for climate adaptation and resilience and Bushland and Waterways – Green infrastructure for habitat and ecological health support the delivery of the Greener Places Targets and have been used to inform the design development of this master plan.

Open Space for Recreation – Green infrastructure for people

- Outlines performance requirements for the delivery of high quality open space
- Recommendations for scale, positioning and distribution of open space
- Recommendations for amenity to be provided with open space

Urban Tree Canopy – Green infrastructure for climate adaptation and resilience

- Outlines targets for Urban Tree Canopy Coverage within various urban conditions.

Vegetation management and Restoration plan, Hornsby Shire Council (2008)

As a remnant patch of Blue Gum High Forest is located at the north of the site, this plan provides guidance for how to protect and enhance this asset
Council's aim of a net improvement of native vegetation requires:

- Retention and protection of existing native trees and vegetation during the land disturbance phase and following completion of the development or restoration project.
- Active management or appropriate enhancement plantings to ensure long term conservation of remnant native vegetation and habitat.

Draft Urban Forest Strategy, Hornsby Shire Council.

This document reflects the targets for tree canopy coverage outlined by the Sydney Commission and the GANSW Greener Places document. It provides a summary of the existing tree canopy within the LGA and also a suburb by suburb average. It identifies Cherrybrook as sitting below the target for Urban Tree Canopy.



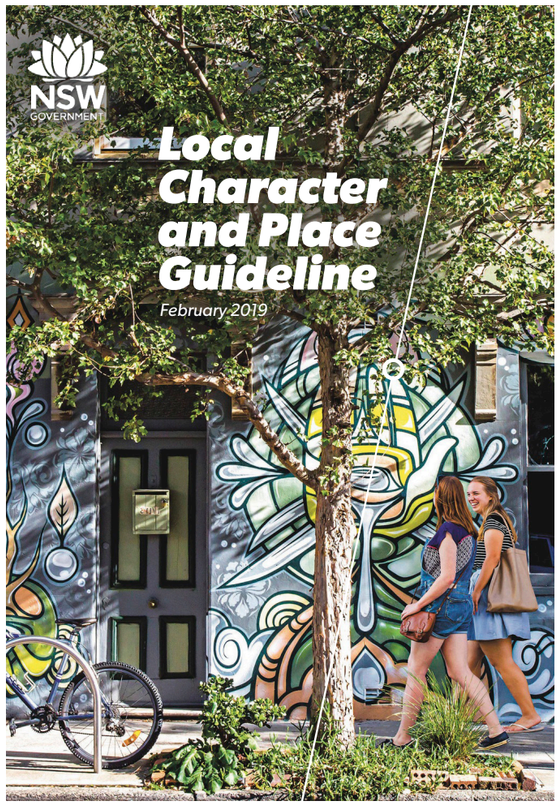
Figure 11: Current environmental policy (Source: DPIE Various)

3.8 Local Character and Place Guideline 2019

The Local Character & Place Guideline was released by the NSW State Government (DPIE) in February 2019. The guideline is intended to be a tool for councils, designers and planners to assess the place and character identity of localities.

It argues that taking a place and character led approach secures the identity of the area and supports change that is contextually appropriate. The guideline identifies three determinants of local character, namely; Social, Economic, and Environmental, and within these categories, the guideline encourages its users to looks closely at an array of markers to arrive at an understanding of the existing and desired future character of an area.

The tool places a strong emphasis on the environment, and in the context of Cherrybrook the design challenge revolves around creating a local centre around a metro station within an area that has traditionally been a low density neighbourhood with high degrees of tree canopy.



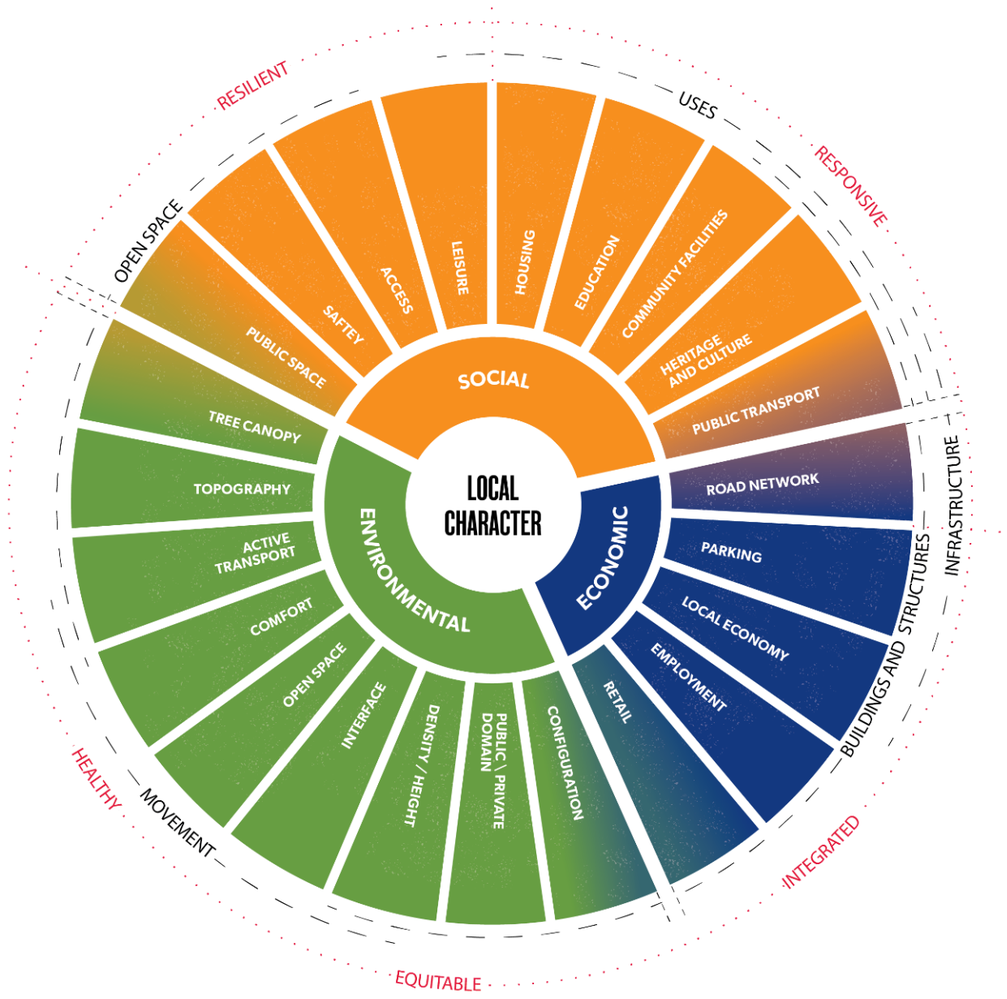


Figure 12: Themes for Defining Character (Source: DPIE Local Character and Place Guidelines 2019)

Previous studies

4

This chapter presents some of the previous studies that have been undertaken to inform the development of the site as well as emerging planning policy.

4.1 North West Rail Link 2013

The North West Rail Link (NWRL) study was undertaken to support the delivery of the metro line, including the delivery of its eight new stations between Epping to Tallawong in north west Sydney.

It was undertaken to integrate infrastructure and land use planning to support growth and make the North West corridor a more appealing location to live and work. The NWRL outlined a broad strategy for new centres with increased density around each of the stations and creates sustainable, well designed and high density mixed use precincts that are connected by frequent rail and bus services.

The NWRL Corridor Strategy proposes approximately additional 27,000 additional dwellings in the rail corridor to be delivered by 2036.

The NWRL sets out a clear vision for the future precinct character that is generally low in scale (three-six storeys) with opportunities for higher density development within walking distance of the new station. The other aspect that is worth noting is the envisaged mix future development that suggests that Cherrybrook is more of a residential area with up to with 3,200 new homes and very low expectations for commercial or employment opportunities (only 50 new jobs). This is both a consequence of the limited land available in Cherrybrook and Cherrybrook's proximity to Castle Hill Station and Norwest where high employment growth is expected. Commercial / retail land uses in Cherrybrook will have a more local catchment.

The NWRL broadly defined the character of Cherrybrook as follows:

- Cherrybrook to remain low density in character with a small number of tall buildings
- Increased residential densities within walking distance of the station
- Predominantly residential uses with mixed use for convenience located in close proximity to the station
- Specific areas identified as appropriate for 3-6 storey apartments
- Tall buildings characterised by the use of traditional materials, building form and substantive landscape front, side and rear setbacks

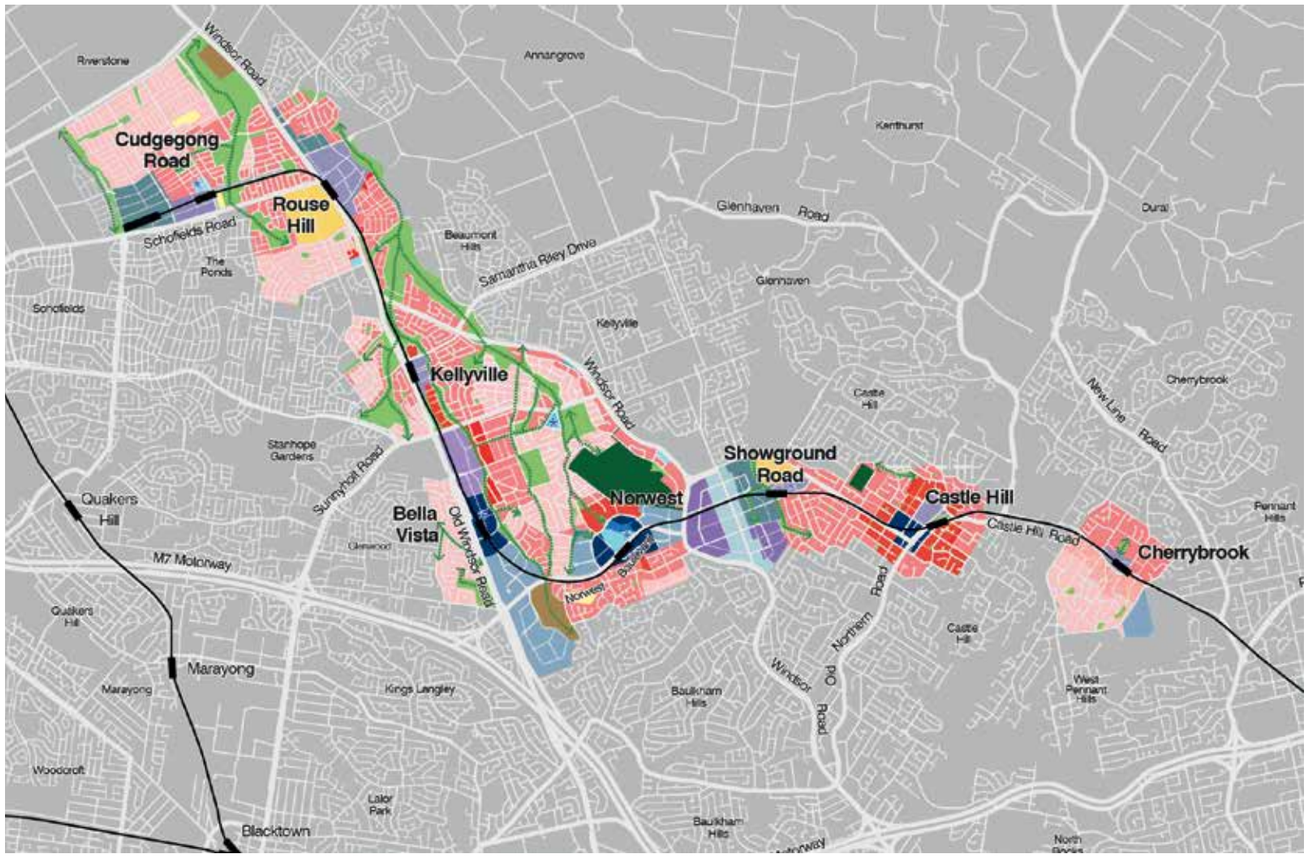


Figure 13: The North Rail Link Corridor Strategy Plan (Source DPIE 2013)

KEY

- DGL Boundary
- Station Platform
- Primary Road
- Secondary Road
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Potential Medium Density Residential subject to further studies
- Commercial Core
- Business Park
- Bulky Goods
- Light Industrial
- Employment
- Local Centre
- Mixed Use
- Special Use
- Public Infrastructure
- Future Local Centre
- Open Space
- Private Recreation
- Heritage
- New Link
- Green Link

4.2 The Hills Corridor Strategy 2013

In parallel with the NWRL Corridor Study, The Hills Shire Council prepared its own study to inform development along the corridor and within its jurisdiction. The intention of this study was to provide a more nuanced view of development along the corridor that would be better informed by local issues and concerns.

The Hills Corridor Strategy identified the potential for around 28,000 new homes and 40,000 new jobs within the North West line Corridor. It also outlined "future visions" for the areas surrounding the new stations, projected housing and jobs growth for each precinct (and the corridor as a whole) whilst also establishing a framework for managing future land use change.

The Corridor Strategy included structure plans for each of the eight new station precincts. These were intended to guide land use changes and transport investments to meet current and emerging challenges associated with future growth in the North West region.

The precinct plan for Cherrybrook only dealt with the land south of Castle Hill Road that was located within the Hills LGA and is illustrated adjacent.

The vision for Cherrybrook included:

"*Low rise apartment development within a landscaped setting responding to existing built form, topography, character and vegetation.*"

This vision also included a target of 1,694 additional dwellings in two density bands of 144 and 69 dwellings per hectare. The height of the proposed buildings were based on overshadowing controls which resulted in buildings of between three and eight storeys moving up the slope.

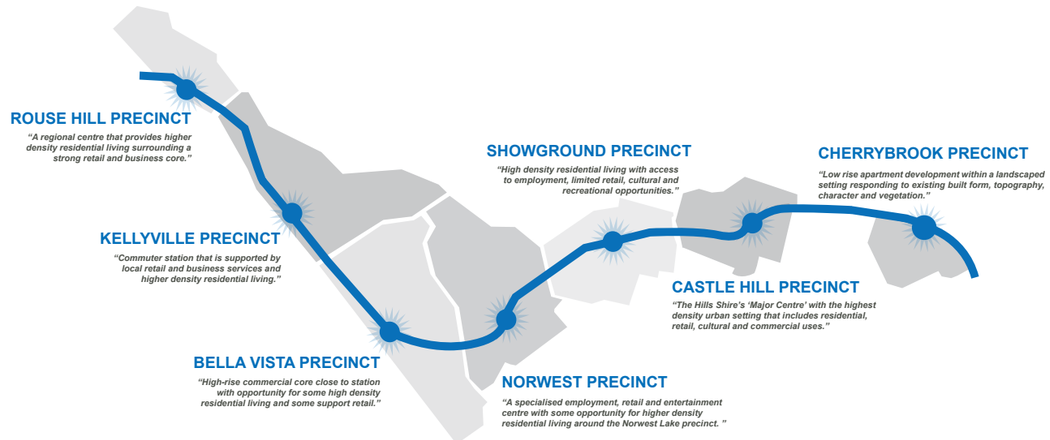
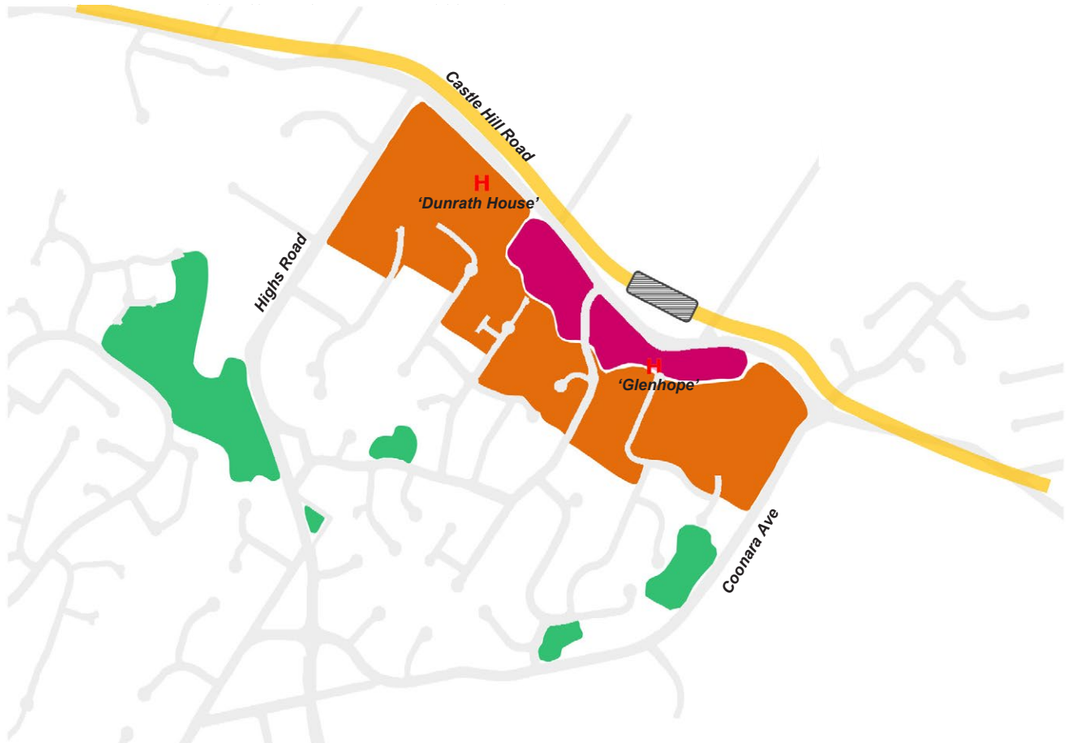


Figure 14: The Hills Corridor Strategy (The Hills Corridor Strategy 2013)



KEY

- Rail Corridor
- Railway Station
- H Heritage Item
- Open Space
- 144 Dwellings per Hectare
- 96 Dwellings per Hectare

Figure 15: Cherrybrook Station Precinct Desired Outcomes (The Hills Corridor Strategy 2013)

Previous studies

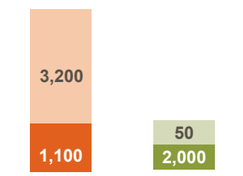
The adjacent figures present a comparison between the proposed job and residential growth expectations included in the 2013 *North West Rail Link Corridor Study* and the 2013 *The Hills Corridor Strategy*. This is important to understand the role of Cherrybrook as a local centre within the context of the North West Rail Corridor and the relatively low residential and jobs expectations when compared with the other stations.

What is interesting to note is that the Hills Corridor Study only considered land within the Hills LGA and the envisaged overall quantum of development is comparable within the wider NWRL study which included adjacent LGAs.

Cherrybrook



NWRL Strategy (2036)



3,300 | 2,050

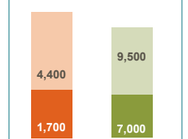
Hills Corridor Strategy (2036)

2,317 | 2,237

Castle Hill



NWRL Strategy (2036)



6,100 | 16,500

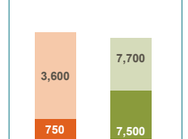
Hills Corridor Strategy (2036)

7,460 | 15,589

Hills Showground



NWRL Strategy (2036)



4,350 | 15,200

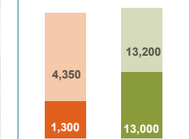
Hills Corridor Strategy (2036)

4,887 | 22,085

Norwest



NWRL Strategy (2036)



5,650 | 26,200

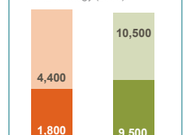
Hills Corridor Strategy (2036)

6,297 | 21,444

Bella Vista



NWRL Strategy (2036)



5,200 | 20,000

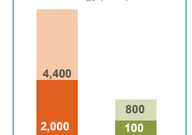
Hills Corridor Strategy (2036)

5,378 | 21,299

Kellyville



NWRL Strategy (2036)

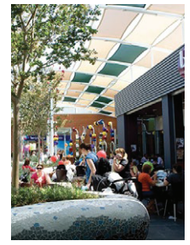


4,887 | 2,113

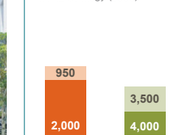
Hills Corridor Strategy (2036)

5,875 | 2,113

Rouse Hill



NWRL Strategy (2036)



2,950 | 7,500

Hills Corridor Strategy (2036)

1,883 | 8,887

KEY

- Predicated Additional Dwellings by 2036
- Predicated Additional Jobs by 2036
- Existing Dwellings
- Existing Jobs

4.3 The Cherrybrook Station Structure Plan 2013

The development of the Cherrybrook Structure plan flowed directly out of the NWRL Study and preceded the State Government's Priority Precinct programme. The study sought to get a better understanding of the challenges of the site and the opportunities that a new station would bring to Cherrybrook. A Structure Plan for the station precinct was developed to guide the future development and contextualise the proposed station within the local area.

The site's undulating and steep topography, as well as the suburban nature of Cherrybrook, were seen as key drivers of the Structure Plan. Also important was retaining and enhancing the existing environmental assets (forests and riparian corridors) whilst reinforcing the green grid throughout the northern suburbs of Cherrybrook.

A number of opportunity sites were identified and targets for jobs and residential growth were set out. The vision statement of the Station Precinct was articulated as follows:

> *"A precinct that contains a mix of local retail and residential uses to provide activation within the station and interchange areas, and attractive public spaces that are a focal point for the local community. It would ensure safety and accessibility for all modes of transport, particularly cycling and walking. It is anticipated that the Precinct will contain a bus, taxi, kiss and ride interchange, which is integrated with the station.*
>
> *The precinct could accommodate a mix of local retail and residential uses that would complement the character of the local area and carefully designed to integrate into the surrounding streetscape. The precinct will also contain a local transport interchange and commuter car parking. New public spaces will seek to enhance the landscape character of the area."*

The Structure Plan suggests that development within the precinct will vary between three and six storeys. It is worth noting the height difference between the Cherrybrook Structure Plan and the Hills Corridor Study. The Hills Corridor Study anticipated buildings of up to eight storeys.



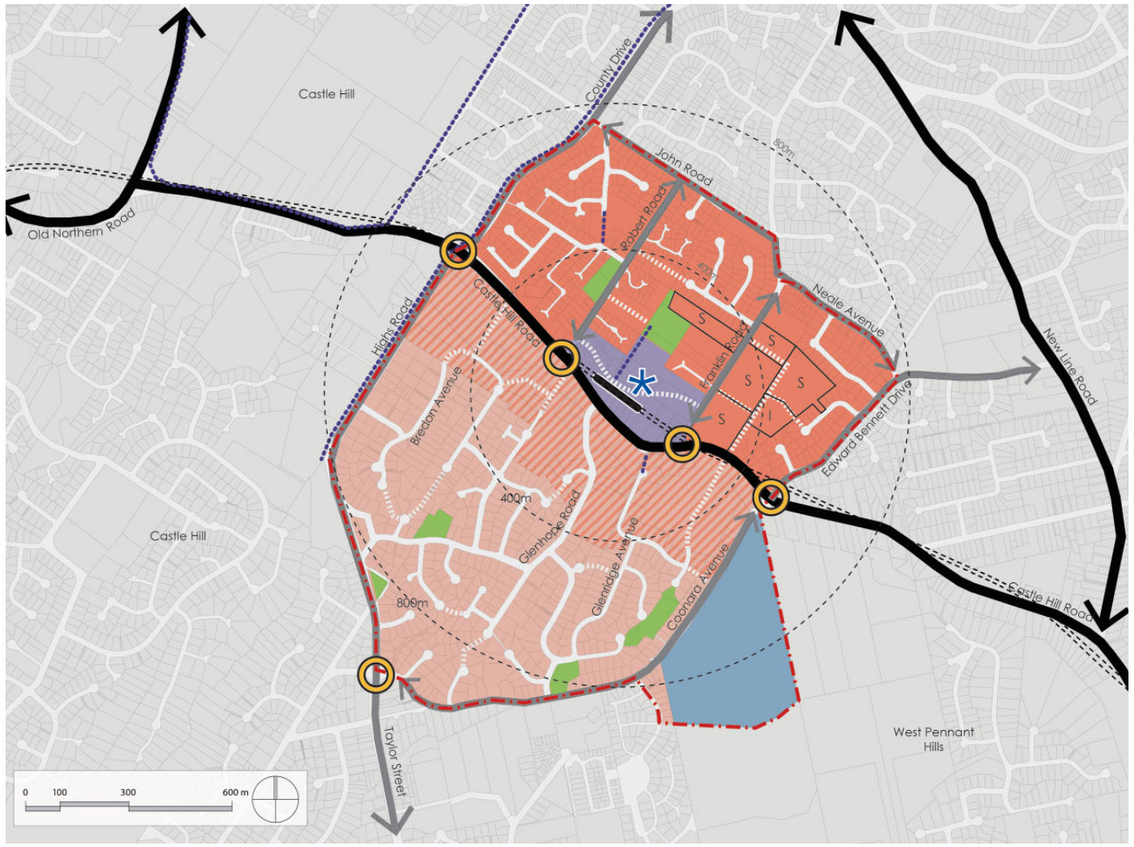
Residential

TYPE OF HOUSING	DWELLINGS IN 2012		DWELLINGS IN 2036		GROWTH
	TOTAL	%	TOTAL	%	TOTAL
SINGLE DETACHED	1,100	100%	750	17%	-350
TOWNHOUSE	0	0%	400	10%	400
3-6 STOREY APARTMENT	0	0%	3,150	73%	3,150
7-12 STOREY APARTMENT	0	0%	0	0%	0
TOTAL DWELLINGS	**1,100**	**100%**	**4,300**	**100%**	**3,200**

Employment

TYPE OF JOBS	JOBS IN 2012		JOBS IN 2036		GROWTH
	TOTAL	%	TOTAL	%	TOTAL
COMMERCIAL	2,000	100%	2,000	98%	0
RETAIL	0	0%	50	2%	50
BULKY GOODS	0	0%	0	0%	0
INDUSTRIAL	0	0%	0	0%	0
TOTAL JOBS	**2,000**	**100%**	**2,050**	**100%**	**50**

While a number of the other station precincts were re-zoned as part of the Planned Precinct Programme, proposals for Cherrybrook were not progressed. The NWRL Study and Cherrybrook Structure Plan, however, have been given statutory weight through a Ministerial Direction issued under section 9.1 of the Act, increasing the likelihood of its realisation.



KEY

- Study Boundary
- Station Platform
- Primary Road
- Secondary Road
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Potential Medium Density Residential subject to further studies
- Business Park
- Mixed Use
- Open Space
- Indicative Link
- Green Link
- Cycle / Pedestrian Link
- Gateway
- I Infrastructure
- S School
- Proposed New Local Centre

Figure 16: Cherrybrook Structure Plan (Source: DPIE 2013)

Site specific design studies

4.4 TfNSW Station Precinct Study 2013

In 2013, as part of the NWRL Corridor Study, TfNSW approached a number of architects and urban design practices to explore the development potential of all the station precincts along the North West Rail Corridor.

Stanisic Architects were appointed to explore the development potential of the Government owned land around Cherrybrook Station. The proposals included a three to six storey mixed use development with a pedestrian link extending northwards from the station towards the Blue Gum High Forest and stormwater detention basin.

The buildings on the western side of the site were arranged as fingers in the landscape with their short ends fronting onto Bradfield Parade and the communal open spaces oriented north-south to create a more organic edge along the street.

The development included buildings up to six storeys, 454 residential units and 3,535m^2 of commercial / retail floorspace.

This plan clearly informed the Structure Plan in the alignment of the pedestrian connection and height and scale of development.

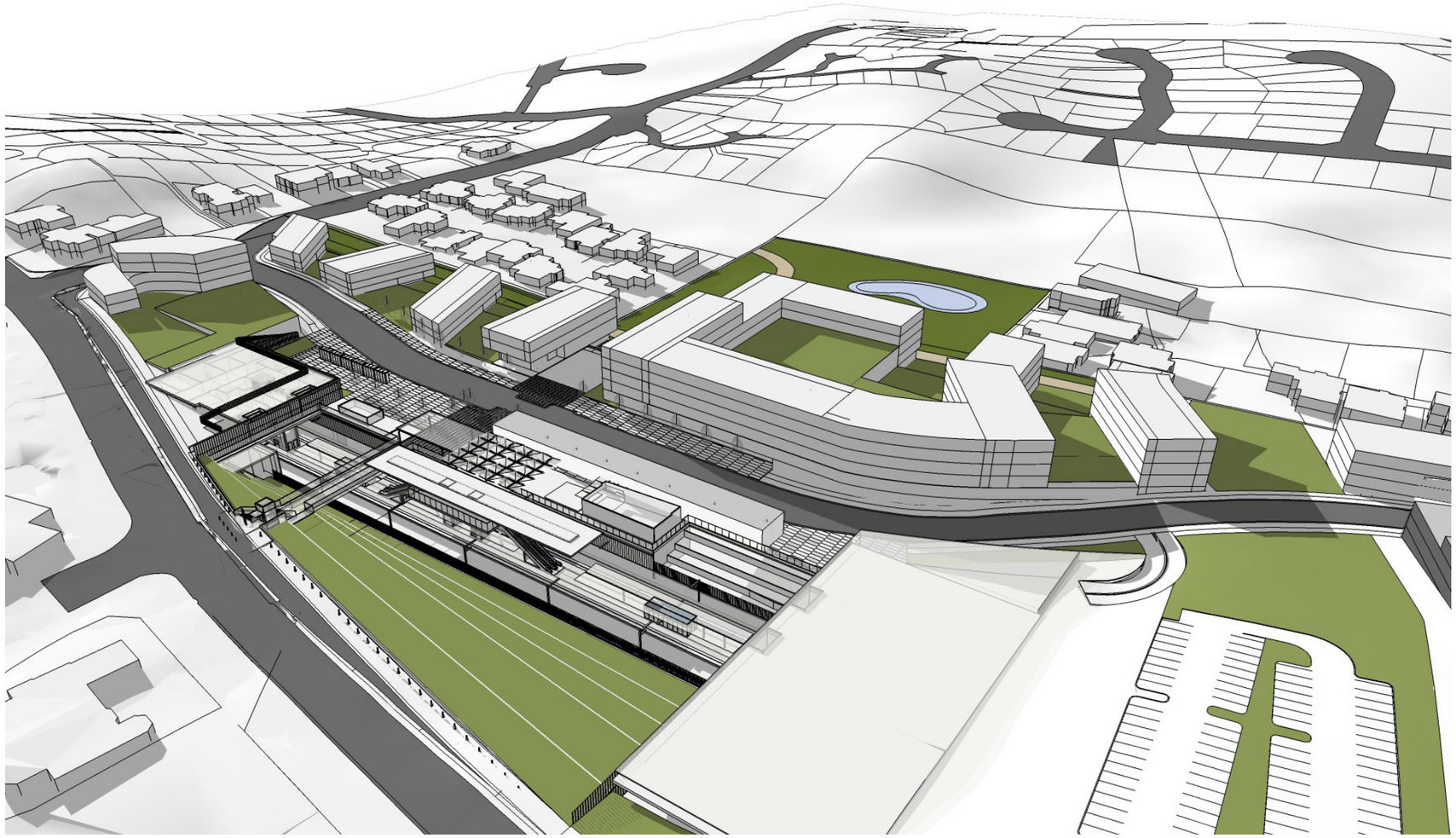


Figure 17: Cherrybrook Precinct (Source: Stanisic Architects: 2013)

Contextual analysis

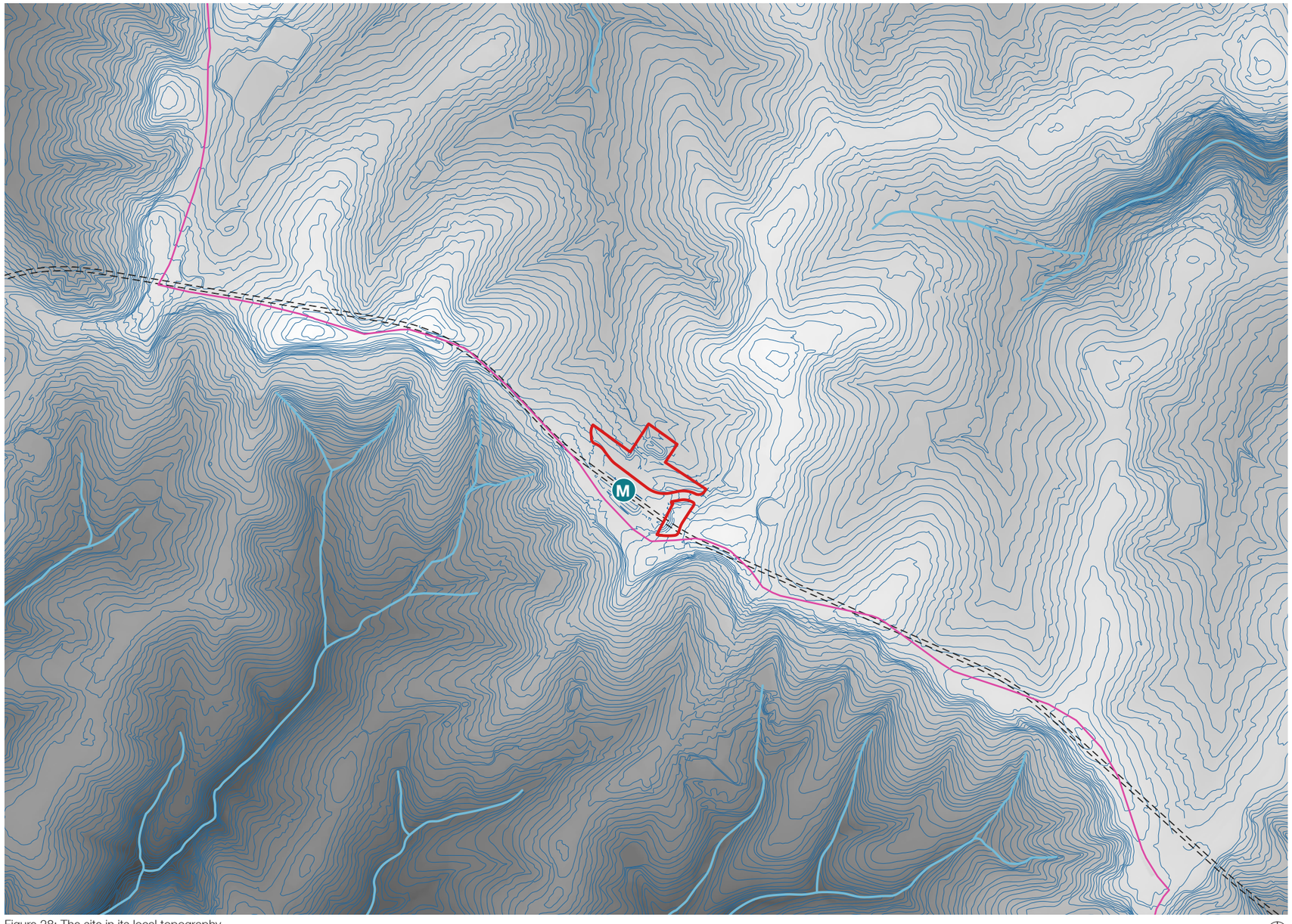
5

The following chapter presents a contextual analysis of the site and the broader precinct. It starts at the more strategic level and drops down to site level interrogating themes from topography to landscape and built form.

5.1 Geology and topography

The site is located on the northern fringe of the Cumberland Plain, adjacent the Pittwater subregion, and within the Sydney Basin. It is underlain by the Liverpool sub-group Wianamatta Shale formation consisting of Bringelly Shale, Minchinbury Sandstone and Ashfield Shale. The geological formations are predominately shale with some sandstone bedding (Bryan 1966).

Castle Hill Road runs on a ridge line that divides Hornsby and The Hills LGA areas. To the south of this road, the land falls sharply affording dramatic views of the western parts of Sydney and the Blue Mountains beyond. The land to the north is more undulating with gentle slopes and creek lines that fall towards Cowans Creek and the Hawksbury River.



KEY

- RL c.190m
- RL c. 70m
- DGL Boundary
- 2m Contour Intervals
- Major Waterways
- LGA Boundary
- Sydney Metro

Figure 28: The site in its local topography

1:7,000 @ A3

5.2 Natural and ecological setting

The site is located in the Cumberland Plain and prior to European settlement would have been vegetated with open Cumberland Plain Woodland typically found on the Wianamatta Group shale geology. Tree species would have included Forest Red Gum, Grey Box, Honey Myrtle and Prickly Leaf Paperbark associated with waterlines in the area (Benson & Howell 1990).

5.3 Indigenous use of the land

The site is understood to be located within the traditional boundaries of the Bediagal and Darramurragal clans (Artefact 2016). The broader Cherrybrook region would have formed part of a travel corridor, linking the Darug groups of the Cumberland Plain to the Awabakal and Guringai people of the Hunter.

One Aboriginal Heritage Information Management System registered site (AHIMS site #45-6-2861) was identified in 2006 west of Franklin Road and north of Castle Hill Road suggesting that the site was originally used as an open camp site. Camp sites would have accommodated temporary residences in the form of bark structures. At the time of discovery the site was found to be highly disturbed due to the construction and demolition of a residential building and the overall condition of the site was described as poor. As a consequence it was assessed as demonstrating low archaeological potential (JMcD CHM 2006) .

In 2012 a further study was undertaken by GML and in 2014 RPS undertook survey, surface collection, testing and salvage excavation in the Cherrybrook Station Precinct. The surface artefacts originally recorded at AHIMS site #45-6-2861 were no longer present at the site and the update card for the site was changed to ‘not a valid site’. However, no site impact form has been recorded with OEH AHIMS to specify that the site has been destroyed.

This entire site has since been transformed through the construction of Cherrybrook Station and as such, the site has been modified after obtaining the relevant approval (Approval number SSI-5100).

The historical use of the site as a meeting place provides a valuable useful clue for the future design and vision of the precinct.





Figure 29: The Blue Gum High Forest to the north of the site



Figure 30: The natural landscape was cleared with the arrival of European farmers
Aerial Photograph from 1943 (Source: Six Maps)

5.4 The transformation of the landscape and European history

Artefact's draft *Non-Aboriginal (Historic) Heritage Assessment* (2020) provided some useful insight into the historical background of the site and surrounding area;

1788 - 1890s - The area would have been rural during this period, and while some minor subdividing did occur in the later years there still would have been very little in the way of population or infrastructure. Although the parish maps and records do not specifically indicate how the land was used during this time, it is likely that the properties would have initially begun with the cultivation of crops before transitioning into orchard growing. There also would have been little in the way of infrastructure.

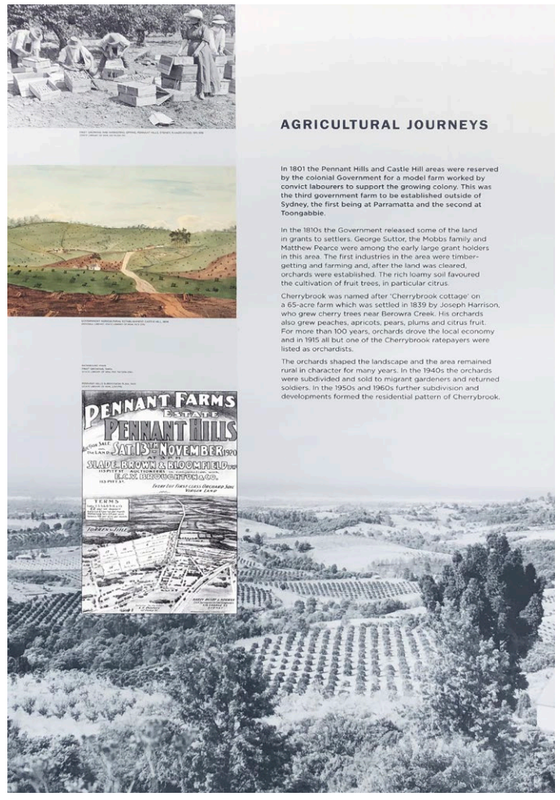


Figure 33: Historic Information Board outside Cherrybrook Station

1920 - 1960 - Aerial photos show that lands were still very rural during this time period. A photo dating to 1928 shows that with the exception of a few cleared areas nearly the entire area was occupied by orchards. The only two buildings present at the time were along Franklin Road in the southeast corner of the site. An aerial photo dating to 1943 (see below) shows that by this stage most of the orchards within the Precinct had been removed and were instead being used as paddocks. By this time multiple structures were present in the western section of the site. However, most of these buildings appear to be agricultural in nature.

The rural use of the Precinct continued until well into the late 1950s and early 1960s. By 1959, the wider Cherrybrook area was subdivided to become the first home village in Sydney. This saw the original bushland bulldozed and cleared, and exhibition houses constructed on cut and fill sites, then landscaped. As a result, the region was opened to growth. By this stage the majority of the orchards had been removed as they were no longer as economically viable as they had been in earlier years.


Figure 31: Aerial Photograph from 1943 (Source: Six Maps)

1960 - 2000 - The area underwent further subdivision and urban development. Lands previously used for agricultural purposes were cleared and developed for housing. A historical aerial from 1961 (see below) shows that even at this stage houses were still primarily situated on lands fronting Castle Hill Road and Franklin Road, while the centre and northern part of the site remained mostly paddocks.

By the mid-late 1970s, the majority of (current) urban development took place. To cope with an increasing population, the Sydney Region Outline Plan of 1968 called for substantial new urban developments to the west of the Elouera Natural Bushland Reserve. In response, land was set aside for the newly created suburb of Cherrybrook in 1975, with the first land being released by 1978. Within 10 years of this approximately 2,400 houses had been built (Rowland 2008), along with the required associated infrastructure such as roads, which were laid out in complex patterns. In some areas heavy building did not even take place until the 1990s.

2000 onwards - By the turn of the century, most of Cherrybrook had been urbanised and built over with the modern suburban blocks that are common in the area today, while the population steadily grew.


Figure 32: Aerial Photograph from 1961 (Source: LPI)

However even by 2010, most of the Developable Government Land as well as the area to the north was undeveloped and remained as large consolidated property housings comprised of cleared land with significant tree growth.

In preparation for the future construction of the Cherrybrook Station, the land was cleared during 2013 by Transport for NSW. The photograph below shows the site prior to this occurring.


Figure 34: Aerial Photograph from 2011 (Source: Google Earth)

5.5 Listed heritage items

Artefact's *Non-Aboriginal (Historic) Heritage Assessment (2020)* described the Developable Government Land '*as predominantly used for agriculture until the 1960s... major urbanisation did not occur until the 1990s.*

The area contains no listed or unlisted heritage items, although one potential archaeological site was identified it has been managed and impacted during the construction of Cherrybrook Station. Overall, the Area has been assessed as having no potential to contain intact archaeological remains from the early nineteenth to early twentieth century.'

There are three designated heritage items in relatively close proximity to the DGL. These are described below:

Item 197
"Glenhope" 113 Castle Hill Road
Built c.1895



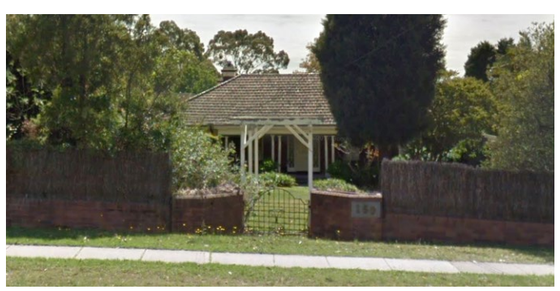
Item 303
"Inala School" (original house) 160-168 Castle Hill Road
Built in 1895

Statement of Significance - Original main building is a good example of a large, early Federation style house. Elegant design with distinctive tall chimneys and pair of gablets. Integrity undermined by some unsympathetic modifications. Local significance.



Item 302
150 Castle Hill Road
Built c.1930

Statement of Significance - Good example of an Inter-War Georgian Revival design, uncommon in the Shire. One of the few pre-War houses built in this area. In excellent condition. Local significance.



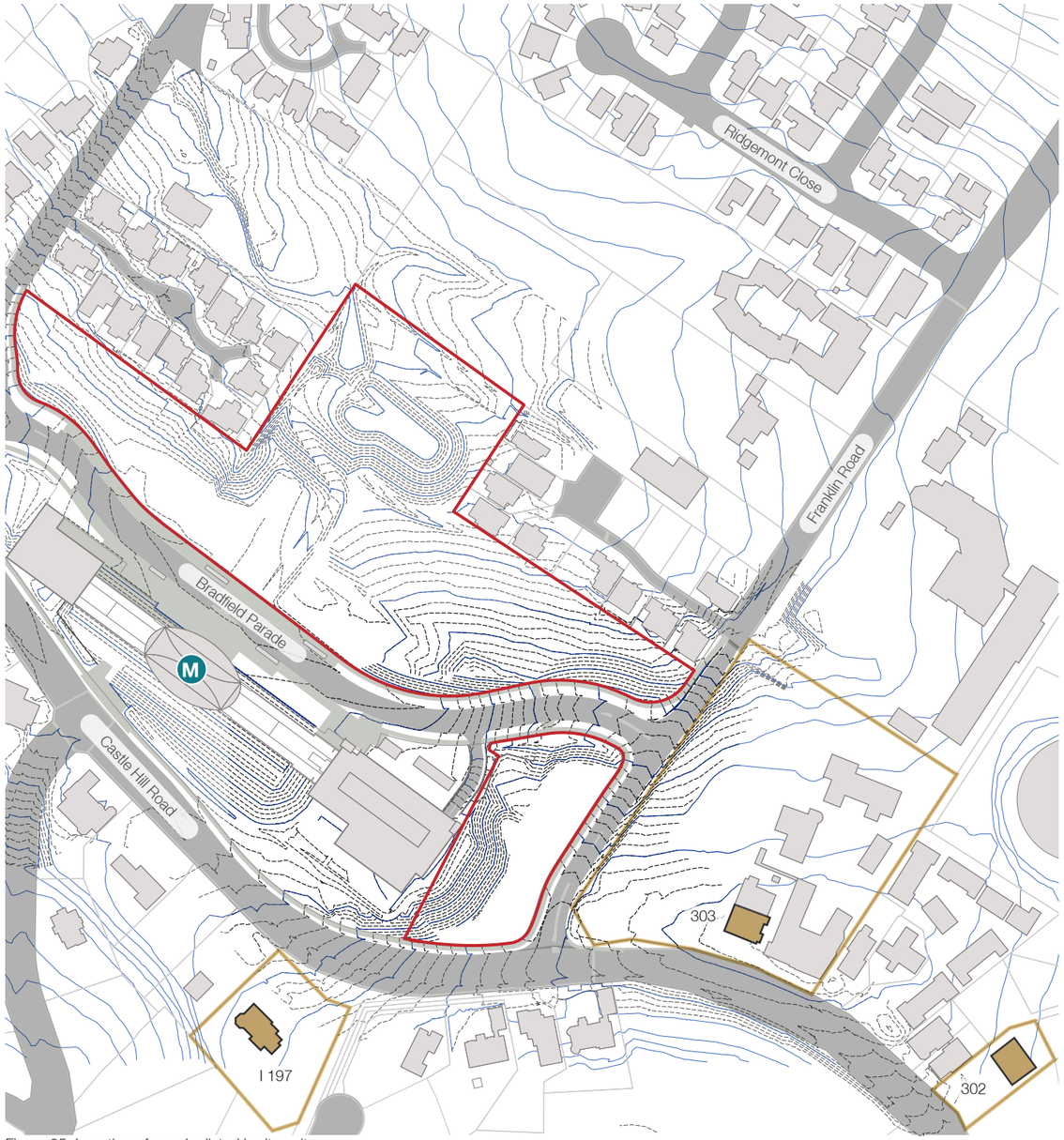


Figure 35: Location of near by listed heritage items

1:3,000 @ A3

5.6 Urban context

The Cherrybrook Station precinct is located on the northern side of Castle Hill Road on the southern edge of the Hornsby Shire Council LGA area. The site is surrounded by low density suburban housing with pockets of dense woodland forest located within the open space network. The Cumberland State Forest is located approximately 800m to the southeast of the site and represents a valuable collection of Blue Gum and Turpentine Forest vegetation types.

Castle Hill Centre is located 2.5km to the west of Cherrybrook Station and offers many high order services including a regional shopping centre (112,076 m²), district library and medical facilities. As outlined previously, further intensification of jobs and houses is anticipated in and around the Castle Hill local centre.

The Cherrybrook Village Shopping Centre is located approximately 2km to the north of the site offering 14,097m² of retail floor space including two anchor supermarkets (Aldi and Woolworths), line shops and other general services.

Pennant Hills Shopping Village is located approximately 900m south of the site and fulfils a local convenience function containing a Woolworths Metro and a small number of other shops.

There are also a number of other schools and recreational facilities located within a 2km catchment area including the Cherrybrook Technology High School, Tangara School for Girls, Greenway Park and the West Pennant Hills Sports Club.

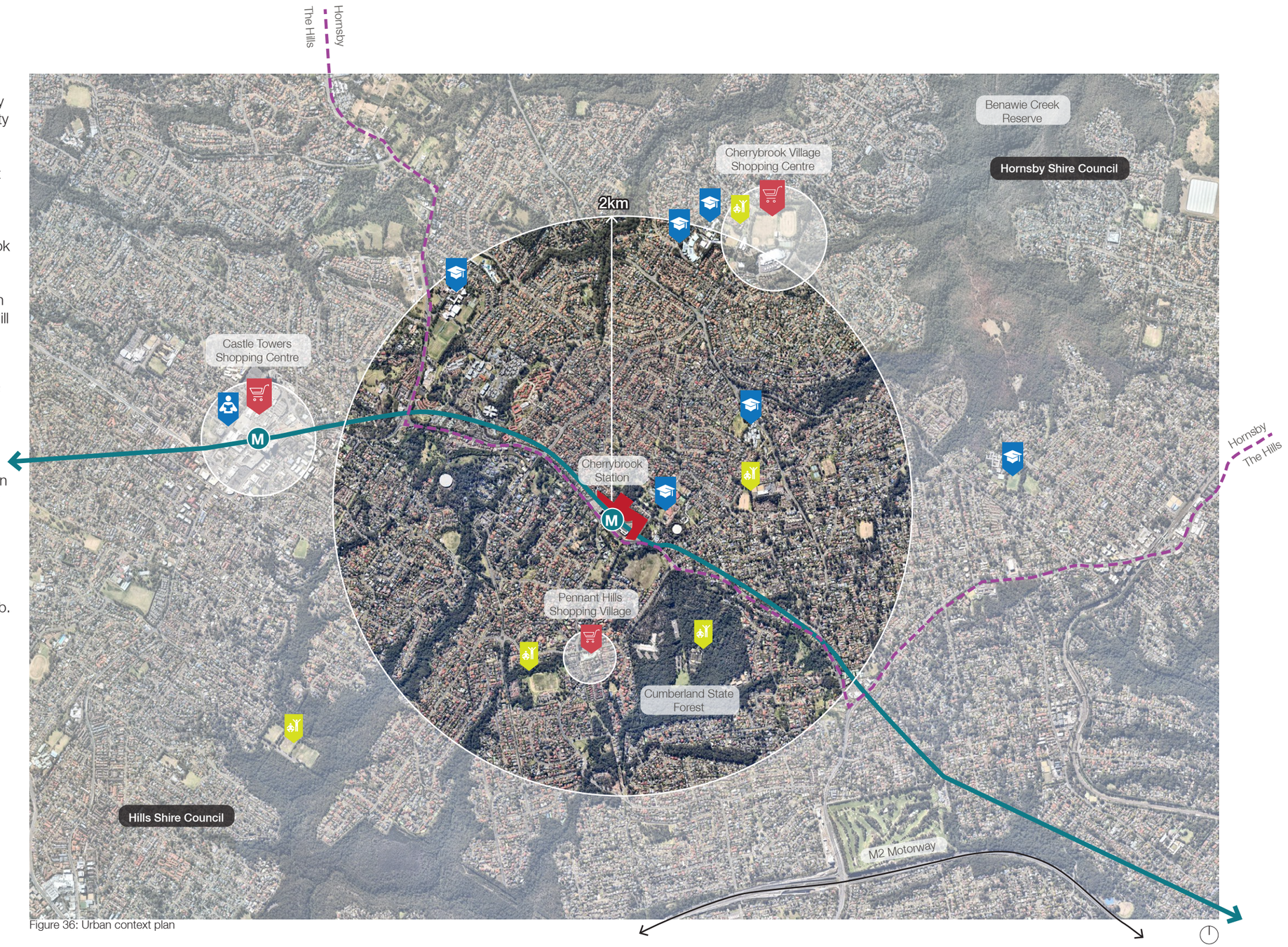


Figure 36: Urban context plan

5.7 Demographics

The adjacent info-graphics present the key demographic indicators for Cherrybrook based on the 2016 census. It indicates a relatively well educated (62.9% of the population aged 15 and over held educational qualifications, compared with 52.7% for Greater Sydney) and affluent population (Overall, 44.2% of the households earned a high income and 7.3% were low income households, compared with 28.3% and 15.1% respectively for Greater Sydney), with a high percentage of residents born oversees. The population is aging with a relatively high %age of households with children in high school.

The Housing Study undertaken by Ethos Urban orignally in 2020 and updated in 2022 suggests that in the near future houses will be under occupied and residents may be looking to downsize. The dominant house type is detached houses with most being 4+ bedrooms (two times the NSW average). These factors combined suggest that residents who are looking to stay in the area and are looking to downsize will be looking for forms of accommodation that are not currently available.

This, together with the trend that young families and young professionals are looking for the benefits of green suburban living with good access to opportunities and amenities via a high frequency public transport service suggests a demand for higher density forms of accommodation with a mix of small and larger units.



3.2
Ave. household size



61%
Married



16.3%
10-19 years



81% separate house,
16% attached
3% flats

57% separate house, 14% attached, 28% apartment in Greater Sydney

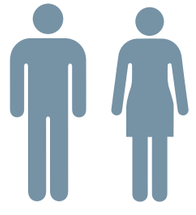


61.6%
Both parents born overseas

15.8% with Chinese ancestry



42%
Professional



23.7%
45-59 years



Most Houses
4+ bedrooms
(2x NSW average)

2x NSW average

Figure 37: Key demographic indicators

5.8 Shifting community needs

A Multi-Cultural, Young + Retiring Community



New Zealand Film: Boy (2010)



Social Group (Source: Aspect Studios)



Pocket City Farm (Source: Aspect Studios)

Understanding who lives in Cherrybrook is fundamental in creating a place that successfully caters to their needs.

As noted in the aforementioned demographics study, Cherrybrook is a community that is multicultural. In the *2016 National Census*, over 50% of residents in Cherrybrook were born overseas - a significantly larger proportion than the Hornsby Shire LGA (40%). In particular, there is a high Chinese and Indian ancestral population that live in Cherrybrook.

The area is also characterised by its young and retiring community. In the *2016 National Census*, 33% of residents in Cherrybrook are under the age of 24 (compared to 31% for Greater Sydney), and 38% of residents are over the age of 50 (compared to 31% for Greater Sydney).

Community Recreation Opportunities



Metcalfe Park, Pyrmont, NSW (Source: Aspect Studios)



Community game (Source: Aspect Studios)



Adelaide Zoo Play Space, Adelaide, SA (Source: Aspect Studios)



Courdimanche Playground, France (Source: Aspect Studios)

Understanding that Cherrybrook is a multicultural, young and retiring community opens up a range of recreation opportunities for the site.

As noted in the *Unstructured Recreation Strategy Plan by Hornsby Shire Council,* there is capacity, and demand in Cherrybrook to create places that allow for a diverse range of social games for a multicultural community. For instance, there may be opportunities to incorporate social racquet games, board/table games such as Mah-Jong, and communal tai chi areas.

The *Unstructured Recreation Strategy Plan by Hornsby Shire Council* also notes the potential demand for horticultural activities / community gardens in Cherrybrook. This open space use caters to the various educational facilities that surround the site.

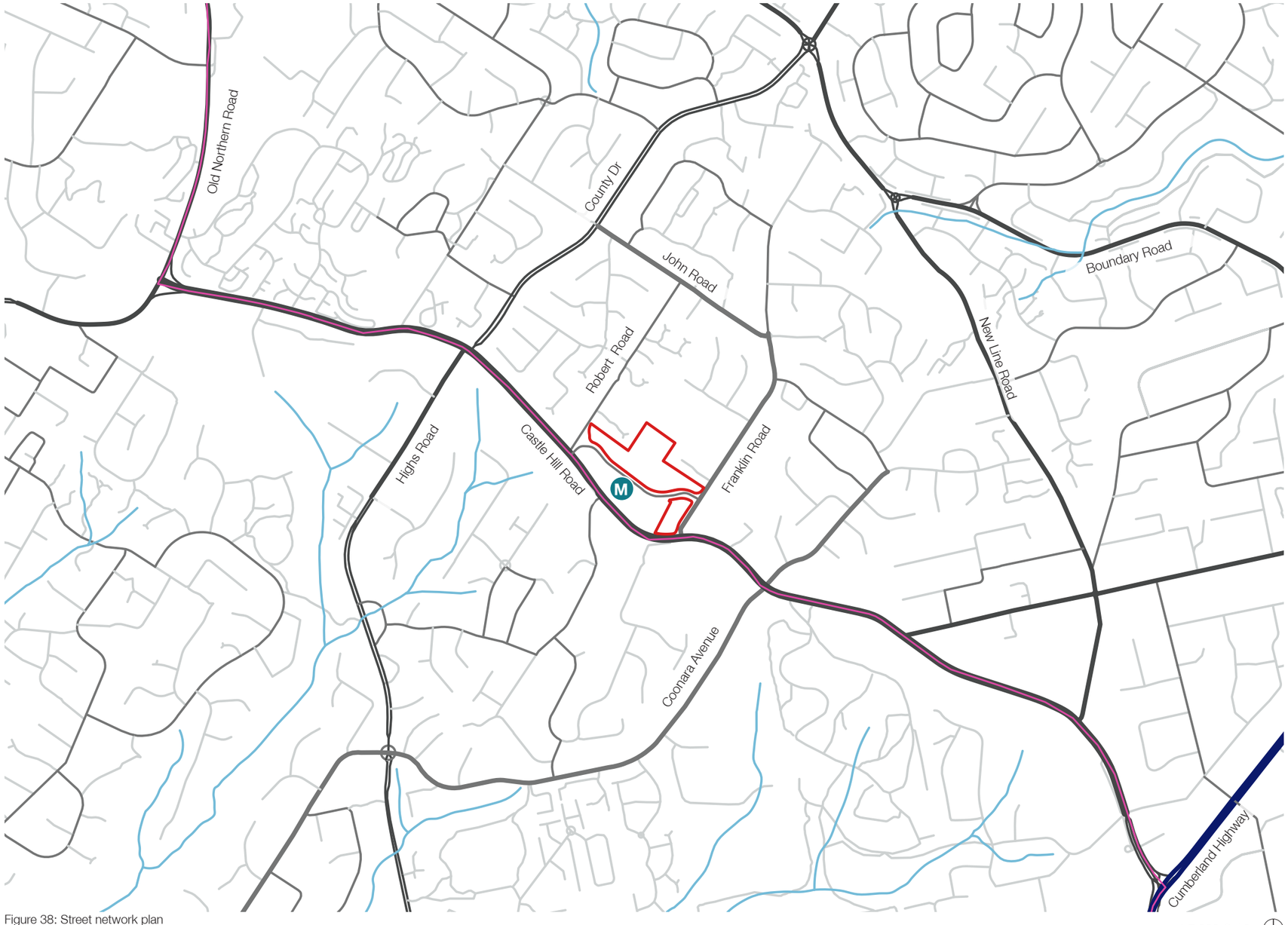
Due to the large proportion of young people in the area, there is also increased pressure for open, exploratory play spaces. The site conditions also allow for areas of terracing which can incorporate nature play. Additionally, there is also potential for small scooter / learn to ride zones on the site.

5.9 The street network

Forming the boundary between The Hills and Hornsby Shire Council, Castle Hill Road acts as the main vehicular artery through the local area. To the south, this connects to the Cumberland Highway and subsequently to the M2 Motorway.

Branching off from this main connector are a series of secondary roads (Franklin, Highs, Coonara Roads) that connect the various micro communities across the wider district.

Distinctive to the local area is the significant number of cul-de-sacs and dead end roads that service the extensive low density residential neighbourhoods across Cherrybrook. This suburban road layout is thought to provide safer pedestrian environments (due to the reduced amount of through traffic) but may exacerbate traffic volumes and pressures on main roads and thoroughfares, as well as reduces pedestrian connections.



KEY

- DGL Boundary
- Motorway
- High order mobility streets
- Secondary connecting street
- Local streets
- Drainage lines
- LGA Boundary

Figure 38: Street network plan

1:7,000 @ A3

5.10 Public transport

The Cherrybrook Station Precinct and wider area is served by the new metro service as well as numerous bus services, including express bus services from Cherrybrook into Wynyard Station.

The steep topography, the abundance of cul-de-sacs and lack of pedestrian connections hinders pedestrian access to bus stops and public transport service, increasing walking distances and travel times making the use of public transport a clear second choice to private vehicles.

The DGL itself has several bus stops directly to the south on Bradfield Parade and is directly adjacent to Cherrybrook Station. The site has access to an average of 30 metro services (in both directions) per weekday peak hour and 12 services per hour throughout the day during weekends. The frequency of bus services near the site is 21 and 23 services (in both directions) per AM and PM peak hour respectively during weekdays. As such it has excellent public transport provision.

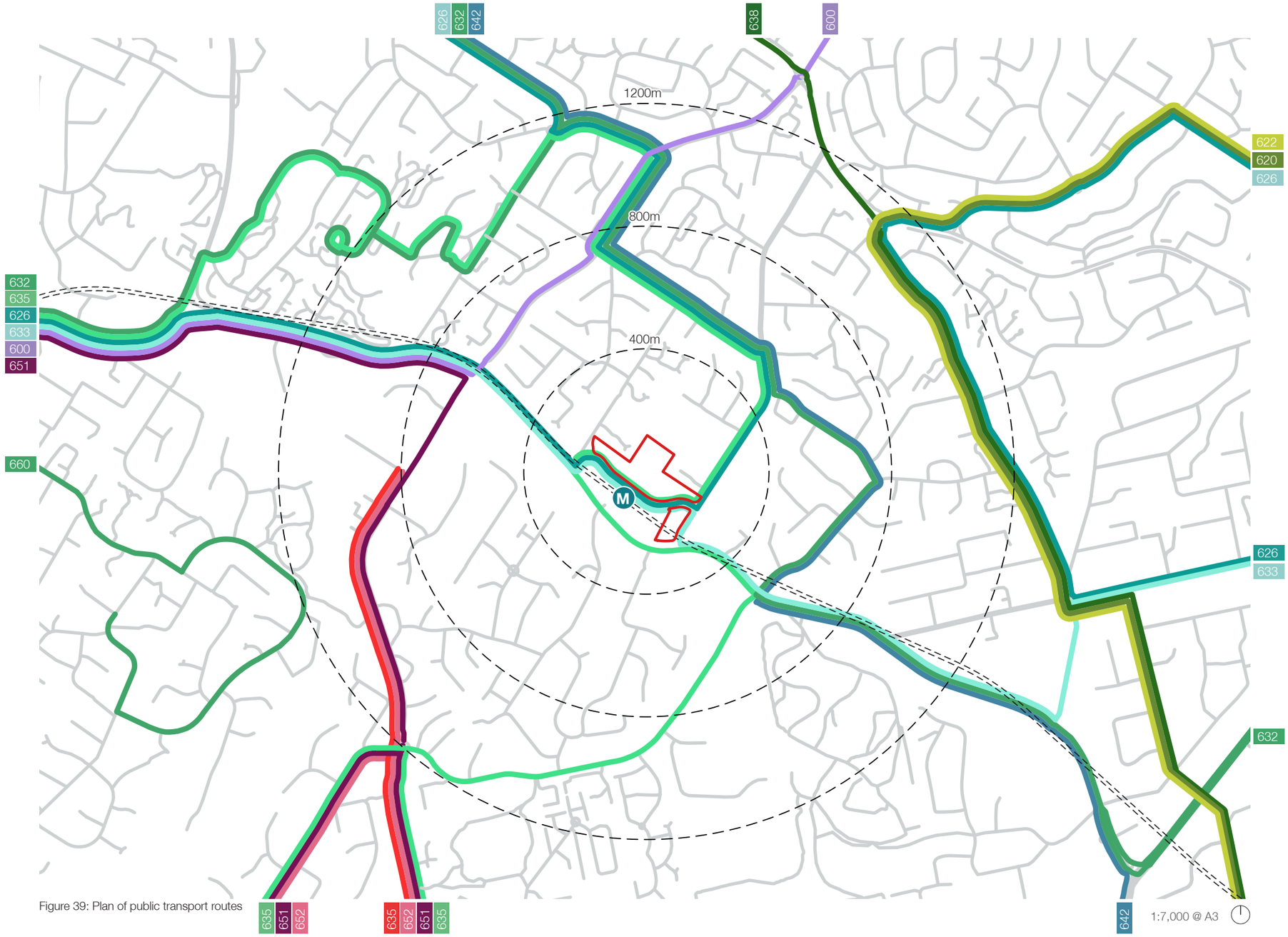


Figure 39: Plan of public transport routes

KEY

- DGL Boundary
- Sydney Metro
- 600 Hornsby to Parramatta
- 620 City Wynyard to Cherrybrook via Cherrybrook Station
- 622 Dural to Milsons Point via Cherrybrook
- 626 Kellyville Station to Pennant Hills via Cherrybrook
- 632 Rouse Hill Station to Pennant Hills via Norwest & Castle Hill
- 633 Rouse Hill Station to Pennant Hills via Kellyville & Castle Hill
- 635 Castle Hill to Beecroft via West Pennant Hills
- 638 Berowra Waters and Berrilee to Pennant Hills
- 642 Round Corner Dural to City Wynyard via Lane Cove Tunnel
- 651 Rouse Hill Station to Epping via Castle Hill
- 660 Castlewood to Parramatta

5.11 District and local open space

District Open Space

Hornsby benefits from an abundance of informal bushland landscapes that form a strong green grid that integrate with larger scale district recreational facilities. Many of the district parks serve sporting and recreational needs, with features including outdoor tennis and netball courts, soccer and rugby fields, and cricket pitches.

District scale open spaces within 2km of the site include:

- Cumberland State Forest, managed by the NSW Forestry Commission, the 40-hectare forest offers native forests, sensory trail and forest walks, and picnic areas and BBQ facilities
- Castlewood Community Reserve, featuring a variety of sporting spaces such as a turf cricket pitch, a junior rugby league field, half-basketball court, as well as picnic shelters, BBQ facility and a children's playground
- George Thornton Reserve, which adjoins the West Pennant Hills Valley Community Hall, offering sporting facilities including half-basketball court, soccer and cricket playing fields, as well a playground, picnic and BBQ facilities, and walking paths.

Local open space

There is a very limited supply of public open space of an appropriate scale surrounding the Developable Government Land. Robert Road Park is the closest to the site and offers a small amount of provision but its primary offer to the community is a children's playground.

Slightly further afield, approximately an 850m walk from the site, Edward Bennett Oval provides the closest public active recreation facilities with a sports oval, playground, BBQ / picnic facilities as well as public amenities.

Two smaller additional open spaces zoned RE1 Public Recreation are located to the north east of the site but provide little public amenity.

There are a number of open spaces within the immediate area and adjacent to the new metro station that have been landscaped, but do not serve a recreational or social function. These are generally on steep gradients, contain a significant number of recently planted saplings, stormwater infrastructure and are marooned by road infrastructure making them largely inaccessible - especially for more vulnerable users.

The remainder of the spaces indicated are private open spaces which provide some visual amenity to local residents, but little public benefit.

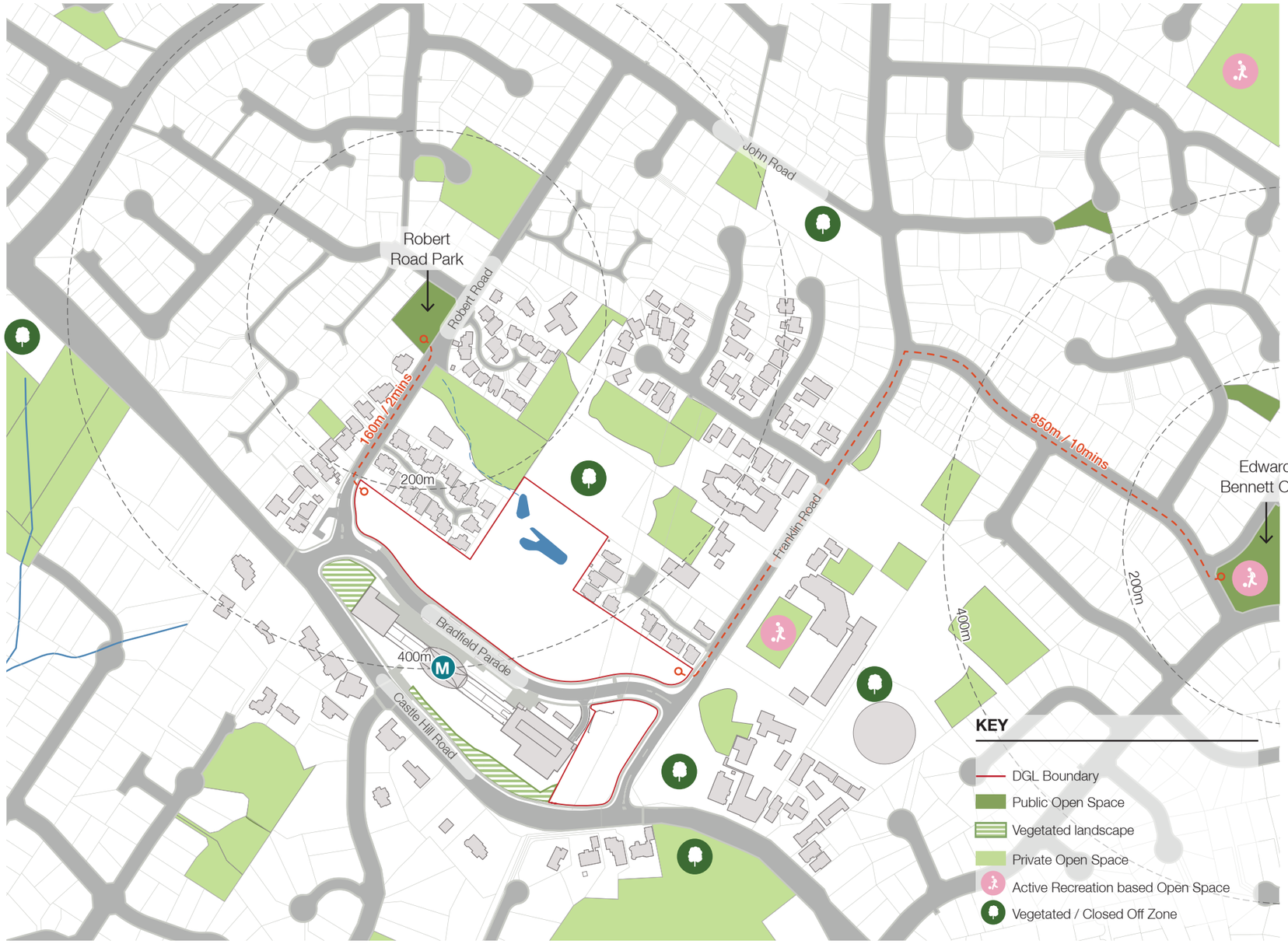
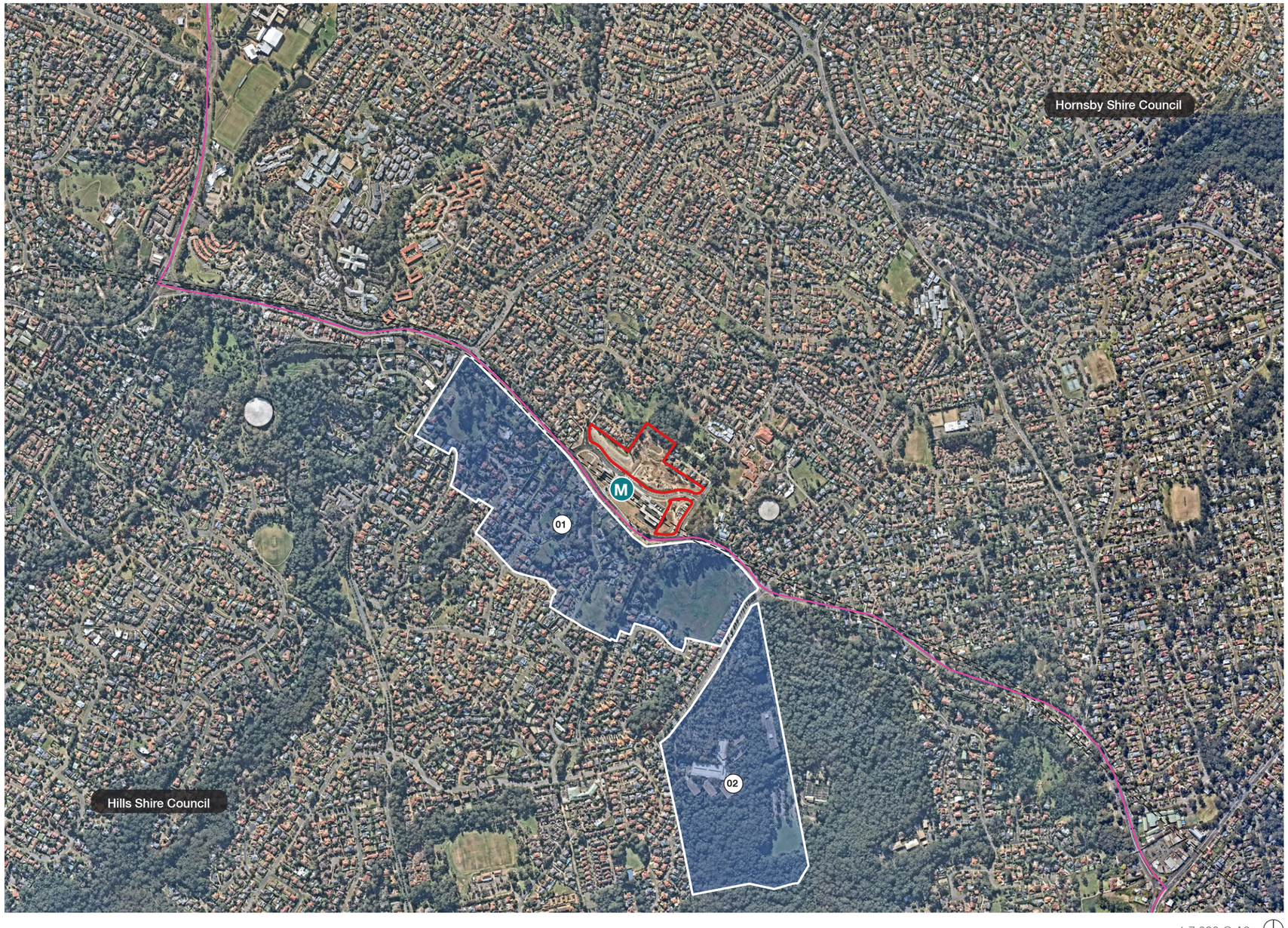


Figure 40: Local and district open space

5.12 Local development interest

There have been two planning proposals that have been submitted to the Hills Shire Council for approval that have sought to take advantage of the perceived development potential around the new station at Cherrybrook.

They provide a useful insight into the expectations and perceptions for development in the area. The adjacent plan indicates the location of these proposals and a brief outline of each proposal is provided on the following page.



KEY

- DGL Boundary
- M Sydney Metro
- LGA Boundary
- 01 Cherrybrook Village - Top Place
- 02 55 Coonara Avenue- Mirvac

1:7,000 @ A3

Contextual analysis

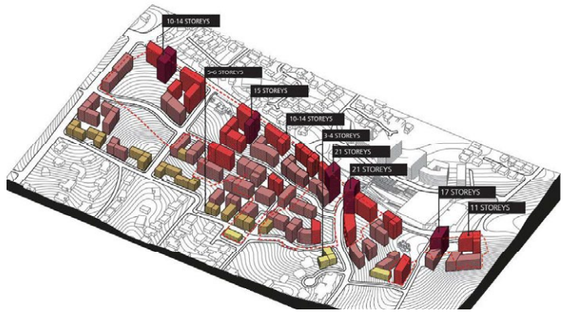


Figure 41: Proposal for Cherrybrook Village by Mecone Pty Ltd (Source: Mecone 2017)



Figure 42: The Hills Shire Council's alternative proposal for Cherrybrook Village (The Hills Shire Council 2017)

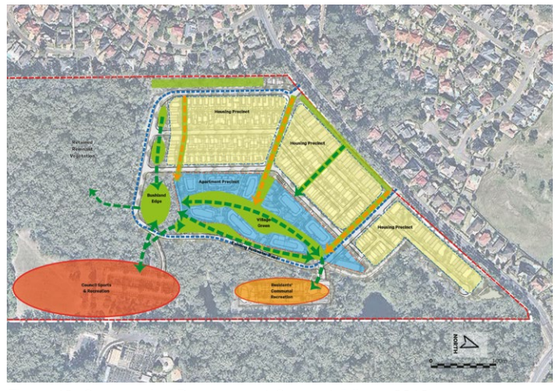


Figure 43: Coonara Ave Development Concept (Mirvac 2018)

01 - Cherrybrook Village

This proposal sought to rezone land south of Cherrybrook Station (within The Hills LGA) from E4 Environmental Living and R2 Low Density Residential to R4 High Density Residential and E2 Environmental Conservation to accommodate a mixed use, high density development with buildings of up to 21 storeys in height. The proposal included a concept for a "broader master plan area" including a sports and leisure centre, a community centre, four open spaces and an ecological corridor. The development yielding approximately 3,800 dwellings with 2,900 dwellings of which being within the area to be rezoned. In order to achieve these yields the development controls were proposed to be amended as follows:

- Changes to maximum height of buildings from 9 metres to a range of 9-70 metres to accommodate buildings of 3-21 storeys
- An increase in Floor Space Ratio from 1.6:1 to 5:1
- Changes in use to accommodate a range of supporting activities including commuter parking, a community centre, a childcare facility as well as leisure and retail activities

The proposal was not supported by The Hills Shire Council.

The Hills Shire Council prepared an alternative concept for this area that was consistent with the Hills Corridor Strategy and illustrated development ranging from two storeys to eight storeys adjacent to the station. The alternative proposal delivered a total of approximately 1,230 units (119 dwellings per hectare). An FSR range from 1.16:1 to 2:1 was suggested provided the development mix aligned with the Hills Diversity targets.

02 - 55 Coonara Avenue - the Former IBM Site

This Planning Proposal initially brought forward by Mirvac in 2019 sought the rezoning of the former IBM commercial office complex that is currently zoned B7 Business Park and included 34,000m^2 of commercial office space to a range of uses included E1, R4, R3 and RE1 to permit the development of 600 residential units including terraced housing typologies and apartment buildings.

The site includes a Blue Gum High Forest and a Sydney Turpentine Ironbark Forest, both of which are identified as critically endangered and endangered ecological communities and bushfire prone. The development mix included of 400 apartments at the lower, southern end of the site and 200 medium density housing typologies to the north.

The proposal was refused in November 2019, but subsequently the DPIE fast-tracked the review of a revised application under the Planning Assessment Acceleration Scheme due to the COVID-19 pandemic. It has agreed to amend The Hills Local Environmental Plan 2019 to rezone the land for medium to high density residential development with a maximum yield of 600 dwellings and to enable the conservation of critically endangered ecological communities. The proposal intends to dedicate over 9ha to the NSW Government as an extension to the Cumberland Forest.

Site analysis

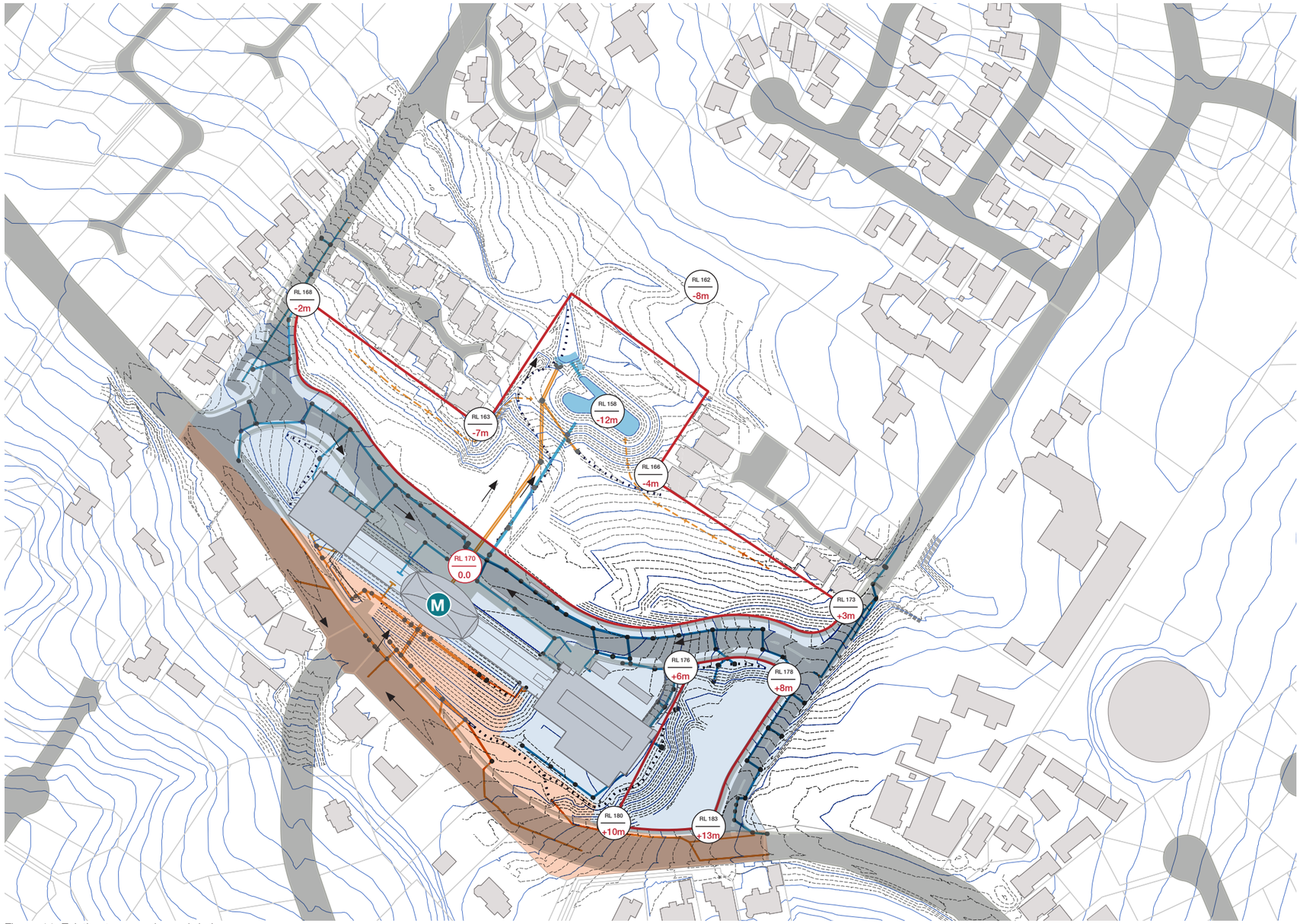
6

This analysis drops in scale to reveal the complex design informants on and in close proximity to the site.

6.1 Site topography

As noted above, the broader area slopes down northwards from Castle Hill Road. This gentle slope would have existed prior to the construction of the metro which made necessary change the the landscape in order to deliver the infrastructure. This included the construction of retaining walls, the detention basin and the introduction of a street (Bradfield Parade). This has created challenging level changes across the site with a 23m change in level from Franklin Road in the southeast to the bottom of the site in the northwest. The spoil deposited on the site from the excavation of the metro station is temporary, as are the two drainage channels that direct stormwater from the site towards the detention basin. In principle, the spoil will be removed as part of the development works to reinstate its natural the slope and the channels will be conveyed into elements of sustainable drainage to convey water to the detention basin.

The sections and photographs on the following pages illustrate the RLs and the level change from the station approach to the basin have been indicated on the adjacent plan.



KEY

- DGL Boundary
- Contour - 0.5m Intervals
- Contour - 2m Intervals
- Castle Hill Road Stormwater Management Area
- Castle Hill Road Piped Stormwater Drainage
- Temporary drainage channel
- Cherrybrook Station Stormwater Management Area
- Cherrybrook Station Piped Stormwater Drainage
- Swale
- Stormwater Basin

Figure 44: Existing topography and drainage

1:3,000 @ A3

Site analysis

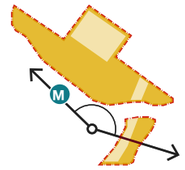


Figure 45: View from the top of the commuter car park illustrating key levels across the site



Site analysis

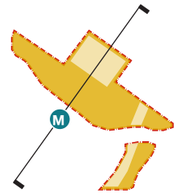
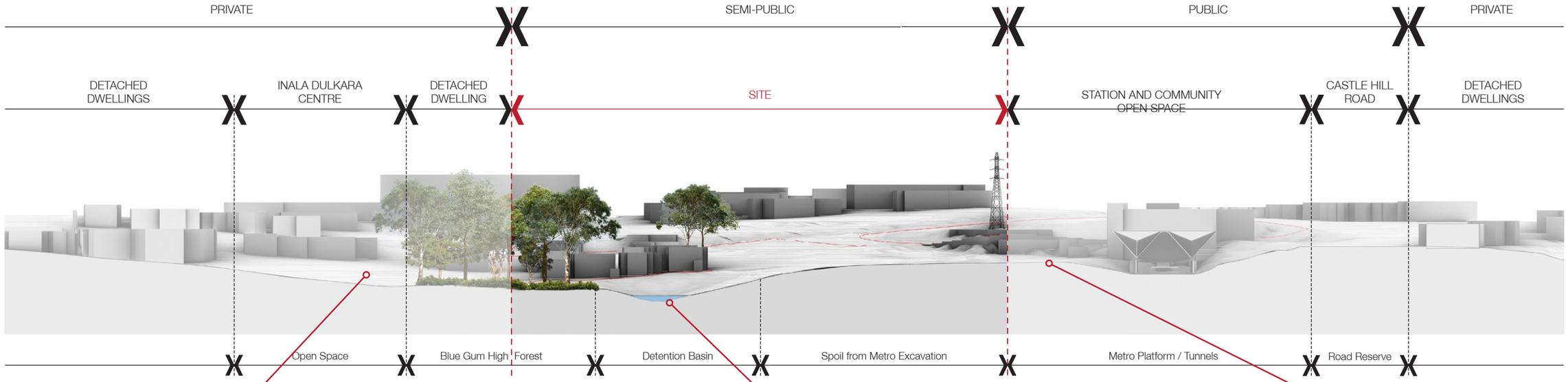


Figure 46: Illustrative cross section running north to south through the centre of the site illustrating the change in level across the site and the relationship between the basin and the station. the change in level is in the order of 10m / three storeys

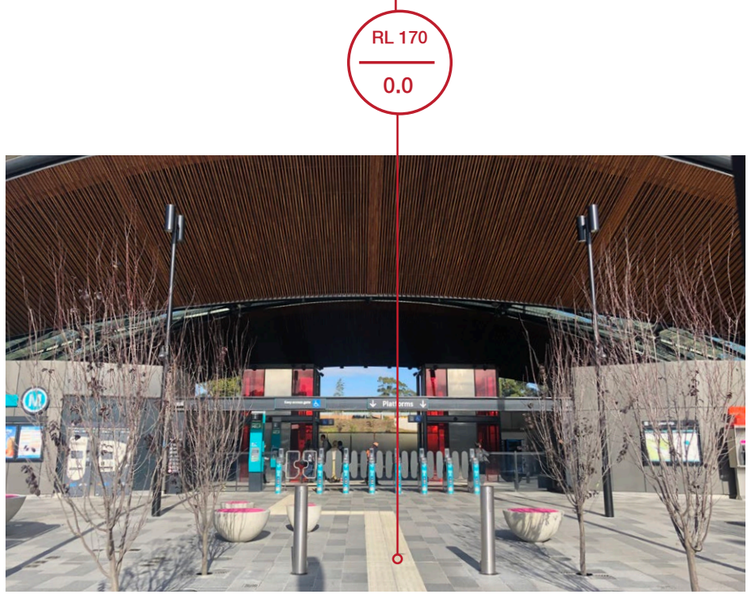




Open space to the north of the Blue Gum High Forest



The level of the basin is approximately 10m below the station entrance



The level of the forecourt of the station - the datum for the section

Site analysis

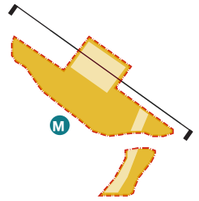
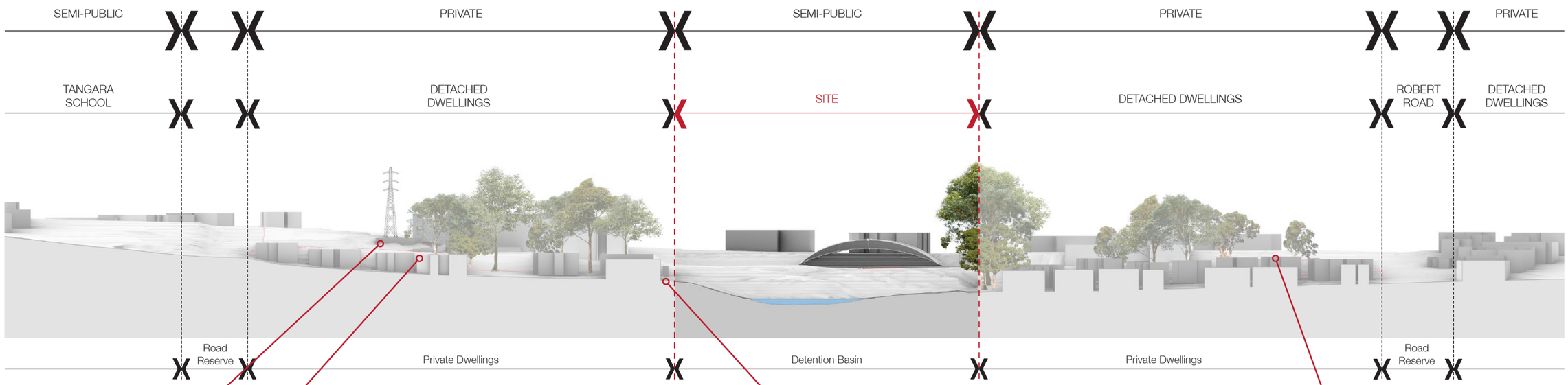


Figure 47: Illustrative cross section running east- west through the basin, looking up towards the station





Retaining wall adjacent to the electrical pylon



Fence along the boundary to the Kayla Road Properties



The edge of the site at the corner of Robert Road and Bradfield Parade

6.2 Site drainage

Stormwater is currently managed in different zones within the site and illustrated below.

- Castle Hill Road runoff is piped through the site (below ground) directly into the existing gully to the north (i.e. bypassing the stormwater basin).
- Cherrybrook Station - stormwater is piped into the 1,637m² detention storage basin which provides water quality treatment. This then also discharges into the existing creek.
- Runoff from Bradfield Parade is channelled towards catch pits in the road and piped towards the stormwater basin in the centre of the site
- Within the DGL - temporary shallow channels divert overland flow directly into the basin.

Initial stormwater studies suggest that the overall storage for the site post development would need to be 3,000 -3,200m³ to accommodate anticipated future inflows post development (See Royal Haskoning DHV 2022 report for more detail). This could be accommodated through several configurations, including WSUD, minor bulk works earthworks to the existing basin and additional underground storage tanks.





Figure 48: Stormwater basin



Figure 49: Stormwater outlets above basin



Figure 50: Stormwater basin



Figure 51: Water body within existing gully



Figure 52: View looking back south towards the station / multi-storey car park

6.3 Edge conditions



The clearance of the site of structures and vegetation and the deposition of spoil on the site has created a temporary landscape that will be transformed during the next stage of development. Currently the adjacent properties are of a low rise suburban typology and back onto the site. This is expected to change as the precinct develops into more urban forms.

A number of trees existing along the edge of the site and provide a level of privacy and amenity for residents. The future naturalisation of the site's original topography would result in a less dramatic transition that will also make stormwater management easier.



Figure 53: Adjacent properties of Oliver Way with significant vegetation in close proximity to / encroaching the DGL boundary



Figure 56: Existing significant trees on the main Kayla Way DGL boundary



Figure 55: Temporary fence at the rear of Kayla Way



Figure 54: Extension spoil deposition on the site

6.4 Tree canopy cover analysis

Existing tree canopy

The Cherrybrook Station State Significant Precinct - Tree Canopy Audit prepared by EcoLogical identifies that tree canopy cover across the study area to be approximately 10% (mapped through GIS analysis and aerial imagery (refer to 202 report). The location of the tree planting is identified below.

Land Typology	Total SSP Area (ha)	% of Typology in SSP	Tree Canopy Area (ha)	% Tree Canopy in SSP	Distribution of Tree Canopy
Developable Government Land	3.42	44%	0.36	11%	48%
Non-Developable Government Land	2.32	30%	0.28	12%	37%
Easement	0.43	6%	0.01	3%	2%
Streets	1.56	20%	0.10	6%	13%
Total	7.74	100%	0.75	10%	100%

Note, much of the canopy cover is made up of a number of new plantings and landscaped areas which will increase the proportion of cover over time.

Tree Canopy Classification	Area (ha)	%
Planted Exotic Trees	0.06	8%
Planted Native Trees	0.26	34%
Planted Native / Exotic Trees	0.03	4%
Endangered Veg. Community	0.40	54%
Total	0.75	100%



Figure 44: Existing tree canopy cover (Source: Ecological 2022 report)

Tree canopy controls and targets

There are several controls and targets relating to tree canopy coverage for this site. These include:

- GANSW Urban Tree Canopy – Green infrastructure for climate adaptation and resilience;
- Hornsby Council draft Urban Forest Strategy, 2020; and,
- The Apartment Design

Hornsby Shire Council Draft Urban Forest Strategy requirements

The LGA currently has 59% tree canopy cover due to large areas of national parks. When looking at urban areas only, the Tree Canopy Cover is 39% and in Cherrybrook is 0-20% only.

Hornsby Shire Council's recommendations align with the Sydney Commission and GANSW guidelines. The higher targets are directed toward rural and low density areas in the LGAand the draft strategy recognises the challenges of delivering canopy cover on medium-high density areas highlighting that these areas deliver 22% of cover. Targets include:

1. Tree Canopy Cover over private residential areas will be maintained at 33% to ensure no net loss
2. Tree Canopy cover over Hornsby's urban road network will increase from 39 % to 50 %.
3. Tree canopy cover over commercial zones will increase from 11 % to 15 %
4. Increase the number of streetscapes incorporating biodiversity corridors
5. Improve the species diversity and useful life expectancy distribution of Hornsby's street trees

GANSW Urban Tree Canopy – Green infrastructure for climate adaptation and resilience:

The %age of canopy cover in areas identified as priority links within the Sydney Green Grid aligns with the urban tree canopy targets:

- > 15 % in CBD,
- > 25 % in medium to high-density areas; and
- > 40 % in suburban areas.

Apartment Design Guide:

The Apartment Design Guide outlines the purpose of deep soil zones on site to support healthy plant and tree growth. Deep soil promotes larger tree canopies, improves residential amenity and promotes management of water and air quality. The following guidelines are provided

Site Area	Recommended Tree Planting
Greater than 1,500m2	1 tree or 2 medium trees per 80m2 of deep soil

This would result in a requirement for approx 280 - 560 trees given the size of the site and deep soil targets.

Notwithstanding the above targets, consultation with Council and the RFS would be required to establish an appropriate urban forest design and planting strategy that meets targets outlined earlier whilst not creating or extending the bushfire hazard. The Bushfire Protection Assessment undertaken as part of this study and NSW RFS standards (Appendix 4 of Planning for Bushfire Protection (PBP)) recommends that the tree canopy coverage should not exceed 15% to ensure fire risk is kept within an acceptable range.

6.5 Asset Protection Zones and flooding

Asset Protection Zones - The Bushfire Protection Assessment by EcoLogical (refer to 2022 report) determined that there are no Asset Protections Zones that apply the Developable Government Land. However, while an APZ is not required, the site is in bushfire prone land in the Hornsby Council DCP and as such the Bushfire Protection Assessment recommends that future landscaping complies with Appendix 4 of Planning for Bushfire Protection (PBP). This places various limitation in canopy cover, fuel loads and the location of trees relative to new and existing trees as well as existing and proposed buildings.

Flooding - The Concept Stormwater Management and Preliminary Flood Risk Assessment prepared by Royal Haskoning DHV in December 2022 assessed flood risk related to the site under existing conditions and also took into account climate change. The 1 in 100 flood event with climate change is illustrated on the adjacent plan and illustrated .

Any future subterranean construction (for basement car parking etc.) will need to take into account the recommendations of the stormwater management plan for the site.

KEY

- DGL Boundary
- No Vulnerability Constraints
- Unsafe for small vehicles
- Unsafe for all vehicles, children and the elderly

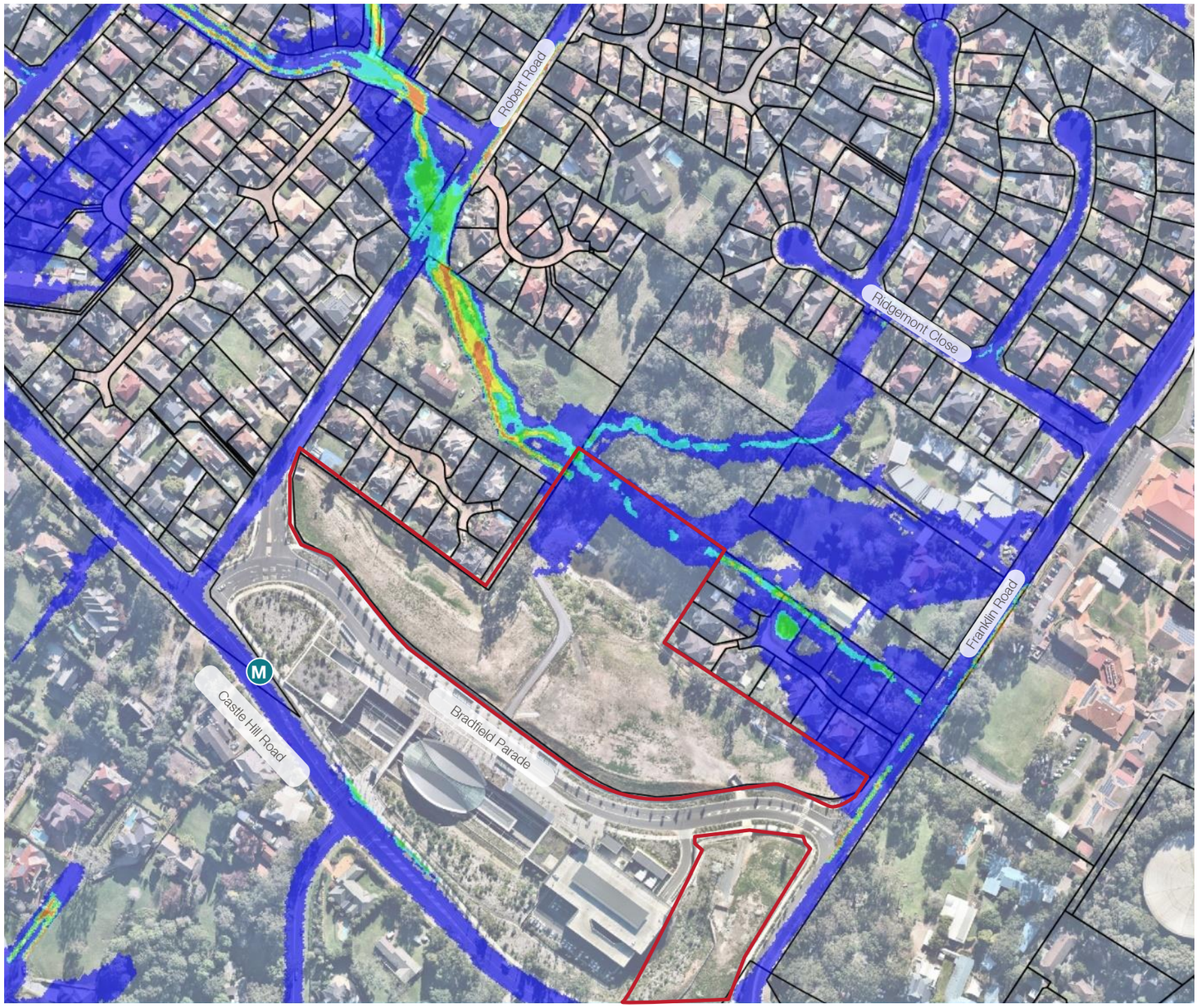


Figure 45: 1% AEP with Climate Change Flood Hazard Category Map(Source: Royal Haskoning DHV 2020)

1:3,000 @ A3

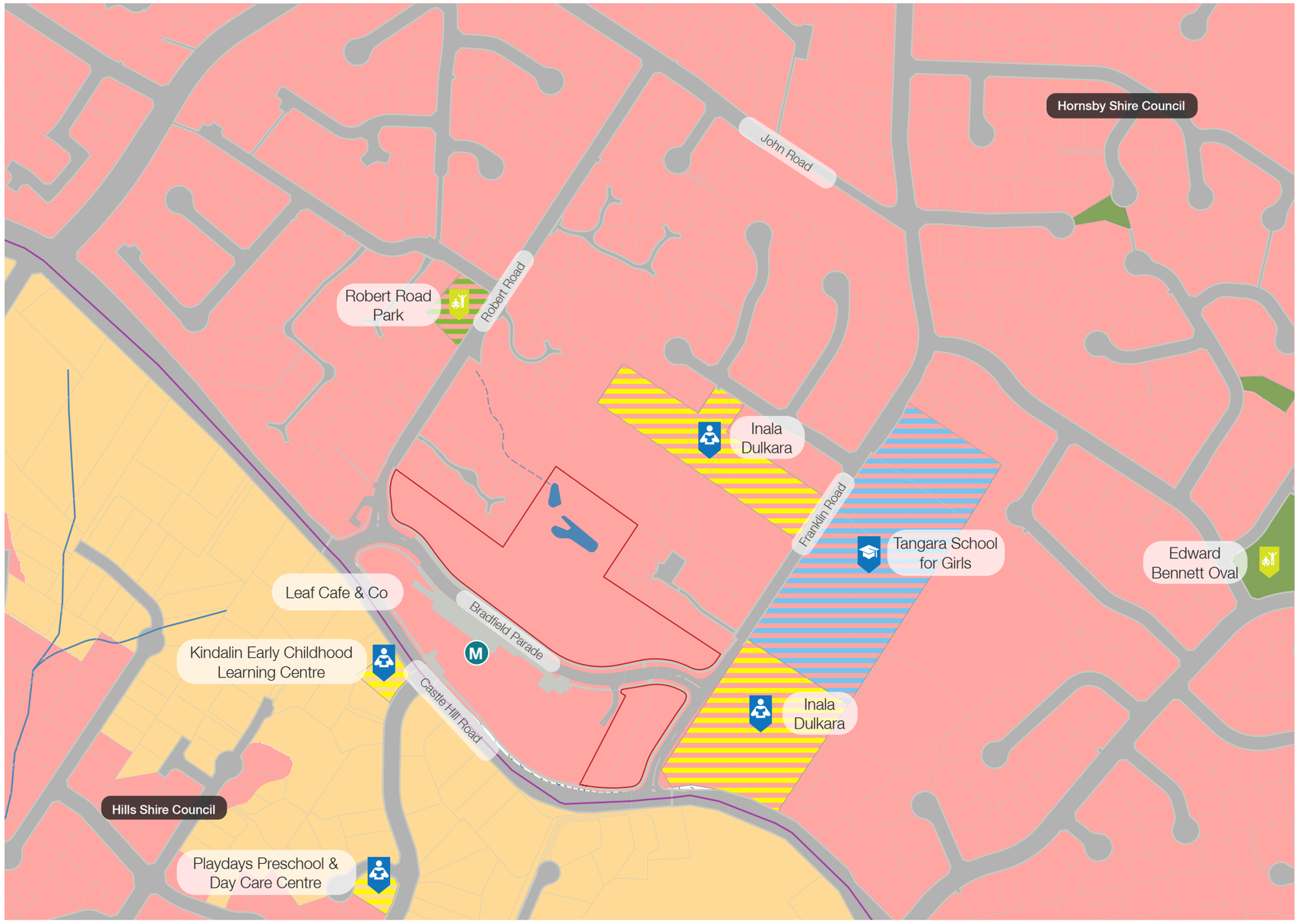
6.6 Land use and community infrastructure

The Cherrybrook Station Precinct is predominately zoned as R2 - Low Density Residential with some E4 - Environmental Living south of Castle Hill Road within The Hills Shire LGA. As such, the built fabric is predominately made up of detached residential dwellings in often ecologically / environmentally diverse settings.

The parks and open spaces (within the area shown opposite) are generally zoned as RE1 - Public Recreation with the exception of Robert Road Park which is designated as R2 - Low Density Residential.

The existing community infrastructure provides vital services as well as activities and opportunities for local residents. These are provided by federal / local government, not-for-profit organisations and the private sector. Those that exist around the DGL such as the school and child care centres are mostly semi-public in nature.

Nearby centres such as Cherrybrook Village, Castle Hill and Pennant Hills provide much larger retail, commercial and service centres.



KEY

- DGL Boundary
- LGA Boundary
- E4 Environmental Living
- R2 Low Density Residential
- RE1 Public Recreation
- Public Park Use
- Community Facility Use
- School Use
- Food & Beverage Use

Figure 59: Existing land use zoning and activities

1:5,000 @ A3

6.7 Adjoining site conditions and existing character

The character of Cherrybrook is suburban with large detached houses and abundant tree canopy. The photographs on the following pages capture some views of the site and the qualities and characteristics that contribute towards the area's character.

There is currently no Local Character Statement for Cherrybrook in any of the planning instruments. Using the DPIE Local Character Guidelines the existing qualities of the area have been identified and grouped into the following categories that could inform a desired future character statement:

Maintain

- Long distant views with ridge-lines lined with tree canopies
- Buildings set back from the street with a green interface with the public domain

Enhance

- Varied and incoherent architectural styles
- Blue and green elements (creeks and forests)
- Street trees
- Environmental sustainability and stormwater management

Change

- Private car dominance
- Poor pedestrian environment
- Cul-de-sacs and dead-end streets leading to poor connectivity for pedestrians and active mobility modes of transport
- Limited housing diversity
- Support a sensitive infill development and a transition in scale in accessible locations as communicated in the Cherrybrook Structure Plan

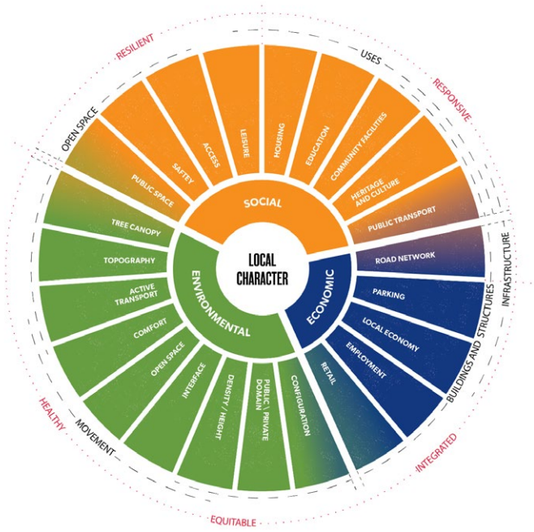


Figure 61: Excerpt from the Local Character and Place Guidelines DPIE 2019



Figure 60: Immediate context

Site analysis

Station context



Figure 62: Cherrybrook Station approach



Figure 63: Bus shelters on Bradfield Parade in front of DGL land



Figure 64: Multi-storey car parking facility



Figure 65: Cherry trees lining expanse of station forecourt



Figure 66: Pedestrian bridge over tracks from Castle Hill Road



Site analysis



Figure 67: Looking west along Kayla Way (private road)



Figure 68: Inala Dulkara Centre



Figure 69: Tangara School for Girls



Figure 70: Local residences



Figure 71: Topographic change of John Road to the north



Figure 72: Topographic change of John Road to the north



Site analysis



Figure 73: Vacant lot (beneath transmission lines) on Ridgemont Close



Figure 74: Blue Gum High Forest



Figure 75: Franklin Road outside Tangara School for Girls



Figure 76: Looking east Louise Way (private road)



Figure 77: Playspace in Robert Road Park



Figure 78: Detached dwelling at 18 Robert Road



6.8 Precinct level access and connectivity

The site sits within a urban superblock bounded by John Road to the north, Franklin Road to the east, Castle Hill Road to the south and Robert Road to the west. Access to residential properties is generally via local streets (in the form of cul-de-sacs).

The street environment throughout Cherrybrook is generally vehicle oriented with only a few pedestrianised connections linking the access roads / cul-de-sacs.

With the future redevelopment of the DGL, there are excellent opportunities to improve north and west permeability throughout the urban block with the introduction of new pedestrian connections. These may be constrained by existing land ownership.

Cycling infrastructure in the local area is limited to shared paths on Castle Hill Road between David Rd and Victoria Rd, both sides of Bradfield Parade, parts of Robert and Franklin Roads and on the western side of County Drive between Castle Hill Road and Treetops Road. A dedicated bicycle parking facility is located adjacent to the multi-storey car park which was delivered as part of the metro station construction.

Hornsby Shire Council appointed TEF Consulting to review their Bike Plan which was released for public consultation and us due be finalised. The strategy includes planned 2.5m wide shared paths along Franklin and John Road.

KEY

- DGL Boundary
- Primary Arterial Road
- Higher order connecting street
- Local Street - connecting route
- Local street - residential access
- Dedicated Bicycle Parking Facility
- Existing and proposed shared paths
- Existing pedestrian connection
- Potential Future Pedestrian Connection (Structure Plan)



Figure 79: Existing road and access plan

1:5,000 @ A3

6.9 Local access

Pedestrian access

As outlined above, the street network around the station is car oriented with limited signalised pedestrian crossings over busy roads. The long distances, low densities and undulating topography make walking and cycling less attractive as a primary mode of transport within the area. That said, there are a number of key public facilities including schools and community facilities that are accessed by foot and from the station and it is important to make walking and cycling more attractive.

While wide footpaths have been provided within the immediate vicinity of the station as part of the metro project existing links to local destinations and to and from the station are currently limited to narrow footpaths on one side of the street. The DGL stretches between Robert Road and Franklin Road and is split by Bradfield Parade. It is marooned to the north by private lots with no existing opportunities for pedestrians to access the site and station from the north. The Cherrybrook Structure Plan seeks to secure improved pedestrian connections to the station with new through-site links along the existing drainage / creek line to Robert Road, along the electrical easement and around the basin and Blue Gum High Forest. These links must be integrated into future proposals and are likely to be pedestrian only, as the gradients make the use of cycles on these paths impractical.

Vehicular access and serving

Vehicular access to the DGL is limited by the functions, hierarchy and geometry of the adjacent streets. Bradfield Parade is the primary street for both pedestrian and vehicles accessing the station. It also performs an important public transport interchange function with commuters shifting between bus and rail. It also provides “kiss and ride” facilities and access to the commuter car park. As such, access to and from Bradfield Parade from the DGL needs to be managed to enhance its place function and ensure that the quality of the public domain for pedestrians is prioritised. Stakeholder engagement has determined that only one point of access off Bradfield Parade is permitted at point 1 and will need to serve the eastern part of portion A.

Vehicular access to the western part of portion A is only permitted from point 2, located at the northern edge of Robert Road, and will be subject to more detailed investigation at DA stage.

Lastly, Castle Hill Road is a key mobility route that experiences over 20,000 vehicle movements per day. Access to portion B of the DGL is consequently only permitted at point 3 off Franklin Road, subject to more detailed investigation at DA stage.

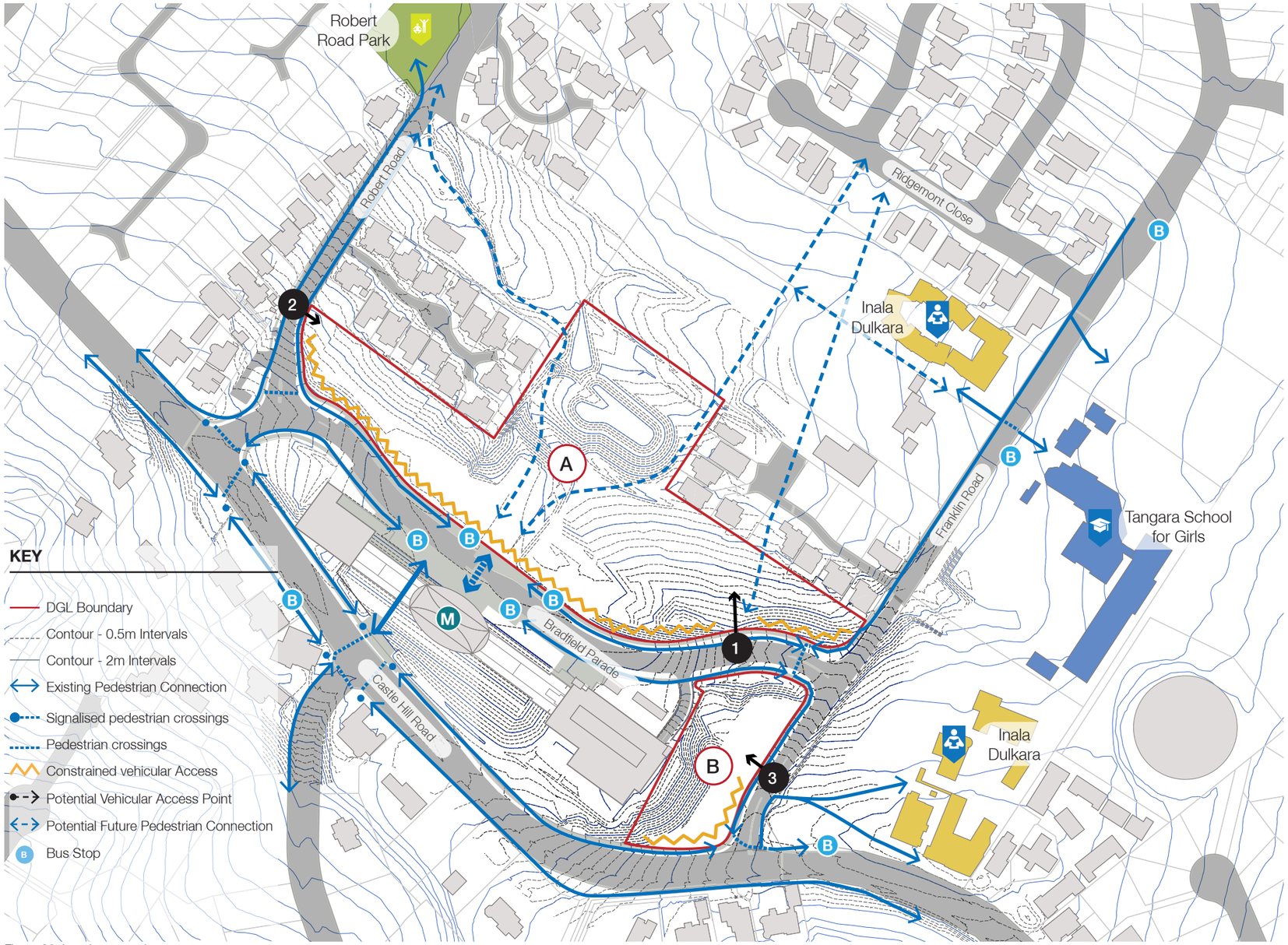


Figure 80: Local access plan

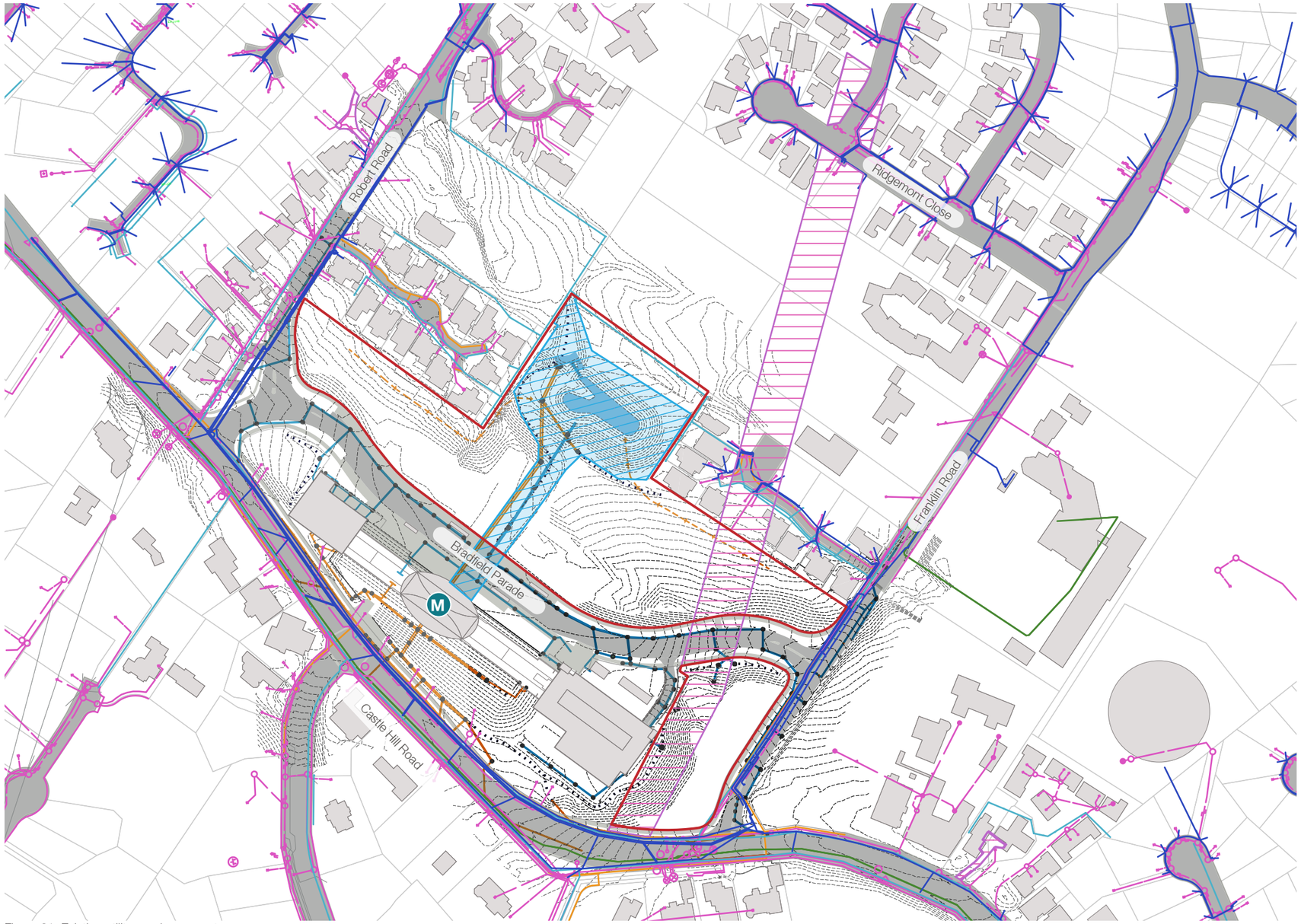
1:3,000 @ A3

6.10 Infrastructure and utilities

The plan opposite shows the surrounding utility infrastructure as shown on Cherrybrook Station drawings. It should be noted that:

- It is assumed that all services associated with the dwellings existing prior to 2013 were removed from within DGL and any that remain in place are now obsolete.
- The new services for the station associated infrastructure is not shown (apart from drainage). For instance, infrastructure for street lighting along Bradfield Parade would exist but drawn information is not immediately available.

The three major items that will impact the DGL are the stormwater drainage and easements, the transmission lines and associated access easement as well as the subterranean metro tunnels. The latter are discussed further overleaf.



KEY

- DGL Boundary
- Stormwater Basin
- Stormwater easement
- Castle Hill Road Piped Stormwater Drainage
- Cherrybrook Station Piped Stormwater Drainage
- Swale
- Metro Tracks
- High Voltage Transmission Line Easement
- Electrical
- Water
- Telecoms - Telstra
- Telecoms - Optus
- Gas

Figure 81: Existing utilites and easements

1:3,000 @ A3

6.11 Transmission lines electrical easements

Running approximately north-south through the site(s), there are existing overhead transmission lines with an associated easement. In summary the easement contains:

- 132KV overhead distribution cables
- The easement varies in width from approx. 25m to 35m
- The easement is in favour of Ausgrid who have strict regulations around acceptable development around their 132kV transmission lines
- 24 hour access is required
- The erection of minor structures (<6 m²) is generally permitted but must not exceed 2.5m in height. These also cannot be within 10m of any transmission line structure.
- No structure can be within 5m of any transmission line (except for minor structures noted above)
- Any proposed roads must be able to support a fully laden 30 tonne truck for servicing access
- Vegetation in non-cable covered area of easement (outer areas) must have a maximum maturity height of 3m

The existing easement will have a significant impact on the development potential of the sites. All design proposals will need to be developed in collaboration with relevant parties / statutory authorities. The approximate resultant site / parcel areas are shown opposite.

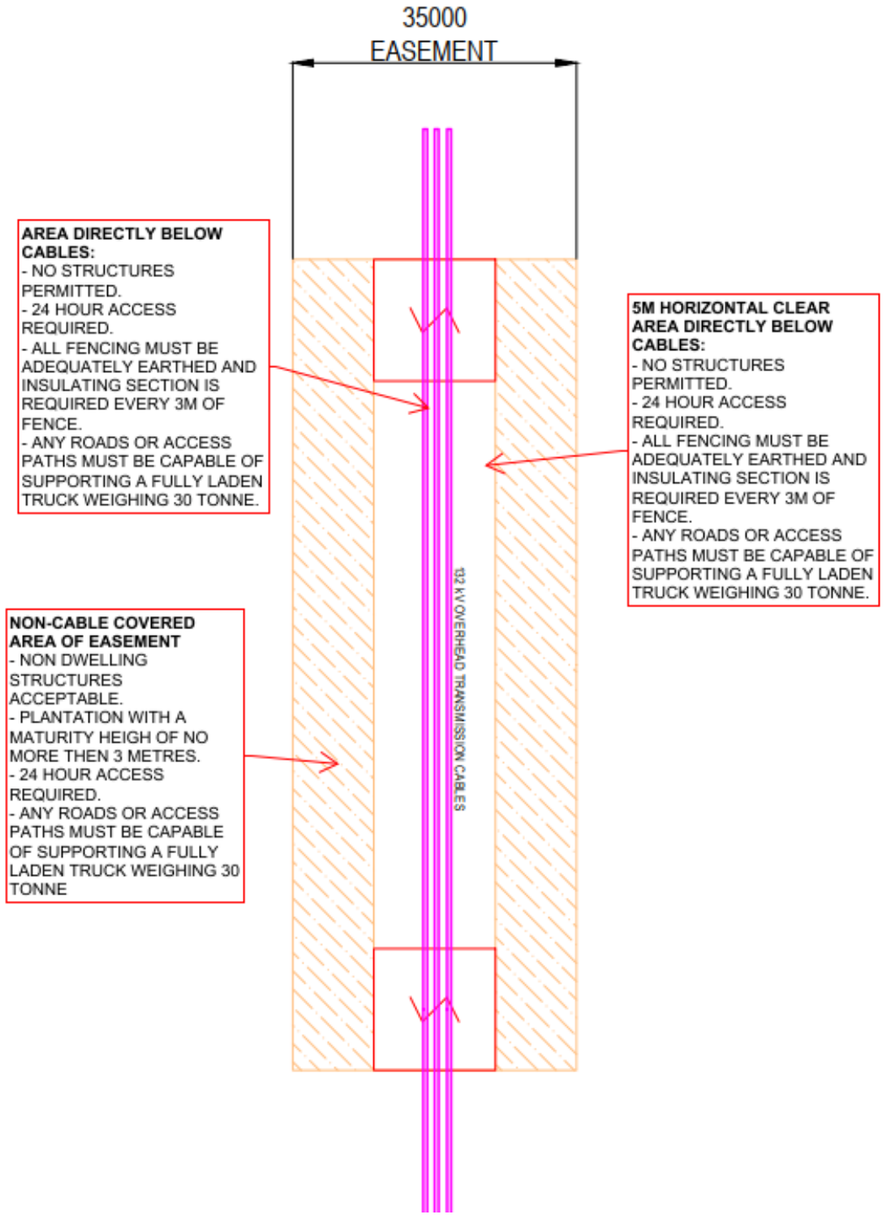
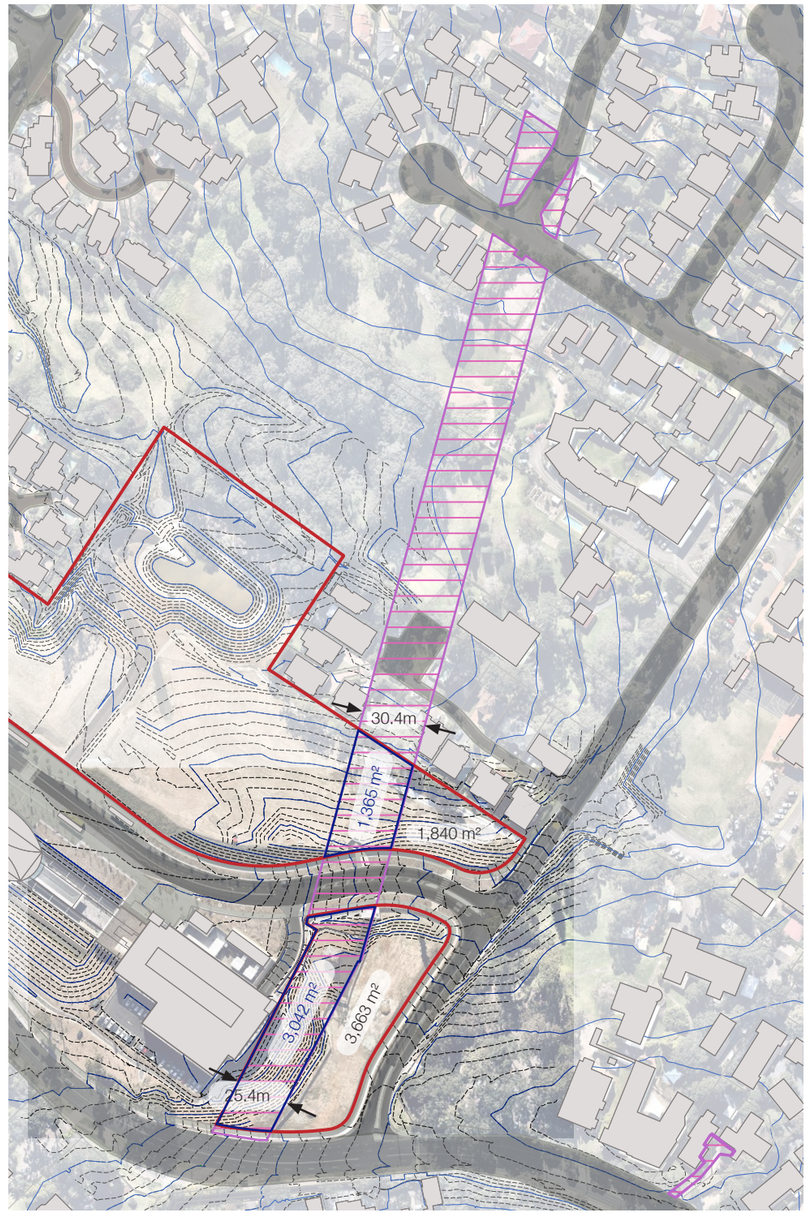


Figure 82: Easement Development Restrictions (Source Aadler Engineering 2019)



1:3,000 @ A3

6.12 Sydney Metro Underground Corridor Protection Plan

Transport for NSW - Sydney Metro Underground Corridor Protection Technical Guidelines 2017 state that 'developments near existing metro underground infrastructure, such as running tunnels, station caverns and shafts have the potential to have an adverse impact on the structural stability and operations of this infrastructure.'

The Metro North West line running below the smaller portion of the DGL, could have an impact on the proposed development of the site. Two reserves are identified in the Corridor Protection Plan:

1st Reserve - Immediately surrounding the underground metro infrastructure, this represents the area that must not be encroached upon by any future development and its construction.

2nd Reserve - This surrounds the first reserve and covers the areas where development works have the potential to adversely impact on the performance of the support elements of underground infrastructure, metro operations or the feasibility of planned metro infrastructure. Any development that take place within the second reserve will require an engineering assessment of the works to predict their effects on the underground rail infrastructure.

Note: Tunnel diameters are drawn at 7.75m extrapolated from NWRLOTS-NRT-CHE-LA-DRG-630600 Rev L provided by Landcom. Track / tunnel levels are based upon NWRL-10013-40-SWD-DRG-CI-20104 Rev D provided by Landcom.

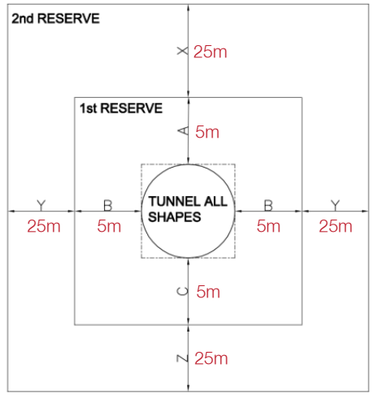


Figure 83: Transport for NSW - Sydney Metro Underground Corridor Protection

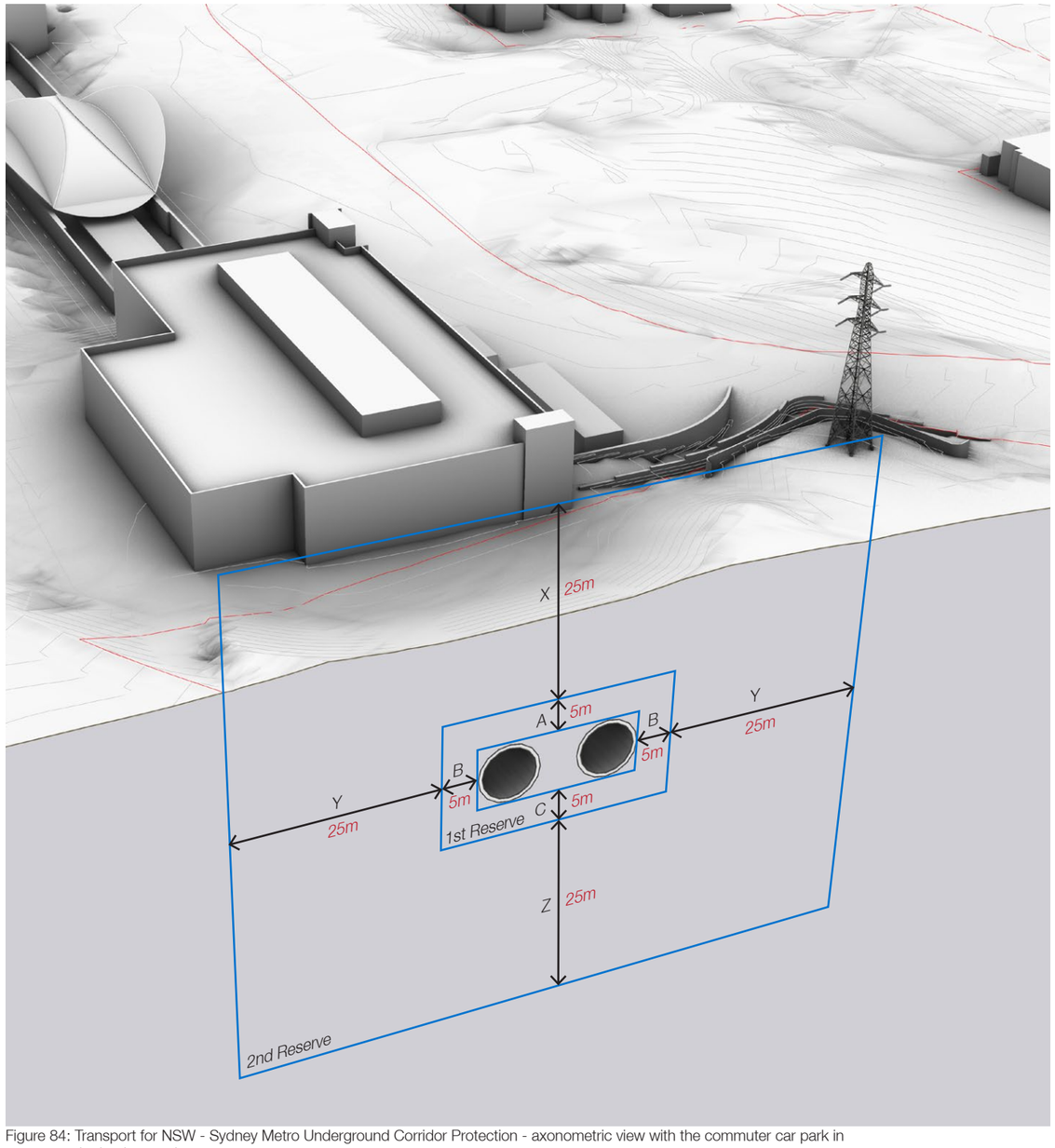


Figure 84: Transport for NSW - Sydney Metro Underground Corridor Protection - axonometric view with the commuter car park in the background

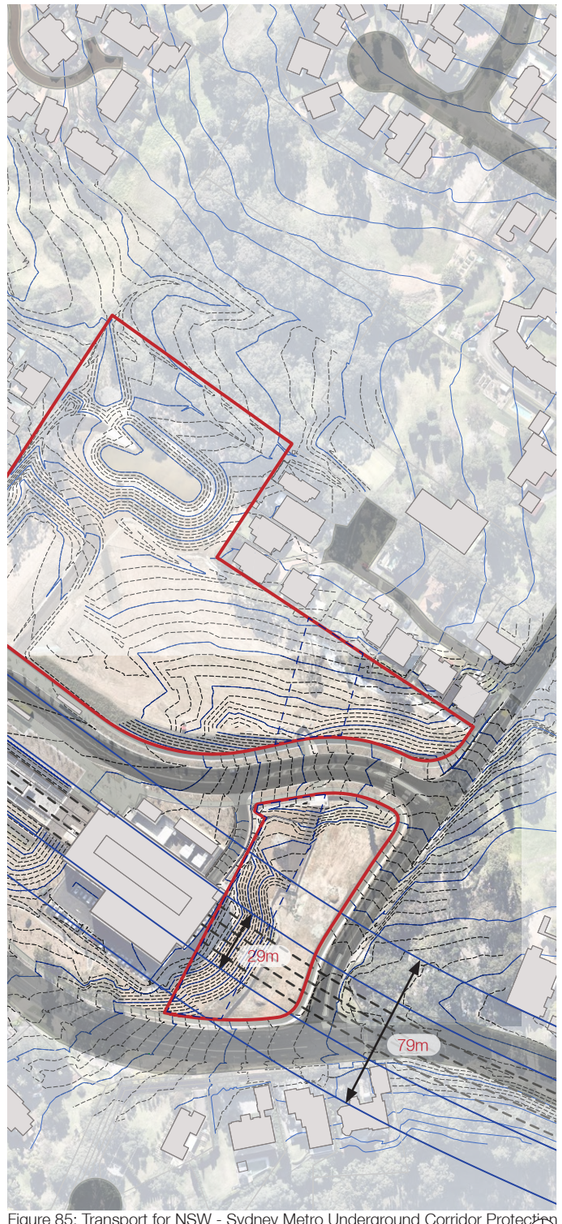


Figure 85: Transport for NSW - Sydney Metro Underground Corridor Protection
1:3,000 @ A3

Synthesis

7

This short chapter distils the findings of the analysis into a series of clear diagrams that have informed the design process.

7.1 Constraints

The constraints for the design and development of the site are illustrated on the plan opposite. These include:

1. Existing transport infrastructure (roads, bus stops, the multi storey car park and the metro station) that have recently been delivered
2. The rail protection corridor associated with the below ground metro line
3. The electrical easement related to the overhead transmission lines
4. The existing stormwater easement containing the detention basin and underground pipes that require ongoing access for maintenance and servicing
5. Existing mature trees identified as being significant as well as the stand of Blue Gum High Forest to the north
6. Steep topography and level changes
7. Limited vehicular access points to the development parcels as a consequence of level changes and road classification and geometry
8. The site proportions and dimensions
9. Potential impacts on the neighbouring heritage items
10. Noise impacts from Castle Hill Road
11. Potential overlooking of adjacent properties

KEY

- DGL Boundary
- Existing trees (approximate size and location)
- Existing stormwater easement
- Retention basin
- Stormwater pipes
- Restricted access
- Steep topography
- Transmission line easement
- Subterranean metro line
- Newly constructed roads
- Heritage item
- Potential overlooking
- Noise impacts from Castle Hill Road

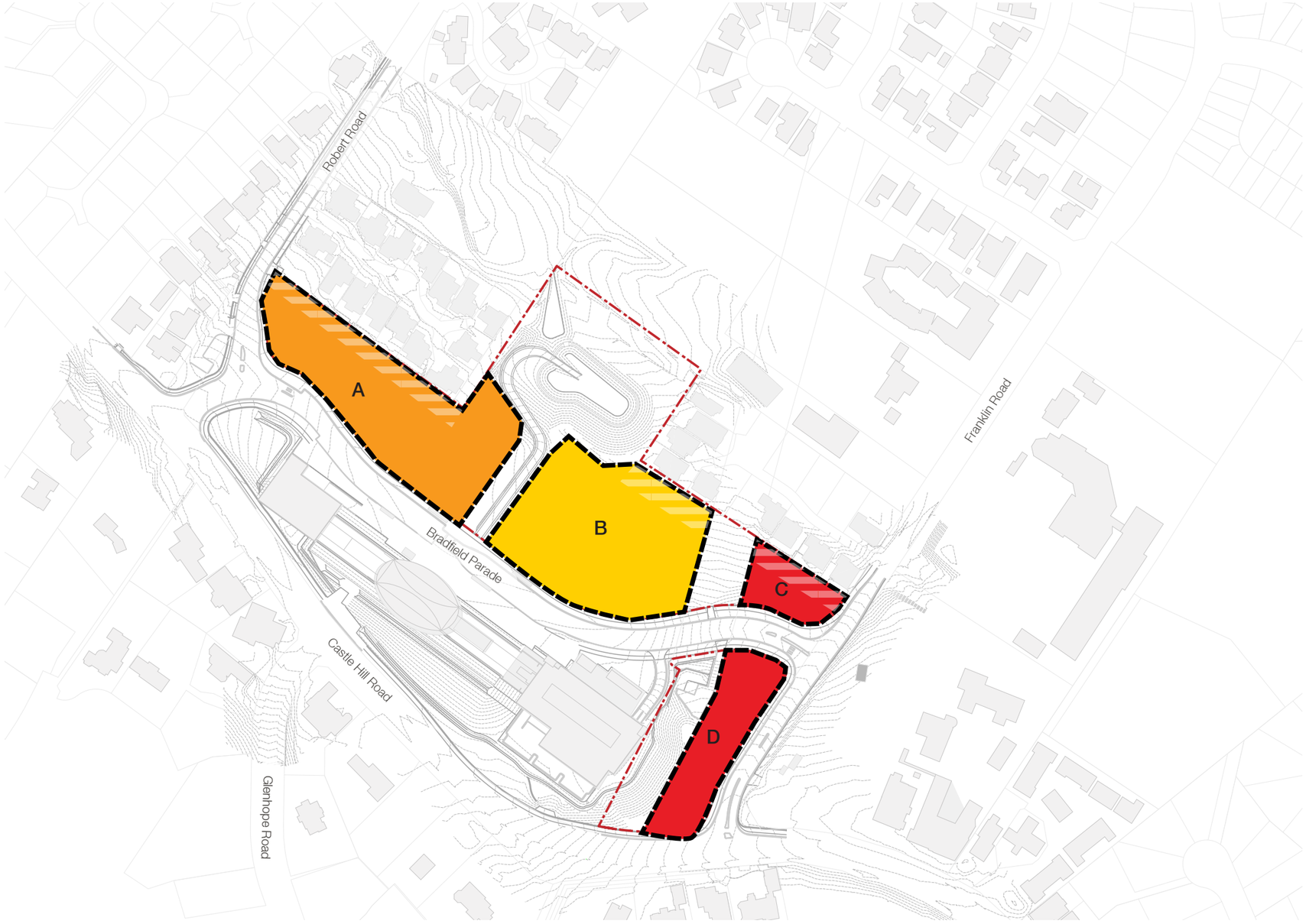


Figure 86: Site constraints plan

7.2 Developable portions

The constraints of the site as well as its shape and geometric configuration create four separate development parcels split by easements. It is worth noting that the depth of the development portions and their interface conditions with the existing low rise development to the north also constrain how these sites can be developed.

- Portion B is the deepest and least constrained and is able to accommodate a number of mixed use type buildings including larger floor plate uses such as supermarkets
- Portion A is narrow and long and can only be accessed from Robert Road. This offers limited flexibility in the arrangement of built form with the orientation of the buildings generally limited an east to west alignment and the depth of the site will make the arrangement of basement parking less efficient
- Portions C and D are extremely constrained and will need buildings within these parcels are likely to be linear with long and less efficient basements



KEY

- Site boundary
- Highly constrained portions
- Some level of flexibility
- Greater level of flexibility

Figure 87: Potential development portions

7.3 Opportunities

The opportunities for the future potential development of the site are illustrated on the plan adjacent. These include:

1. The retention and integration of the Blue Gum High Forest (and existing trees into the proposal, to re-establish and enhance the green character of the precinct
2. An opportunity to create a sequence of spaces that transitions from an urban condition associated to the station to a more natural condition around the water body and Blue Gum High Forest
3. To provide structure and permeability throughout the site through the provision of new pedestrian routes to the station and local destinations
4. Opportunities for local landmarks / gateway buildings at key corners
5. Opportunities to harness long views from the south to the north - depending on building height and orientation



KEY

- DGL boundary
- Sequence of spaces - formal to informal / urban to natural
- Integrate existing trees
- Integrate riparian systems
- Pedestrian desire lines
- Potential local landmark opportunities
- Potential access points and links
- Views

Figure 88: Opportunities Plan

7.4 Developing a brief for the site

A number of separate studies were undertaken to inform the brief for the site. This included an economic study / retail demand study, a social infrastructure assessment and a housing demand study. Theses studies considered the needs of the broader community in the context of the Cherrybrook Station Structure Plan and the demand for community and economic services generated by the government land on its own. The key outcomes of these studies are outlined below:



Social Infrastructure Assessment

This study undertaken by CRED Consulting in 2022 identified the following opportunities and needs that the development of the site could help address

Open space:

1 x Local park of minimum 0.15 to 0.3 ha

- Should have youth focus with half courts/ping pong tables/ hang out spaces and other youth friendly functions - target age bracket from 12 to 24 years with 'play' spaces for young people

Community infrastructure:

1 x Multi-purpose community hub

- to service the Precinct which could include:
  - Library (Circa 1,000m^2) with quality study space/lounge area
  - Multipurpose venue for hire/hall (circa 300m^2)with
    - Meeting rooms/program space
    - Storage



Retail and Commercial Demand Assessment

This study was undertaken by AEC in 2022 and considered the long term retail and commercial demand for the broader precinct and catchment. It recommended the following:

- Using traditional metrics and assumptions, the Cherrybrook Station Precinct could generate demand for up to 77,500m^2 of commercial and employment floorspace. However in the context of other retail destinations such as Castle Towers Shopping Centre the land around the Cherrybrook Station Precinct is best suited for convenience retail shopping which could be in the order of 3,000-5,000m^2
- Given the existing traffic constraints and neighbourhood designation of the centre provision retail provision should be in the lower band of this range (3,000m^2)
- A potential mix of retail uses is suggested in the table below:

Category	Example	GLA (m^2)
Supermarket		1,650
Food Catering	Cafes, restaurants	500
Food Retail	Fresh produce, liquor	400
General Retail	Pharmacy, newsagent	150
Retail Services	Hairdresser, beauty etc	150
Non Retail uses	Post, banks	150
Commercial	Offices	500
Total Retail		2,850
Total Non-retail		650
Total		3,500



Housing Demand Study

This study, undertaken by Ethos Urban 2022 looked to examine what the future demand for housing. It concluded that:

- The median house price in Cherrybrook ($1.4 million in 2019/20) suggests that, even without rail infrastructure, the Cherrybrook area would likely prove attractive as a higher density market.
- The opportunity to provide such a market around the Cherrybrook Station is considered likely to be strongly supported due to its access to high-frequency rail-based public transport and the relatively high-median house price of the surrounding area.
- The trend towards an aging population is expected to continue and will lead to a decline in couple households with children as residents aged 20 to 34 years look to move out of the family house.
- It is expected that higher density forms of housing could attract a younger age cohort to the area, including young professionals. This may see a stabilising of the Study Area's age profile.
- Consider opportunities to deliver larger apartments on the ground floor of apartment buildings, attached to a garden or private outdoor space.
- Consider access to play spaces and open space and facilities (e.g. child care centres, schools) to support needs of children and their families in the area.

Towards a vision

8

This chapter outlines a vision for the site as well as the principles that inform the development proposal

8.1 The landscape narrative

Cherrybrook, and the site specifically, has a history of being a place of clearing and re-vegetation.

Prior to colonisation, the area would have formed part of the Cumberland Plain Woodlands interspersed with rich Blue Gum High Forest corridors. Now a critically endangered ecological community listed under State and Commonwealth legislation, only remnant re-established areas of the Blue Gum High Forest remain in Cherrybrook.

The Blue Gum High Forest around the site was first initially cleared for agricultural and grazing purposes - leading to a sparse, open expanse of space. This was gradually revegetated with various orchards for farming.

As Sydney continued to expand further west, so did housing - leading to the typical suburban typology of Cherrybrook today. This has led to a highly disturbed landscape on the site, which was further impacted by recent construction activities.

Today, there is an opportunity to continue this cycle with a new era of vegetation in the form of accessible, inhabitable green space with tree planting and vegetation to enhance the Blue Gum High Forest species.

By utilising species from this community, the development can establish a vegetative connection through the site from the remnant patch of Blue Gum High Forest through the metro station, providing improved opportunities for habitat, shade provision and a biophillic experience for the local community.

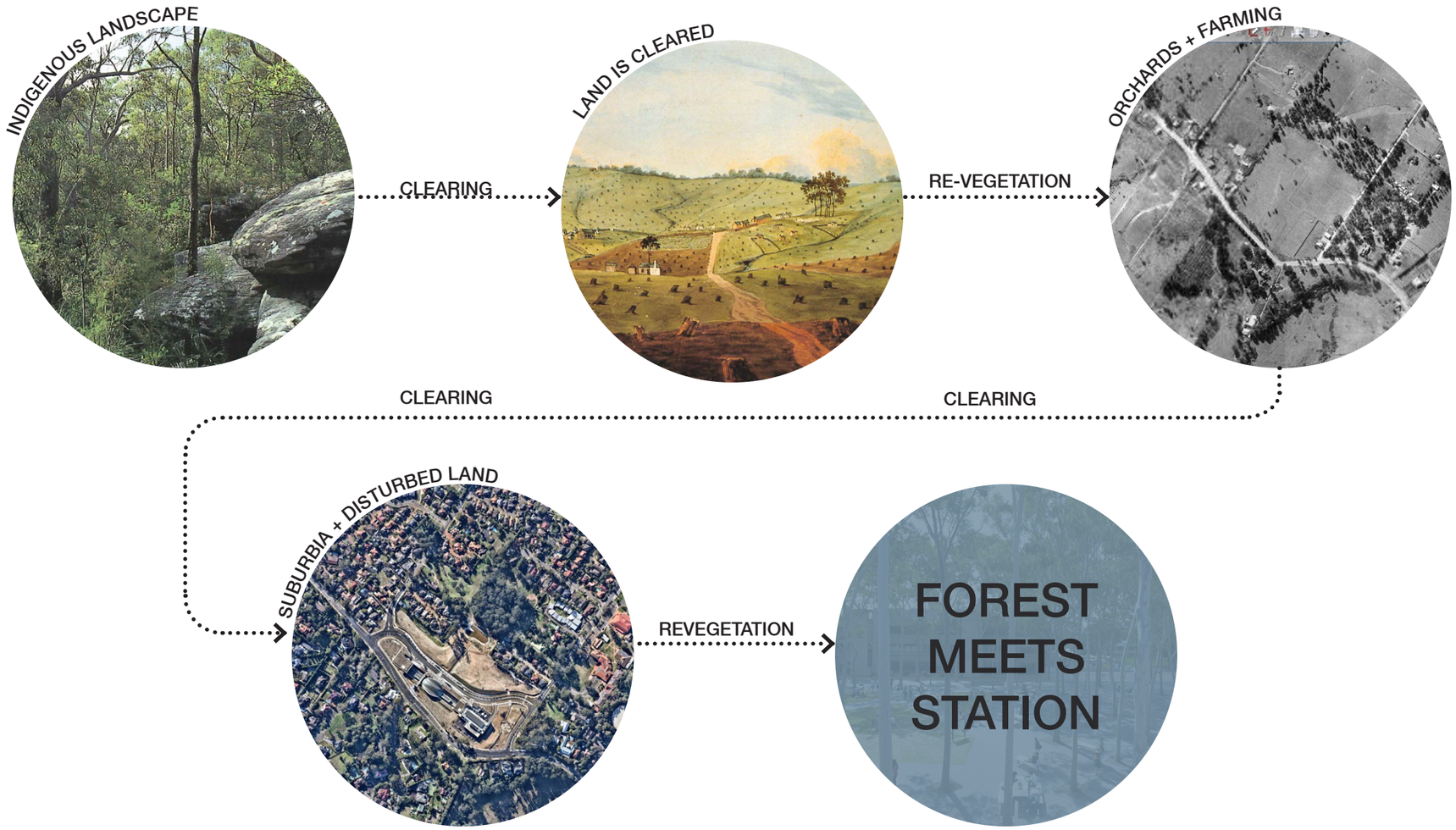


Figure 89: The landscape narrative - the evolving landscape with the project presenting an opportunity to reconnect with natural systems and process

8.2 Site qualities and assets

As outlined above the broader Cherrybrook region formed part of a travel corridor, linking the Darug groups of the Cumberland Plain to the Awabakal and Guringai people of the Hunter. The vision for the site is grounded in an appreciation of Country and builds on the ancient role of the site as a meeting place for the community. The vision looks to leverage the existing qualities of the site to create a precinct that is:

Green

- enhancing the natural qualities of the site - the trees and water systems, the undulating topography and long distant views of tree canopy

Connected

- improving access to and through the site for residents and the broader community, recognising the site's historic connections with movement and its new role today as a public transport gateway to the broader Sydney region

Convenient

- ensuring that the precinct fulfils everyday needs, providing residents and the broader community with access to services that make the Cherrybrook Station Precinct a local destination

Liveable

- improving the offering that Cherrybrook provides by providing new community facilities, open space, diverse housing options and more sustainable development

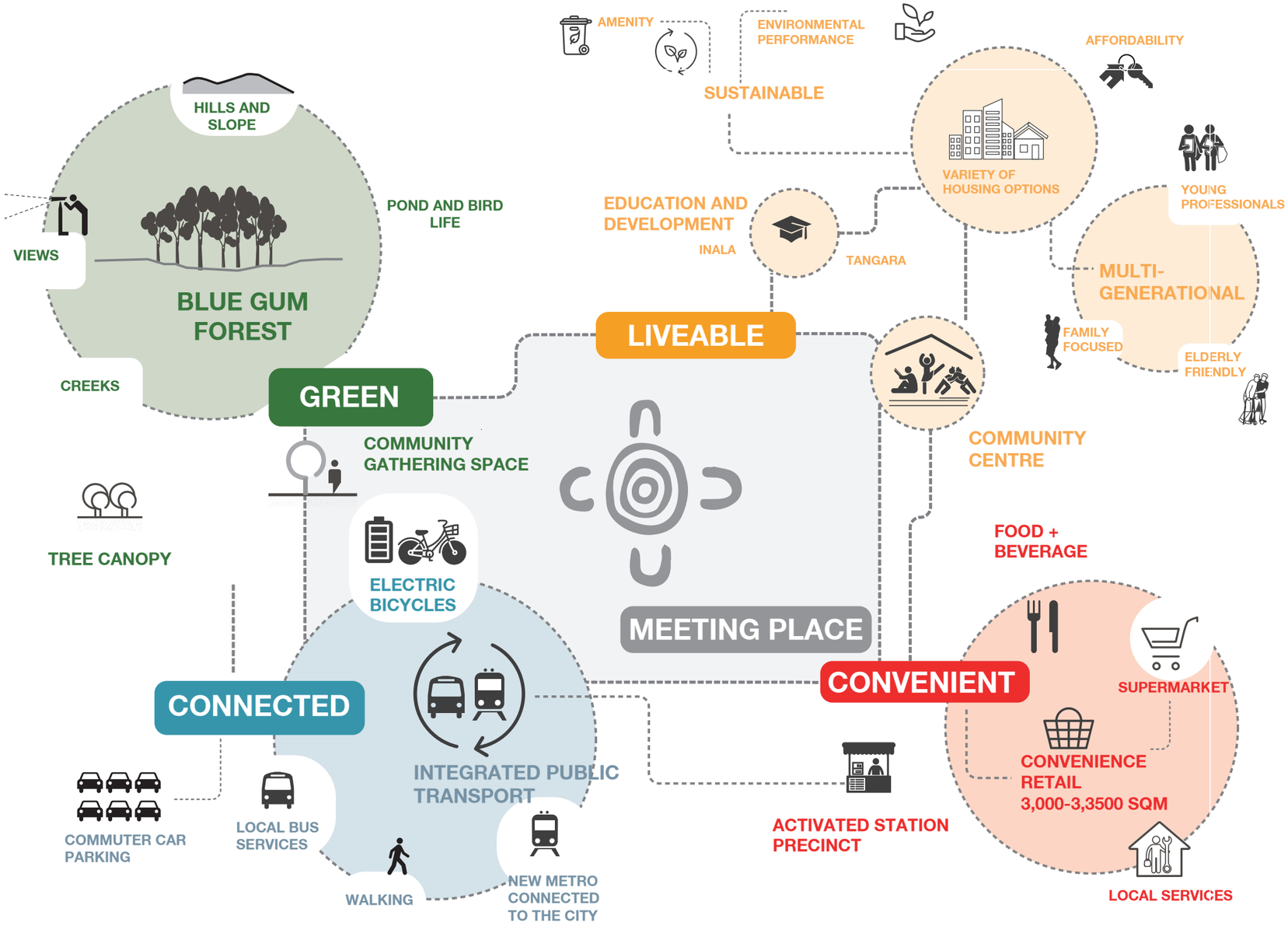


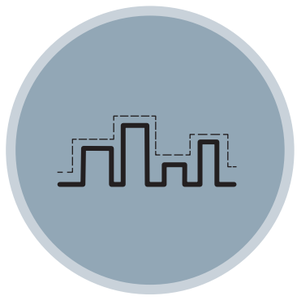
Figure 90: Site qualities and assets infographic

8.3 Overarching development principles

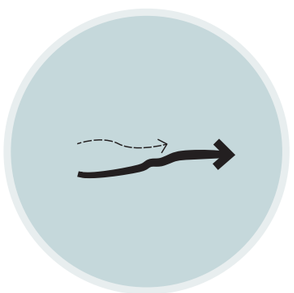
Eight development principles were developed to guide the design approach for the site. These are illustrated on the adjacent icons and have informed the spatial arrangement of built form and landscape elements, the development options and the final design proposal.



Retain and integrate natural features and systems



Create a vibrant high to medium density precinct



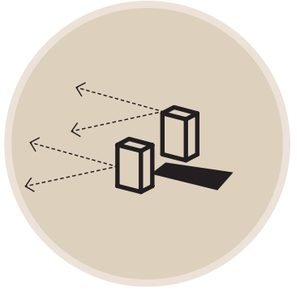
Work creatively with the existing landform and celebrate water systems



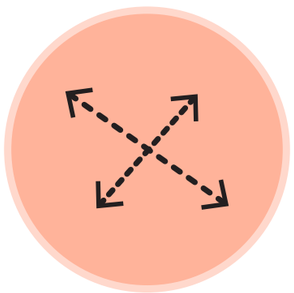
Activate the ground plain and harness the energy generated by the metro station



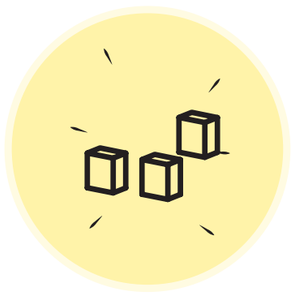
Create a local destination and community gathering space



Optimise views from the site and frame key views from within the site



Provide structure for the future development by embedding the pedestrian network



To set a benchmark for the future development of the Cherrybrook Station Precinct and demonstrate design excellence through designs that are resilient and sustainable

Figure 91: Overarching development principles

8.1 Design parameters and directions

The following parameters and directions were established early on in the project to guide all options and subsequent design thinking:

- Proposals be conceptualised such that the Government Owned Land can be developed independently of adjacent land holdings
- The spoil is removed from site to restore the natural ground level
- Maintain existing trees
- Provide a direct spatial and visual connection between the station, the basin and Blue Gum High Forest
- Channel pedestrian movement from the north around the pond / basin and towards the station
- Focus retail and active frontages around the station
- Set back buildings from the adjacent land holdings to the north to deliver opportunities for increased deep soil and landscaping and ensure an appropriate transition from medium to low density typologies, acknowledging that the adjacent sites will be redeveloped in time in line with the Draft Cherrybrook Precinct Place Stratergy currently out on exhibition
- Deliver pedestrian focussed public domain and community open space
- Relocate the maintenance access for the basin to deliver a quality open space
- Optimise views and solar orientation



Figure 92: Design parameters plan

Options studies

9

During the course of the project a number of different design options were explored to arrive at the best possible design solution for the site and project brief. This changed as the nature of the Place Strategy became clearer and the Desired Future Character of the broader area became more focused.

This chapter begins with a short precinct benchmarking exercise and then presents a snapshot of the options that were investigated. It demonstrates the evolution of the design concept and a genuine pursuit of design excellence through the project.

During community consultation, held in 2020, heights of up to eight stories were considered. Larger scale development was considered to optimise the value created through the Metro North West Line by providing homes close to transport and services. This approach was altered in response to stakeholder and community feedback that lower building heights were preferred, the SSP zoning application requests a maximum building height of five storeys when viewed from Bradfield Parade in response to feedback.

9.1 Precinct benchmarking

Project benchmarking allows stakeholders to develop their expectations and understanding of how the future design brief may develop over time.

The examples below are similar recent (or under construction) developments of a (relatively) comparable size (although the nature, scale and character differ). Their respective metadata in regard to the number of dwellings, GFA, quantity of open space etc. all help to frame the scale of the project.

All areas stated below have been approximated. In terms of scale and identity the Cherrybrook Station precinct is most closely comparable to the Summer Hill Flour Mill precinct that functions as a local centre around a light rail stop, public open space and railway station. Buildings in this precinct are between two and eight storeys.

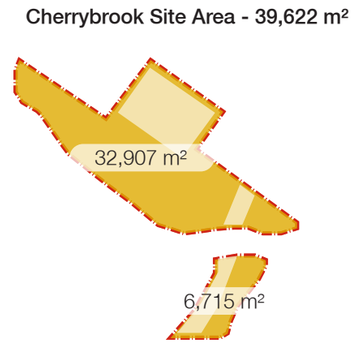


Figure 94: The site comprises of two portions which collectively amount to 39,622m²

Summer Hill Flour Mill - Lewisham, Sydney

- 26,000 m² site area
- 40,000 m² of mixed use GFA
- 360 dwellings
- 4,790 m² of open space
  - 16% of site area
  - 13.3 m² per dwelling

Central Park - Chippendale, Sydney

- 58,000 m² site area
- 150,000 m² of mixed use GFA
- 1,426 dwellings
- 6,400 m² of open space
  - 19% of site area
  - 4.48 m² per dwelling

Lachlan's Line - Macquarie Park, Sydney

- 94,000 m² site area
- 7,000 m² of mixed use GFA
- 2,700 dwellings
- 20,000 m² of open space
  - 21% of site area
  - 7.4 m² per dwelling

Harold Park - Forest Park, Sydney

- 107,000 m² site area
- 3,200 m² of mixed use GFA
- 1,300 dwellings
- 38,000 m² of open space
  - 30% of site area
  - 29.2 m² per dwelling

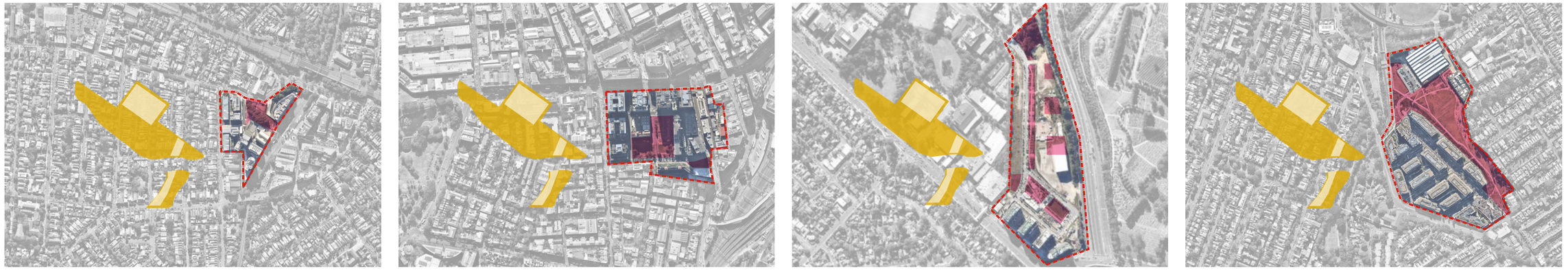


Figure 93: Precinct benchmarking

9.2 Initial conceptual options

Five conceptual options were explored as part of the preliminary work. These options were not constrained by the boundaries of the site and explored how the arrangement of built form and landscape elements could come together to create a place with a unique and cohesive identity. The five options explored included:

1. **A Tower and Podium Option** - typical mixed use high density model across most of Sydney.
2. **An Amphitheatre Option** - looking to create a strong identity by responding to the existing bowl-like topography and views over the basin towards the forest
3. **A Ridges and Valleys Option -** looking to concentrate built form to create more consolidated and linear corridors of open space
4. **A Hilltop Village Option** - using smaller building footprints located in a more compact format around courtyards to create a more intimate and Mediterranean character working with the level change across the site
5. **An Inhabited Forest Option** - comprising larger buildings set back from the street and set within a strongly vegetated and forest - like environment

These options were presented to the DAP and PWG for comment. The comments included:

- That some of the options are “forced” and not in keeping with the character of Cherrybrook
- That any option must be deliverable within the boundaries of the site and should not rely on amalgamation with adjoining properties
- That the options should look to work with the existing characteristics and qualities of the site.

Various aspects of two of these options (the Hilltop Village and Inhabited Forest) were identified to be explored further in the next stage of testing.

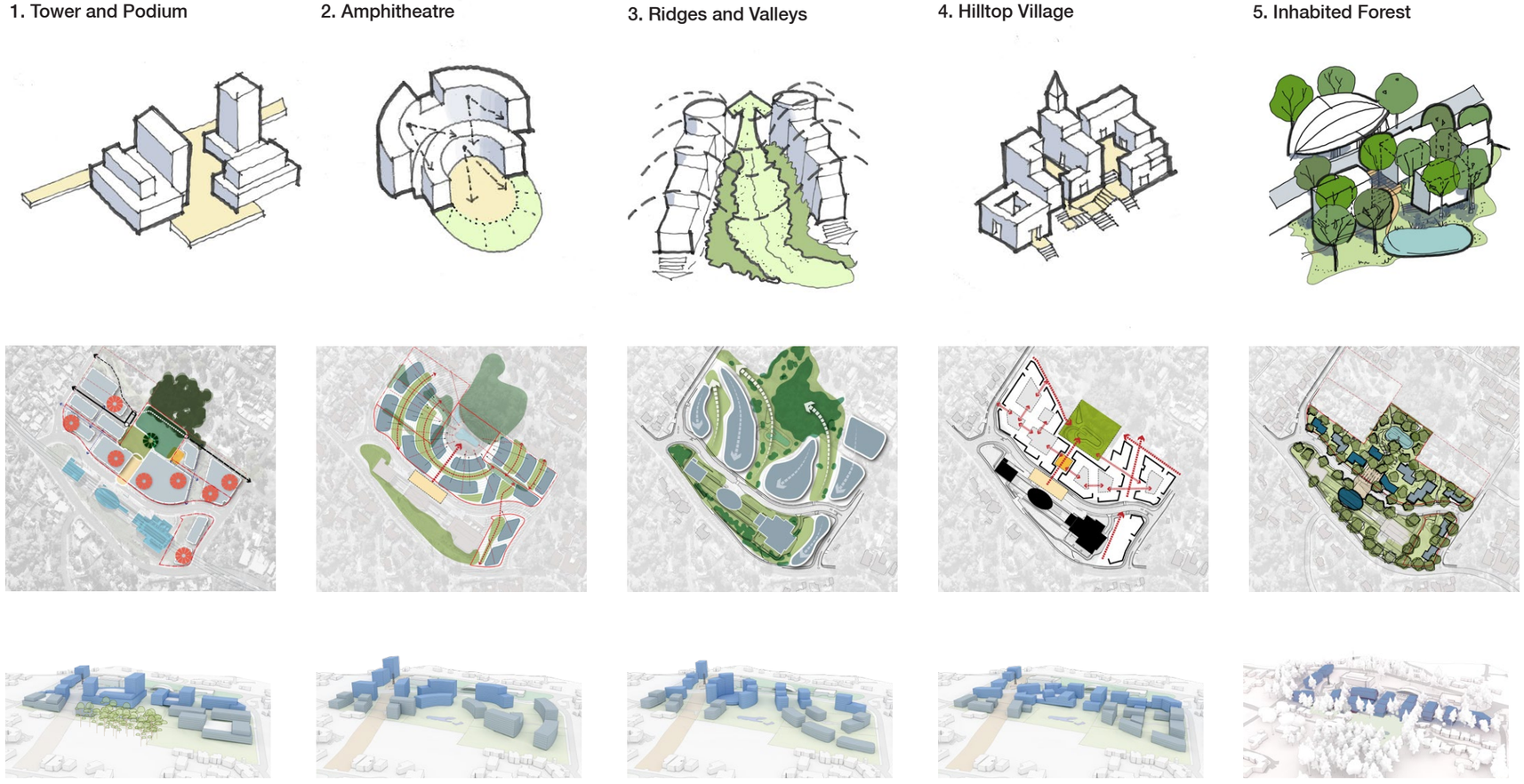


Figure 95: Initial options

9.3 Masterplan options

The next stage of options testing brought the best aspects of the previous five options into three detailed options that were confined to the boundaries of the SSP site.

Each option differs in its arrangement of built from, building setbacks and location of key elements (supermarket and community facility). The key differences between the three options are outlined below the adjacent diagrams.

The three options were presented to the PWG and DAP. The feedback was as follows:

- All options were found to be sound and based on good urban design principles and there was no clear preference for any one of the options as each option had their own particular merits
- The open space was considered to be quite fragmented and the preferred option should look to create a more consolidated open space and single focus for the precinct
- Built form should look to optimise views and amenity for residents
- Access through long basements was not considered desirable and alternative options for car parking provision and servicing should be explored
- There was a need to resolve deep soil and tree canopy cover across the site and its' relationship with basements
- There was a need to review building orientation to optimise solar access and ensure ADG compliance



Hilltop Village

- A public domain and built form with a more urban character and identity
- A network of courtyards
- A prominent location for the community facility overlooking the basin
- A more urban interface
- More linear buildings defining the street
- Reclamation of the ground plain for people with the anchor retail destination located underground
- Traditional architecture with rustic bases

Inhabited Forest

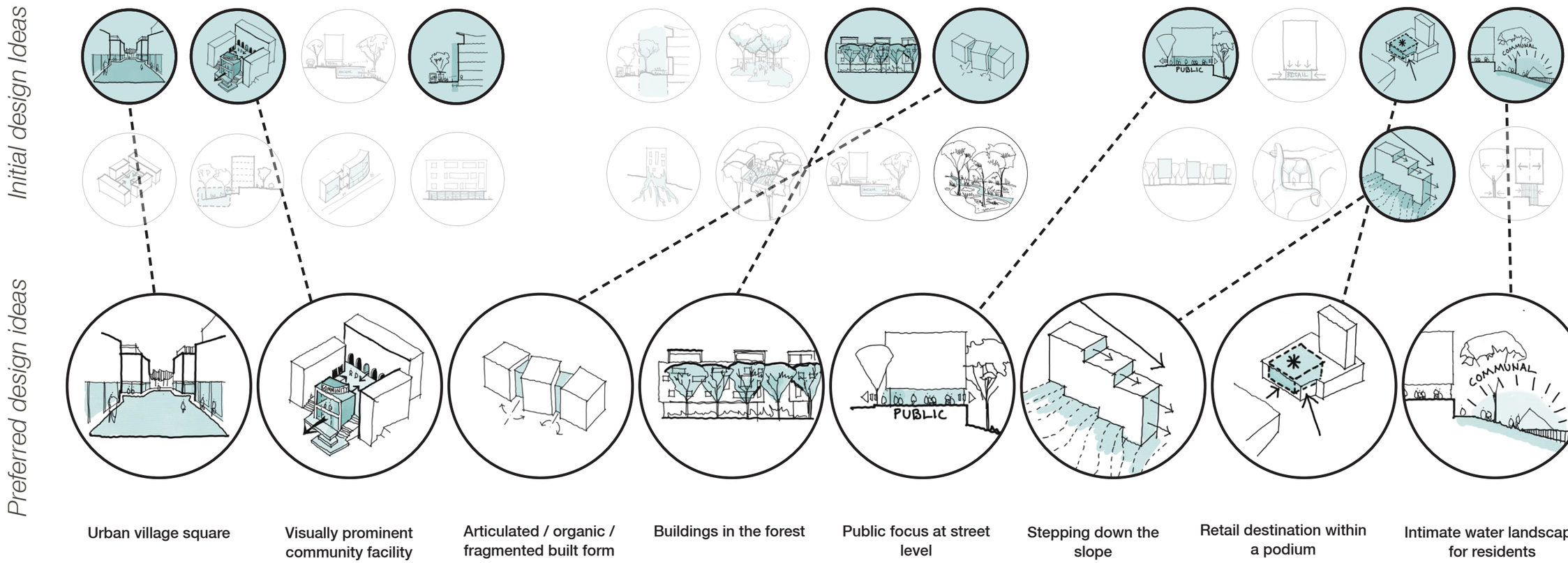
- Buildings in a forest
- Larger setbacks to allow for substantial new tree planting
- Public space as under tree canopy
- Articulated built from
- Grounded buildings
- Communal open spaces as tree houses
- Reclamation of the ground plain for people with the anchor retail destination located underground
- The space around the buildings as footpaths of discovery through a landscaped environment

Green Fingers

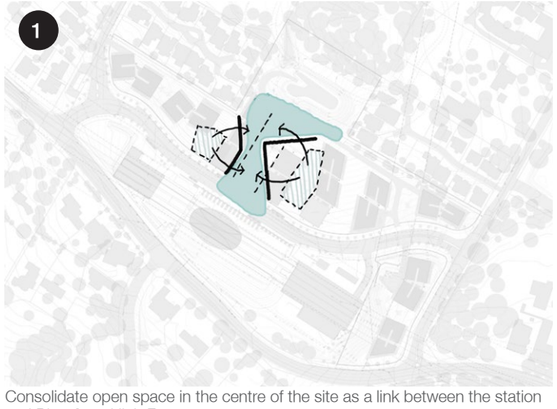
- Vegetated corridors between buildings linking into the Blue Gum High Forest
- Retail elements under the footprint of the buildings
- The station level being the main public / community focus
- Community uses around at the lower level and associated with the basin
- Anchor retailer located within a podium at the same level as the station
- Discontinuous street frontage
- Framed views
- Tree-like buildings (recessed base with cantilevering top – reverse podium)

9.4 Interim master plan

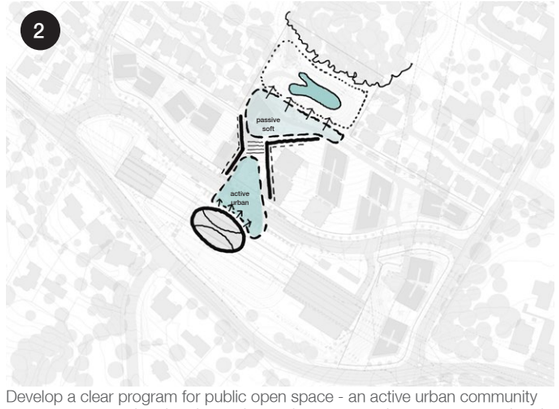
In working towards a preferred scheme the best design ideas of the three options were combined and a preferred layout was developed based on eight key structuring moves outlined on the next page



Options studies



Consolidate open space in the centre of the site as a link between the station and Blue Gum High Forest



Develop a clear program for public open space - an active urban community open space associated to the station and a more passive open space related to the basin



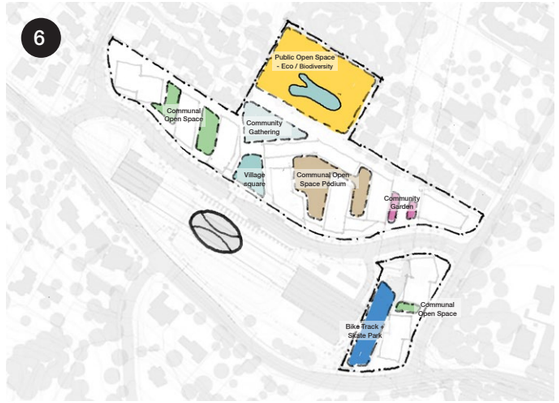
Locate the community facility in a prominent location and so that it has a relationship to two central open spaces



Concentrate retail around a public platform at station level and around the village square



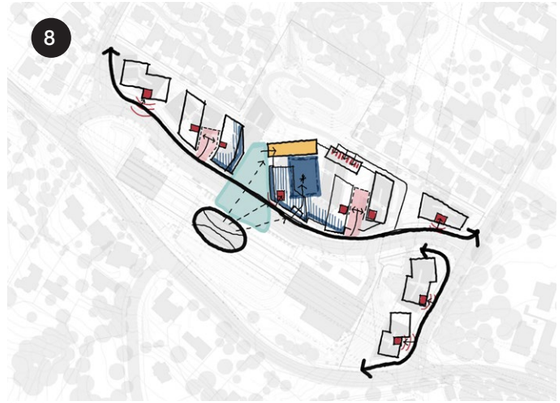
Developed a clear strategy for the types of open spaces provided



Program the open spaces to serve the needs to different users



Orientate and articulate built form to capture views and optimise access solar



Create legible addresses for resident and celebrate the entry sequence

Figure 96: Interim masterplan structuring diagrams

Options studies



Figure 99: Interim masterplan

The interim illustrated above included the following core ideas:

- A central public open space corridor offering a direct visual connection between the metro station entrance and the Blue Gum High Forest. This open space connection provides opportunities for future integration with the broader precinct by accommodating pedestrian links to the north and to Robert Road
- The open space is shaped like a bow tie with a more trapezoidal village square with abundant tree planting and activated on its edges by retail uses.
- The open space then transitions down to the lower basin level through a grand set of terraces and public stairs onto community gathering space that is directly associated with the community hub and integrates with the basin and Blue Gum High Forest
- A multi-functional, multi-storey community hub accommodating a library and multi-purpose community centre that is visible from the station entrance and accessed from the village square. It has secondary entrance at the lower level onto the green community gathering space activating this space
- An environmental space around the existing basin that acts as an environmental space and enhances and celebrates the Blue Gum High Forest and integrates sustainable urban drainage and existing water systems
- A convenience supermarket located in the podium type building with apartments up to eight storeys above
- Residential buildings within the rest of the precinct that are articulated to take advantage of views and vary in height from two-eight storeys

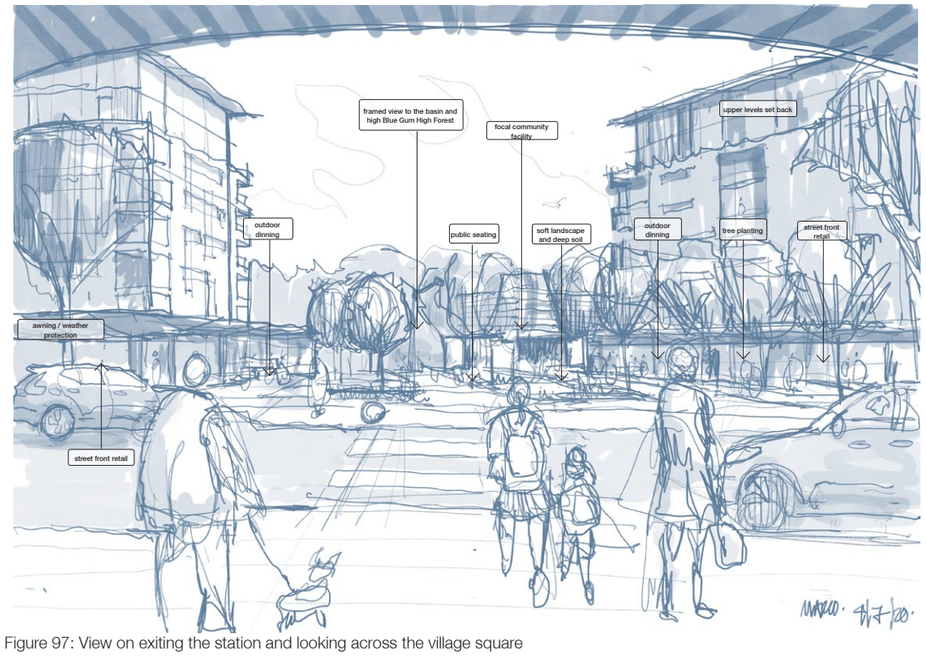


Figure 97: View on exiting the station and looking across the village square

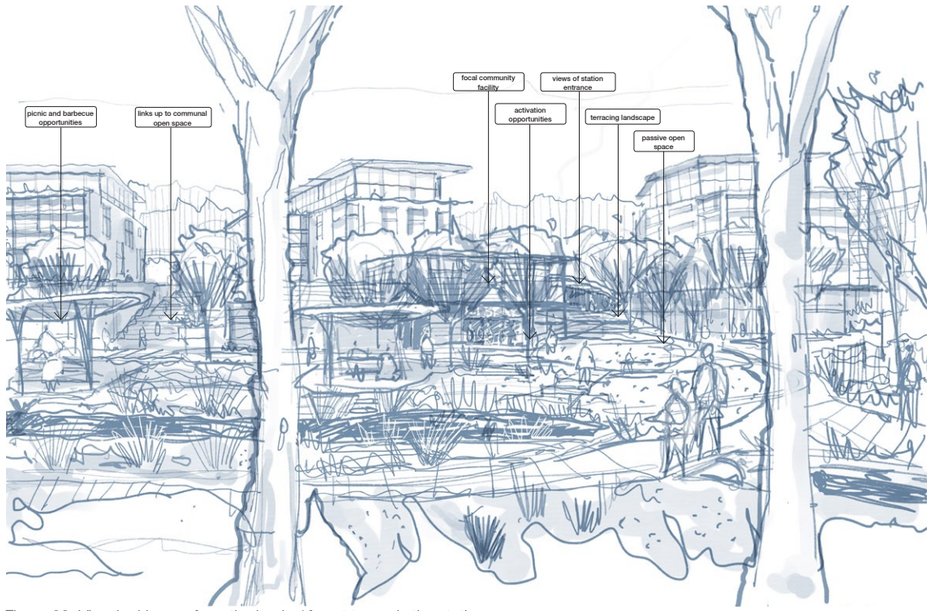


Figure 98: View looking up from the basin / forest towards the station

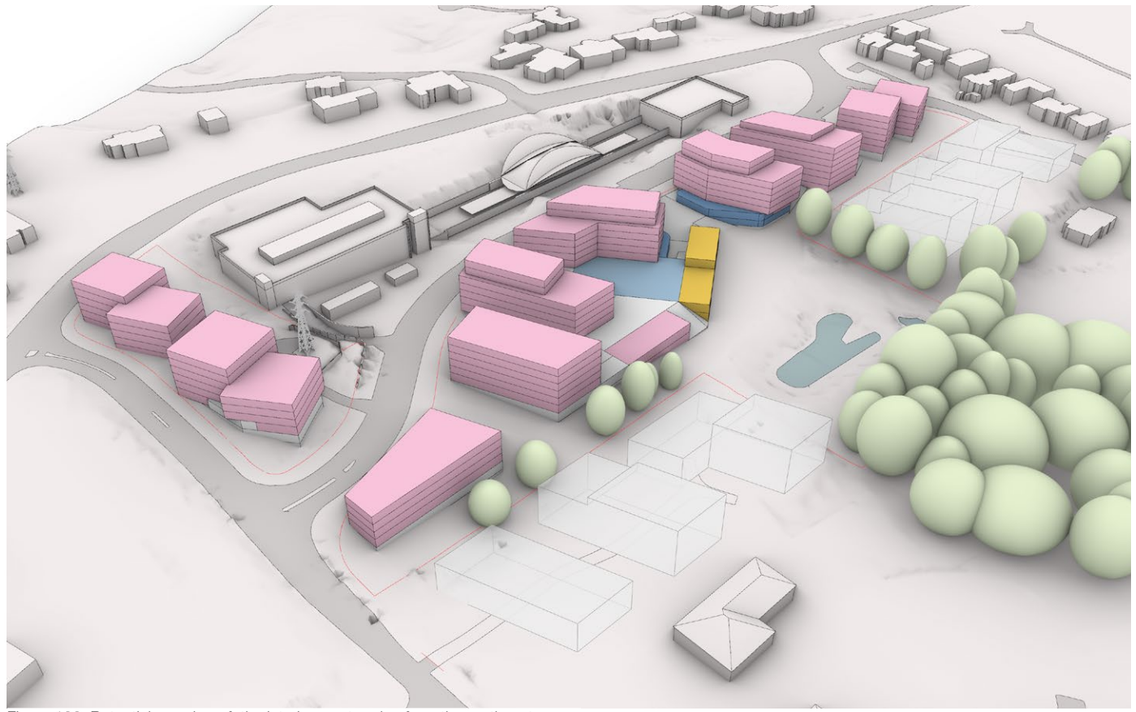


Figure 100: Potential massing of the interim master plan from the northeast

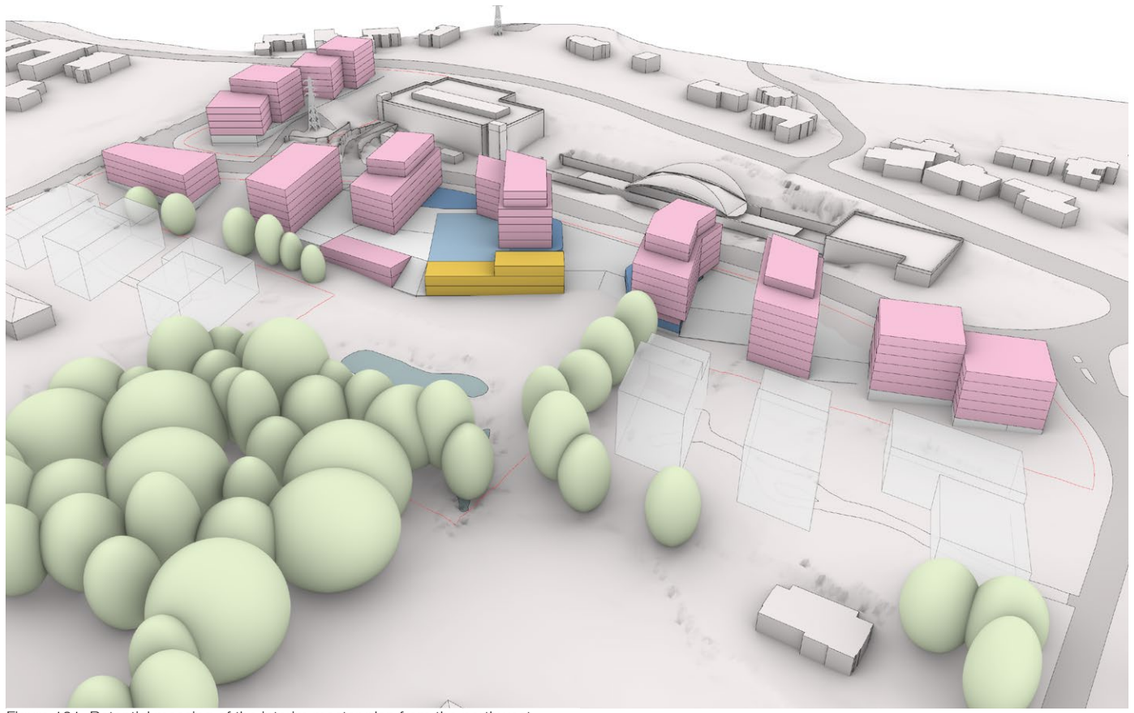


Figure 101: Potential massing of the interim master plan from the northwest

Stakeholder engagement and scheme evolution

10

The interim master plan was subject to a number of rounds of public consultation and presented to the PWG and key stakeholders. Separate meetings were also held with Hornsby Shire Council and DPE to resolve certain technical issues. The objective of these processes was to solicit responses to the preferred option that could be taken into account prior to the lodgement of the SSP.

Following the preparation of the documentation to support an SSP for the interim master plan further engagements with stakeholders took place. Direction was provided to deliver a proposal that still delivered the same level of public benefit (the quantum and quality of open space and the 1,300m² community hub) whilst reducing building heights from 8 storeys to 5 storeys, when viewed from Bradfield Parade. This precipitated a re-evaluation of options to optimise the development yield to help fund and deliver the master plan and public benefits. This short section summarises the options that were considered, the preferred option that emerged which is the subject of the application.

10.1 Responses from stakeholder to the draft reference scheme

Listed below are the key issues raised by the various stakeholders during the engagement period



Inputs from the community consultation - community incubator and coffee table conversations

Some people thought the development would improve the area greatly and others thought it detracted from the (current) quiet, village-like character. There was a general approval of the additional green nature of the proposal, the retention of the basin, new open and community space and new cafés and restaurants. Some community members were concerned about the maximum height of buildings around the station, although some noted the draft reference scheme as shown reduced their concern because buildings reduced to four and two storeys further away from the station. There was strong opposition to the proposed skate park.



Design Advisory Panel responses

The comments from the DAP were generally positive. The following points were noted:

- The draft reference scheme represents a significant improvement on the previous options
- The more consolidated open space provided a single focus for the precinct which is supported
- Built form should look to optimise of views and amenity for residents. Current views over the power-line could be redirected to offer improved amenity for residents
- Consider alternatives to access through long basements
- Consider remote / peripheral car parking solutions
- Ensure the delivery of deep soil considerations and canopy cover within the site
- Test the built form for compliance with ADG solar access and building separation controls
- Consider introducing a more generous rear setbacks and stepping the buildings down towards the north to achieve a more gradual transition to low scale development and maintain levels of privacy for existing dwellings in the shorter term
- The interface between the terrace units sleeving the podium and the access lane needs to be considered in more detail



PWG inputs

Comments were provided to the team following a PWG presentation and during a follow up meeting with Hornsby Shire Council officers. The following points are worth noting:

- There is general support for the concept which is based on sound urban design and planning principles. A full response will be provided during the SSP evaluation process when more detail is provided
- There is a need for improved integration at precinct level, the development must not be considered a stand alone element
- More consideration needs to be given to the detailed design of the public domain and public open space to improve its usability
- Hornsby Shire Council require more detail on the design of all open spaces before they will consider taking ownership of and responsibility for public open space within the SSP site.
- There is general support for the location of the community hub. Management arrangements will need to be discussed further with Hornsby Shire Council
- Any departures in height can not be considered in isolation and need to be adequately justified

10.2 Five storey investigations

As noted above, in response to the feedback received, the scheme was revisited based on:

- maintaining the same public benefit
- 1,300m² community facility / library (as per DPE's Place Strategy)
- providing around one hectare of open space, including a village square of around 1,200m² with a 50m frontage onto Bradfield Parade (as per DPE's Place Strategy)
- limiting building heights at up to five storeys when viewed from Bradfield Parade
- optimise development yield (within the 5 storey height limit on Bradfield Parade) to maximise the funding of public benefits.

To optimise the number of units being delivered The reference scheme incorporates a compact built form, with buildings located close together. The reference scheme has number of benefits, including a public domain that faces the Blue Gum High Forest and pond, a community facility (such as a library) that is visible from the station and addresses the community gathering space, and a village-like character adjacent to the two storey built form that transitions down from the five storey built form along Bradfield Parade closer to the station. The plans of each option are illustrated on the adjacent pages and more detail is provided on the pages that follow.



Option One - Maximum yield



Option Two - North facing fingers



Option three - Long buildings and square plaza



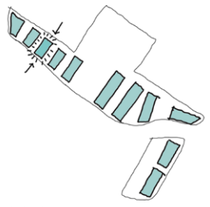
Option four - Compact village

Option One - High yield

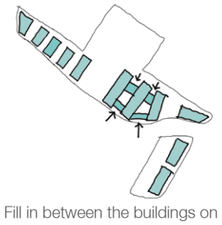
Option 1 sought to optimise the development yield and achieve the same level of density achieved in the 8 storey interim master plan noted above. Buildings have been orientated perpendicular to the street to maximise number of buildings on the site, whilst complying with minimum ADG building separation requirements. The key moves are diagrammatically illustrated below.

While this option delivers the highest yield, it is not desirable as it does not meet all ADG requirements (solar access), low levels of amenity for residents is poor within increased overlooking and solar access and compromised urban outcomes. The minimum building separation to adjoining properties to the north is also at a minimum (6m), which would represent a significant planning risk as greater setbacks are typically required when development of different scales / land use zoning are adjacent to each other.

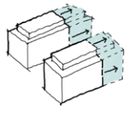




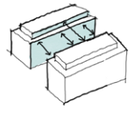
Orientate the buildings perpendicular to the street to fit in extra buildings



Fill in between the buildings on the podium



Elongate buildings to maximum building envelope



Minimum building separation

Pros and cons

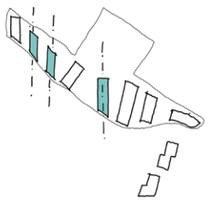
+	Higher yielding option that maximises residential GFA
+	Exceeds community space requirements
−	Poor amenity for residential units - privacy and overlooking, solar and lack of communal open space
−	Lack of height variation
−	Poor interface with existing low density development to the north (not consistent with ADG with adjacent R2 zoning)
−	Longer buildings on the podium will require more cores that will puncture retail and car parking. It is likely that all car parking will need to be basement with ground level podium reserved for retail and back of house. This will result in deeper basements at increased cost
−	Communal open space will need to be located on the roof to meet ADG requirements



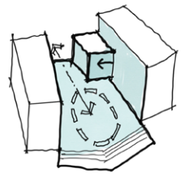
Option Two - North facing fingers

Option 2 orientates the residential flat buildings in a more northerly direction with greater building separation. It is based on the key moves noted below. Greater building separation results in improved access to sunlight and privacy for residents, but due to the orientation of the buildings residents look across to other buildings, rather than out to the trees and public domain. There are also cost and design challenges with buildings aligned at an angle to the street and basement structure.

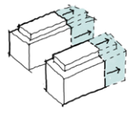




Orientate the buildings north to improve solar



Pinch the spaces between the buildings to create more private courtyards



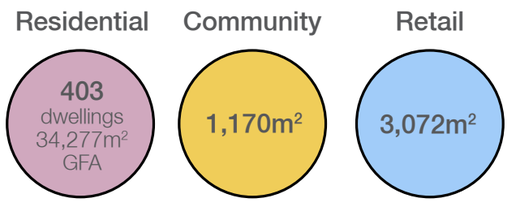
Elongate buildings to maximum building envelope



Step back buildings to the north as interface to low rise

Pros and cons

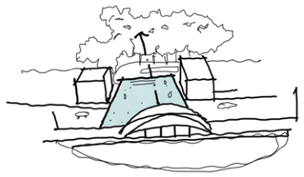
+	High level of containment of the village square - a more positive and contained environment
+	Improved solar amenity to units
+	More broken built form along the streets / public edges
+	Massing perpendicular to the slope allowing views through and minimising perceptions of bulk and scale
−	The library loses its identity as a building on the plaza
−	Units look directly into each other (not towards the view)
−	Reduced yield
−	Communal open spaces narrow - require communal roof gardens
−	Longer buildings on the podium will require more cores that will puncture retail and car parking levels below. It is likely that all car parking will need to be within the basement with the ground level podium reserved for retail and back of house. This will result in deeper basements at increased cost
−	Structural misalignment of buildings to car parking would lead to greater inefficiencies and more costly construction



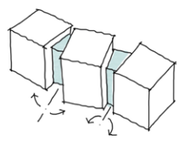
Option three - Long buildings and square plaza

Option 3 provides a larger more regular shaped Station Plaza at the level of Bradfield Parade. This option is particularly constrained by the stormwater easement and the implication of this layout is that less of parcel A is developable. The expansion of the village square westwards means that one building (approximately 40 units) is lost. In order to compensate for this loss the built form is pushed together to form long continuous buildings. Then to reduce the visual impact of the buildings the built form is articulated with some portions of the buildings raised to provide views through at ground floor level . While this introduces a level of articulation this presents challenges for achieving cross ventilation and solar access. In addition, while visual breaks at ground floor level can provide views through the development this is costly to deliver and may not achieve its intended purpose.

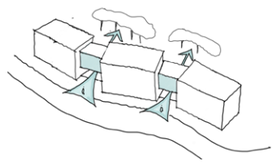




Orthogonal village square



Linear, continuous, articulated buildings



Raised linking elements to break the street wall and provide views to green

Pros and cons

- Well defined street environment
- Generous open space that is able to accommodate the level change
- Larger podium allows for greater flexibility in retail and podium arrangement
- Some height and streetscape variation introduced through the stepping in and out of buildings
- Communal space to the north of the site not visible from the public domain and would be best served as communal open space with no public access
- The wide village square lacks enclosure and does not function optimally from a retail or place making perspective. Consideration will need to be given to placing pavilion and landscape elements into the space to contain and activate it.
- Long and continuous building typologies not in keeping with the character and identity of Cherrybrook as a village
- Continuous buildings require greater levels of articulation, more through- apartments and cores to achieve ADG cross ventilation requirements
- Linear east-west buildings will make it challenging to achieve ADG solar requirements
- Additional cores and the narrowness of the sites will make the arrangements of basement car parking very inefficient leading to deeper and more costly basements
- Reduced yield
- Additional cost in suspended apartment building typology
- Longer buildings on the podium will require more cores that will puncture retail and car parking. It is likely that all car parking will need to be basement with ground level podium reserved for retail and back of house. This will result in deeper basements at increased cost

Residential	Community	Retail
396 dwellings 31,918m² GFA	1,306m²	3,330m²

Option four - Compact village

Option 4 is based on the triangular plaza arrangement of the interim materplan that ensure that views to the Blue Gum High Forest are retained and that the library has an address and entrance on the square and is visible from the station. It seeks to create a more village type character with individual buildings arranged along Bradfield Parade with generous spaces between the buildings to allow for landscaping and views from the street and village square. Two triangular feature buildings are created either side of the plaza with the library and supermarket located within a podium type building to the west of the plaza. On top of the podium built form is arranged in a rectangular fashion to create an enclosed communal deck with views and links to the pond and open space below.

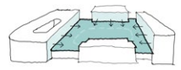




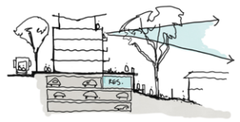
Feature buildings either side of the village square



Detached built form with narrow gaps along the street



Regular courtyard above the podium



Units oriented towards the view

Pros and cons

- Well defined street environment with detached built form that is more in keeping with the built form character of Cherrybrook
- Some variation in height and streetscape as a result of perpetrate buildings
- Higher levels of privacy afforded to properties to the north
- Contained station plaza with built form
- Improved solar access and amenity for residents
- The library / community facility loses its identity and prominence as it is subsumed into the podium and could be read as a retail frotnage, rather than a element of civic architecture
- Additional cores and the narrowness of the sites will make the arrangements of basement car parking very inefficient leading to deeper and more costly basements
- Reduced yield
- Longer buildings on the podium will require more cores that will puncture retail and car parking. It is likely that all car parking will need to be basement with ground level podium reserved for retail and back of house. This will result in deeper basements at increased cost

Residential	Community	Retail
383 dwellings 32,599m² GFA	1,325m²	1,967m²

Development strategies and principles

11

Following the feedback from the community and stakeholders the draft reference scheme was reviewed and refined and the key structuring elements were distilled into a series of design strategies and principles. This chapter presents these strategies and principles as a set of abstract diagrams. As far as possible plans and diagrams are presented illustrating how the development controls for the broader area might change in the future in line with the Cherrybrook Precinct Structure Plan. This helps to illustrate how the proposed development would fit into a broader precinct vision.

It is important to note that the diagrams are abstract and seek to illustrate key concepts. There are many ways in which these strategies and principles can be realised in the future and these will be explored in the next stage of planning and design.

The strategies and principles have been translated into a site-specific Design Guide that will be approved as part of the SSP.

11.1 Principle structuring elements

The intent of these strategies is to create a vibrant local centre and meeting place for the community and a unique and liveable neighbourhood for residents that leverages the amenities and qualities of the site and its surrounding context.

The principle structuring diagram for the site is illustrated in Figure 102 and includes the following key elements:

1. A visual corridor and deep soil public open space corridor through the centre of the site providing a direct visual connection between the metro station entrance and the Blue Gum High Forest that is at least 20m wide
2. A public open space / village square of at least 3,000m² is delivered through the centre of the site. The open space will be designed together with Council and with community input. It will then be subdivided and dedicated to Council as public land. The design of the open space must have a minimum frontage onto Bradfield Parade of 50m and must ensure an elegant and pragmatic resolution of the level changes from the level of Bradfield Parade to the level of the pond and ensure a positive relationship between the uses and activities at ground floor level and the public domain
3. A multi functional community hub of at least 1,300m² that is
   - clearly visible from the station entrance and accessible from the community open space located at the lower level
   - a multi purpose centre accommodating a library and multi-functional community venue
4. An ecological park around the existing pond or basin
   - that acts as an environmental open space and enhances and celebrates the Blue Gum High Forest
   - that integrates sustainable urban drainage and existing water systems
5. A green corridor beneath the power line easement providing green connectivity with the broader precinct
6. Pedestrian through-site links providing opportunities for potential future precinct wide integration and linkages northwards

KEY

- DGL boundary
- metro station
- Visual connection to Blue Gum High Forest
- Community hub
- Access to community hub directly from the community open space
- Community open space
- Ecological park
- Active frontages
- Pedestrian linkages



Figure 102: Precinct Structure Plan

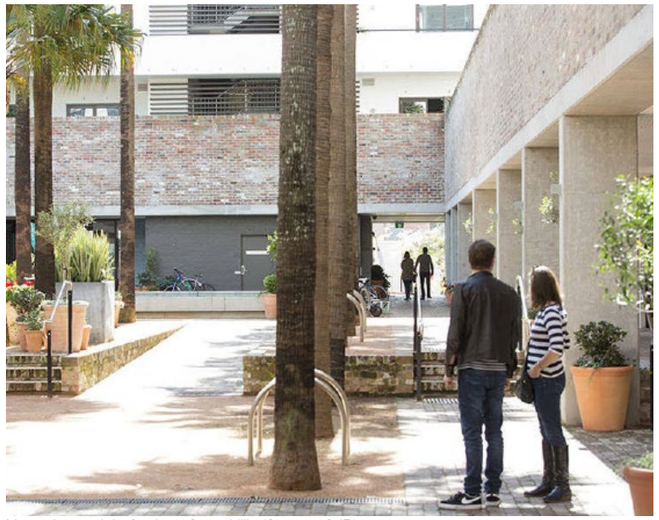
1:2,000 @ A3

11.2 Character and identity

The development of the site must take advantage of its strategic location adjacent to the station, support transit oriented development and fulfil the role of a neighbourhood centre. In line with the Cherrybrook Place Strategy which is currently on exhibition together with this SSP the broader precinct is envisaged as becoming more compact and urban in nature when compared to the existing low scale suburban character of Cherrybrook. Parts of this precinct will be developed with buildings ranging from three to five storeys.

The character of the precinct around the station will be defined by:

- Urban buildings around the station with retail at ground floor level
- Proud civic architecture for public buildings, supported with public art
- An abundance of trees, both within the streets and within individual lots
- Further away from the station residential buildings are setback from the foot path with a landscaped setback that is designed, managed and maintained to enhance the green character of the precinct
- Medium rise development with a variety of building typologies ranging in height from two to five storeys
- Preference for self coloured natural materials such as masonry, stone, off-shutter concrete, timber and neutral renders



Natural materials Casba - Surry Hills (Source: SJB)



Mixed use ground floor Casba - Surry Hills (Source: SJB)



Marrickville Library open space (Source: Aspect)



Defence Housing Australia (DHA) (Source: OCULUS)



Apartments in Lane Cove (Source: Candalepas Architects)



Lane Cove apartments (Source: 360 Degrees / Candalepas Architects)

Figure 103: Precedent images showing buildings with natural, subdued materials set within a bushland setting

11.3 Landuse

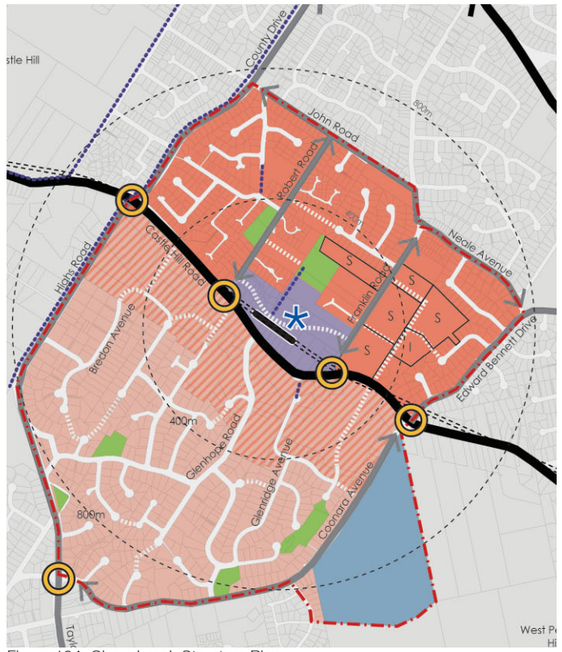


Figure 104: Cherrybrook Structure Plan

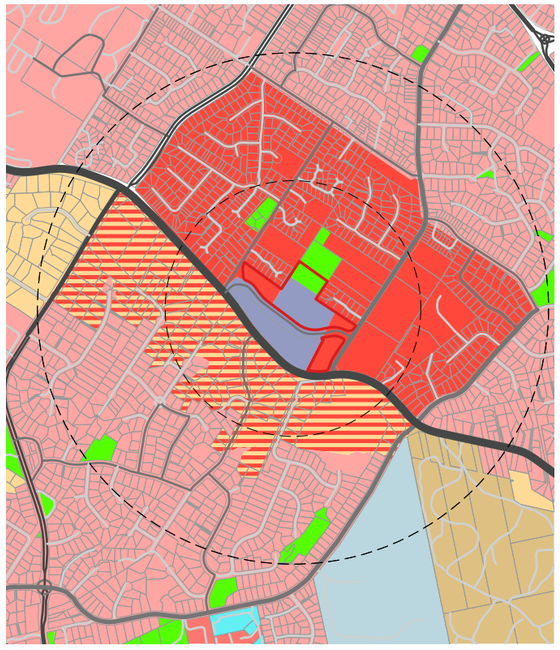


Figure 105: Envisaged land use plan for the precinct assuming long term rezonings in line with the Structure Plan

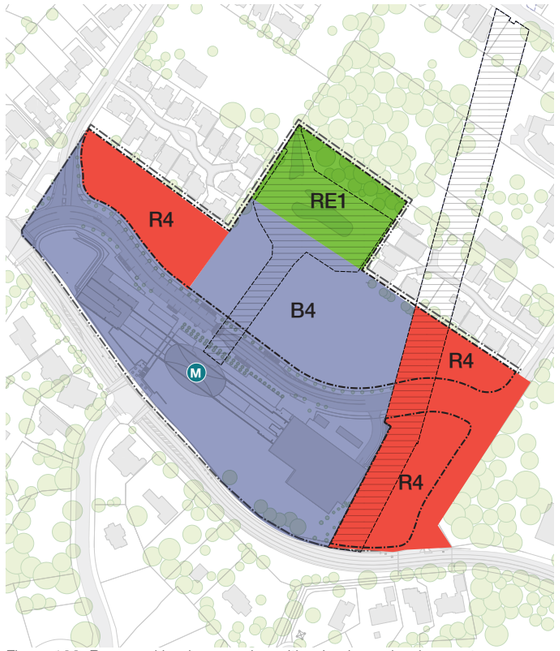


Figure 106: Proposed land use zoning with mixed use development concentrated around the Station that is also zoned B4

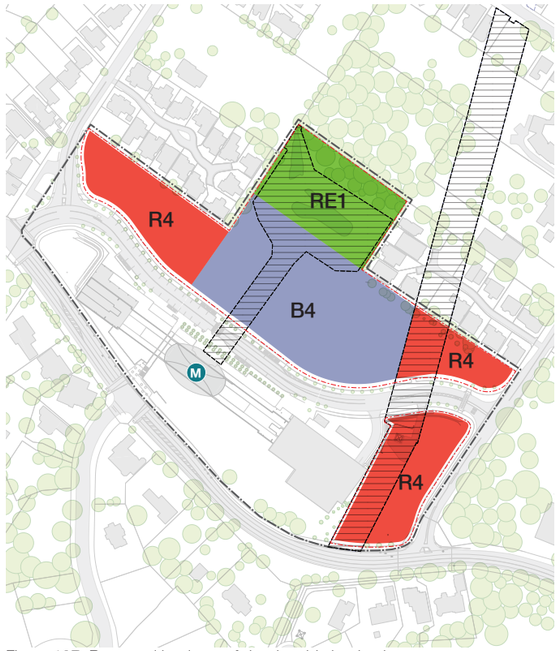


Figure 107: Proposed land use of developable land only

The Cherrybrook Station precinct is envisaged as an active neighbourhood centre that serves the immediate needs of local residents. As such it is proposed that the various portions that make up the site are zoned B4 Mixed use, RE1 Public Recreation and R4 High Density Residential. The existing stormwater basin is proposed to be zoned RE1 and at the next stage of planning an open space of at least 3,000m² is to provided within the B4 mixed use portion.

The following principles are proposed:

- Active retail uses (up to 3,500m²) should be concentrated at ground level and around the community open space
  - Retail uses must address and be accessed from the street, community open space or public open spaces. The extension of retail frontage along Bradfield Parade is encouraged
  - Should a local convenience store / supermarket be provided as part of the development it, together with any associated parking and serve yards should be sleeved with active uses (see Figure 108 on the next page)
- A community hub of at least 1,300m² should be provided within the development. The exact nature and size of the facility will be determined through future engagement with Hornsby Shire Council and the community
- The community hub should have a direct relationship with the community open space and with its entrance clearly visible from the station entrance
- Opportunities for the community hub to have a positive relationship and second entrance from the lower level community open space should be explored
- A minimum of 3,000m² of usable public open space or publicly accessible private open space should be provided within the development
- A diversity of residential units should be provided. The mix and size of the units should be informed by a local needs assessments. The provision of larger integrated terrace typologies at ground floor level is encouraged.

KEY

- DGL boundary
- RE1 Public Recreation
- B4 Mixed Use
- R2 Low density residential
- R4 High density residential
- E1 National Parks / Nature Reserves
- Easements

Development strategies and principles

The adjacent plan illustrates the key principles for the site that includes:

- Active retail uses around the village square, providing activation around the primary public domain corridor
- The community hub with an address on both the village square with its entrance visible from the station, and at the lower pond level. Opportunities to integrate public art into the public domain and publicly-facing facades should be explored as part of the public art strategy to be developed together with Hornsby Council
- Large floor plate land uses sleeved with finer grain tenancies
- Residential uses with an address on the street / on public route

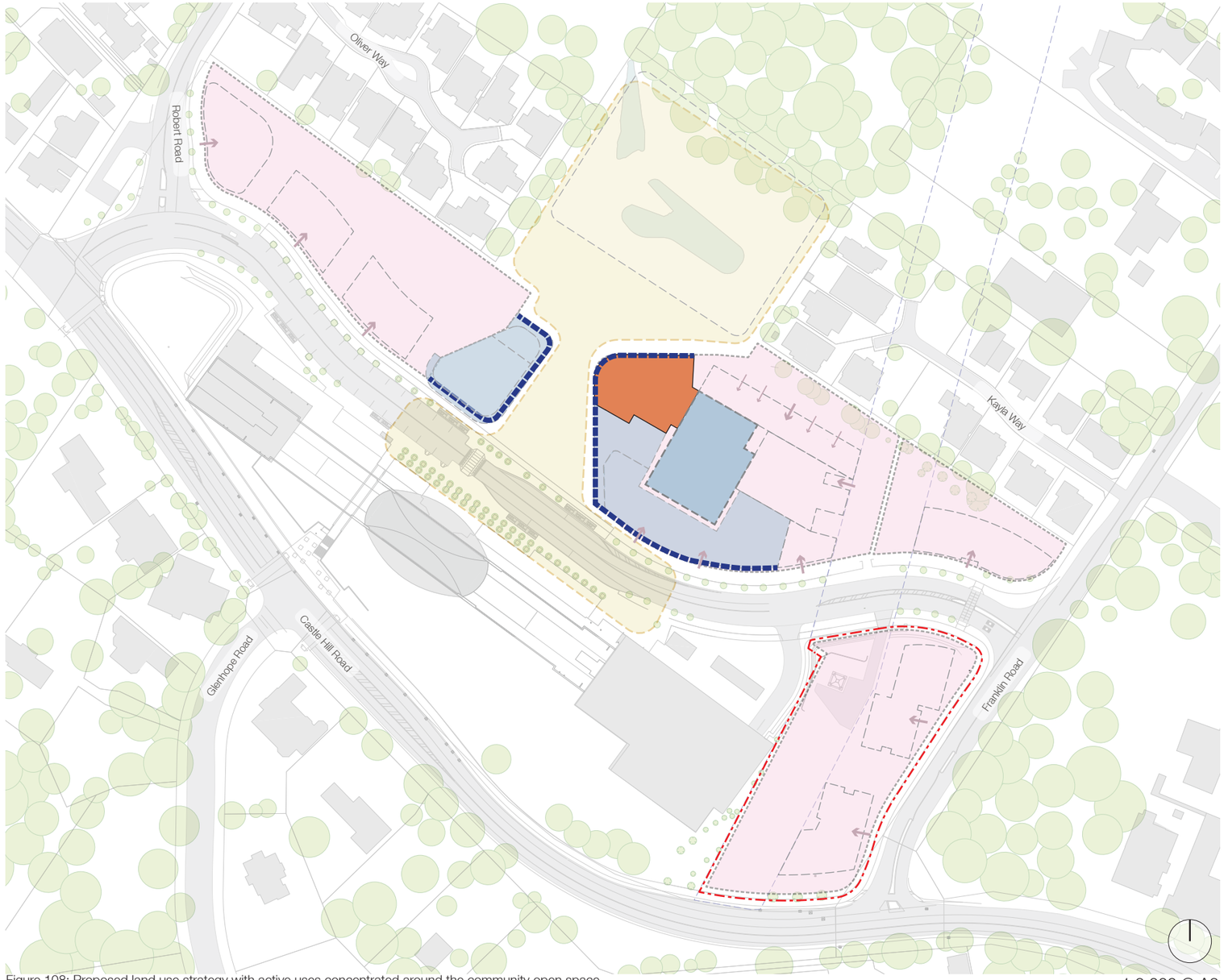


Figure 108: Proposed land use strategy with active uses concentrated around the community open space and the supermarket sleeved with active uses

11.4 Yield

Development yield and density on the DGL is proposed to be controlled through Floor Space Ratio controls to be consistent with the Cherrybrook Precinct Place Strategy.

Given the irregular shape of the site, the easements that traverse the site and the fact that the DGL is delivering a considerable amount of open space the area to which the FSR can be applied is limited to the land that is proposed to be zoned B4 Mixed use and R4 High density Residential. The FSR for the two portions that form part of this proposal include:

	Approximate area	FSR	Permissible GFA
Portion A	25,510m²	1.25:1	31,888m²
Portion B	6,715m²	1:1	6,715m²

Economic analysis indicates that the site can support 3,500m² to 5,000 m² of commercial / retail floorspace. To ensure an adequate amount of commercial and retail floor space, a minimum provision of 3,000m² of commercial GFA must be provided on the portion of the site that is zoned for mixed use. While no maximum GFA is set, performance criteria within the design guide require that the site function as a local centre within the centres hierarchy. Furthermore, development will be required to satisfy other relevant provisions such as traffic and transport requirements, which will limit the amount of non-residential floorspace achievable on the site. This will be determined and assessed at DA stage.

The intent of the maximum FSR control, working in combination with the maximum Height of Buildings control, is to provide some flexibility in the design of the streets, blocks and public domain, with the gross floor area permitted by the maximum FSR able to be distributed across the blocks to suit the best design outcome. Built form is further controlled through the site-specific Design Guide that includes a number of provisions including building setbacks (see chapters 11.14).

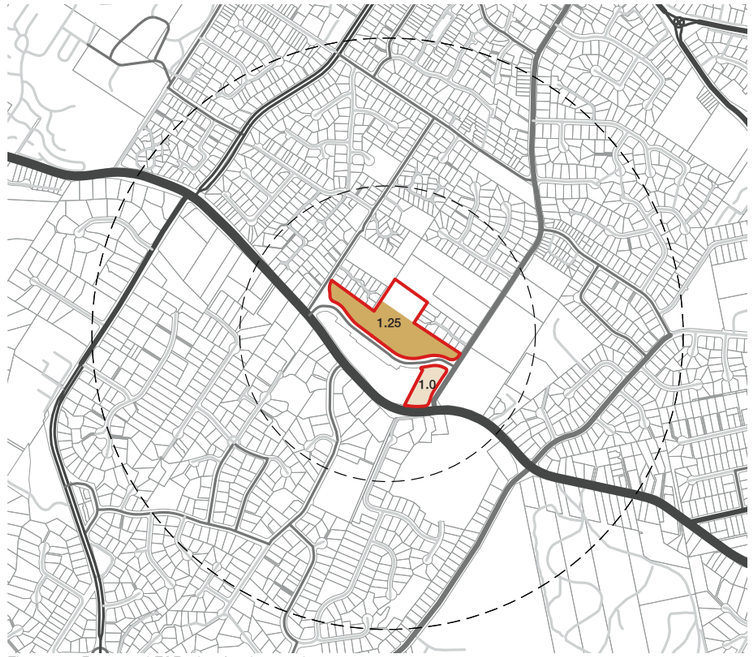


Figure 90: Proposed FSR plan for the precinct



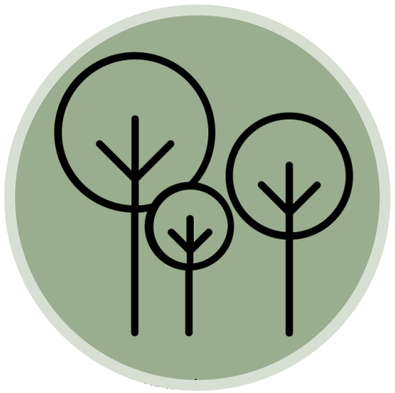
Figure 89: Proposed site FSR plan 1:4,000 @ A3

KEY

- DGL boundary
- Easements
- 1.0:1
- 1.25:1

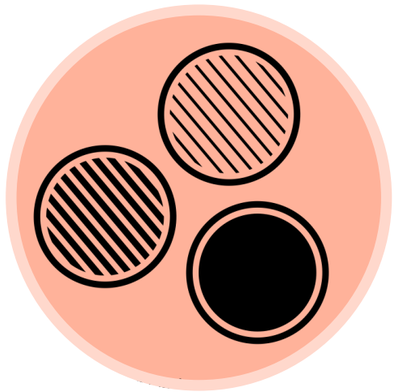
11.5 Public domain and open space principles

Six principles for public domain and open space underpin the development of the site. These principles emphasise a commitment to activation-enabling infrastructure in the public domain, and are key to the successful creation of development that benefits the residents of the future development. They contribute positively to the community, environment and water quality of the broader context.



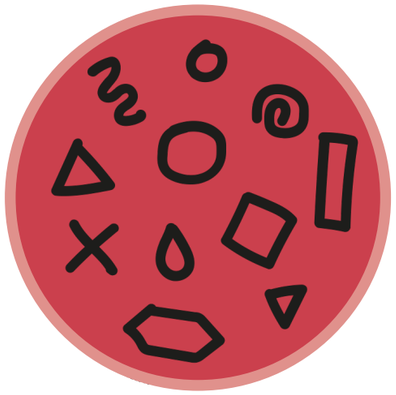
Enclosure

Utilise the site topography, landform and endemic vegetation communities to create a biophilic connection to nature and a sense of enclosure of envelopment in the natural environment



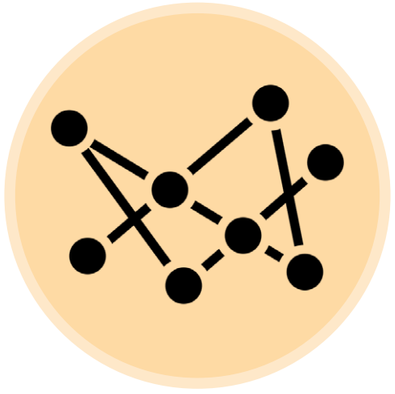
Diversity

Provide a range of landscape and open space typologies to promote the revegetation of endemic vegetation, habitat generation and gathering for a variety of cultures



Gathering

Create a heart for the site allowing a place to bring together vegetation, water and the community, supplemented by high quality public art



Connection

Allow for physical and visual connection to the surrounding context through the provision of pathways for movement, and open space corridors for vegetation and water



Water

Promote the preservation and celebration of natural assets to provide community benefit for the local population.
Provide a closed loop system where water is collected, treated and used on site where possible.



Community

Nurture a sense of ownership by creating a place that belongs to the community. A self sustaining precinct that allows people to live, work and play.

A public realm infused with culture including community events, public art and gathering,

11.6 Open space network

The adjacent diagrams suggest a conceptual open space framework for the broader Cherrybrook Station precinct and illustrates the role of the open space provided within the site. The structuring diagram builds on the Draft Cherrybrook Place Strategy and contains the following features:

- The long term preservation of the protected Blue Gum High Forest as part of multi-function district scale open space corridor stretching northwards from the station and integrated with the open space corridor formed by the electrical easement
- A number of new ancillary passive community spaces connected to the Blue Gum High Forest serving a recreational function
- The creation of a community-focussed community open space associated with the metro station, supported by a public arts and activation strategy
- The expansion of Robert Road Park as indicated in the Place Strategy
- Green tree-lined streets
- Local, finer grain green through-site link connections for pedestrians along drainage lines and creeks
- Green street interfaces with buildings set back from the street with a landscaped verge
- Deep soil and on site tree planting capable of delivering at least 25% tree canopy cover, subject to consideration of bush fire protection measures contained in Planning for Bush Fire Protection (NSW Rural Fire Service (RFS), 2022)
- The provision of private and communal open space within the development in the form of communal gardens and rooftop terraces



Figure 111: Potential green network for the broader structure plan area

KEY

- DGL boundary
- Multi functional open space corridor
- Environmental open space
- Existing green open space
- New recreational open space
- Connecting open space
- Green treelined Streets
- Green connections for pedestrians and cyclists

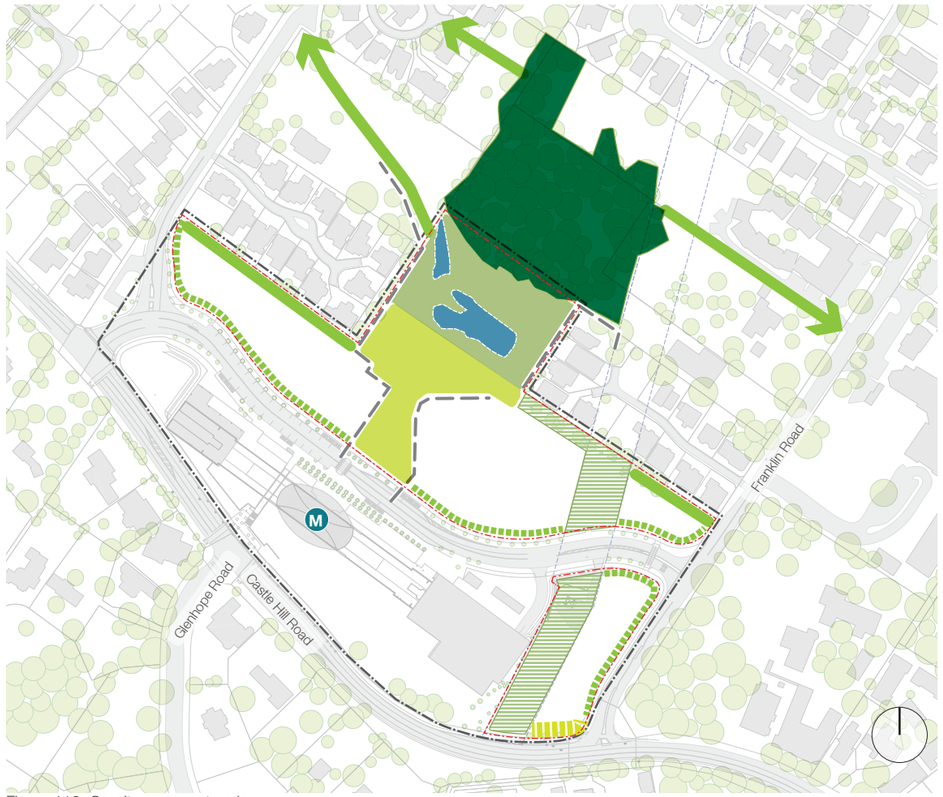


Figure 112: On-site green network

KEY

- DGL boundary
- Central open space corridor
- Blue Gum High Forest
- Ecological Park
- Pond
- Community open space
- Connecting open space
- Future green connections beyond the site
- Green street interface
- Private open space edge

11.7 Water management and sustainable urban drainage

The water management and drainage proposal for the SSP has been prepared by Royal HaskoningDHV 2022.

Where possible, the landscape proposal seeks to utilise landscape elements for drainage to minimise the need for excessive services and to leverage the benefit water can have for this site. All water is to be captured and treated on site.

Key moves outlined within the storm water concept and reflected in landscape proposals include:

- Consolidating stormwater retention and quality management in the centre of the site through the redesign of the existing detention basin / pond
- Increase the volume of the detention basin to accommodate increased run off from the precinct
- Formalise drainage lines on northern boundaries as swales or rain gardens
- Maximise permeable surfaces on deep soil areas to encourage infiltration
- Utilise existing drainage line to north and west of the site for overflow
- Any additional capacity for stormwater to utilise in ground tanks located within the electrical easement zone

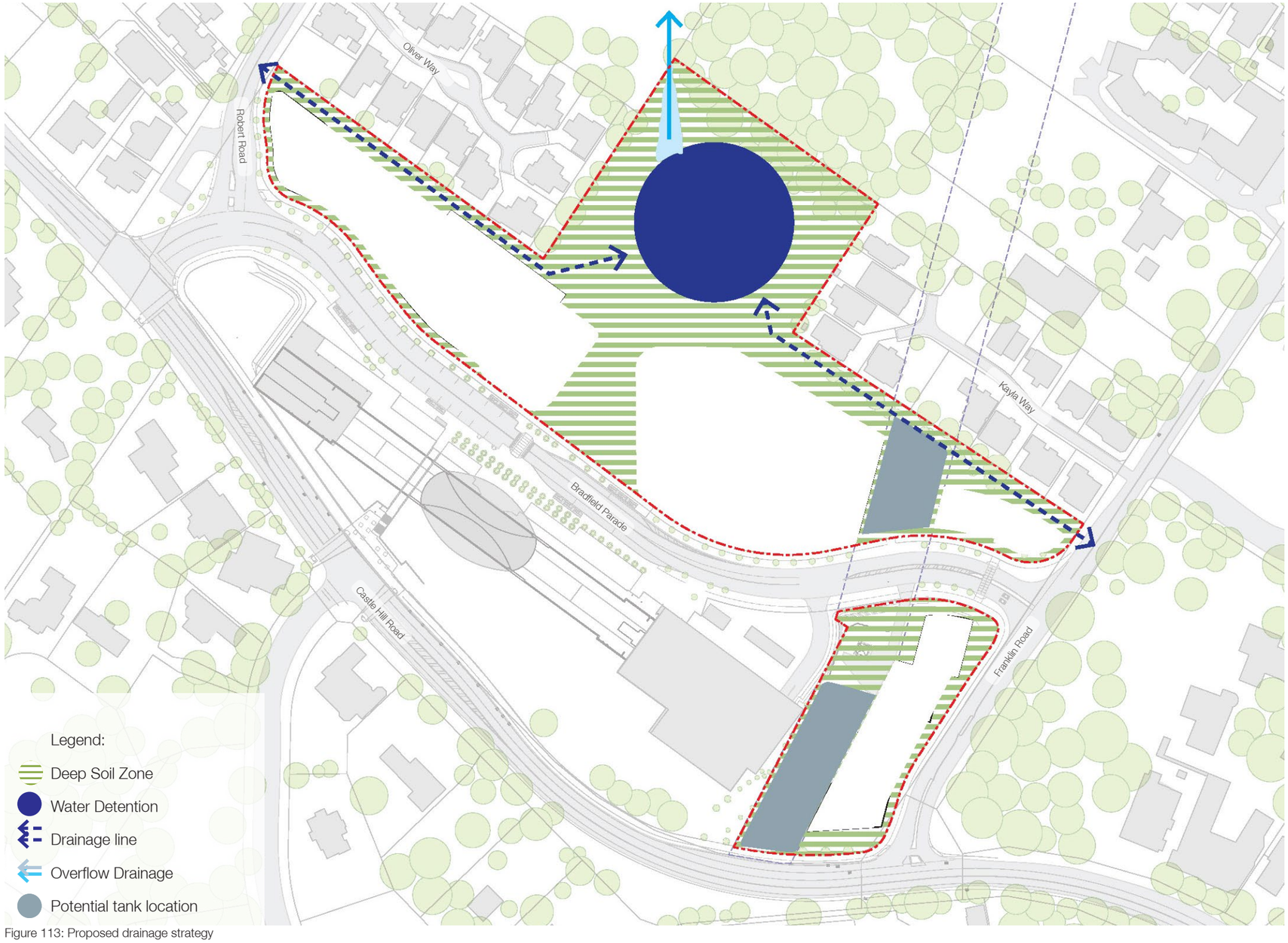


Figure 113: Proposed drainage strategy

11.8 Deep soil

The Apartment Design Guide outlines the purpose of deep soil zones on site to support healthy plant and tree growth. Deep soil promotes larger tree canopies, improves residential amenity and promotes management of water through by proving opportunities for infiltration and air quality.

The Hornsby Shire Council Draft Urban Forest Strategy recommends, at a minimum, deep soil area must support the size of current or future tree canopy for the lot. Ideally the are of deep soil should amount to one-third the size of the future canopy area. Given that the extent of tree canopy within the site will need to be managed to address bushfire risk, the extent of deep soil that will be provided on site will be negotiated between Landcom, RFS and Council.

Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees. Design solutions may include:

- basement and sub basement car park design that is consolidated beneath building footprints use of increased front and side setbacks
- adequate clearance around trees to ensure long term health
- co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil

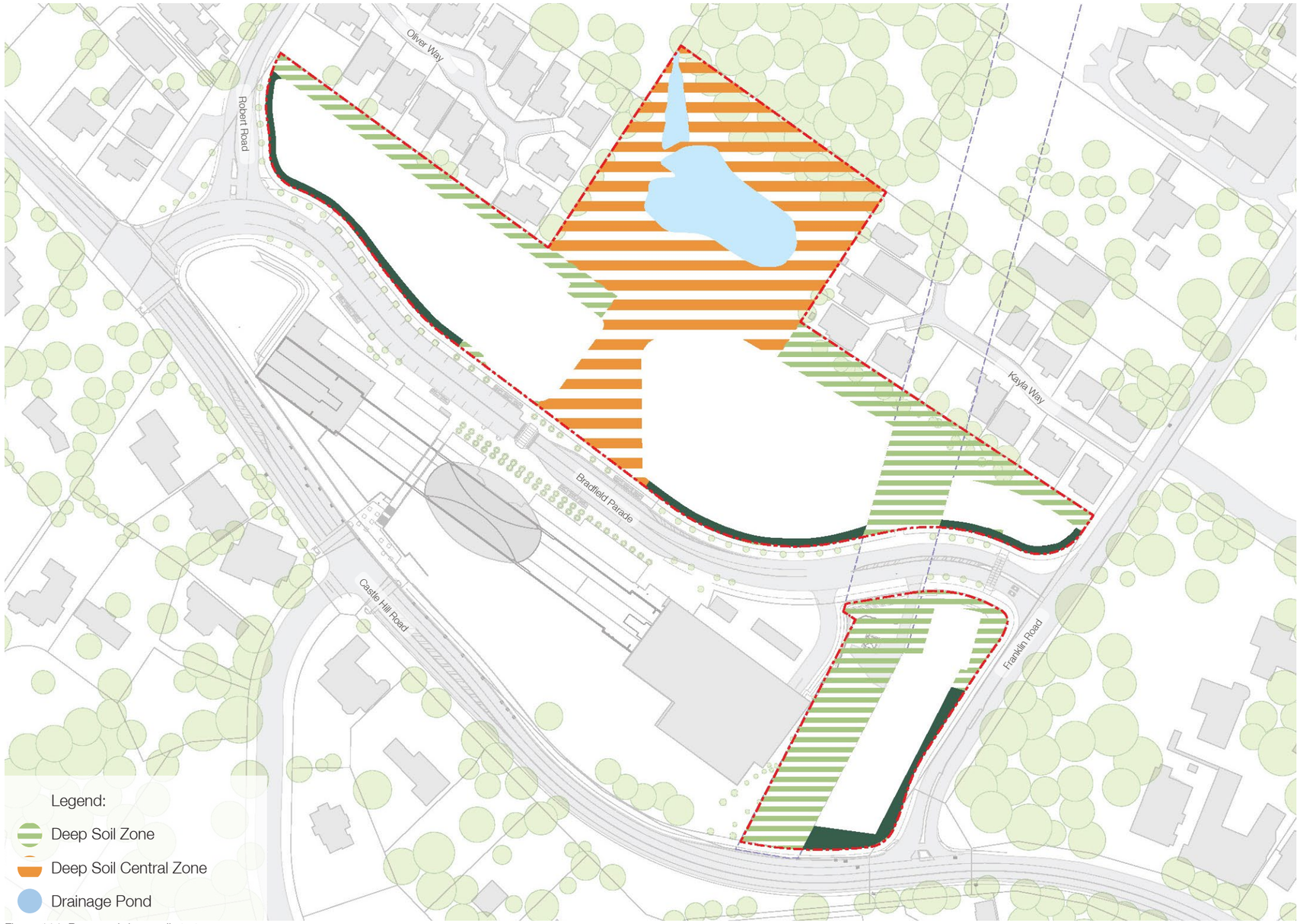


Figure 114: Proposed deep soil strategy

11.9 Tree and planting strategy

The landscape proposal for the SSP site will contribute to the Premiers Priority to “Increase Canopy and Green Cover across Greater Sydney by planting one million trees by 2022”. This project has the potential to exceed the targets set by the draft Greener Places Guide, which requires a minimum of 25% tree canopy cover. However, as the site is located on bushfire prone land, prior agreement will need to be reached with Council and RFS if tree canopy is to exceed 15%. Future proposals should deliver a minimum of 25% tree canopy cover, subject to meeting bushfire protection measures as set out in the PBP 2022 which could limit coverage to 15%.

Trees will be utilised in a variety of ways across the site including as:

- Revegetation of Blue Gum High Forest in open space areas
- Formal planting of trees in a public plaza
- Trees on slab in communal landscape spaces
- Trees in setbacks (minimal dimensions)

Noting in all instances outlined above, there should be a preference for species selection to be non-flammable.

Through the central open space spine of the site, a graduation of the Blue Gum High Forest species should be utilised to create connection from the station and street to the remnant vegetation patch at the north of the site.

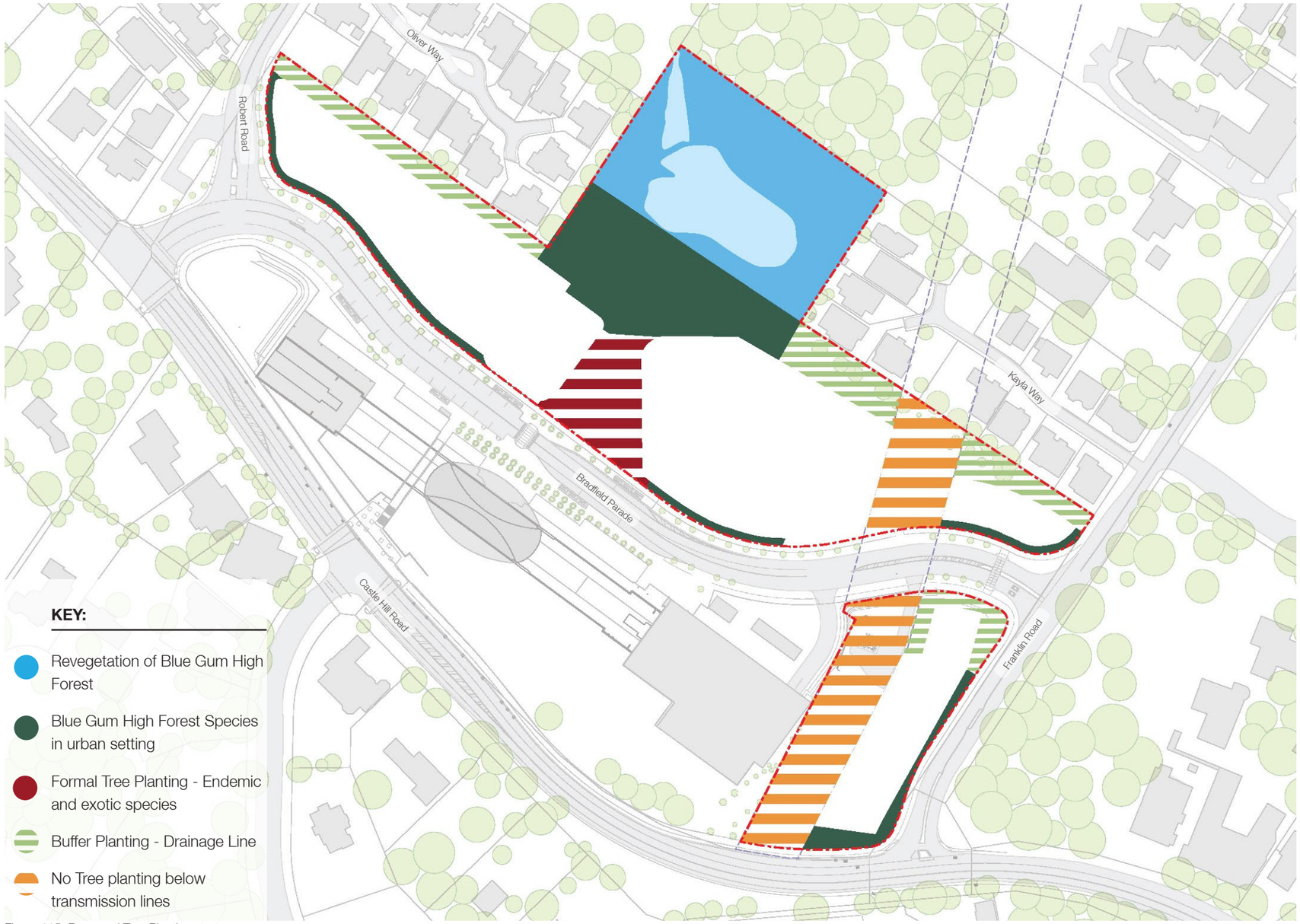


Figure 115: Proposed Tree Planting strategy

11.10 Open Space Typologies

A variety of landscape typologies of varying scales and use must be provided within the development. This will ensure diversity of options for the residents and visitors within the site and result in an engaging and functional setting for the development.

Landscape typologies appropriate for this site are listed below.

- Community Open Space
- District Open Space - Environmental Open Space
- Buffer landscaping
- Communal landscape - Residential / Community Garden
- Private Open Space

Specific considerations and opportunities for each typology are outlined on the following pages.



Intended for use by the local community, an urban community open space can provide an extension of the station forecourt and supplement this with amenity such as retail, cafés and restaurants etc. It provides a clear transition in to the site inviting all into the heart of the development and connect to the site beyond.

Considerations could include:

- An active open space edged by community, retail or commercial uses
- Opportunities for outdoor dining
- Public art integrated into the design
- Level changes that ensure universal access and a positive relationship with adjacent land uses at ground floor level
- Generous path connections
- Open sight lines through the site to open space and existing trees beyond
- Integrated seating in all urban elements including level changes
- Formal Tree planting with associated seating
- Permeable surfaces to encourage infiltration into deep soil
- Decks/ stages that help create focal points for events



Intended for use by the local community, the provision of a breakout space connected to a community facility will allow for community gathering and events. The space can be predominantly soft scape and provide amenity such as playgrounds.

Considerations could include:

- Spaces for outdoor performance / sitting
- Formal play facilities
- Outdoor dining
- Generous tree canopy
- Permeable surfaces to encourage infiltration into deep soil
- Water Play
- Public art
- Lighting
- Publicly accessible toilets (within the development)



Leverage the existing drainage basin to allow it to be an asset for the development and community. The basin is to be adjusted to accommodate increased water requirements, and in doing so can become more natural in form with opportunities for nature play, revegetation, community amenity etc

Considerations could include:

- A naturalise edge to the drainage basin
- Formal path connection to basin - transition from urban to natural
- Integrated nature play and picnic facilities
- Tree planting to celebrate endemic vegetation and supplement the existing Blue Gum High Forest that exists adjacent to the basin

BUFFER



Shout Ridge at Crimson Hill, Lindfield, NSW

Buffers existing at the periphery of the site, along roadways and as setback to buildings. They present an opportunity for vegetation and softening of the development. The buffer spaces largely exist on deep soil and as such should maximise tree canopy coverage where possible.

Considerations could include:

- Reducing the visual dominance of the building on the public domain through appropriately sized soft landscape
- Retaining and enhancing the character of the street through soft landscape and edge transition
- Environmentally sensitive planting, utilising areas for deep soil for significant tree planting and biodiversity.
- Maintaining views and natural surveillance
- Considering side and rear interfaces with neighbouring properties and their adaptability for potential future development / landscaping

COMMUNAL OPEN SPACE - COMMUNITY GARDEN



Metcalfe Park, Rymont, NSW

Provision of spaces for community gardening can nurture a sense of community and ownership within the landscape. This could be small scale initially with the ability to expand as needed.

Considerations could include:

- Raised garden beds
- Storage facility for tools
- Low scale buffer planting for privacy to adjacent residents
- Maximising permeable surfaces

COMMUNAL OPEN SPACE - RESIDENTIAL



Quartet, Lane Cove, NSW

Communal open space acts as an extension of the building's living space, offering flexible opportunities for passive and active recreation for residents.
Communal open space should provide gathering spaces with amenity for entertaining and play, open space for recreation, good solar access, natural ventilation and deep soil areas for significant tree and mass planting.

Considerations could include:

- Maximising tree planting for deep soil
- Raised planting for trees and other soft landscape when located on slab
- Ensure privacy between semi-private and private areas
- Consider location of noise generating activities away from residential areas

PRIVATE OPEN SPACE



Eve, Erskineville, NSW

Private open spaces should be integrally connected to the apartment's main living spaces, functioning as an extension of internal living areas. They offer an opportunity for external connection and outdoor living

Considerations could include:

- Private courtyard spaces adjacent to communal spaces to provide a high level of privacy
- Maintain opportunities for visual connection and outlook to adjacent spaces
- Private open spaces can often have a direct relationship with the public domain but should be clearly defined as private
- Maximise planting in public areas adjacent to private open space to ensure maintenance and privacy can be controlled

11.11 Pedestrian and cycle access

The movement principles for the precinct are based on the Movement and Place objectives for streets around public transport interchanges. As such, Bradfield Parade is seen as having a greater Place function and the Movement function of Castle Hill Road is protected and enhanced through road upgrades.

Being located directly opposite the metro station the sequence of open spaces and built form should be arranged to deliver through-site links that, in the longer term, will improve permeability and ensure future integration within the broader precinct, prioritise access by public transport and access to the station by pedestrians, cyclists and other active mobility users. Currently there are no dedicated cycle facilities within the broader catchment of the station and future connections are likely to be shared cycle and pedestrian paths.

The following principles are proposed:

- New universally accessible connections through the site must be provided from the station northwards and should be integrated with the proposed new library and retail development and should be accessible 24/7. This will ensure improved future pedestrian and cycle permeability and access to the station bus stops and local destinations (schools and community facilities) around the Blue Gum High Forest and along the creek link towards Robert Road
- All communal circulation cores should be universally accessible and clearly visible from the street
- All ground floor units must have direct access from the street, public domain or open spaces
- Manage access to the environmentally sensitive and protected Blue Gum High Forest through landscape design and signage

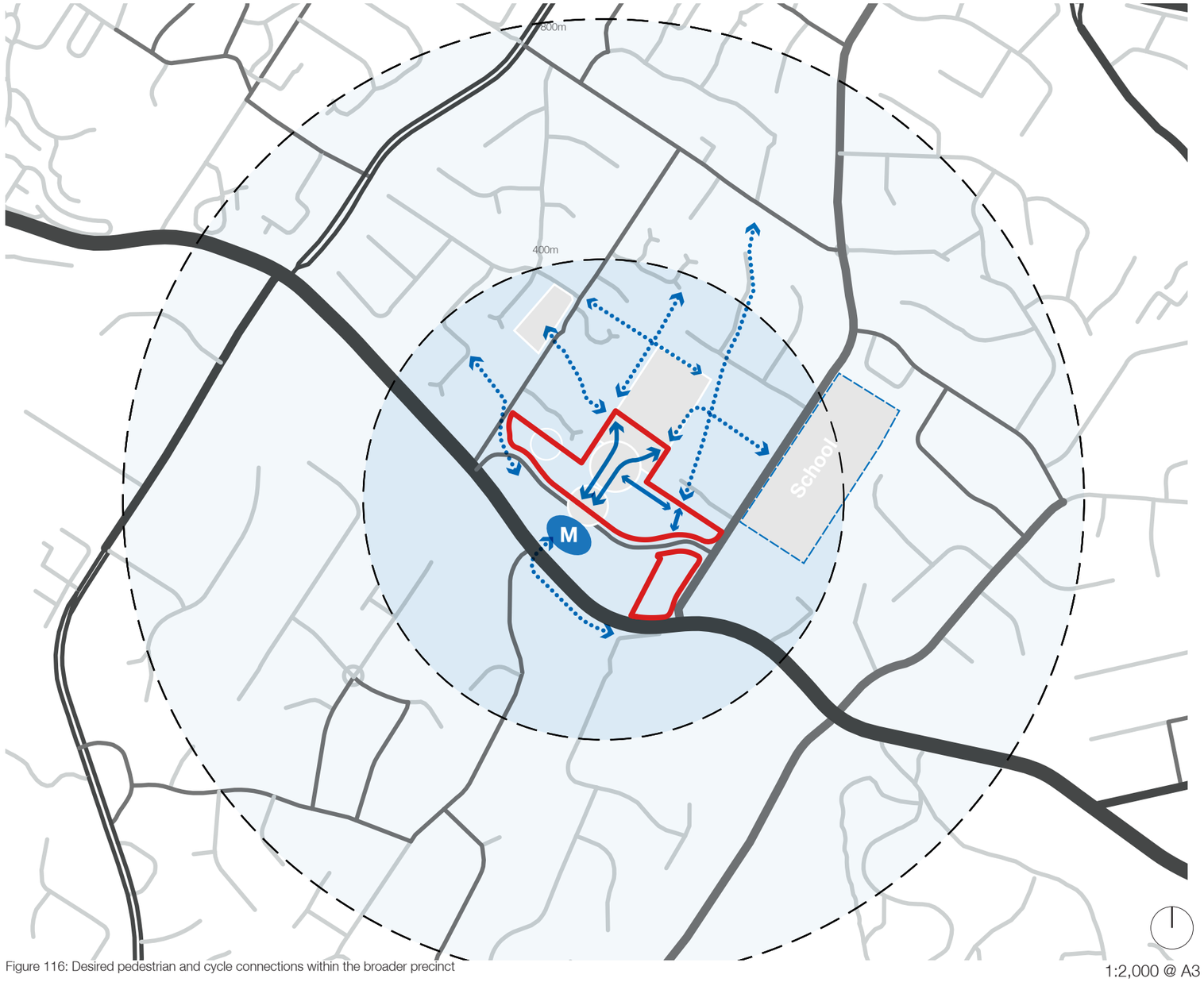
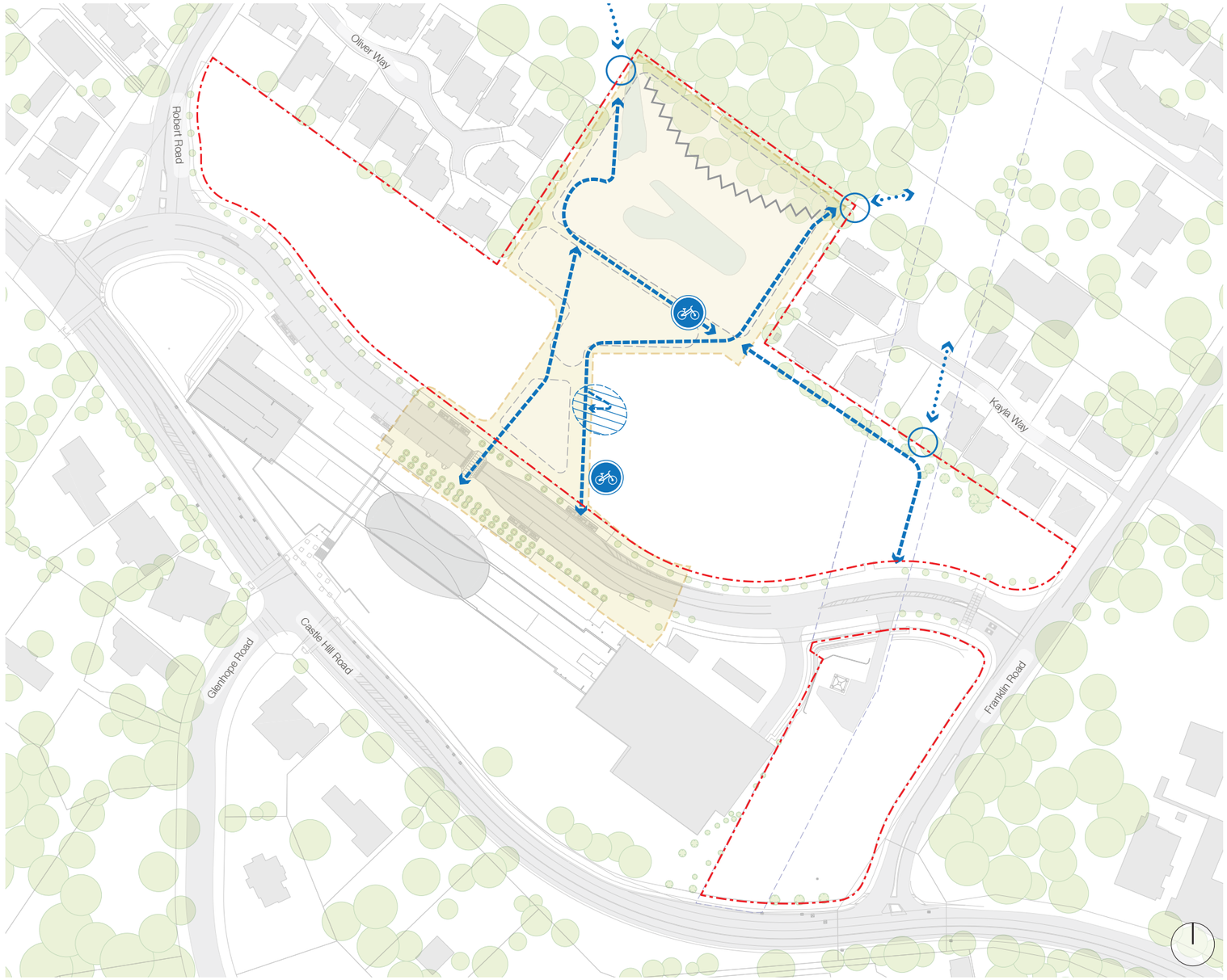


Figure 116: Desired pedestrian and cycle connections within the broader precinct

1:2,000 @ A3

- Secure, parking should be provided for bicycles that is easily accessible from both the public domain and common circulation areas
- Bicycle parking for the development should be provided according to the following table:

Residential	Min
Minimum	1 space per 3 units
Visitor	1 space per 10 units
Non-residential	1 space per 600m^2 GFA



KEY

- DGL boundary
- Central public domain
- Key pedestrian through site links
- Future connections
- Potential public cycle parking locations
- Level transition to be integrated with the design of the retail / community hub and accessible 24/7
- Limited access to the Blue gum forest through landscape design

Figure 117: Pedestrian connections and bicycle parking

1:2,000 @ A3

11.12 Vehicular access and servicing

Vehicular access and servicing must be designed to improve the experience of the precinct, minimise conflict and improve levels of safety. As such:

- Vehicular access is limited to the access points indicated on Figure 118
  - 1: Access for residents and the servicing of commercial units on portion A
  - 2: Main access for visitor and residential parking as well as for the servicing of non-residential uses on portion B
  - 3: A single access point from Franklin Road
- Public parking for community and retail uses should be conveniently located to support such uses
- Residential car parking should be separated and secure from public / visitor parking. The may be separated internally within the building
- No on-street servicing is permitted. Basements must be designed with appropriate clearances to accommodate large service vehicles and removal vehicles
- Reduced car parking provision is encouraged and car space spaces should be provide at a rate of 1:150 car spaces for residential and 1:80 spaces for commercial / community
- Car parking should be provided as per the following table

Residential	Max
1 Bed	0.4 bay per unit
2 Bed	0.7 bay per unit
3 Bed	1.2 bays per unit
Visitor	0.14 bays per unit
Retail / non residential	1/70m²

- 10% of car parking spaces should be provided with dedicated electric vehicle charging points

KEY

- DGL boundary
- Cherrybrook Station Government Land State Significant Precinct (SSP)
- Central public domain
- Lots / basements
- Vehicular access points
- Internal circulation

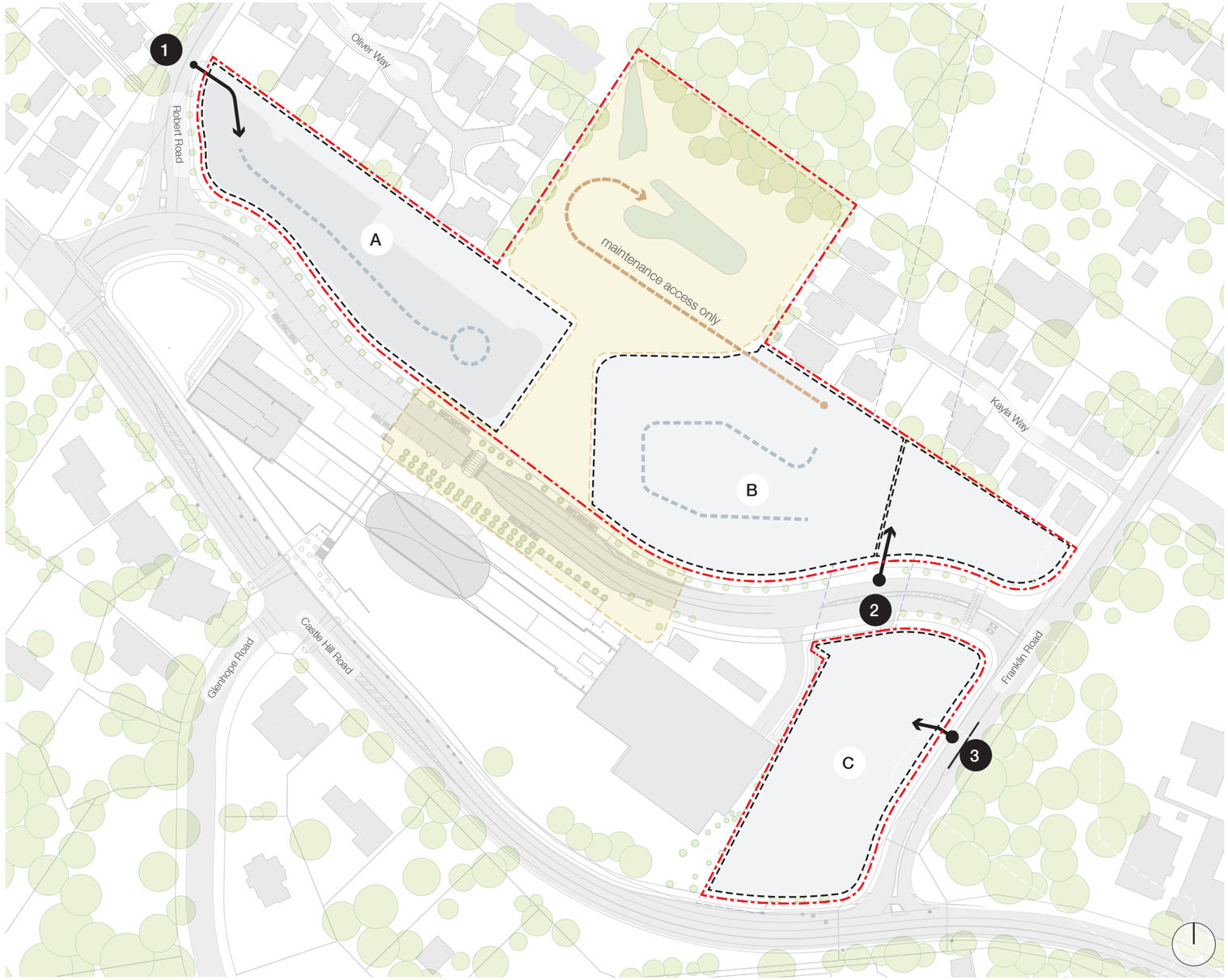


Figure 118: Vehicular access and servicing plan

1:2,000 @ A3

11.13 Active frontages, building interface and setbacks

Building interface and setback conditions should be appropriate to the intended use and seek to contribute positively towards the green character of the precinct. As such:

Active frontages

- Buildings fronting onto the Community Open Space must have an active retail / community ground floor use
- Larger units and car parking must be sleeved by active uses (small retail tenancies or residential uses) or screened by landscape
- As far as is practical the primary lobbies of apartment buildings should have an address on a street or land and this entry must be clearly visible from the street
- The ground floor level of residential units fronting onto Bradfield Parade may be raised by a maximum of 1m above the level of the footpath to ensure privacy for residents
- Residential interfaces must be provided to the northern boundary of the site

Setbacks

Street setbacks

- Where active frontages are required buildings should be set back from the property boundary by a minimum of 1m
- Where the retail uses are likely to be eating and drinking establishments the ground floor should be set back by 3m to allow for opportunities for outdoor dining without compromising the width of the public domain
- Where residential uses are proposed buildings should be set back from the street boundary by a minimum of 3m with the setback landscaped as deep soil and with the first 1m of the setback maintained to ensure the consistent treatment of the interface as a soft green edge
- Basement car parks may be located within the 3m street setback zone when:
  - the first 1m of the setback is designed, landscaped and maintained by as deep soil zone;
  - portions of the building above the car parking level are set back by at least 3m; and
  - buildings are set back from the rear boundary by more than 15m to deliver a more consolidated portion of deep soil
- Buildings along Castle Hill Road must be set back from the street boundary by 10m to provide a green landscaped edge that can assist in noise attenuation

Common boundary setbacks

- Setbacks from rear or common boundaries should set back as illustrated on Figure 119

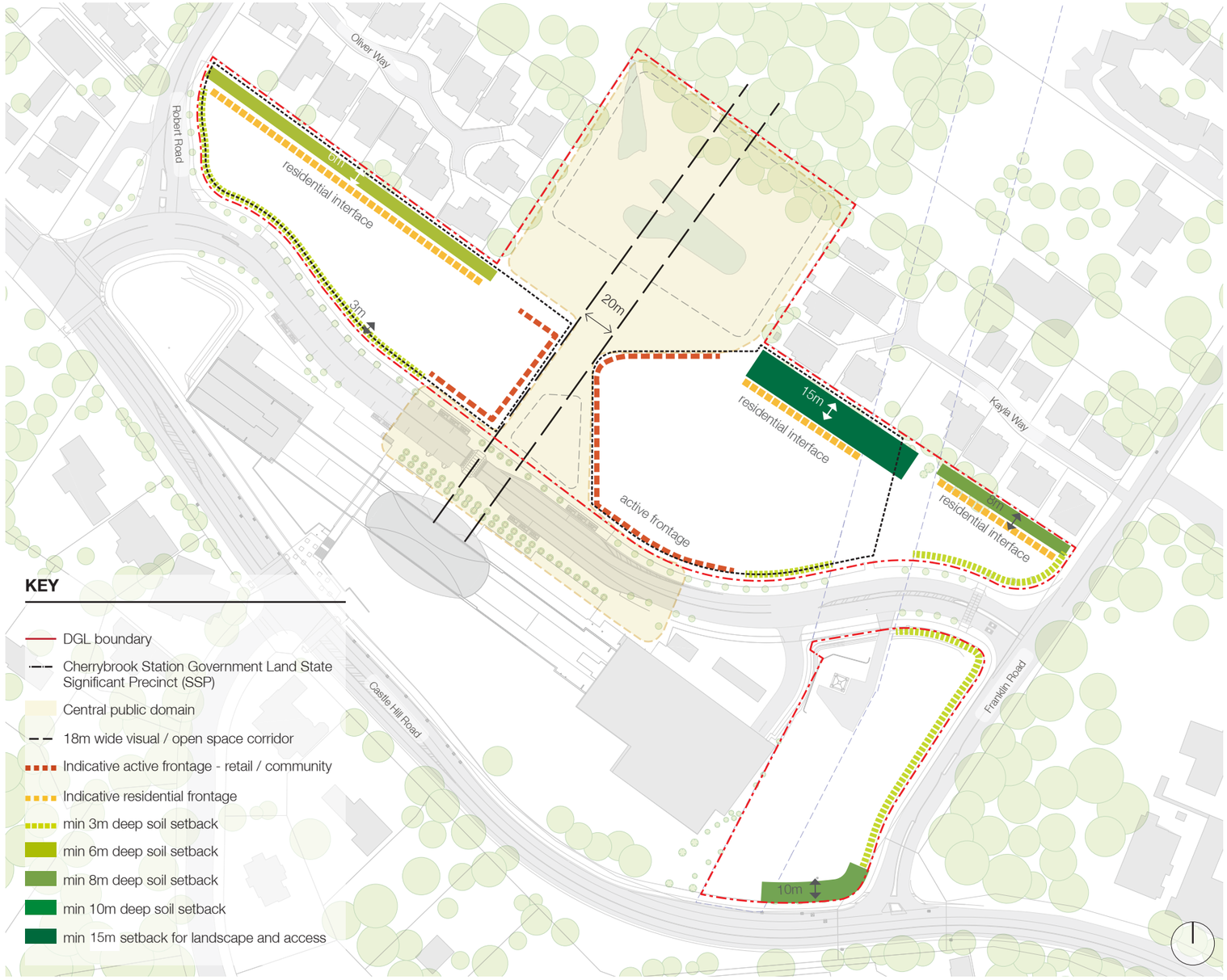


Figure 119: Proposed active frontage and setbacks

1:2,000 @ A3

Typical street frontage conditions

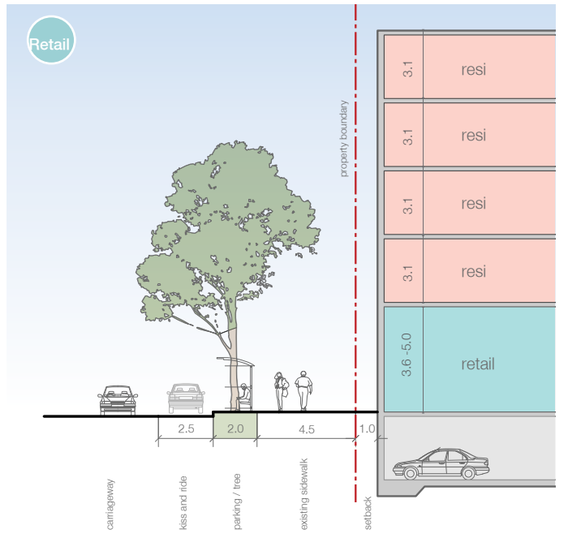


Figure 120: Urban condition with retail / commercial at ground floor - 1m setback and no outdoor dining

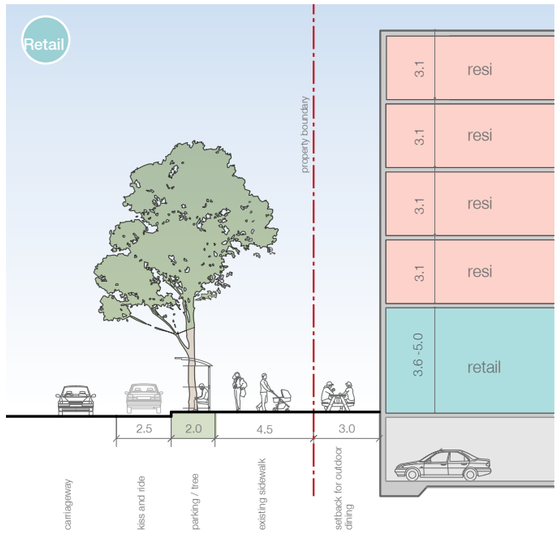


Figure 121: Urban condition with retail / commercial at ground floor - 3m setback for outdoor dining

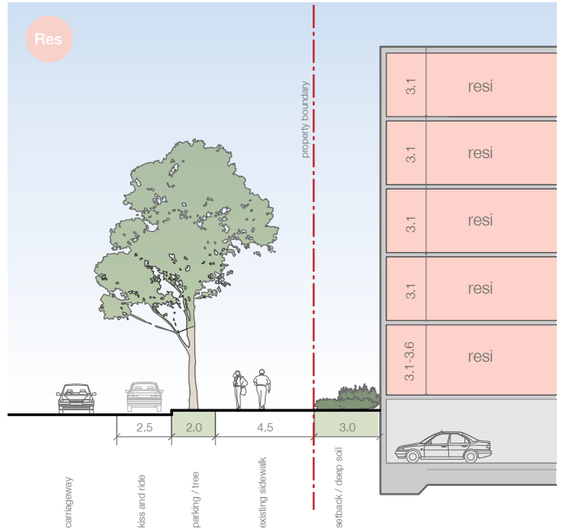


Figure 122: Typical residential setback - 3m deep soil setback

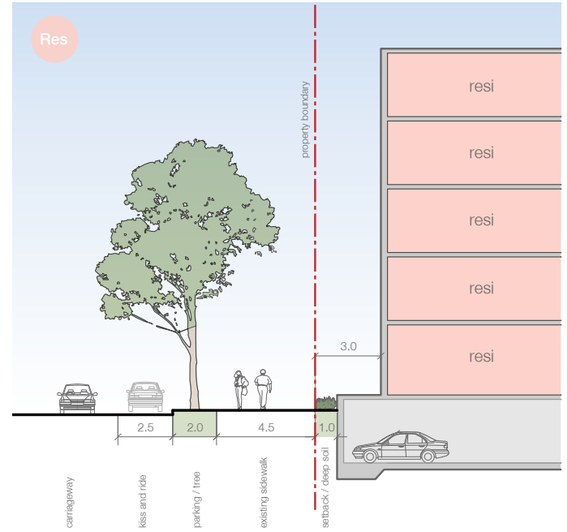
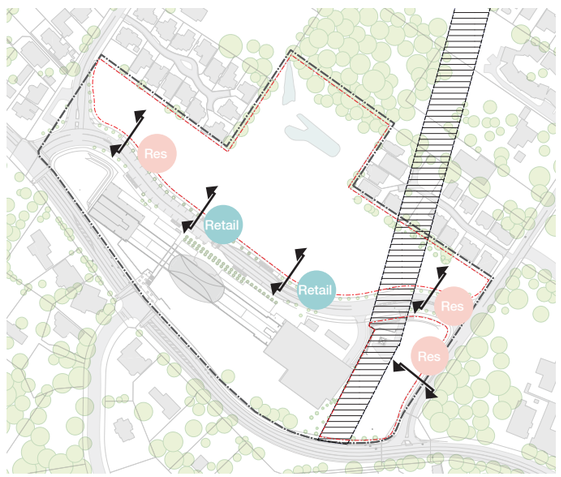


Figure 123: Residential setback where deep soil is consolidated at the rear of the site - 1m deep soil setback for basements with buildings set back 3m



8.2 Building heights

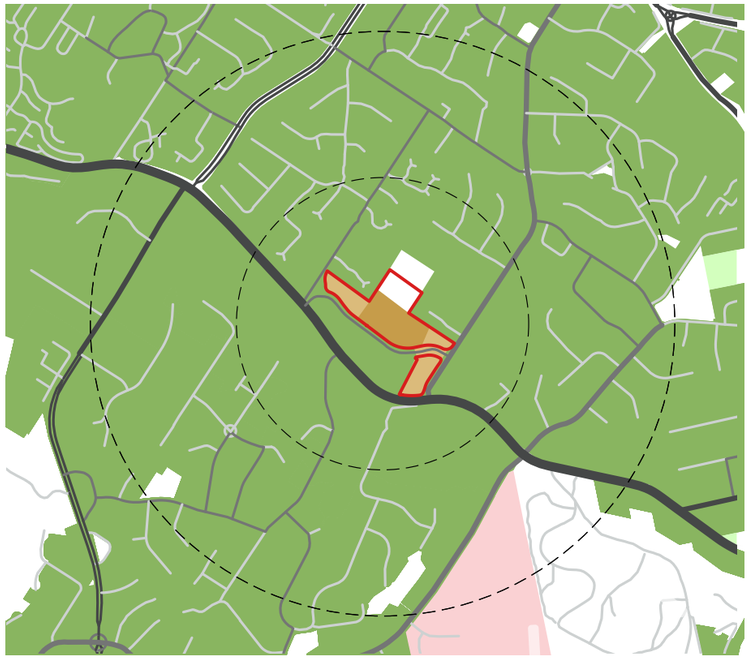


Figure 91: Potential LEP Height of Buildings plan for the precinct in alignment with the Draft Cherrybrook Place strategy currently out on exhibition

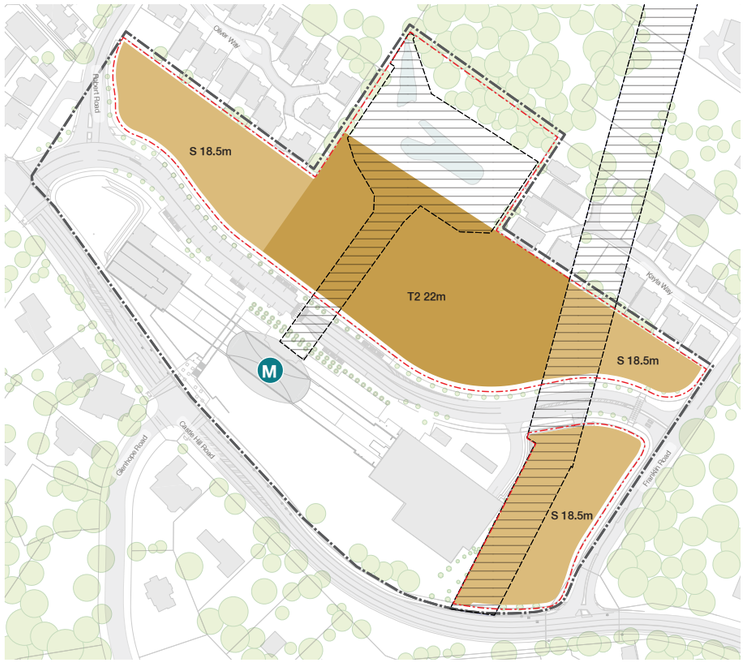


Figure 92: Proposed Site LEP Height of Building Plan

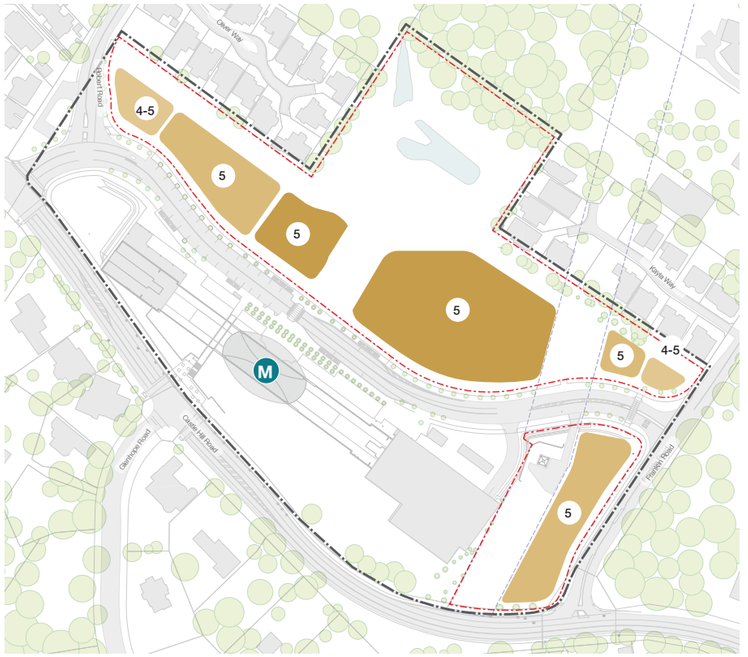


Figure 93: Proposed Design Guide height controls with storey heights

To create a more village-like character and demonstrate consistency with the heights and built form character proposed in the Cherrybrook Place Strategy. This is based on the following principles:

- Buildings to be a maximum of five storeys, when viewed from Bradfield Parade, with the potential for an additional storey at lower ground level in the centre of the precinct (when viewed from the north) to activate the pond and community gathering space
- Allowance for some variation in buildings height to accommodate level changes across the site, more generous floor to floor heights for ground floor apartments to deliver improved amenity (up to 3.6m) and a 2.5m lift over run. A maximum buildings height for residential flat buildings of 18.5m is proposed (see adjacent table).
- A maximum height of 22m is proposed for mixed use buildings within the B4 zone in the centre of the site where retail / community uses are accommodated at ground floor (This makes provision for a 5m floor to floor height and an allowance for the sloping site to allow for the activation of the community gathering space and the pond level)
- Buildings form around the community open space must be articulated to ensure that 50% of the area of the community open space receives more than 3 hours of direct solar access between 9am and 3pm at winter solstice (21 June)
- Buildings on the eastern and western extremities of the site should be reduced in height to approximately four storeys

Storeys (No.)	5	5
Building type	RFB (R4 zone)	MU (B4 zone)
Lift overrun (m)	2.5	2.5
Four typical residential floors (assumed 3.1m floor to floor)	12.4	12.4
Ground floor (m floor to floor)	3.6	5
Allowance for level change		1.5
Calculated (m)	18.5	21.4
For LEP (m)	18.5	22

KEY

- DGL boundary
- Cherrybrook Station Government Land State Significant Precinct (SSP)
- Easements
- 22m - up to 5 storeys when viewed from Bradfield Parade (mixed use within the B4 zone)
- 18.5m - up to 5 storeys (residential
- 3-5 Potential storey height range

11.15 Built form massing and articulation

To further guide the articulation of built form the following principles are proposed:

Buildings should be articulated and oriented to;

- take advantage warm northerly light and solar orientation
- views over the basin
- views of the community open space

Built form should be articulated to avoid continuous wall buildings along Bradfield Parade. As such

- Built form should be broken up into individual buildings with buildings separated by a gap of at least 12m to allow light into the street and views from Bradfield Parade to the tree canopy beyond
- Residential flat buildings should be no longer than 65m in length

Buildings should respond positively to the natural ground level with the maximum change in level between the street / kerb level and the interior floor level of apartments being 1.2m.

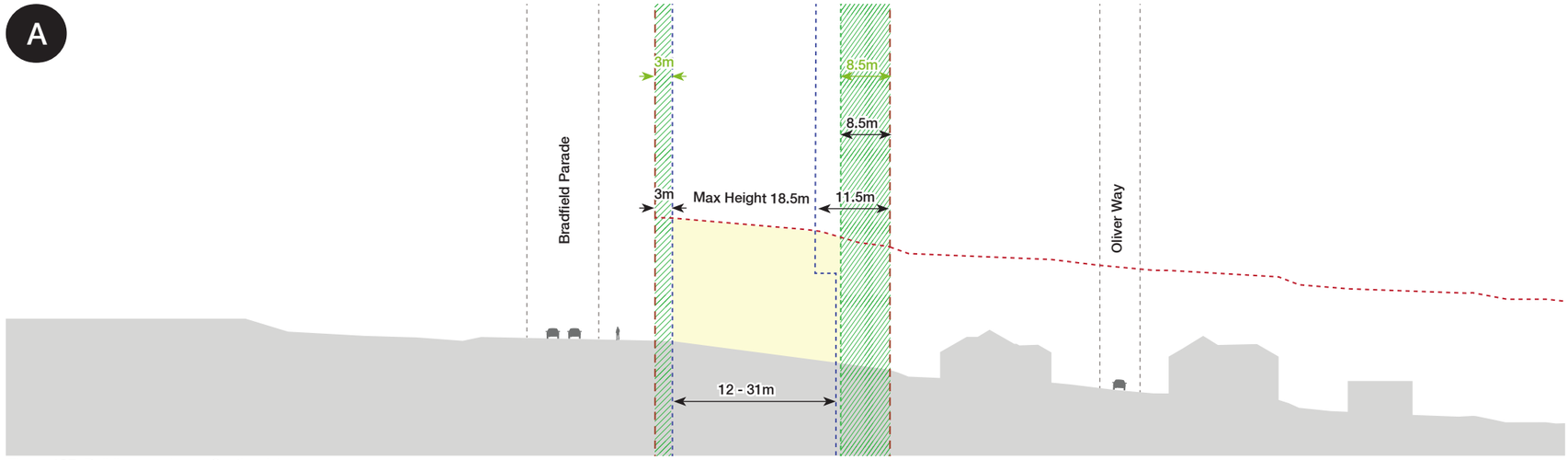
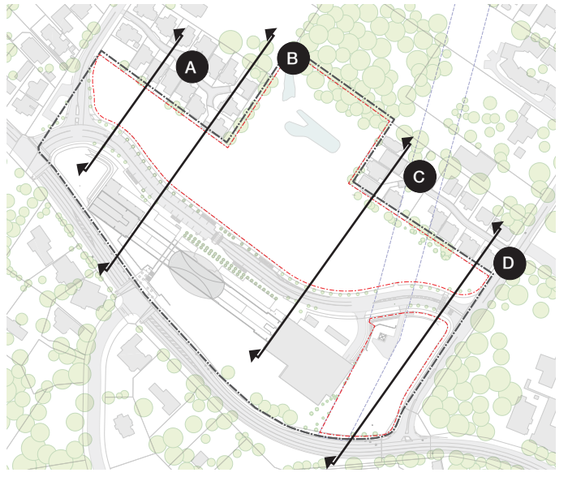
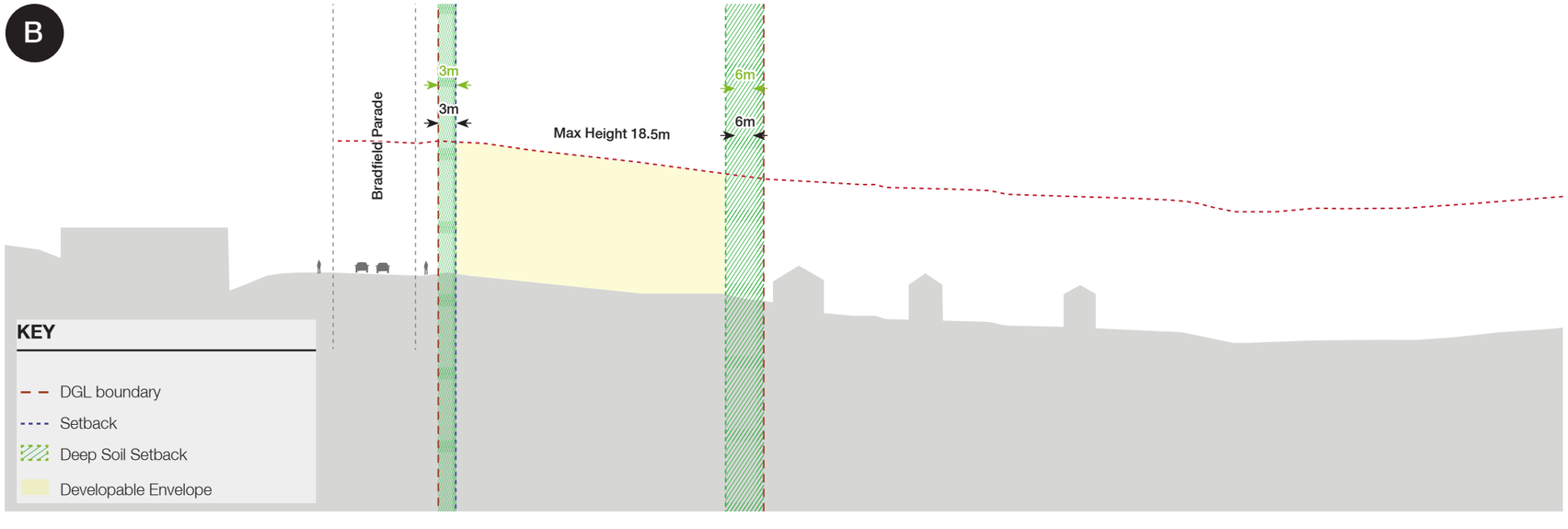
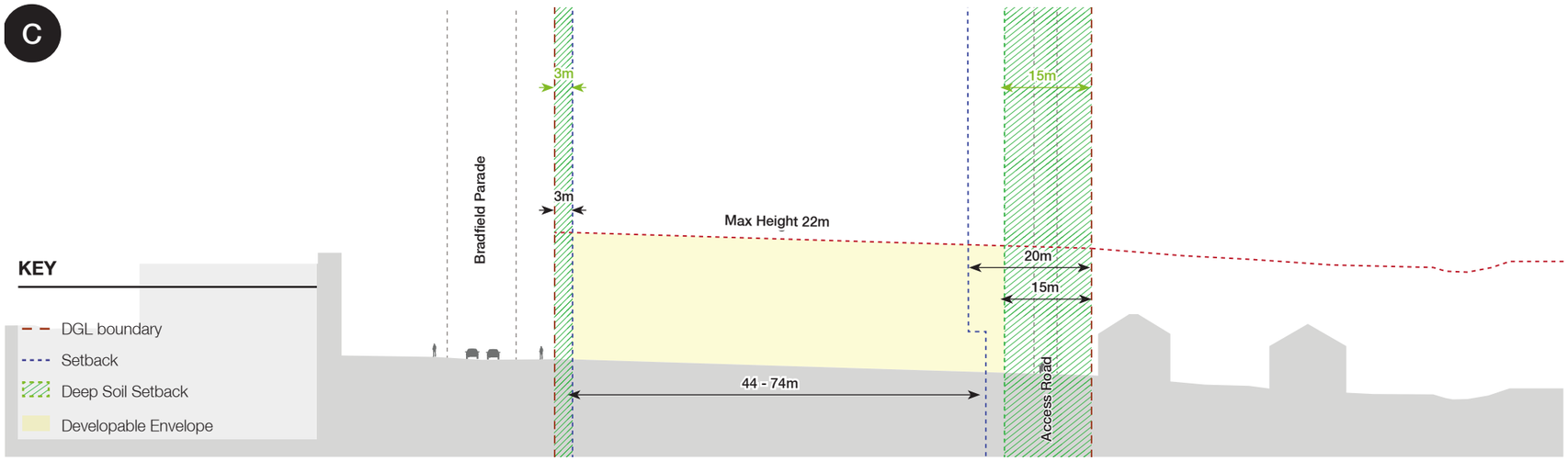
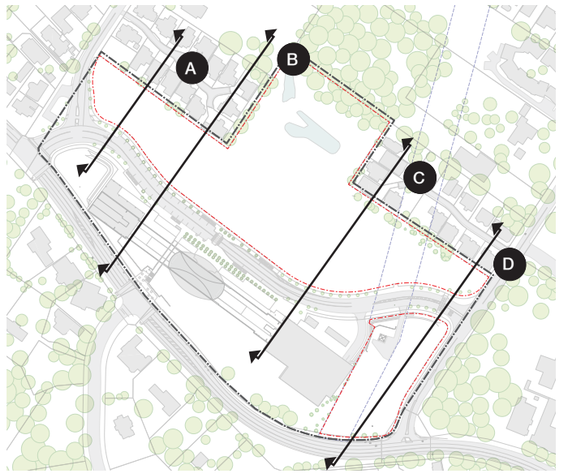


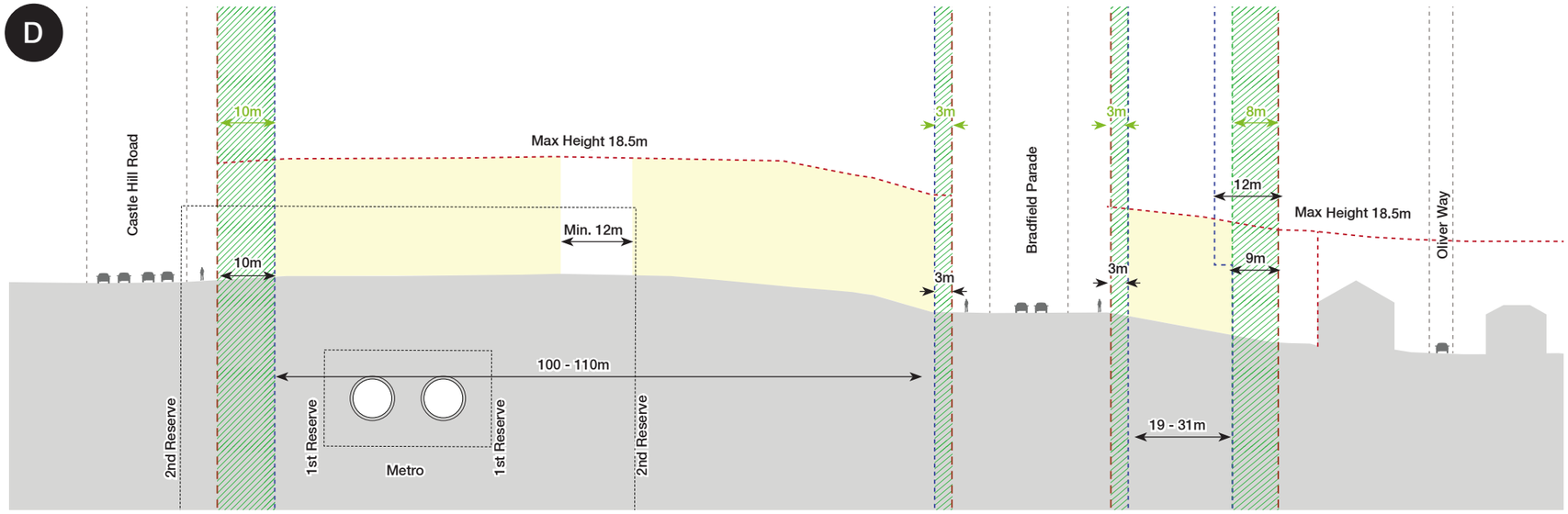
Figure 127: Building envelope - Section AA






C
3m
15m
Bradfield Parade
3m
Max Height 22m
20m
15m
KEY
DGL boundary
Setback
Deep Soil Setback
Developable Envelope
44 - 74m
Access Road


A
B
C
D


D
Castle Hill Road
10m
Max Height 18.5m
Min. 12m
10m
2nd Reserve
1st Reserve
Metro
1st Reserve
100 - 110m
2nd Reserve
3m
Bradfield Parade
3m
3m
8m
12m
Max Height 18.5m
9m
Oliver Way
19 - 31m

The reference scheme

12

This chapter presents a design proposal for the site and justifies amendments to the existing LEP for the site that are sought as part of the State Significant Precinct Application.

12.1 Development concept

DRAFT

The parameters set out above have been tested in the adjacent reference scheme, which is presented in greater detail in the following pages. The reference scheme illustrates how the vision could be delivered and how the built form might materialise based on the proposed Design Guide controls. The scheme, whilst illustrative, provides a high degree of confidence that the development yield proposed in the report is achievable and meets the desired urban design outcomes of the project. It also identifies where attention will need to be paid in the next stage of design (DA submission). In future phases of development, the design of each of the individual building or stage of development will be progressed and tested and the outcome will be enriched beyond what is illustrated in the reference scheme.

The adjacent diagram illustrates the key structuring elements that come together to create a central meeting place for the community and a unique and liveable neighbourhood for residents. The key elements of the reference scheme include:

1. A visual and deep soil and public open space corridor through the centre of the site providing a direct visual connection between the metro station entrance and the Blue Gum High Forest

2. A bow-tie like community public open space that is split over two levels with terraced landscaping and a set of civic stairs joining the two spaces. The community open space consists of:

   2a. A 1,200m2 urban square / village square located at the level of Bradfield Parade that has a 50m open frontage onto Bradfield Parade, abundant tree planting and is edged with active retail frontages

   2b. A 2,300m2 green community gathering space that is designed as a passive recreational open space and transitional lanscape between the community open space, pond and Blue Gum High Forest

3. A 1,300m2 multi functional community hub accessed directly from the village square with it's entrance clearly visible from the metro station. It accommodates a library and multi-purpose community centre and spills out onto the lower level community gathering space

4. A supermarket at the level of Bradfield Parade with integrated vertical transportation linking to basement parking and the pond level

5. An environmental open space around the existing basin that enhances and celebrates the Blue Gum High Forest and integrates sustainable urban drainage around a multi functional pond that provides amenity to residents and visitors

6. A green corridor beneath the powerline easement providing access to the lower level and ensuring green continuity through the site

7. Pedestrian through-site links ensuring potential future precinct wide integration and linkages northwards around the pond and towards the station



Figure 131: Reference scheme concept plan

1:2,000 @ A3

12.2 Illustrative masterplan

Based on the above concept diagram the built form has been arranged to reinforce the village character of Cherrybrook which is composed of detached buildings set within a green and leafy setting. The buildings have been arranged to frame a bow tie-like village square and open space through the centre of the site. Level changes including a series of steps and terraces are used to create a sequence of spaces, each with its own structure, identity and function.

The buildings around the village square are mixed use, with small scale tenancies activating the ground plain. At the upper buildings provide residential accommodation with windows and balconies providing passive surveillance of the square and taking advantage of short and long views of the village square, Blue Gum High Forest and pond. The buildings frame the village square with a consistent five storey street wall, when viewed from Bradfield Parade, and then working creatively with the level changes through the centre of the site, step down to create an additional level of community space and retail floor space at the lower level, activating the pond and community gathering space.

To the east of the village square is a podium type building which allows for the fine grain activation of the village square and Bradfield Parade whilst accommodating a small supermarket and its associated servicing in the depth of the floor plate. This larger footprint also accommodates the community hub, that is split over two levels, with its primary entrance from the village square and a secondary entrance from community open space at the lower level.

Further away from the village square the buildings become more residential in nature, accommodating a mix of apartments in response to the local housing need. While the buildings are connected with a continuous basement, at ground floor level the buildings are treated as individual buildings, each with their own front door and address onto Bradfield Parade. The buildings are spaced 12m apart to allow light into the street and views northwards to the tree canopies beyond.

Parcel	*Area	Res GFA	Units	Retail GFA	Com GFA	Total Parcel GFA	Parcel FSR
A	8,597	12,031	141	749		12,780	1.49
B	9,610	11,924	140	2,452	1,300	15,676	1.63
C	2,574	2,736	32			2,736	1.06
D	6,715	6,621	78			6,621	0.99
	27,272	**33,312**	**391**	**3,201**	**1,300**	**37,813**	**1.39**

Notes:

* Approximate parcel area for calculations only

All calculations derived from GBA volumes of the 3D model
Residential GBA > GFA efficiency: 75%
Non-residential GBA > GFA efficiency : 85%
Average unit size : 85m² GFA - based on 20% 1 Bed @ 50m² NSA, 60% 2 Bed @ 75m² NSA and 20% 3 Bed @ 50m² NSA

Table 03 Development schedule by development parcel

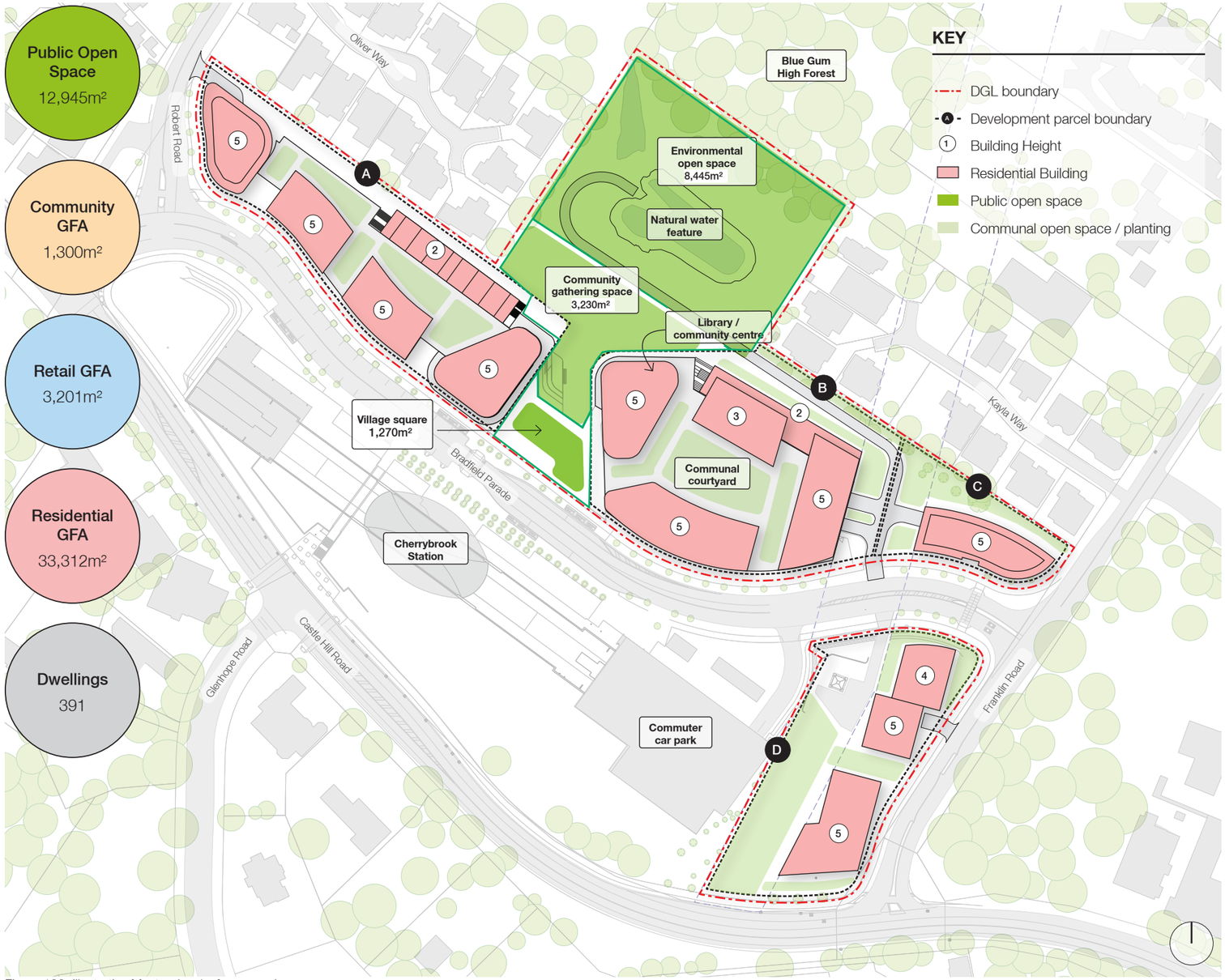


Figure 132: Illustrative Masterplan / reference scheme

1:2,000 @ A3

The reference scheme



Figure 130: High level view of the reference scheme from the north (image indicative of future development)



Figure 131: View of the reference scheme showing the village square looking towards the proposed library and community hub (image indicative of future development)



Figure 135: View of the lower level community space from the village square looking towards the pond
(image indicative of future development)



Figure 136: View of the environmental space and pond looking up towards the station, with the library in the foreground (image indicative of future development)

12.3 Conceptual landscape plan

The Conceptual Landscape Master Plan for this site seeks to emphasise and support the unique character of Cherrybrook, while creating useable, dynamic amenity for residents and visitors to the precinct. The role of the public domain and landscape for this site include:

- to establish a clear Identity for the site
- to revegetate the Blue Gum High Forest
- to improve Biodiversity through habitat creation
- to promote Permeability and movement through the precinct
- to provide Amenity for residents and visitors to the precinct

To achieve this, the key moves include to:

- Maintain a clear open public spine at the centre of the site that facilitates connections between the station and broader Cherrybrook precinct
- Create a gradient of experience from urban to natural moving from the station to the Blue Gum High Forest.
- Maximise tree planting on deep soil
- Provide amenity for residents in communally accessible landscape spaces
- Create a clear address and encourage street activation by locating private open space and individual entry points directly from the public domain
- Provide private open space for residents amenity with privacy from communal and public spaces.

These design outcomes will be explained over the following pages.

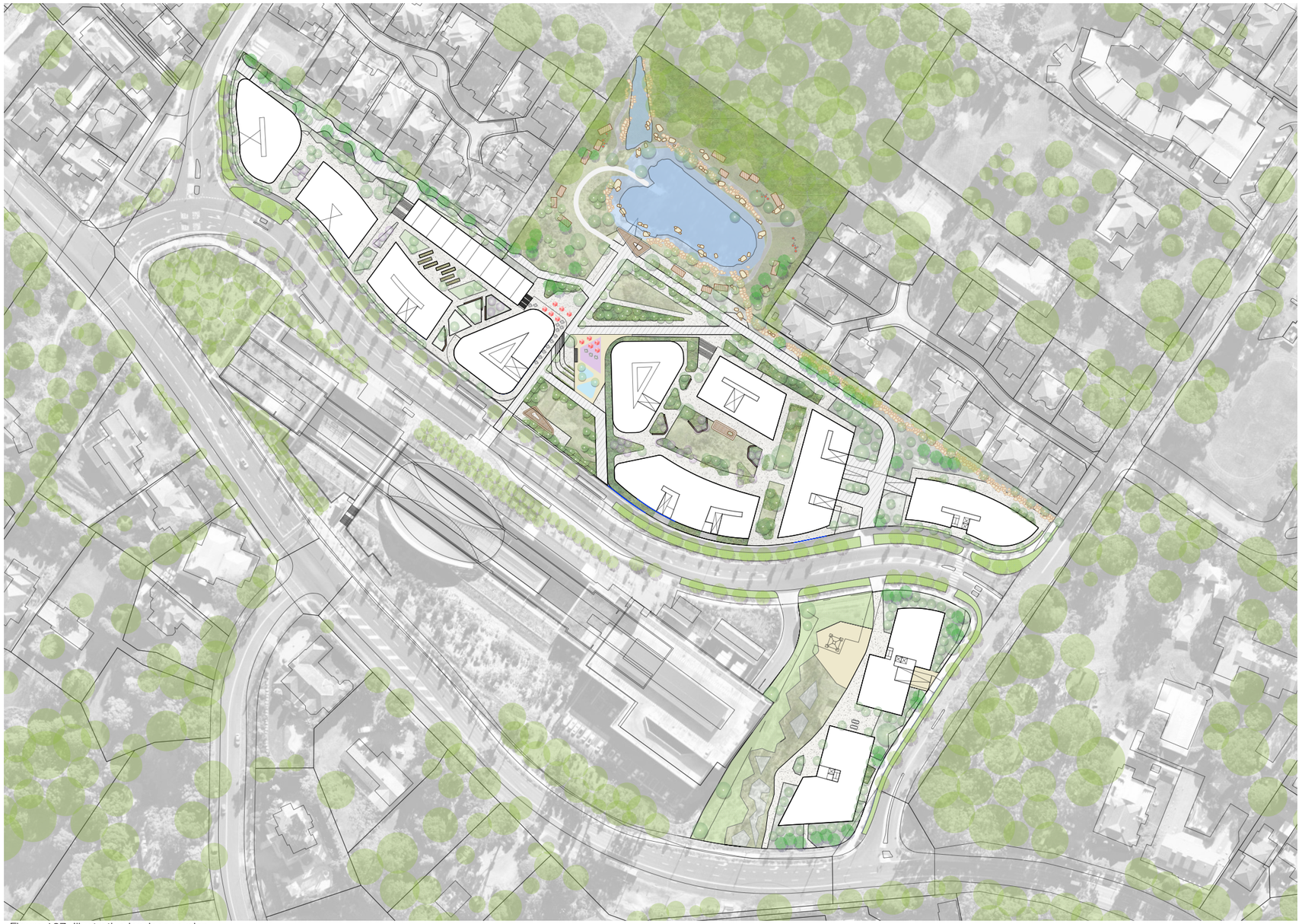


Figure 137: Illustrative landscape plan

12.4 Water and drainage

The water management and drainage proposal for the SSP has been prepared by Haskoning Australia April 2022. Where possible, the landscape proposal seeks to utilise landscape elements for drainage to minimise the need for excessive services and to leverage the benefit water can have for this site. All water is to be captured and treated on site.

The technical requirements outlined within the stormwater concept are reflected in the landscape proposal and include:

- The expansion of detention basin to increase its capacity to accommodate increased run off from the precinct. This is achieved through minor earthworks and the naturalisation of its edges to create a ecological water feature. Wetland species will be selected to improve biodiversity and improve water quality through biological filtration
- Formalised drainage lines on northern boundaries of the site as swales or rain gardens that are integrated with communal open space
- Permeable surfaces on deep soil areas, including on the village square, community open space and communal open spaces to encourage infiltration
- Improvements to the existing drainage line to northwest of the site for overflow
- Additional storage capacity is provided in underground stormwater tanks located within the electrical easement zone. This could be replenished with water from the pond and used for the irrigation of communal open space through gravity feeds

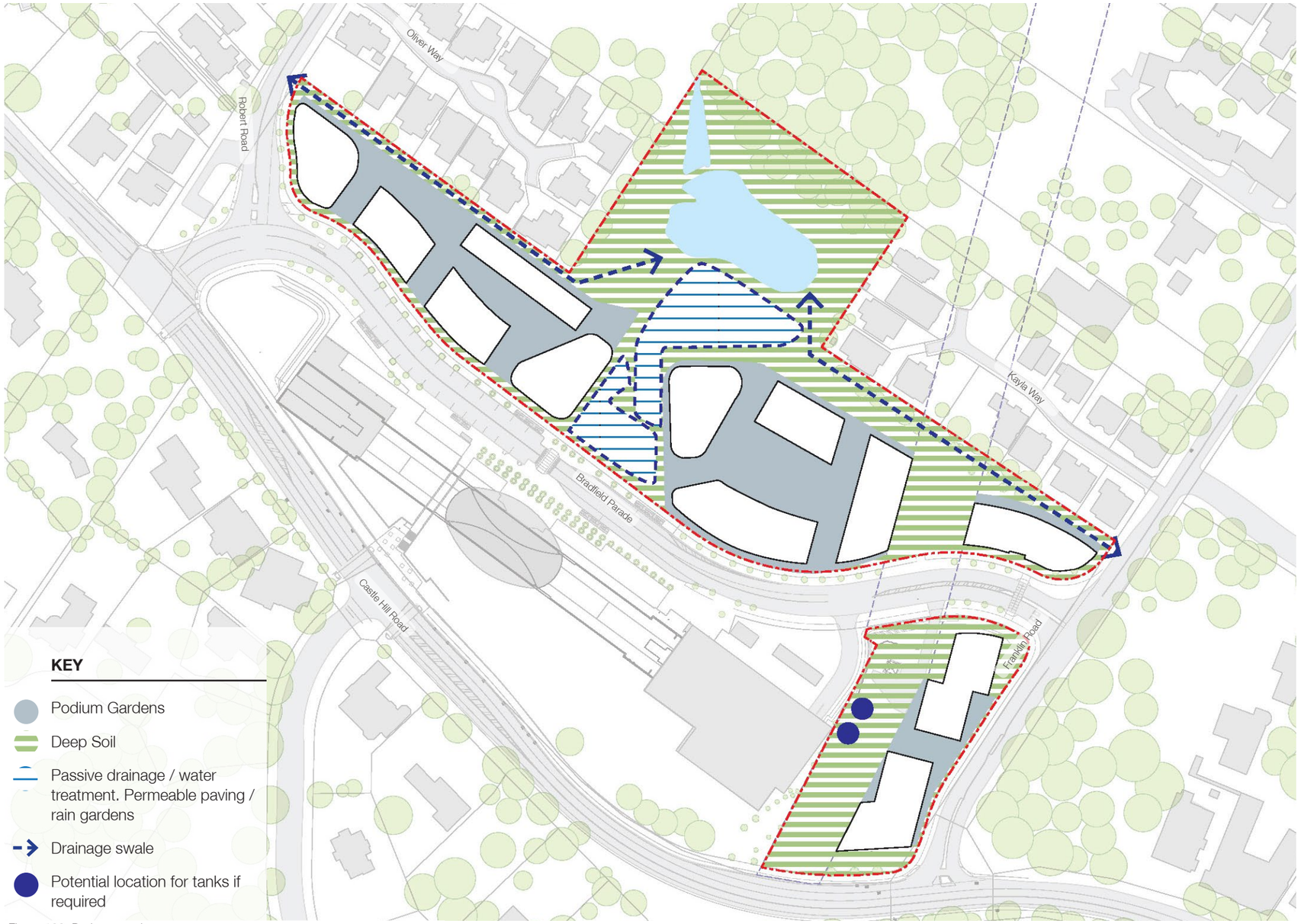


Figure 138: Drainage and stormwater strategy

12.5 Landscape typologies

A variety of landscape spaces have been proposed within the master plan to cater for a range of needs and requirements for the site. The spaces range from local to district scale with varying degrees of privacy and accessibility.

The central spine, which forms the heart of this development amalgamates three different typologies to emphasise the sequence of experience that is achieved through this site.

These spaces are listed below and explained further in this chapter

- Local Open Space - Community open space/ Community Gathering Space
- Communal Open Space
- Private Landscape
- District Open Space - Environmental Open Space
- Buffer Zone
- Buffer Zone - Transmission Lines

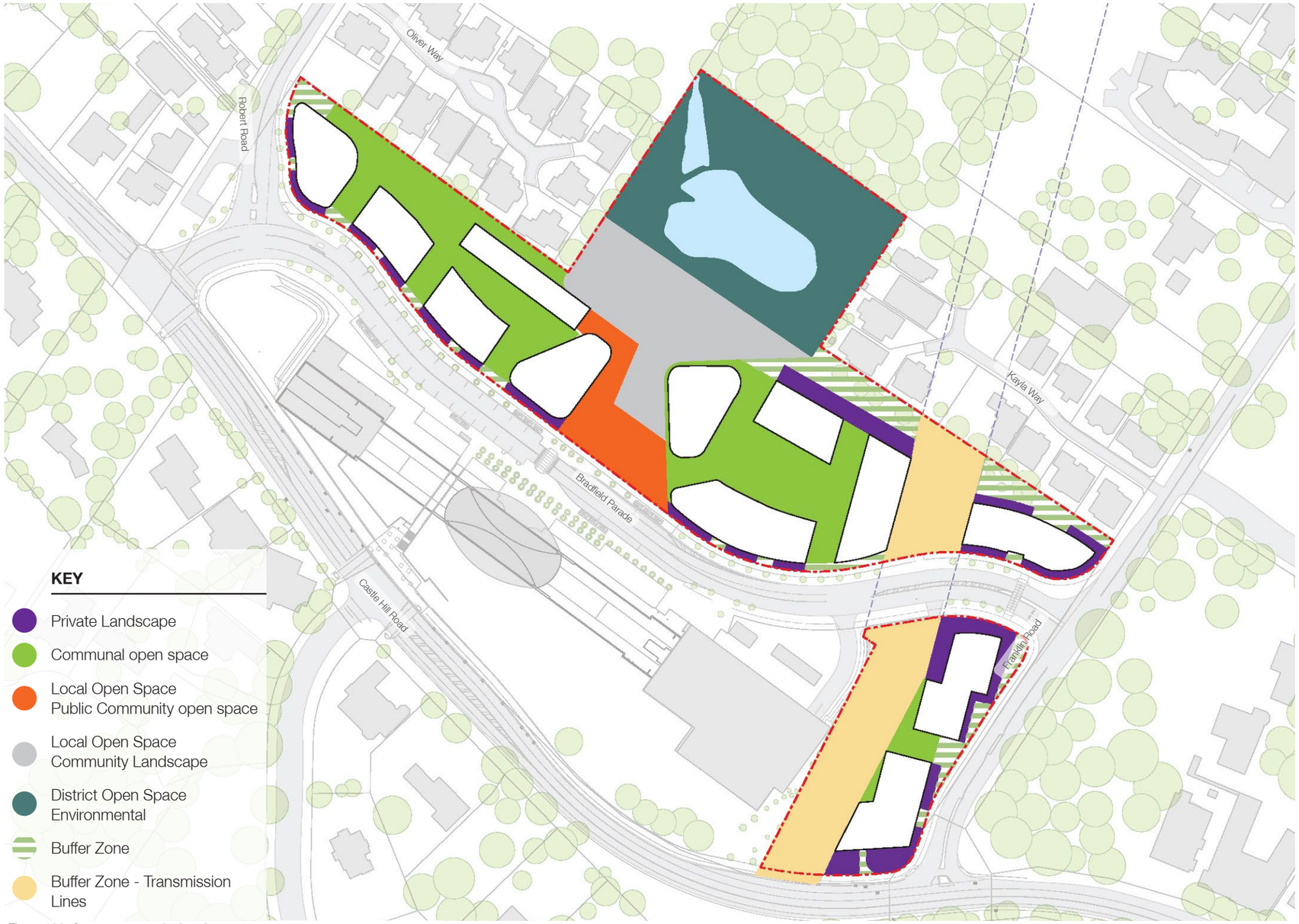


Figure 139: Open space typologies plan

12.6 Deep soil

Deep soil zones are concentrated towards the centre and north of the site. This is largely resulting from the natural site topography and the site planning. By creating separated basements with access off Robert Road, a new access road (accessed via Bradfield Pde and Franklin Road), a concentrated, public open space is afforded centred on the village square and drainage basement. This not only allows for concentrated public amenity at the heart of the site, it facilitates public movement to the broader precinct, water treatment and management and increased greening and revegetation linked to the remnant stand of Blue Gum High Forest on site.

The total of permeable deep soil allowed for is 40% which exceeds the local target of 15%.

If the central zone is dedicated back to council, the deep soil calculations for the site is 18% which also exceeds targets.

Proposed Soil calculations are summarised below:

	area m2	% of site	% of hardscape	% of softscape
Landscape on Slab	7592m²	25%	68%	32%
Landscape on Deep Soil	8277m²	29%	33%	67%
Central Zone	12385m²	41%	46%	54%
< 3m Wide Deep Soil Zones	1638m²	5%	30%	70%



Figure 140: Deep soil plan

12.7 Tree canopy and urban forest strategy

The reference scheme aims to maximise tree canopy, reduce the impact of the urban heat island effect, improve habitat and biodiversity while maintaining views and solar access across the site. This masterplan proposes 346 new trees to be planted as outlined in the table below resulting in a potential mature tree canopy coverage of approx 35%, this aligns with the targets set by the draft Greener Places Guide. The project has the potential to exceed the targets set by the draft Greener Place Guide. However, as the site is located in bushfire prone land, prior agreement will need to be reached with Council and RFS if tree canopy is to exceed 15%. This total excludes the existing trees located on site.

	QTY	m2 / Tree *	m2	% of site area
Trees on Grade				
Large Trees	2	256m2	512m2	2%
Medium Trees	96	64m2	6144m2	21%
Small Trees	240	16m2	3840m2	13%
				36%

Trees on Slab				
Small Trees	90	16m2	1440m2	5%
			Total %	**41%**

* note tree canopy dimensions based on ADG rule of thumb for small, medium and large trees. Calculations are conservative and where possible additional large and medium trees should be nominated to increase total canopy.

It is recommended that the trees currently planted on Bradfield Parade, surrounding roads and the village square are replaced with more substantial species related to the Blue Gum High Forest Community. This will assist in reducing the Urban Heat Island Effect and with meeting or exceeding the Hornsby Shire Council target of 50%. Based on a Near Map assessment from Nov 2020, current canopy coverage of Bradfield Parade de appears to be 0%. Bradfield Parade sits outside of the part of the SSP boundary that will be released for development and the potential replacement of these trees has not counted towards the total canopy cover calculations for this site as illustrated above.

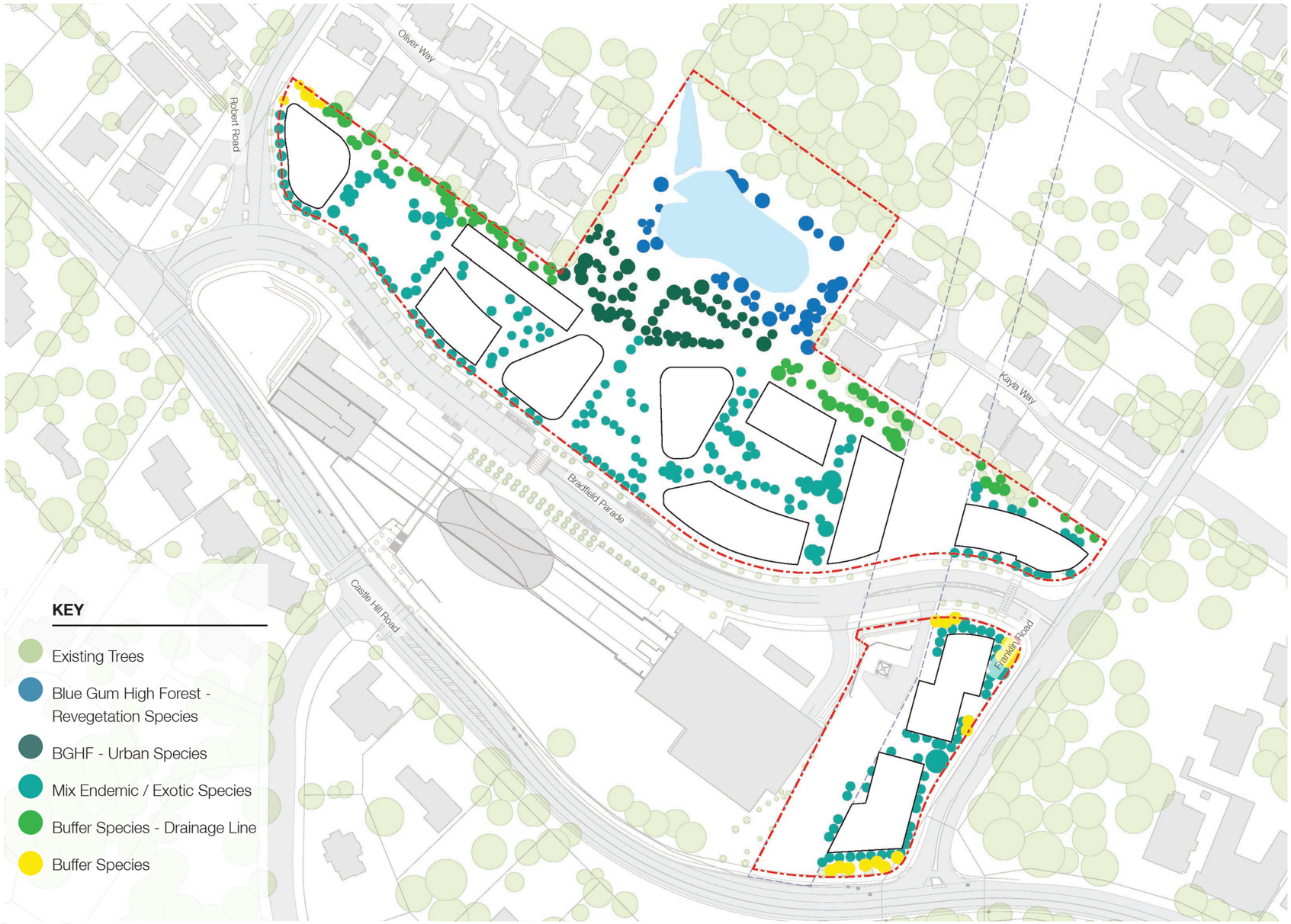


Figure 141: Tree canopy plan

12.8 Tree Canopy - Indicative Species Selection

* Preference for species selection to be non-flammable

Blue Gum High Forest: urban species


Eucalyptus saligna


Tristaniopsis laurina


Brachychiton populneus


Allocassia torulosa


Acmena smithii

Blue Gum High Forest: urban species


Syzygium australe


Angophora costata


Calochleana dubia


Leucopogon juniperinus


Dianella revoluta

Mix Blue Gum High Forest: urban species and exotic, feature species


Eucalyptus saligna


Jacaranda mimosifolia


Viola hederacea


Pandorea pandorana


Dianella revoluta

The reference scheme

Buffer Species:
drainage line


Acmena smithii


Allocassia torulosa


Calochleana dubia

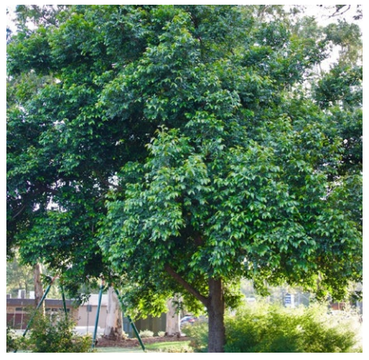

Viola hederacea


Adiantum aethiopicum

Buffer Species


Tristaniopsis laurina


Ficus coronata


Glochidion fernandi


Leucopogon juniperinus


Dianella revoluta

12.9 Access

Pedestrian access

The primary pedestrian access through the site is via the proposed village square and community open space at the centre of the development. A generous community open space presents itself towards the street inviting pedestrians down towards the pond with clear lines of sight and integrated landscaping.

A level change of approximately 4m exists across the centre of the site and is traversed through built form, stairs and vertical circulation that is integrated into the podium building, accommodating the supermarket, community hub and visitor car parking. This integration will ensure safe and convenient access 24/7. This allows for a clearer and more usable open space.

Vehicular access

Vehicular access to the three portions of the site and their basements is achieved via Robert Road, Franklin Road and a new access road that links to Bradfield Parade within the power line easement.

Public and residential car parking access is separated from serving access as far as possible, with car parking being tucking into the slope at the level of the pond. Vehicular access for the public components of the development (the retail and community hub) is from under the electrical easement and residential car parking separated internally with residential car parking at the lower levels.

Maintenance and servicing access

Maintenance access to the detention basin continues from the end of the access road towards the slipway with access controlled via a boom or removable bollard. This is designed as a paved share path where the movement of pedestrians and cycles are prioritised.

Maintenance access to the existing high voltage pylon from Bradfield Parade is provided through a track / shared path, but access to this track for general / residential traffic is prohibited.

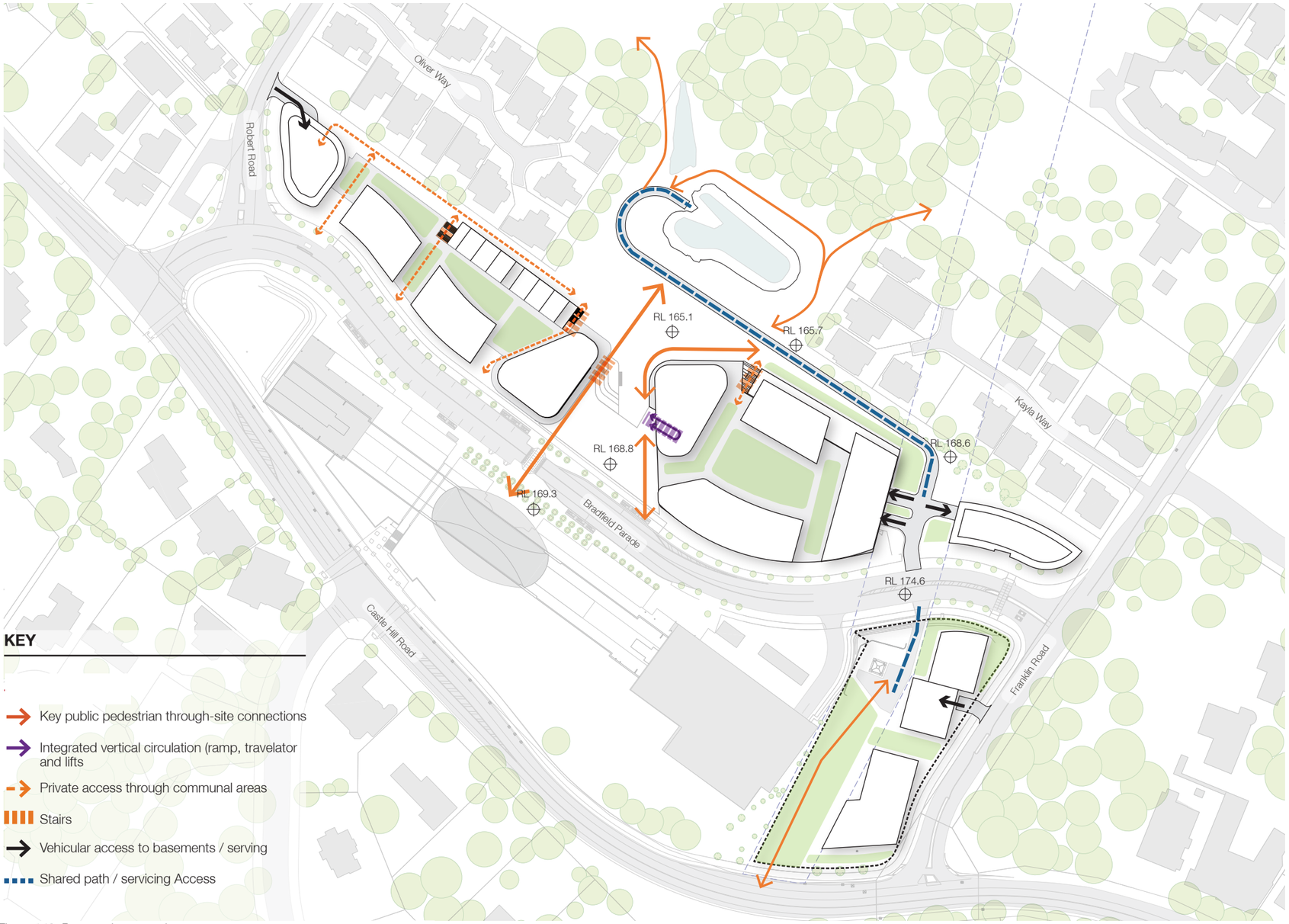


Figure 142: Proposed access plan

12.10 Sections through the landscape

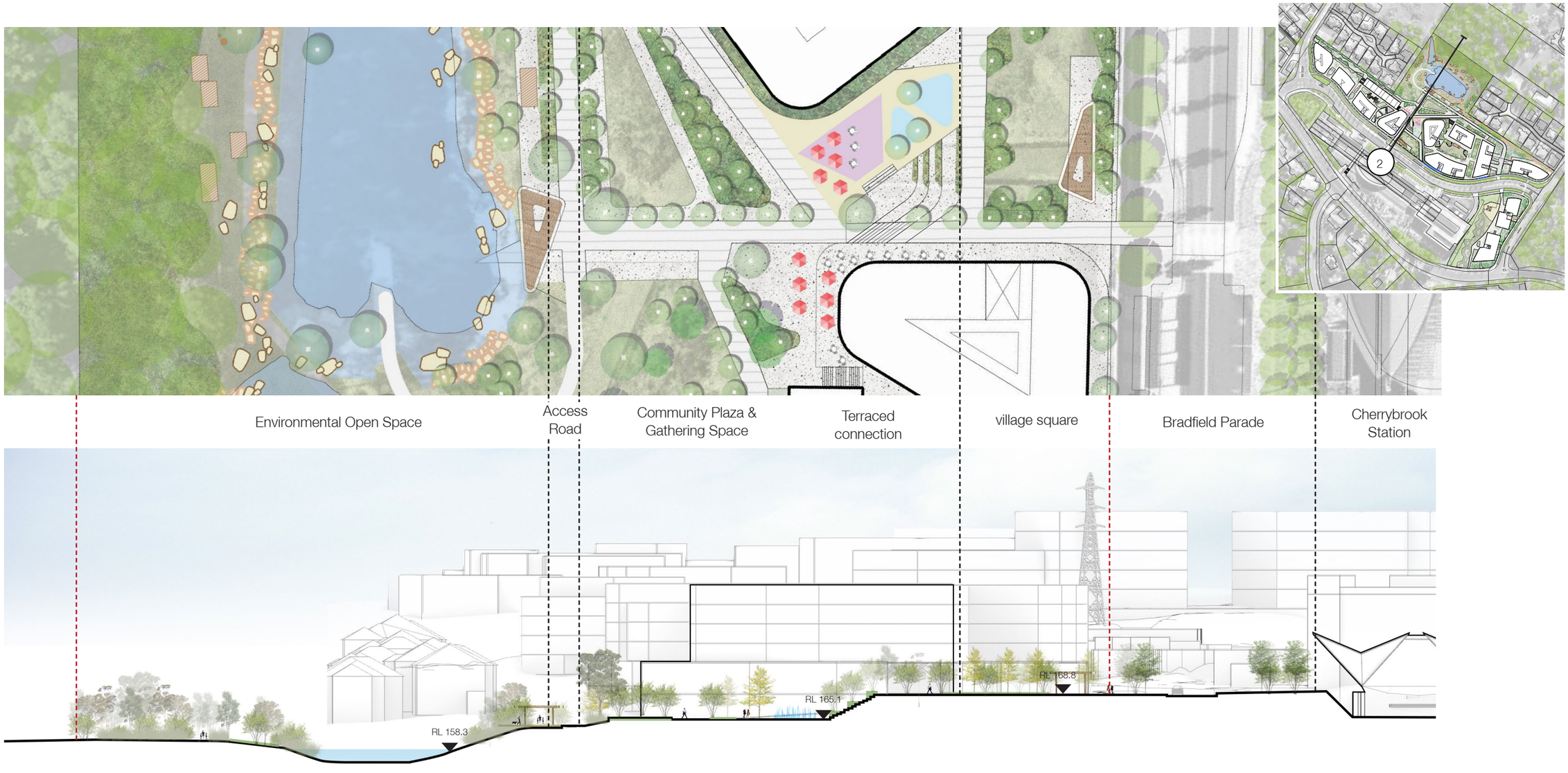
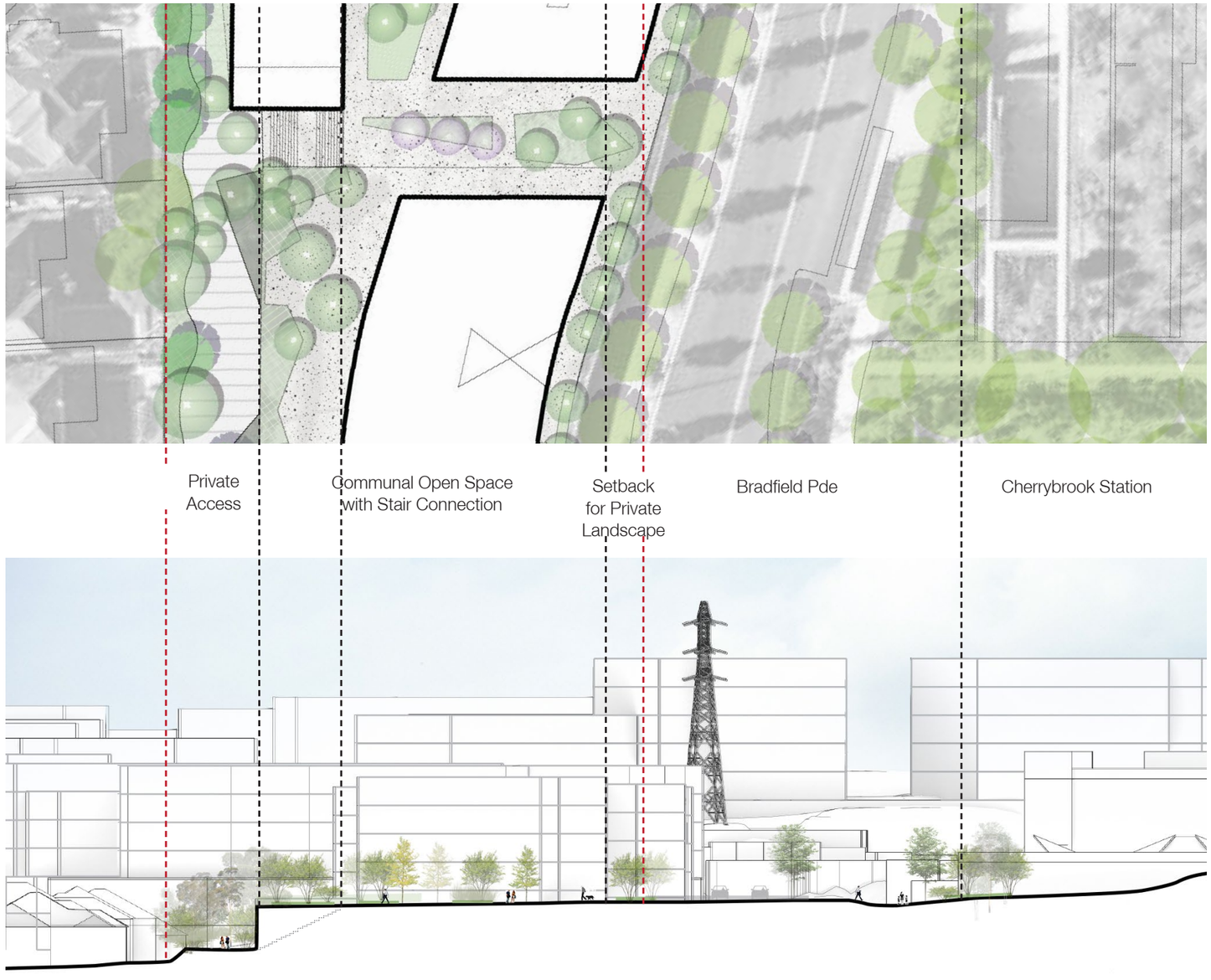
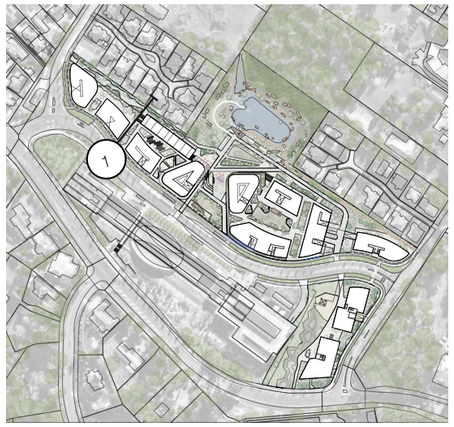


Figure 143: Landscape sections

The reference scheme





12.11 Detailed Landscape Considerations

Central Spine

The Central Spine will be the heart of this development. It is to be publicly accessible, active and engaging for use by the public and residents alike.

The spine is a collection of three spaces: The village square (1), the community open space, (2) the environmental space (3), transitioning in character from urban at the station end through to natural in the area around the pond/drainage basin and remnant Blue Gum High Forest. There is a level change of approximately 4m across the site.

The program of these spaces will be community focused. Retail, cafés and restaurants are to be located within the village square with opportunities for public art, breakout dining and activation.

The community hub is located on the northern end of the village square and is readily visible from Bradfield Parade. It will be the beacon and draw card for the site. This facility will also be accessed at the lower pond level where a concentrated community breakout space is located. Raised deck for performances, play ground and amenity such as seating, water play and shade structures, alongside planting.

This space transitions into a more naturalised landscape environment around the pond, which has been expanded to be twice its existing volume such that it is able to accommodate additional requirements of the proposed development (over and above those required by the station). It will become an asset for the community through the naturalisation of its embankments, revegetation to its extent and the inclusion of picnic facilities and nature play elements around the perimeter. Connections through this zone to the Cherrybrook precinct beyond should be maximised.

The details of each space will be explained on the following pages.



Figure 144: Central Spine landscape plan

The reference scheme

Local Open Space - Village Square

The village square fronts Bradfield Parade and will be an extension of the urban station forecourt.
It will be the public face of the development and envisaged to be active and community focussed.

Key considerations within this space include:

- Generous path connections
- Open sight lines
- Integrated seating within stair access
- Outdoor dining
- Formal tree planting with associated seating
- Maximise tree planting and permeable surfaces due to location on deep soil
- Shaded structures to provide focal points for activity
- Public art and activation



NewActon Precinct, Canberra (Source: Aspect Studios)



Library and Pavilion, Marrickville (Source: Aspect Studios)

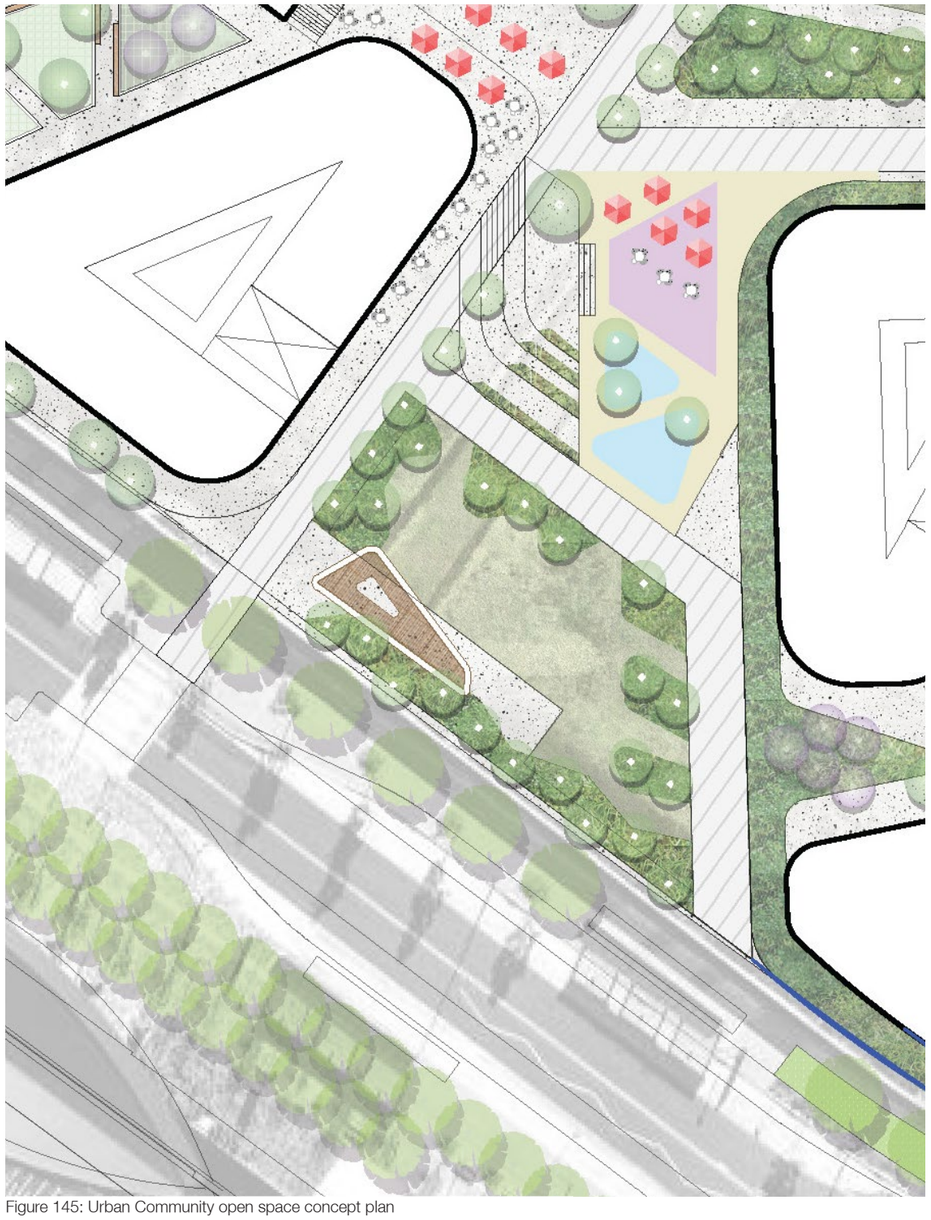


Figure 145: Urban Community open space concept plan

Local Open Space - Community Gathering

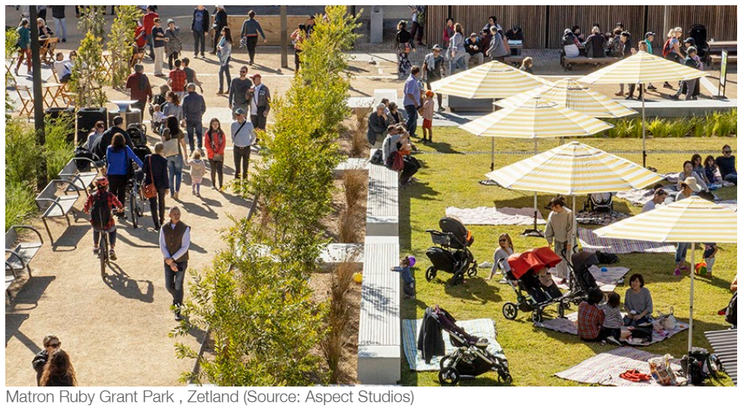
Located at the lower, basin level, the Community Gathering Space directly relates to the proposed community facility and should function as an extension of that space for the community. It is connected to the upper level via a set of stairs, planted terraces and escalators / ramps to meet DDA requirement and connect the carpark and lower plaza level to the supermarket.

Elements to consider within this space include:

- Deck for outdoor performance / sitting
- Play - formal and informal
- Outdoor dining
- Trees framing edge of space
- Maximise tree planting and permeable surfaces due to location on deep soil
- Water feature / water play
- Public art and activation



Town Square, Rockville (Source: Aspect Studios)



Matron Ruby Grant Park , Zetland (Source: Aspect Studios)



Rose Hill Town Centre, Sydney (Source: Aspect Studios)

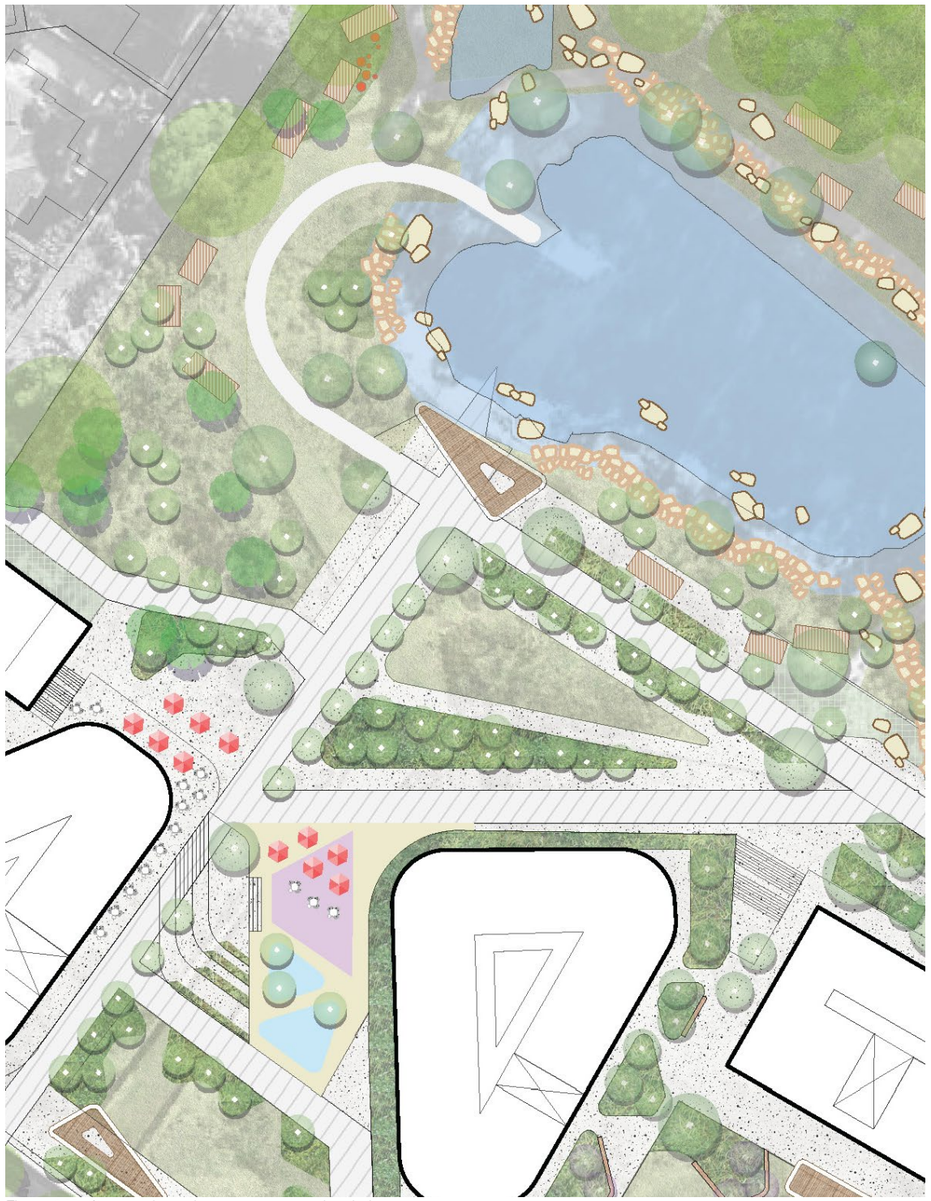


Figure 146: Community gather space conceptional plan

The reference scheme

District Open Space - Environmental Open Space

The environmental open space seeks to leverage the positioning of the drainage basin and turn it in to an asset for the precinct. By naturalising the banks of the drainage basin, and incorporating picnic shelters, play elements, paths and board walks this area will become a destination for the development and surrounding areas.

Considerations for design within this space include:

- Naturalise edge of drainage basin
- Expanding the existing drainage basin to accommodate future development runoff. The final configuration and design will be determined at DA stage
- Formalise path connection to basin - allow paving to tie in with adjacent community open space and connect to broader circulation networks
- Integrate nature play and picnic facilities within open space
- Tree planting to celebrate endemic vegetation

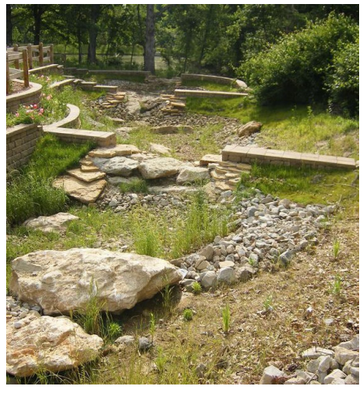


Zoo Nature's Playground, Adelaide (Source: Aspect Studios)



Lizard Log Parklands, Western Sydney (Source: Aspect Studios)





Ladywell Fields, London (Source: Aspect Studios)

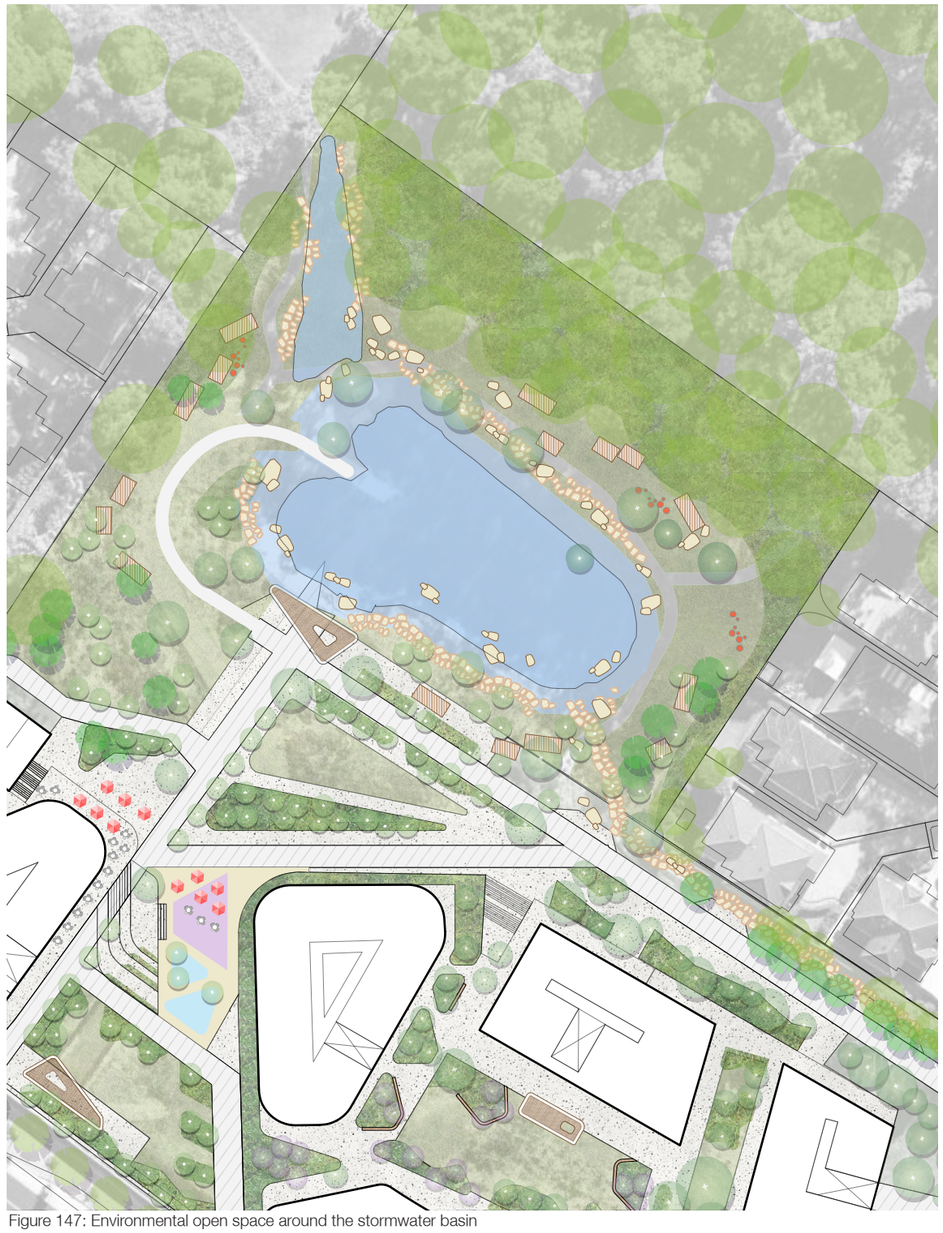


Figure 147: Environmental open space around the stormwater basin

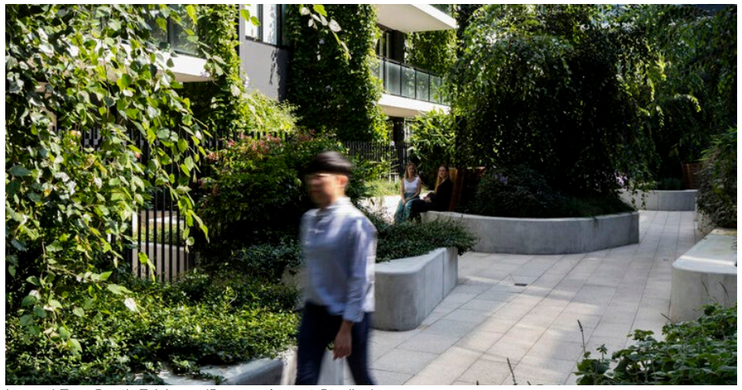
The reference scheme

Communal Open Space

Communal open space acts as an extension of the building's living space, offering flexible opportunities for passive and active recreation for residents. Communal open space should provide gathering spaces with amenity for entertaining and play, open space for recreation, good solar access, natural ventilation and deep soil areas for significant tree and mass planting.

Key considerations for Communal Open Space include:

- Maximise tree planting for on grade areas
- Raised planting for trees and other soft landscape
- Provide amenity to facilitate gathering and recreation
- Orientate to maximise solar access
- Ensure privacy is achieved between communal and private open spaces



Ivy and Eve, South Brisbane (Source: Aspect Studios)



The Gantry, Camperdown (Source: Aspect Studios)



Eve, Erskineville (Source: Aspect Studios)



Arts West, University of Melbourne
(Source: Aspect Studios)



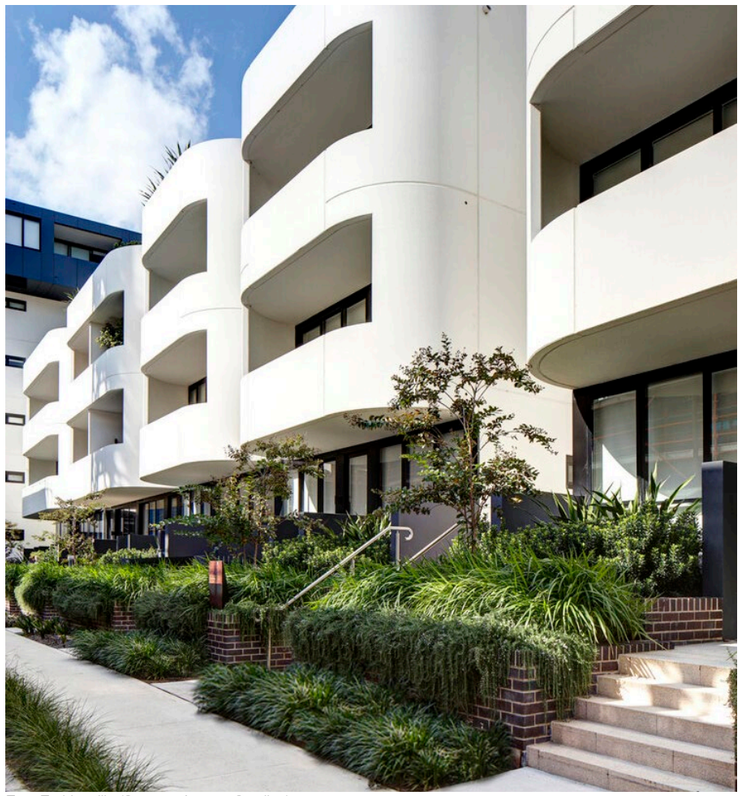
Figure 148: Communal open space conceptual plans

Private Open Space

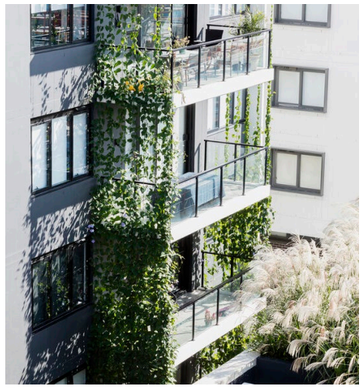
Private open spaces should be Integrally connected to the apartment's main living spaces, functioning as an extension of internal living areas. Private courtyard spaces adjacent to communal spaces must have a high level of privacy, while maintaining opportunities for visual connection and outlook to adjacent spaces. Private open spaces can often have a direct relationship with the public domain but should be clearly defined as private.

Key design considerations for private open space include:

- Utilise level change and setbacks to achieve privacy to private open space while maintaining visual access to surrounding areas
- Locate private open spaces adjacent to internal living space to maximise usability
- Maximise tree planting in areas of deep soil



Eve, Erskineville (Source: Aspect Studios)



Eve, Erskineville (Source: Aspect Studios)



Quartet, Lane Cove (Source: Aspect Studios)



Figure 149: Private open space conceptual plans

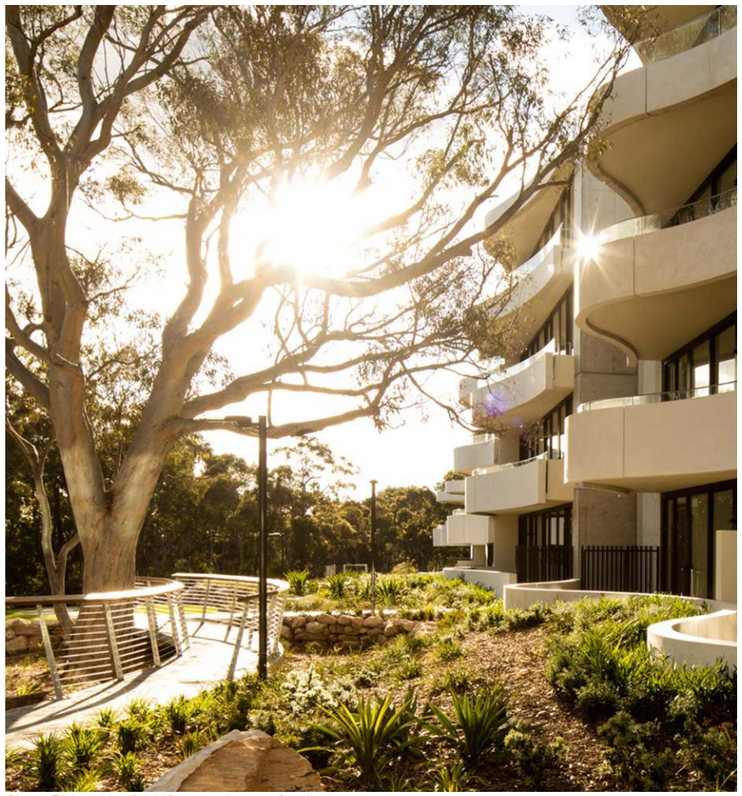
The reference scheme

Buffer

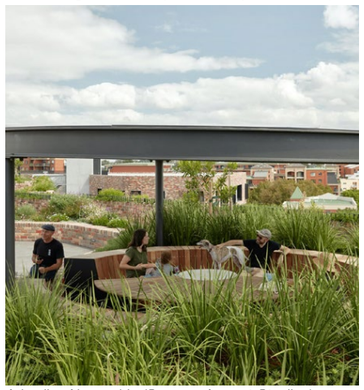
Buffer zones help reduce the visual dominance of the building on the public domain and provide privacy to key locations within the development. They are areas where tree planting can be maximised and soft landscape should be predominant.

Key design considerations include:

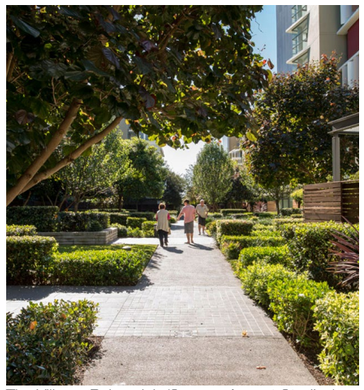
- Respond to the character of the street
- Environmentally sensitive, utilising areas for deep soil for significant tree planting and biodiversity.
- A natural extension of the public domain
- Maintain views and natural surveillance
- Consider side and rear interfaces with neighbouring properties and their adaptability for potential future development.



Shout Ridge, Lindfield (Source: Aspect Studios)



Arkadia, Alexandria (Source: Aspect Studios)



The Village, Balgowlah (Source: Aspect Studios)



Figure 150: Buffer open spaces under the power lines and connecting larger open spaces

12.12 Indicative floor plans

Lower basement / basin level

The lower basin level is envisaged as a more passive and community oriented space that is related to the pond / basin. Active uses including the community hub, niche retail uses and terrace style apartments ensure the activation of the ground plane and passive surveillance of the public domain and through site links.

Pedestrian connections are provided from the basin, creek and Blue Gum High Forest towards the station via a series of terraced platforms, ramps and stairs. These allow for future connections to the broader precinct and will improve connections to the metro station, buses and other facilities

The buildings are set back from the northern DGL boundary to allow for meaningful tree planting and deep soil.

Visitor and residential car parking is built into the slope and sleeved with the active residential terraced as described above to the north.



Figure 151: Illustrative Plan - basin level

KEY

- DGL Boundary
- Residential
- Community hub
- Streetfront retail / commercial
- Supermarket
- Car parking / basement
- Plant / servicing
- Area below ground

The reference scheme

Bradfield Parade Level

The Bradfield Parade level is the most public level of the development. The community facility and library is afforded a prominent location at the northern edge of the village square, with its main entrance clearly visible from the station entrance. Retail uses edge the village square with a potential for a 900-1,200m^2 retail anchor / supermarket located within a podium that is edged with active uses.

Retail frontages extends along Bradfield Parade where pedestrian footfall is highest. Further from the village square the street interface becomes more residential in nature with buildings setback from the street to create a more green interface and afford residents of ground floor units with privacy. Communal entry points and lobbies are deliberately located on the street to ensure that units have an address and activate the street.

Terrace type apartments are located on the north as a lower scale interface onto the existing residential properties and to help activate public through site links. They also help to screen servicing areas and basement car parking.

Vehicular access for car parking and servicing is limited to:

- A single access point off Franklin Street to portion C
- A combined access point under the electrical easement
- A single access point on Robert Road.

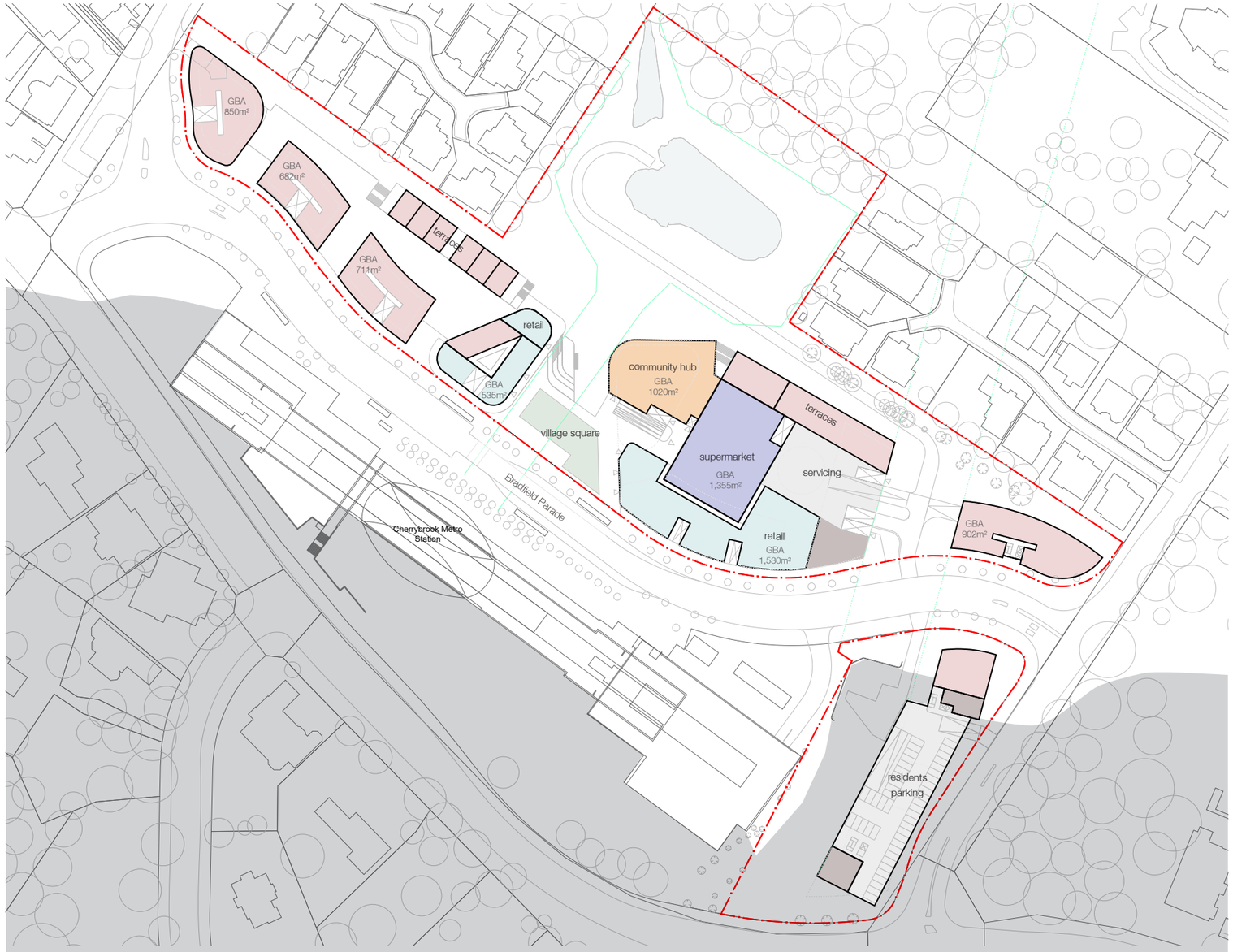


Figure 152: Illustrative Plan - Bradfield Parade level

KEY

- DGL Boundary
- Residential
- Community hub
- Streetfront retail / commercial
- Supermarket
- Car parking / basement
- Plant / servicing
- Area below ground

Typical residential levels

At the upper levels buildings have been oriented to provide residents with views northwards towards the rolling hills to the north. The buildings above the retail podium are arranged around a communal court with a stair link down to the the pond level.

Above ground floor level building footprints are generally under 900m² GBA ensuring an efficient building footprint with between 8 and 12 units per floor. The individual, stand alone buildings have been deliberately articulated to break up the built form and reduce the visual impact of building mass.



KEY

- DGL Boundary
- Residential
- Communal open space (8,300m²)

Figure 153: Illustrative Plan - typical residential levels

12.13 Built form and building separation

The adjacent plan illustrates the distribution of built from and alignment with ADG building separation requirements. The ADG requires buildings over four storeys with habitable rooms interfacing with non-habitable rooms to be separated by a minimum of 12m. The plan illustrates that in all instances the reference scheme meet these requirements and as far as possible buildings have been oriented to take advantage of views over open space and desirable northern aspect. The width of the village square on Bradfield Parade is in the order of 50m ensuring a generous opening onto the station and a focussed view towards to the pond and Blue Gum High Forest.

The residential building footprints illustrated are limited in depth to 20 to 22m, depending on orientation and aspect to ensure good cross ventilation and solar access. The built form envelopes illustrated allow for a 25% efficiency to arrive at the site GFA. This allows for additional building articulation, vertical circulation and servings that will be resolved at the next stage of planning and design.

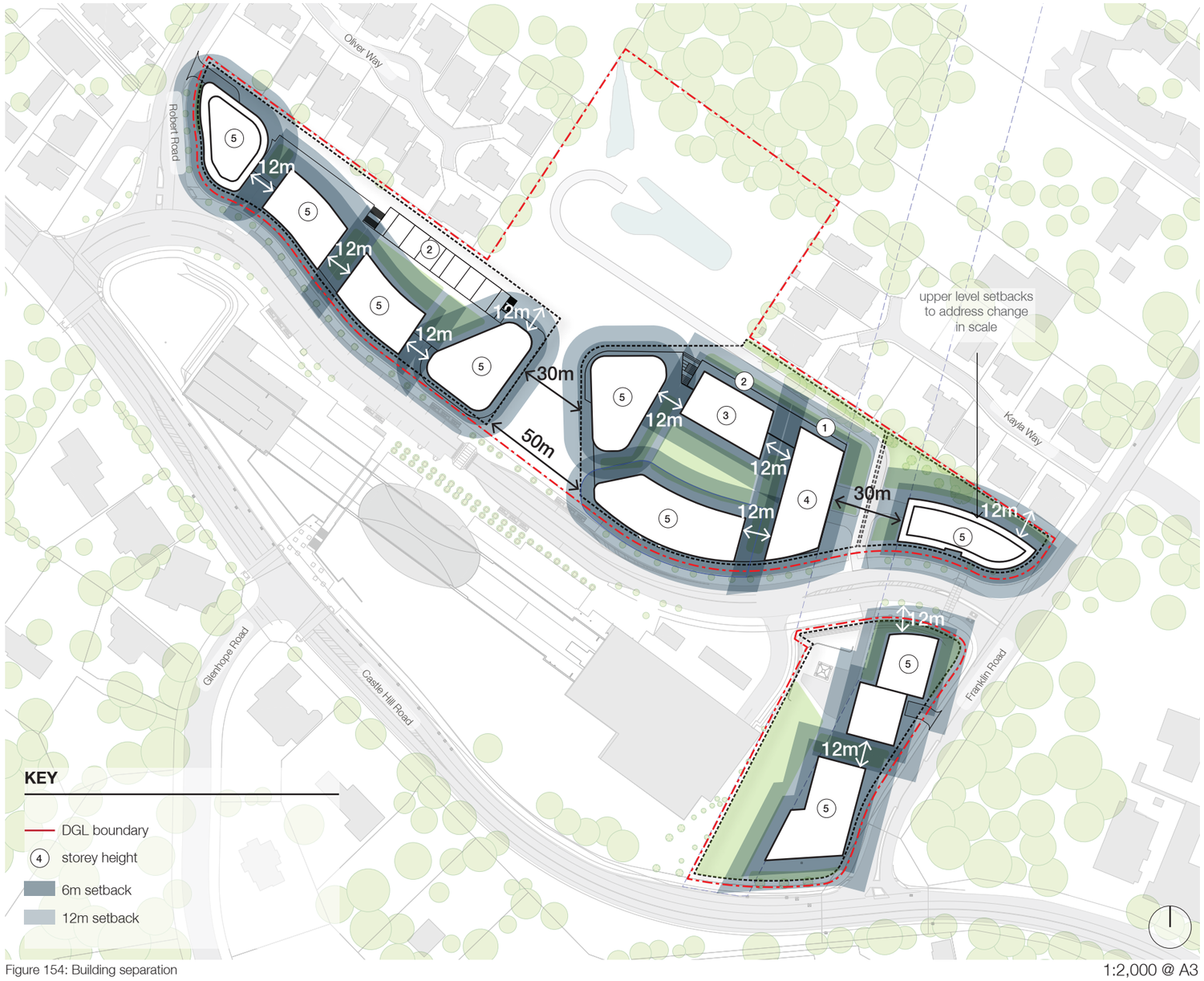


Figure 154: Building separation

1:2,000 @ A3

The reference scheme

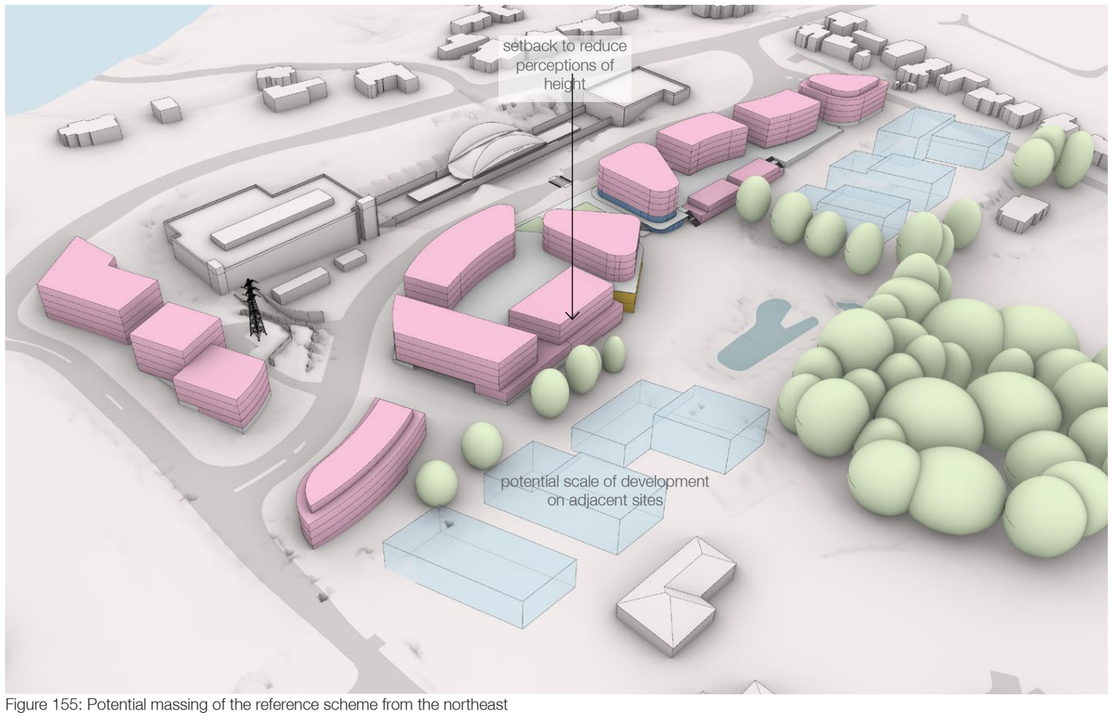


Figure 155: Potential massing of the reference scheme from the northeast

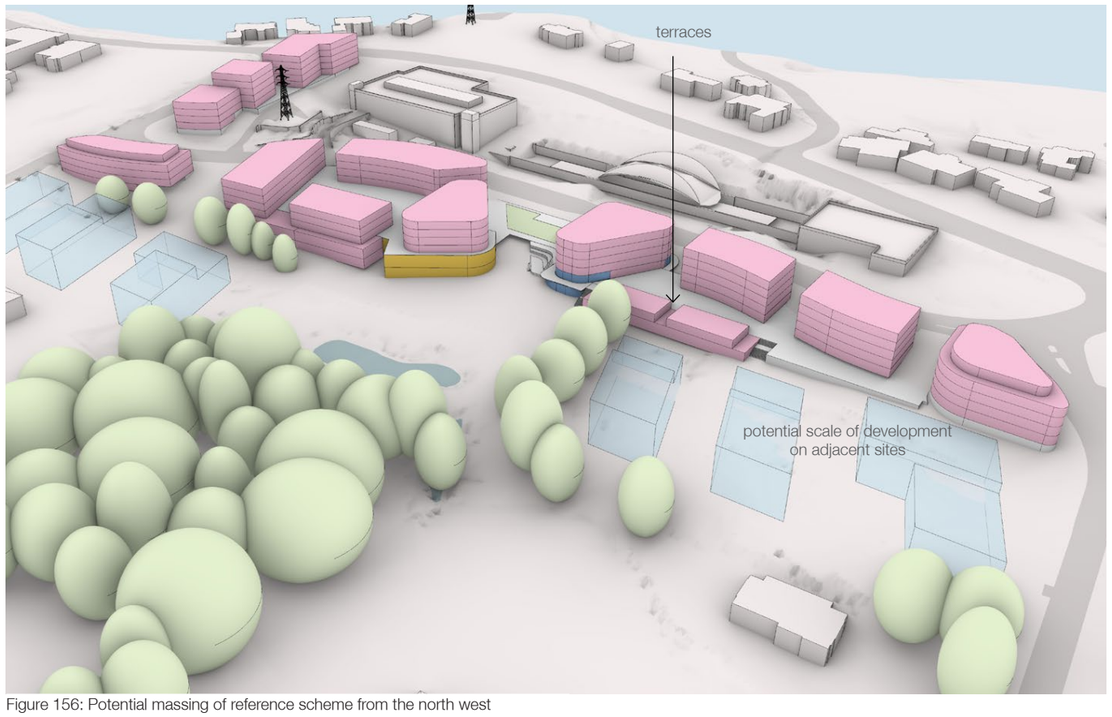


Figure 156: Potential massing of reference scheme from the north west

The above three dimensional views of the reference scheme provide an indication of how the buildings have been shaped to integrate with the broader precinct. The individual buildings on either side run along the contours, with generous setbacks to allow light into the street and views to the tree canopy beyond. The reference scheme also includes upper level setbacks on the western and eastern ends of the site along Robertson Road and Francis Road to assist transition in scale. This is not a requirement for development, but helps mediate the change in scale whilst those sites adjacent to the DGL boundary accommodate low rise, 2 storey buildings with private back gardens. The built form indicated on adjacent sites show the scale and form of development that is envisaged in the Cherrybrook Place Stratergy.

KEY

- Residential
- Community hub
- Retail
- Car parking / basement
- Envisaged 3-6 storey development on adjacent sites

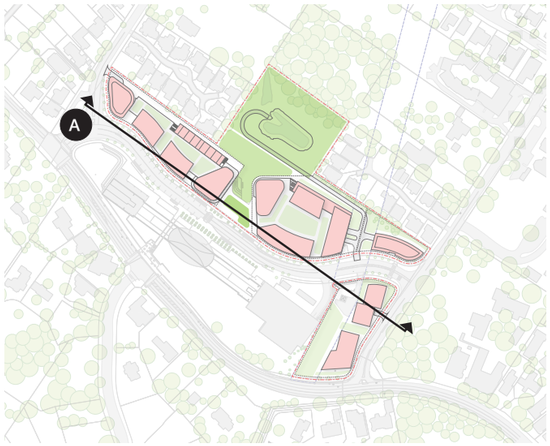
12.14 Site sections

The sections on this and the following page provide an illustration of the scale of development proposed, how buildings relate to the proposed street setback, common boundary setbacks, and existing and future development.

Key aspects include:

- The removal of the spoil and reinstatement of the natural ground level
- A level transition between the site and adjacent properties with buildings set back from the common boundary to allow for deep soil, private and communal open space and on-site sustainable urban drainage
- Assumptions that the adjacent properties will be redeveloped in time





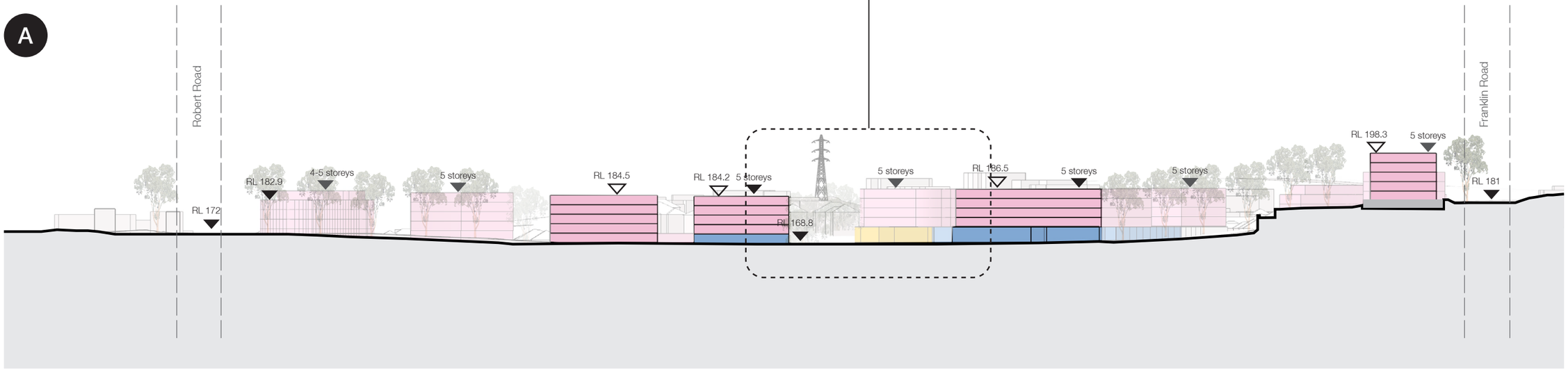


Figure 157: Section AA - along Bradfield Parade

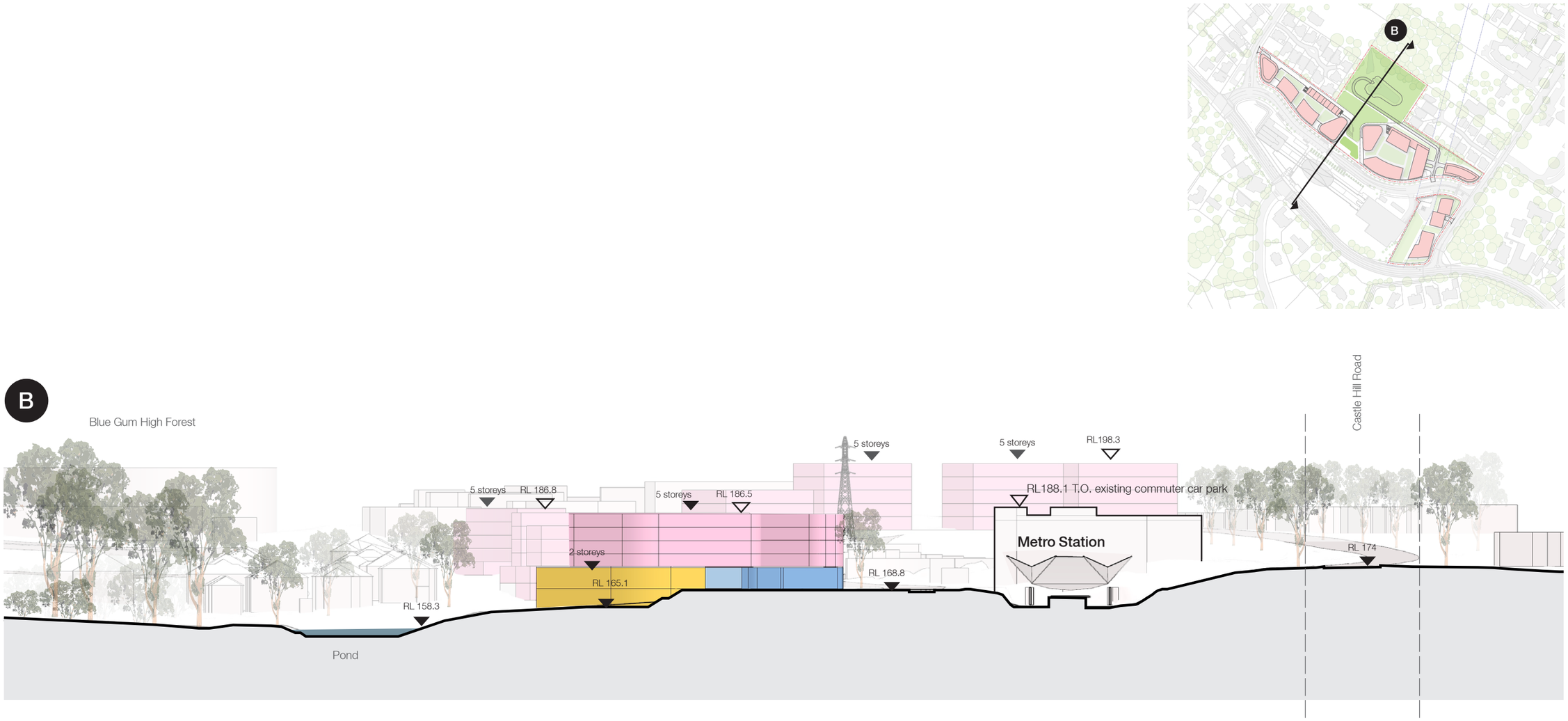


Figure 158: Section BB through the metro Station to the pond

The reference scheme



C

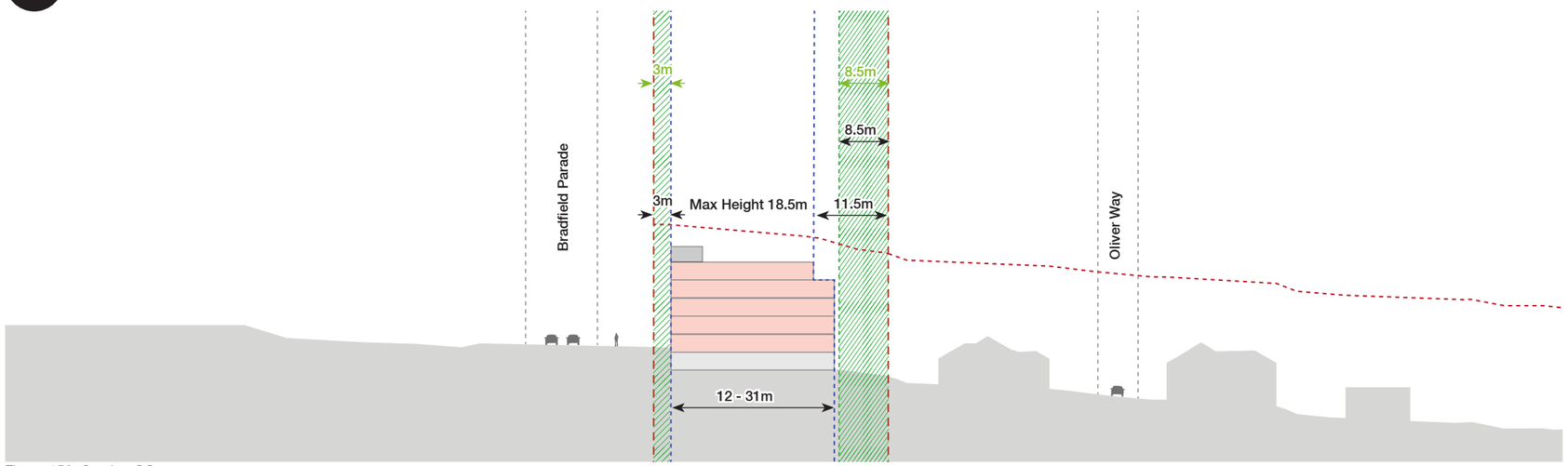


Figure 159: Section CC

D

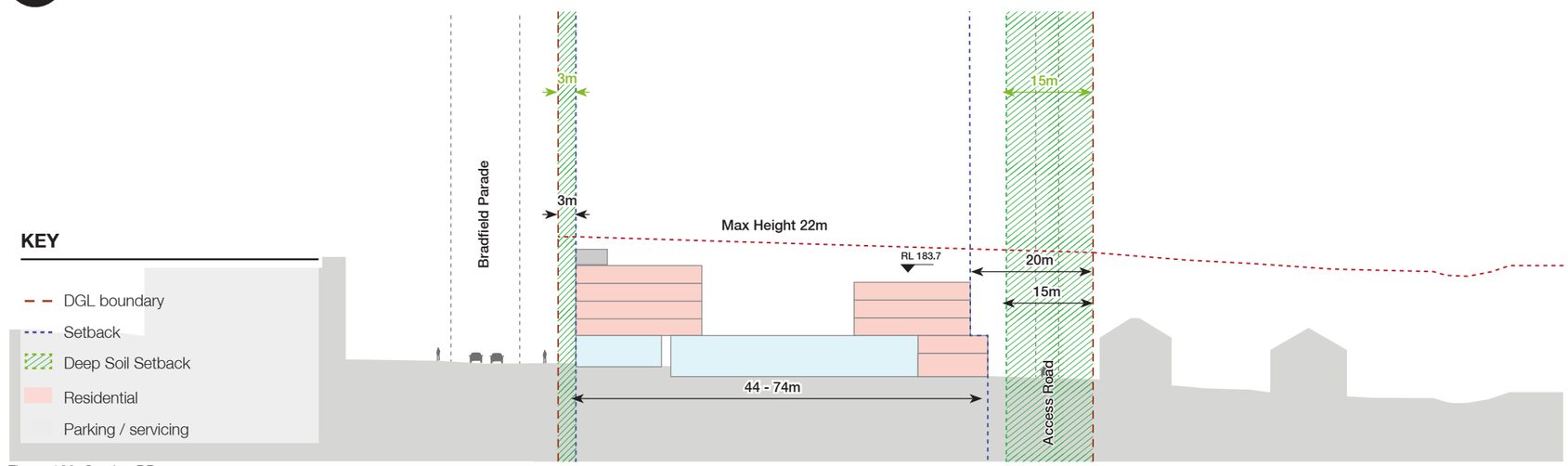
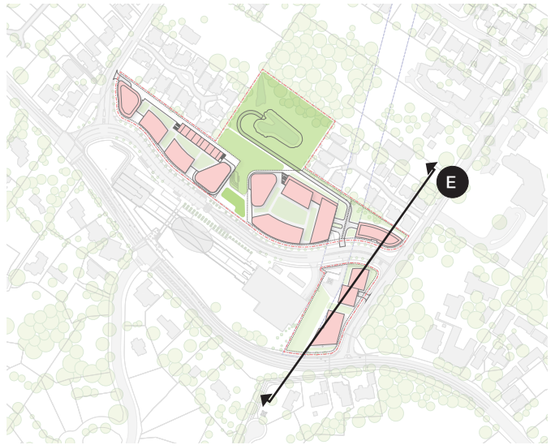


Figure 160: Section DD

The reference scheme



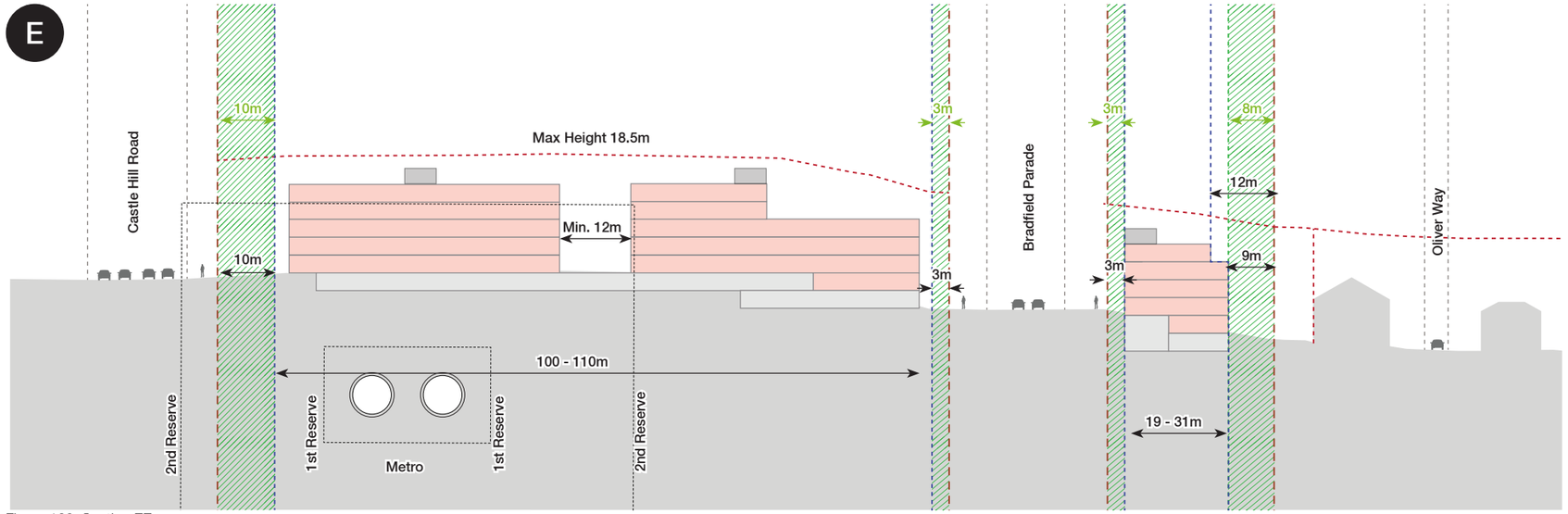
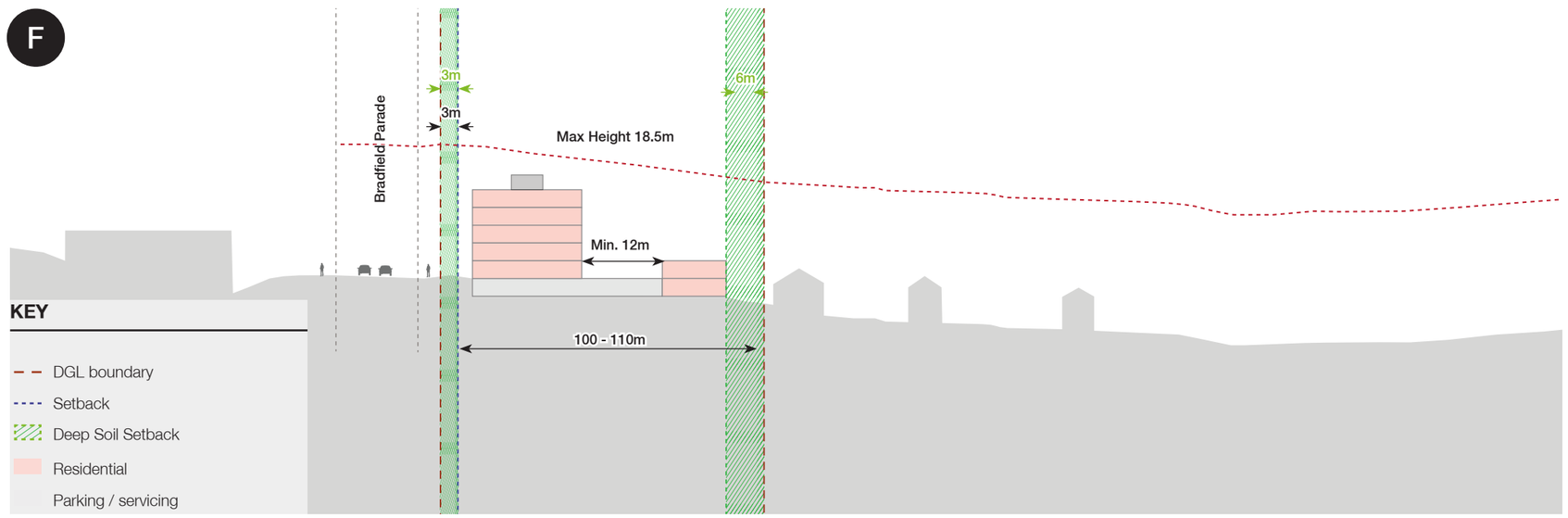


Figure 162: Section EE



12.15 Solar access to public open space

This solar access study illustrates how many hours of direct sunlight the open space receives on the 21st June (winter solstice) between 9am and 3pm. The calculation is shown for every 15 minute increment for a detailed analysis.

71% of the village square receives more than **3** hours of direct solar access during this time period. This analysis excludes the community gather space at the lower level that receives even greater levels of solar access as there are no buildings to the north of this space.

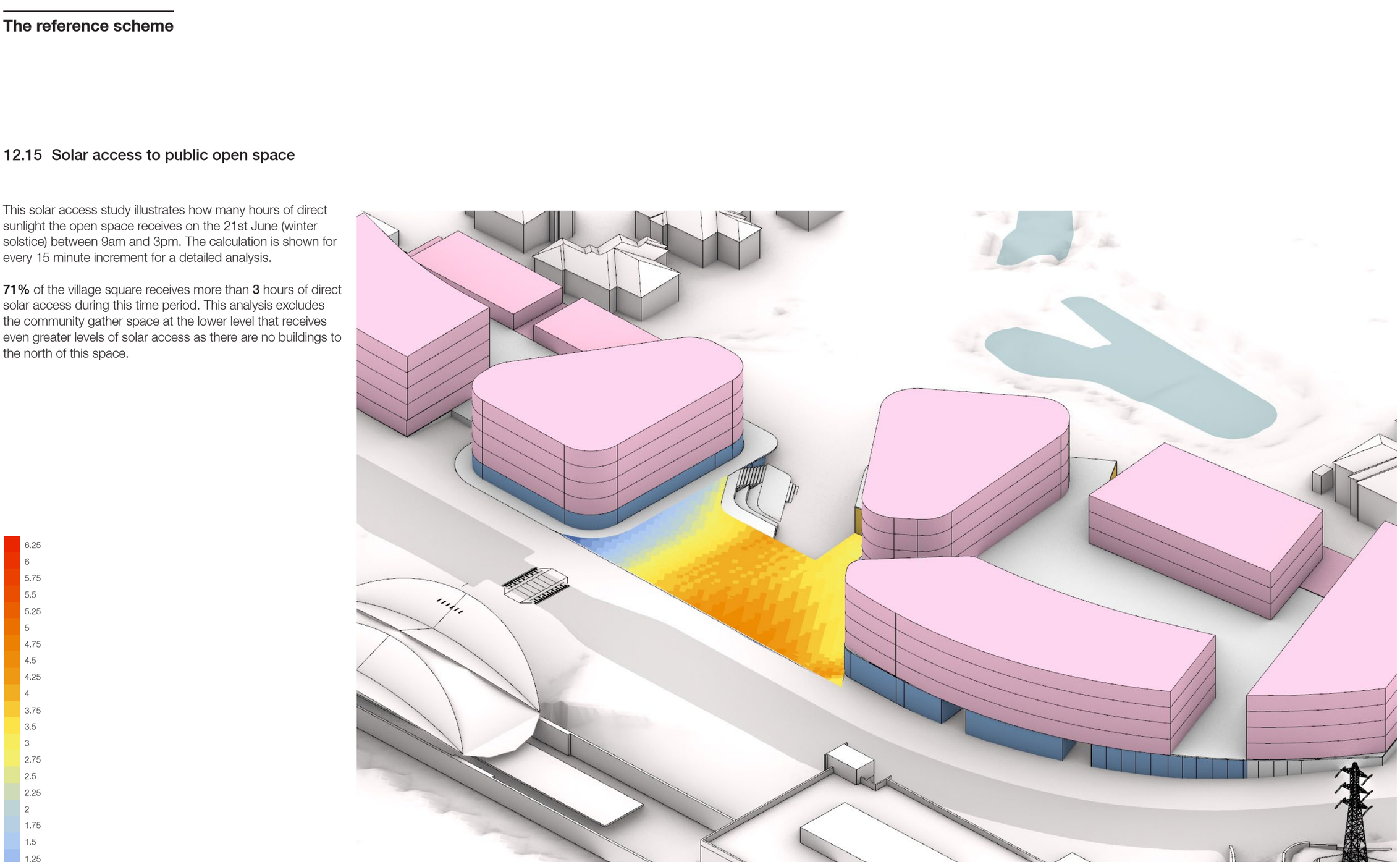


Figure 164: Sunlight study of proposed community open space

12.16 Shadow study

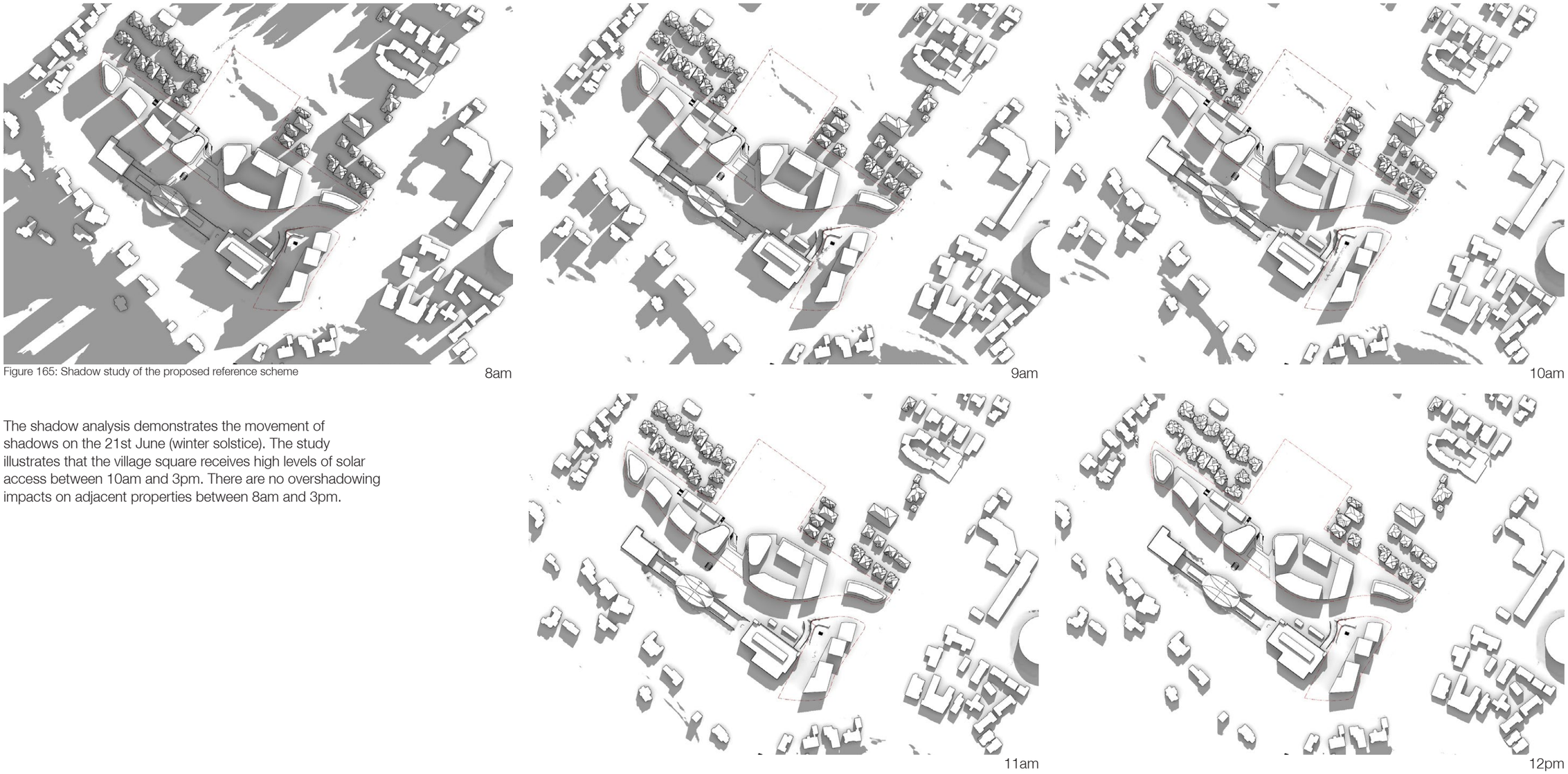
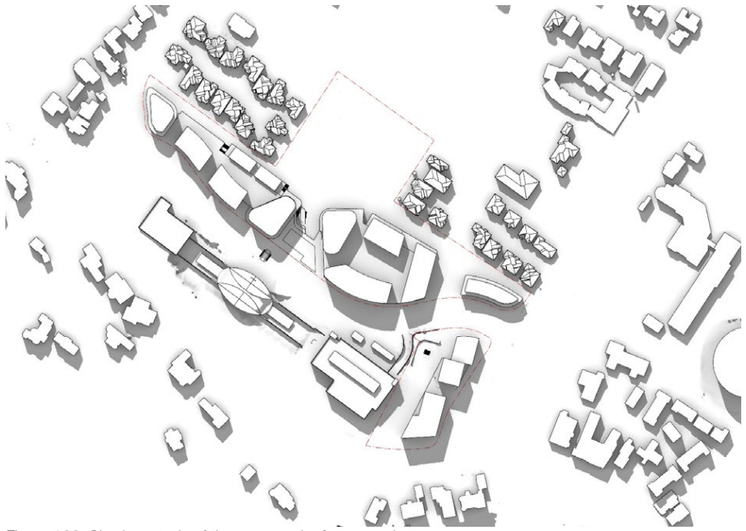
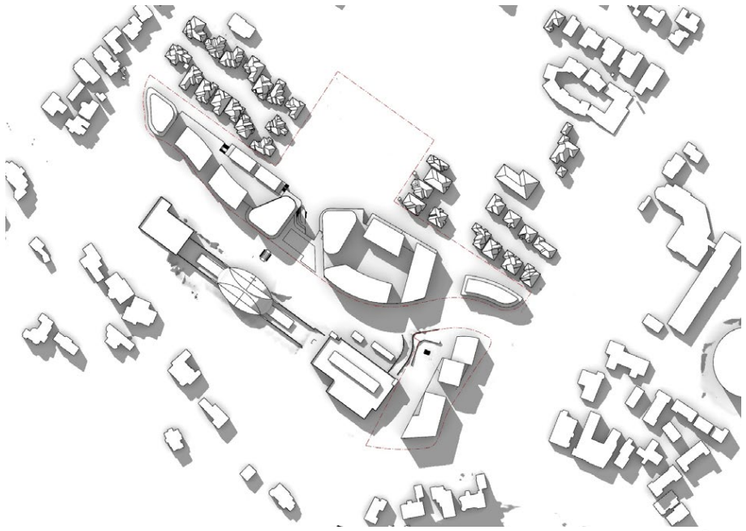


Figure 165: Shadow study of the proposed reference scheme

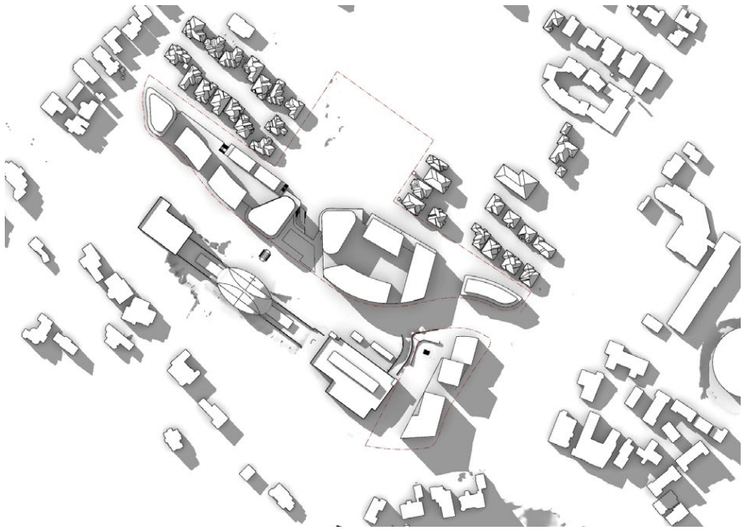
The shadow analysis demonstrates the movement of shadows on the 21st June (winter solstice). The study illustrates that the village square receives high levels of solar access between 10am and 3pm. There are no overshadowing impacts on adjacent properties between 8am and 3pm.



1pm



2pm

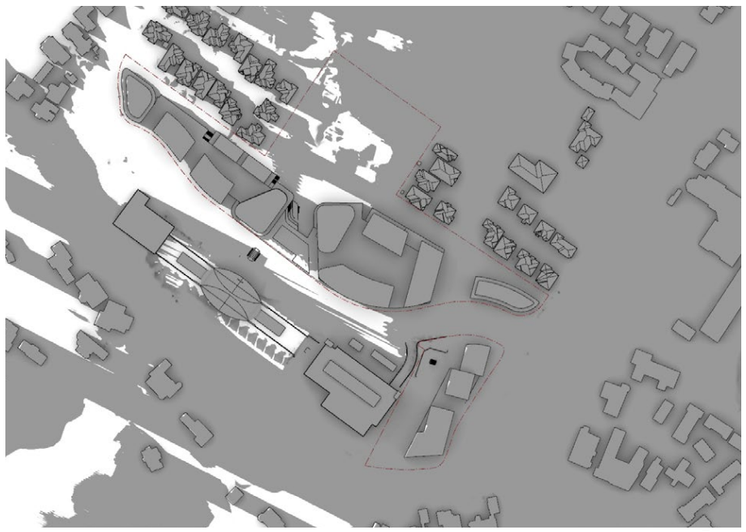


3pm

Figure 166: Shadow study of the proposed reference scheme



4pm



5pm

12.17 Solar Insolation

The adjacent solar insolation analysis has been undertaken on the reference scheme to identify how proposed built form envelopes perform in terms of solar access.

The study illustrates the number of hours of sunlight received by the massing facade on the 21st June (winter solstice) between 9am and 3pm.

The reference scheme achieves 73% of facade with greater than 2 hours sunlight during this time period. ADG compliance requires 70% to living rooms and private open spaces and detailed assessment will need to be undertaken at DA stage.

The study illustrates the challenge created by the constrained nature of the site, its irregular shape and the east- west orientation of Bradfield Parade. Double loaded buildings (with units either side of a corridor) that are oriented more than 7 degrees off north will struggle to meet the ADG solar access requirements of 2 hours of direct sunlight between 9am and 3pm. This means that compliance with ADG solar access requirements will depend on the arrangement of individual units on the floor plate. This will be undertaken at the next stage of design when the unit mix is known with the intent to maximize the number of units that face north, east and west. Meeting these requirements may require additional cores and cross ventilated through apartments with double frontages.

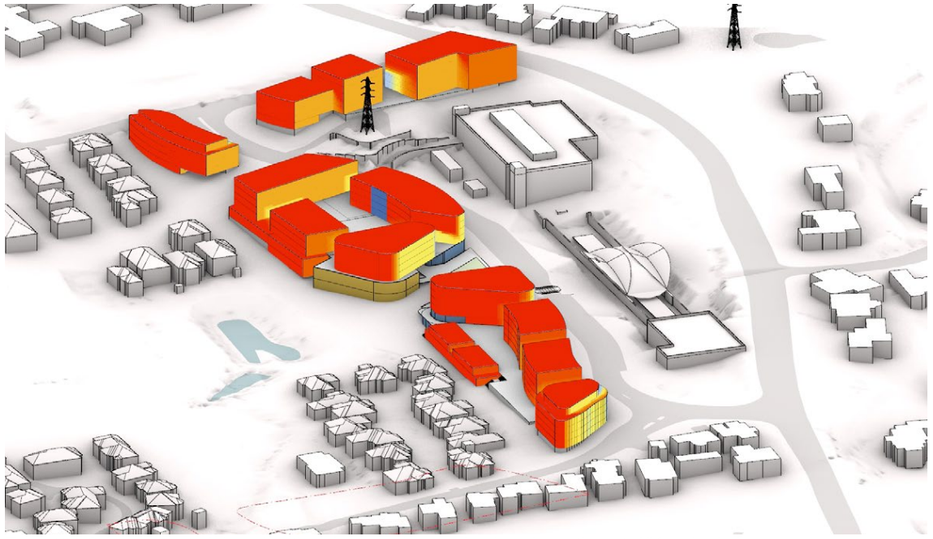


Figure 167: Solar access study based on the reference scheme - view from the north west. All facades facing north and west receive high levels of solar access

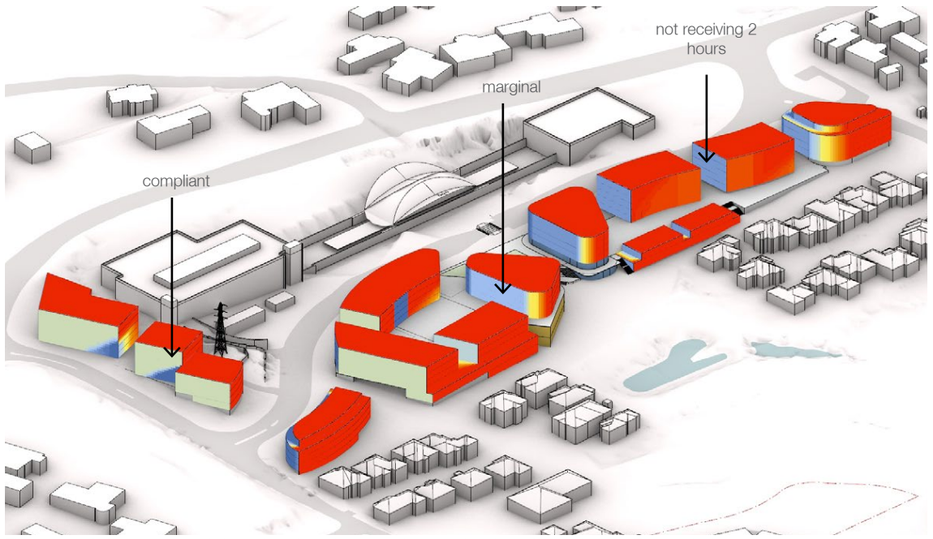


Figure 168: Solar access study based on the reference scheme - view from the north east. Eastern facing facades either just meet or fail to meet 2 hours of direct sunlight. Compliance will depend on floor plate design and layout

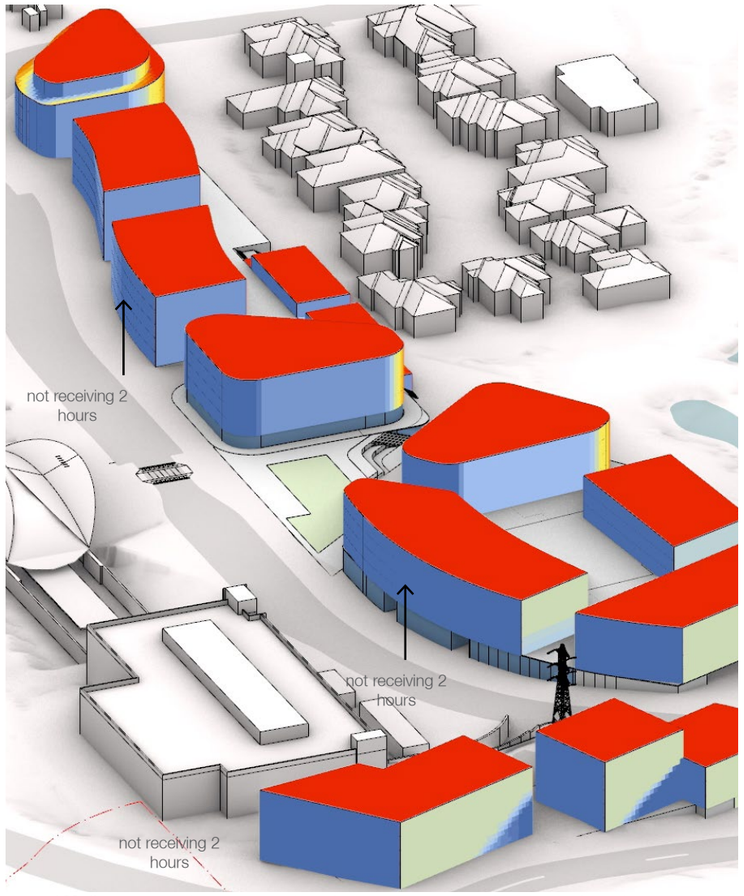
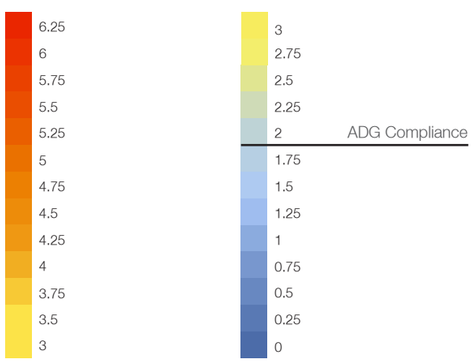


Figure 169: Solar access study based on the reference scheme - view from the south east. This view illustrates the extent of south and east facing facades that do not receive more than two hours of direct sunlight. In order to meet ADG requirement more units will need to be located on the warmer facades and more corner and though -apartments will need to be included in the floor plans. This may require additional cores and circulation that will impact on building efficiencies. This will need to be assessed at the next stage of planning when there is greater certainty around development mix and core locations.



12.18 Compliance with Apartment Design Guide

This SSP seeks the approval of a high level planning envelope for the site that includes changes to Land Use Zoning, Height of Building and Floor Space Ratio. In addition Design Guidelines are being approved and subsequent development proposals will need to be consistent with all these controls as well as with the controls required within the Apartment Design Guide (ADG).

The reference scheme illustrated in this chapter is one of many potential outcomes for the site and the design guidelines have been developed with a level of flexibility to allow for multiple potential outcomes. There are consequently many variables that have not been fixed and will need to be assessed in the next stage of planning approval. Some of these include the size and shape of the open spaces and whether this is dedicated to Council or remains available as publicly accessible public open space, the development mix (mix and size of units), lift and internal circulation options.

The reference scheme illustrated in section 12.12 above has been developed based on the principles and parameters set out in the ADG and the adjacent table highlights compliance with the relevant key controls. More detailed assessment will need to be undertaken at the next stage of planning.

Theme	Control	Response
Deep Soil and tree canopy cover	Sites greater than 1,500m² with significant existing tree cover to - achieve 7% tree canopy cover	At this stage, the extent and nature of the open space and has not been defined. If the open space is public and dedicated to Council this area will need to be subtracted from the site area that will be developed for residential / mixed use purposes. The reference scheme has concentrated deep soil within the central open space, ecological park, within the 3m setback along Bradfield Parade and within the 6m setback to the north of the property. There are also large areas within the electrical easement that are deep soil. As illustrated in 12.6 the total of permeable deep soil allowed for within the reference scheme is 40%, which exceeds the local HSC target of 15%. If the central zone is dedicated to council, the deep soil calculations for the site is 18% which also exceeds local targets and the minimum 7% deep soil requirement in the ADG. This reference scheme proposes 346 new trees to be planted as outlined in the table below resulting in a potential mature tree canopy coverage of approx 35%, this aligns with the targets set by the draft Greener Places Guide.
Building Separation	Minimum required separation distances from buildings to the side and rear boundaries are as follows: up to 12m (4 storeys) 6m 3m up to 25m (5-8 storeys) 9m 4.5m	The buildings within the reference scheme are all between 4 and 6 storeys. As illustrated in section 12.13 all buildings are separated by a 12m separation distance. This degree of separation complies with separation distances between habitable rooms and balconies for buildings under 12m / 4 storeys. Buildings are also set back from the northern common property boundary by 6m, as required for buildings under 4 storeys. The upper level of the buildings on the eastern and western ends of the site are also set back by a further 3m to comply with ADG requirements. In some instances the separation distances on the short sides of buildings along Bradfield Parade that above 5 storeys is only 12m. This is below the separation distance of 18m required for buildings over 4 storeys. Compliance with the ADG can be achieved through the internal arrangement of apartments if one of the facing facades does not include a habitable room, and if direct overlooking is avoided. It is therefore possible for the reference scheme to comply with the required ADG separation distances.

Theme	Control	Response
Cross Ventilation	At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building.	The building envelopes in the reference are between 15 and 20m deep and have floor plates that are generally below 700m² GFA (930m² GBA). These small floor plate sizes deliver 6-8 units per floor plate making the requirement for 60% of cross ventilated apartments possible. More detail will need to be provided at DA stage when typical floor plates are generated based on the desired development mix. The reference scheme does include a number of longer buildings above the podium. In these instances the reference scheme does illustrate two lift cores (See figure 153). This allows for through apartments and for cross ventilation requirements to be met. More detailed assessment will need to be undertaken at the next level of planning.
Solar Access	Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area	As illustrated in 12.17 meeting this ADG controls will be challenging given the constrained nature of the site, its irregular shape and the east- west orientation of Bradfield Parade. Modelling undertaken suggests that 73% of the facade of the reference scheme achieves greater than 2 hours sunlight during this time. Compliance with ADG solar access requirements will depend on the arrangement of individual units on the floor plate. This will be undertaken at the next stage of design when the unit mix is known with the intent to maximize the number of units that face north, east and west.
Communal Open Space	Communal open space has a minimum area equal to 25% of the site Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter)	At this stage the extent of the public open space and residential portions have not been defined. The development is atypical in that a significant open space is being delivered on the site. Communal open space has been provided on each residential portion and takes a variety of forms including communal open spaces on podium above retail units, above structure and between buildings. Approximately 8,300m² of communal open space is provided within the reference scheme (excluding the public open space). This is 20% of the total site area (inclusive of the public open space) and **31%** of the site area (minus the open space). If the ADG requirement is only applied to developable land then the reference scheme exceeds the requirement of 25%. Additional communal open space could be provided as roof gardens and will be considered in the next stage of the design Most communal open space is located to the north of the residential buildings and receive high levels of solar access.
Minimum Floor to Ceiling Heights	Minimum ceiling height for apartment and mixed use buildings Habitable rooms 2.7m	The reference scheme has been modelled based on a floor to floor height of 3.1m which allows for compliance with minimum floor to ceiling requirements.

Conclusion

13

13.1 Conclusion

This report presents an ambitious place-based vision for the government-owned land around Cherrybrook Station. It sets out a robust and coherent urban design framework that provides structure and gives purpose to the public spaces and individual buildings that form part of the precinct.

As a result of stakeholder and community feedback the maximum building heights being considered on the site have reduced from eight storeys (considered during the 2020 consultation) to five storeys when viewed from Bradfield Parade.

The report therefore illustrates consistency with the Cherrybrook Structure Plan 2013, the draft Cherrybrook Place Strategy and has been developed in consultation with the community and key stakeholders through the Project Working Group and the outcomes of supporting technical studies.

The project adopted a landscape-led approach to the design of the precinct, that included extensive optioneering and has resulted in a robust reference scheme that is supported by a raft of relevant studies that fulfil the study requirements in an integrated manner. Other more detailed reports and studies are submitted as part of the SSP study package. The strategies and principles contained in the report have been translated into new LEP and site-specific Design Guide controls that both provide a level of flexibility that will enable multiple design outcomes and adequately provide certainty for Council and the community.

The reference scheme presented in this report communicates Landcom's intent and aspirations for the site and demonstrates, with a high degree of certainty, that the proposed planning controls are appropriate to the site and its context and will deliver high quality outcomes for the local community and future residents.



Figure 132: Illustration of the reference scheme from the station entrance showing the station plaza, village square and the view towards the proposed library / community hub and Blue Gum High Forest (indicative only)

SJB Architects

sjb.com.au

We create spaces people love.
SJB is passionate about the
possibilities of architecture,
interiors, urban design
and planning.
Let's collaborate.

Level 2, 490 Crown Street
Surry Hills NSW 2010
Australia
T. 61 2 9380 9911
architects@sjb.com.au
sjb.com.au