Prepared for: Tiberius (Holroyd) Pty Ltd
Date: July 1, 2020

Urban Design Report

1 Crescent Street, Holroyd

architectus™

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This report is considered a draft unless signed by a Director or Principal

Approved by:

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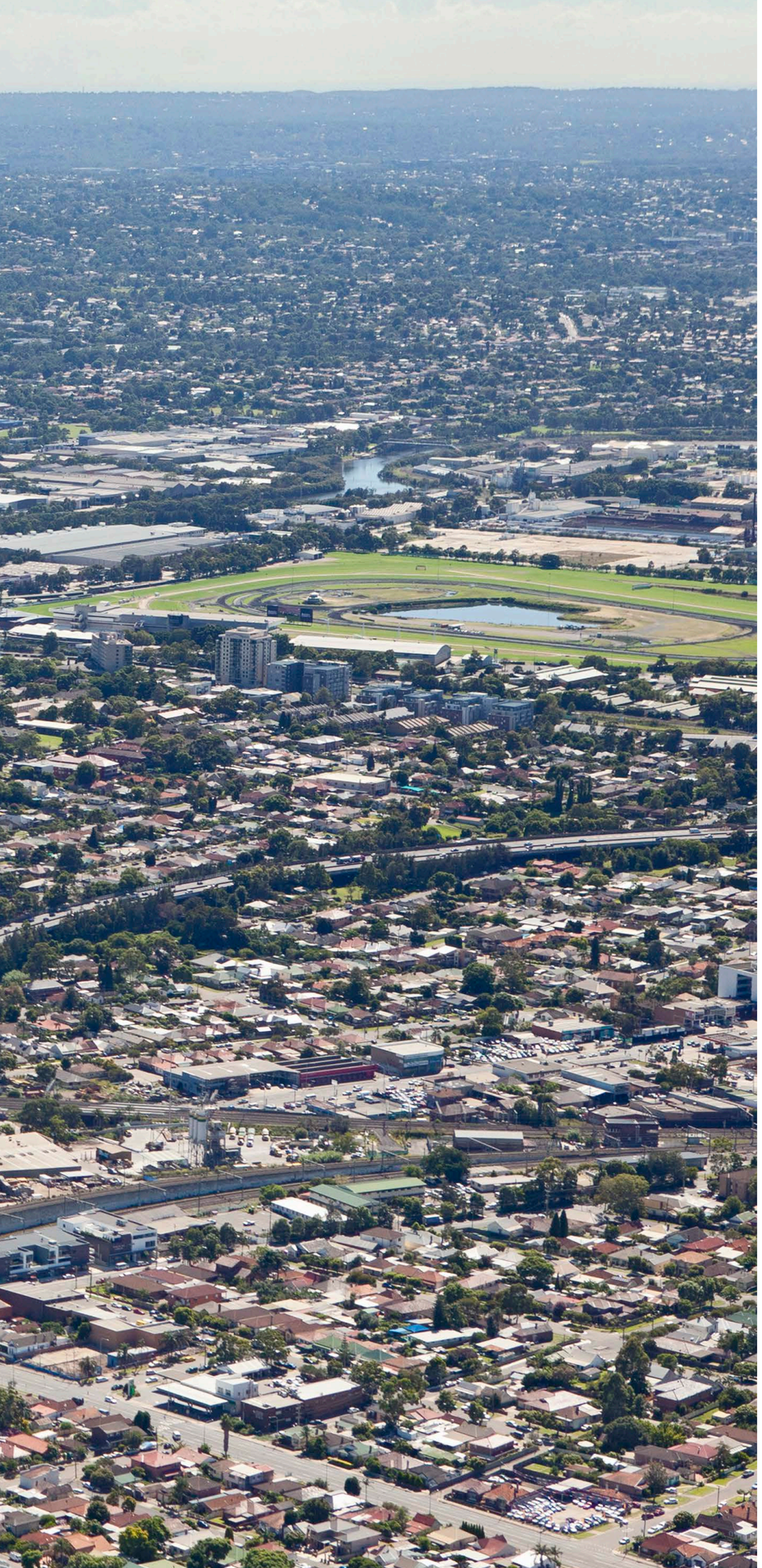


1 Introduction and context

1.1 Introduction

Purpose of this report

Architectus has been engaged by Tiberius (Holroyd) Pty Ltd to provide urban design services for the proposed rezoning and future redevelopment of the site at 1 Crescent St Holroyd.

This report is intended to support a planning proposal for the site following a gateway decision to proceed with the proposal. The scheme presented in this document has been amended to reflect Sydney Central City Planning Panel and the Department of Planning feedback following submission of the original draft Planning Proposal to Holroyd Council in June 2015.

Site location

The site is centrally located to the Merrylands, Granville and Parramatta City Centres. It is close to transport, jobs, retail and open space. It is within 1.2km (15 minutes walk) of 4 train stations (Merrylands, Parramatta, Harris Park and Granville).

The site is on the edge of the Greater Sydney to the Olympic Park Peninsula (GPOP) area, which is planned for significant growth and change.

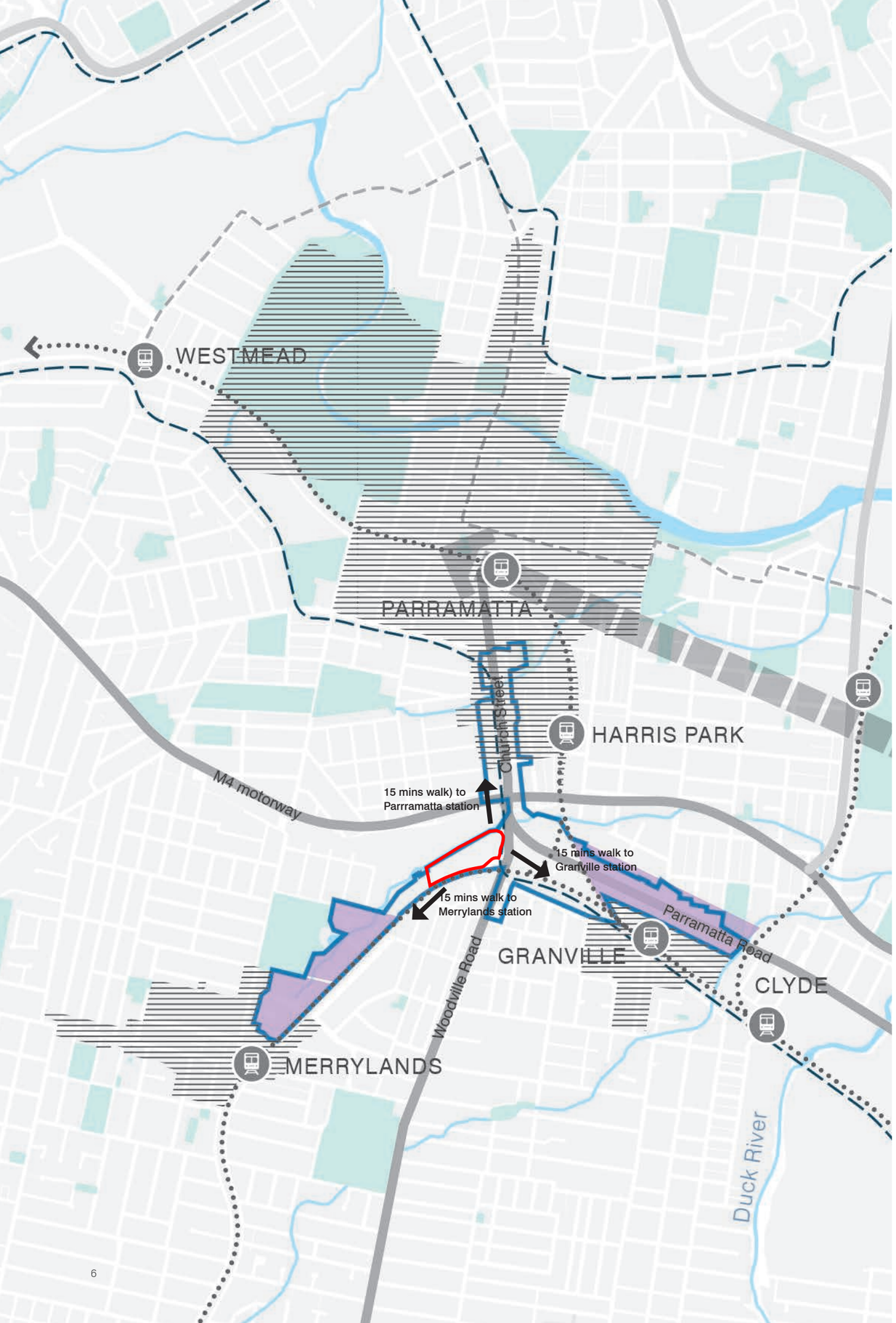
The site lies within an area which has been a commercial corridor, however much of this corridor has either been transitioned to allow residential use (e.g. the Holroyd Gardens development in Holroyd) or is being currently considered to allow residential or mixed use (e.g. Auto Alley within Parramatta and the Parramatta Road corridor around Granville).

The site is the gateway to the Cumberland Local Government Area, located adjacent to key rail and road links to Holroyd from central Sydney.

The site

The site is approximately 38,700 square metres (approximately 3.9 hectares) in area. It is currently vacant and was formerly occupied by WesTrac as their Sydney branch. Adjacent to the site is:

- Crescent Street and the raised railway to the south;
- The key frontage of the Parramatta Road / Church Street intersection to the northeast, and Woodville Road to the east.
- Holroyd Sports ground to the north across the channelised A'Beckett's Creek; and
- Adjoining commercial properties to the west along the northern edge of Crescent St.



The site's context including key strategic changes

Oblique aerial photograph of site from south

1.2 Key existing LEP controls

The site is located within the Cumberland Local Government Area. It is subject to the Holroyd LEP 2013 and has a B5 'Business Development' Land Use Zone, with maximum building heights of 15m and a Floor Space Ratio of 1:1.

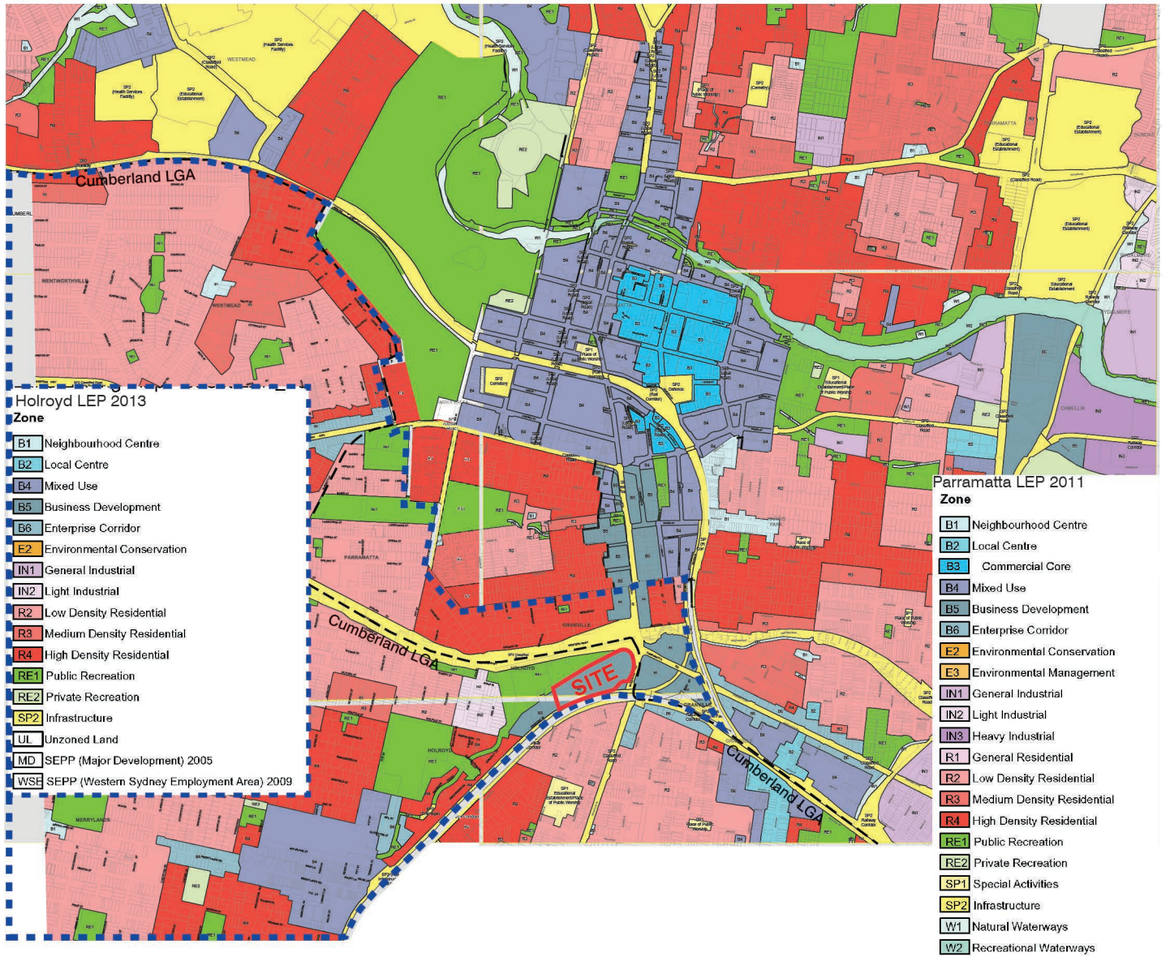
An overview of the existing Land Zoning, Height of Buildings, Floor Space Ratio and Heritage LEP controls for the context of the site is shown adjacent, including extracts from maps provided as part of the following documents:

- Holroyd Local Environmental Plan 2013 (HLEP)
- Parramatta Local Environmental Plan 2011 (PLEP)

The proposal's zoning is similar to that of a range of B5 'business development' and B6 'commercial corridor' zones between the centres of Merrylands, Parramatta and Granville (across both Parramatta and Cumberland Councils).

Ultimate evaluation of the proposal has focussed on Holroyd whilst being sympathetic to key surrounding strategies and plans including those within the adjacent Parramatta Council. This is explained in further detail in the following pages.

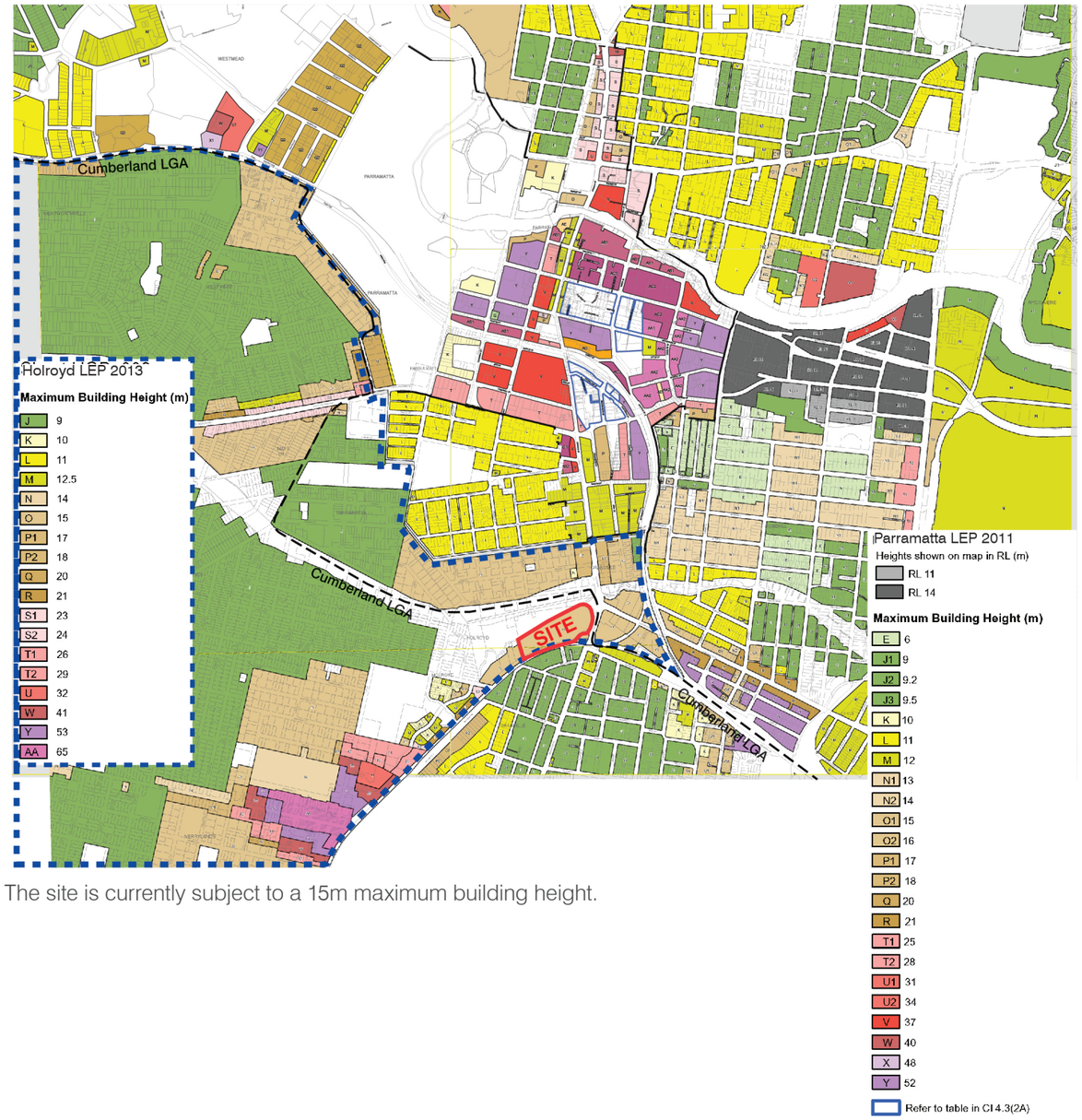
Land zoning



The site is currently within the B5 'Business Development' Zone

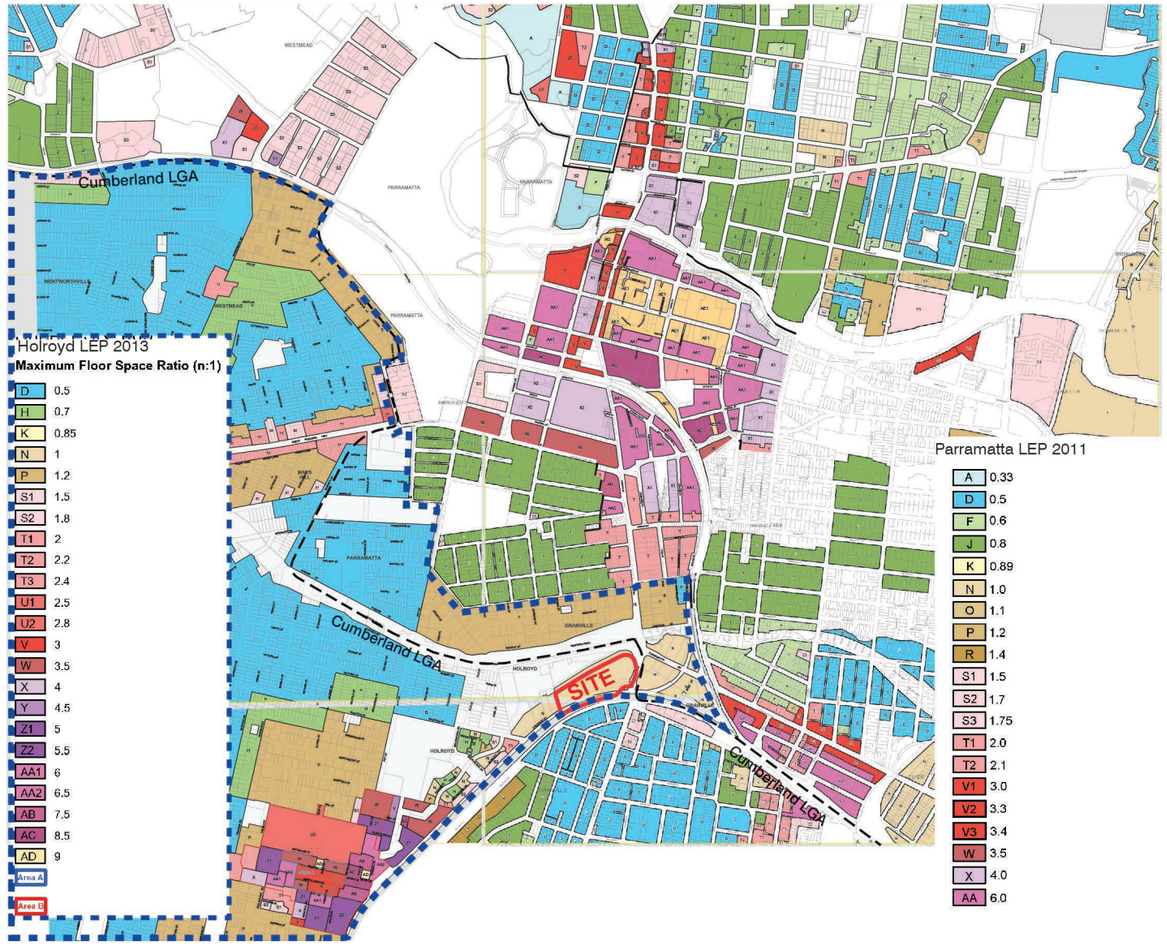
Key existing LEP controls

Height of buildings



The site is currently subject to a 15m maximum building height.

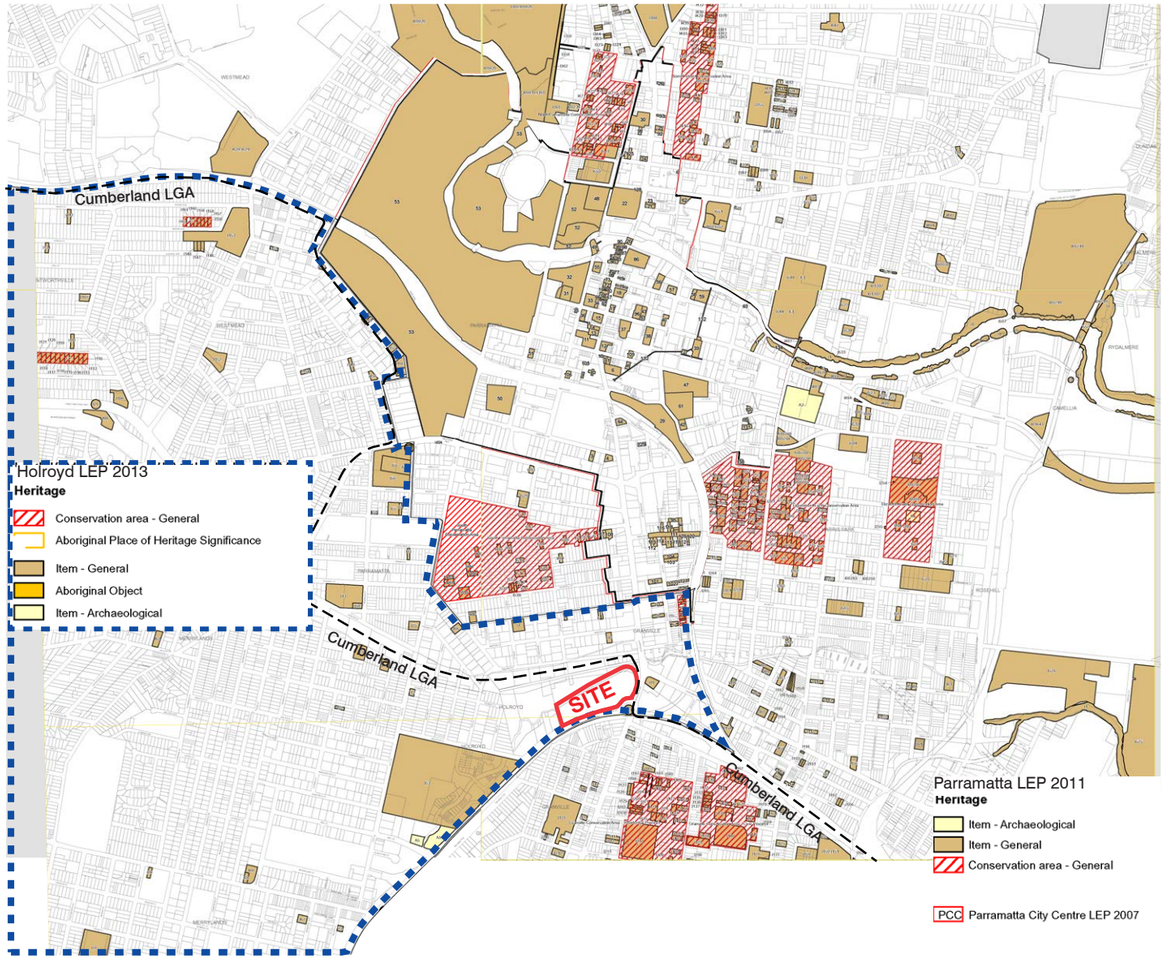
Floor Space Ratio



The site is currently subject to a 1:1 maximum floor space ratio.

Key existing LEP controls

Heritage



The site includes no heritage items.

However, key heritage items near the site include:

Vauxhall Inn, circa 1938-9 (east across Woodville Road)

Railway Memorial (south across Crescent St)

From an urban design perspective, these items are not sensitive to a changing context on the site. A separate heritage study has examined the impacts of the proposal on these items.

1.3 Site analysis

Pedestrian and cycle network

The site is well connected to the cycle network with cycleways, particularly including the existing separated cycleway to the north of the site which runs along the M4 Western Motorway.

There are many pedestrian improvement opportunities around the site including connections to surrounding centres.

Improving the quality of pedestrian connectivity will provide strong benefits both for the site and for the wider community.

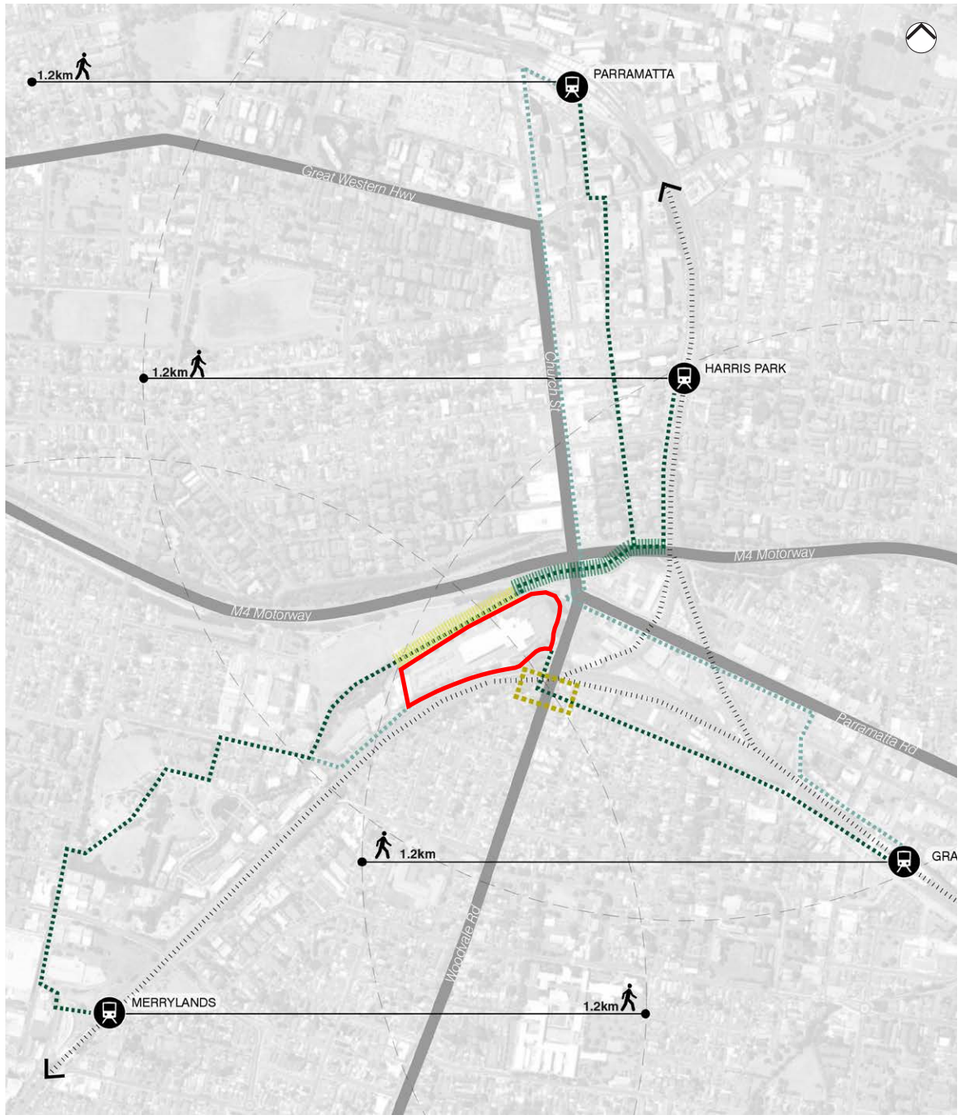
An opportunity exists for significantly improved connectivity across the site subject to the potential for links to continue through Council's land to the north.

Most travlled cycle routes -
(cyclists with Strava app installed)
The site is adjacent to major regional cycleways
Data from labs.strava.com

0 0.2 0.4 0.8 2.0km

Site boundary

Regional cycle route - north of site



Links to 4 stations and 3 centres

Key connectivity improvements:

0 100 250 500 750m

Study area boundary

Major road

Railway

1 New pedestrian/cycle bridge across Woodville Road.

2 Connections from site to Holroyd Sportsground, improving access to path under intersection.

Primary future pedestrian and cycle links

Alternate routes

Access and connectivity

Key issues:

- There is an opportunity to connect the site to existing cycle and pedestrian networks that provide convenient access to the nearby centres of Granville, Merrylands and Parramatta.
- There is opportunity to improve the pedestrian experience along Woodville Road and Crescent Street with landscape setbacks areas and street trees to provide shade.
- North-south connections across the site could help to provide connections between Holroyd Sports ground and the cycleway to the north and Crescent Street to the south, however these will require delivery of connections across A'Becketts Creek within the Sports ground (outside of the site).

Access and Connectivity

Opportunities and constraints

- Around the site are a number of noise sources including the M4 Motorway, Woodville Road and the railway.
- To the north of the site is the Holroyd Sports ground however much of the area facing the site within this sports ground is underutilised open space.
- The channelised A'Becketts creek presents an unattractive barrier between the site and the Holroyd Sports ground.
- There is some existing vegetation, both on-site and within Holroyd Sports ground which provides some existing buffering from noise and pollution sources.

Local Context - Opportunities and Constraints

Adjoining land

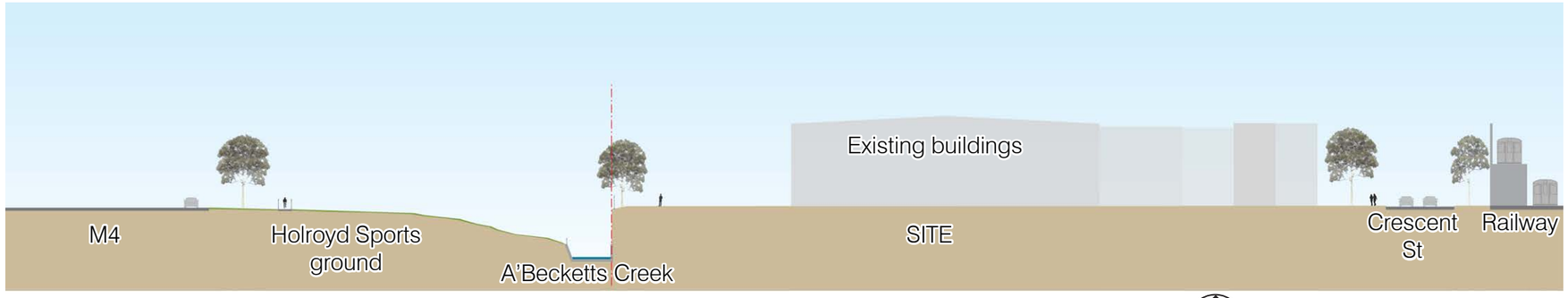
The site's relationship to the north includes:

- A drop of around two-storeys (approx. 6-7m) to the channelised A'Beckett's Creek.
- An area of Holroyd Sports ground which is predominantly underutilised, with a fenced cycleway.
- The M4 Western Motorway which is a key noise source.

To the south the site faces:

- Crescent Street, which has no public footpath.
- Beyond Crescent Street, the wall of the railway helps to isolate the site and acts as a buffer from neighbouring land uses.

The site's relative isolation from surrounding sensitive land uses has been an important factor in understanding its potential towards preparation of the masterplan concept.



Approximate north-south section across site (illustrative only)

Railway (left), Crescent Street and edge of site (right)

View from near M4 north of the site
From left to right - The site, A'Beckett's Creek, Holroyd Sports ground and the fenced cycleway

Site analysis

View from northeast of site to M4 (centre) and Holroyd Sports ground (left)

From Parramatta Road / Woodville Road intersection - showing embankment and trees on this edge of the site (source: Google Street View)

Panoramic view from northwest of the site across creek and Holroyd Sports ground

Western boundary of site with 20 Crescent St

1.4 Site Specific Principles

The diagram adjacent presents a series of high level design principles for the site. Key issues relating to these are described below:

1. **Explore potential to connect to open space in Holroyd Sports ground**

   Much of the Holroyd Sports ground facing the site is underutilised grass in a ‘wedge’ shape. Improving this space will provide benefit both to future occupants of the site and to the wider community.

2. **Provide pedestrian and cycle connectivity to Holroyd Sports ground**

   This will provide future occupants of the site the potential to utilise this space as well as providing important links in the wider pedestrian network for the wider community.

3. **Utilise A’Becketts Creek as an asset**

   Development of the site provides the potential to reconsider A’Becketts Creek adjacent to the site which is currently unattractive, deep, fenced and heavily weeded. This provides potential benefit to both the site and wider community, where this is near the key pedestrian routes between Merrylands and Granville/Parramatta.

4. **Utilise open space views and northerly aspect**

   The site enjoys an east-west orientation and its most attractive outlook is to the north. However use of the northern aspect must also consider the amenity effects of the M4 Motorway.

5. **Respond to gateway location and views**

   The site is particularly prominent from the major junction of Woodville Road, Parramatta Road, Church Street and the M4 entrance ramp to the northeast of the site. Uses such as showrooms may benefit from this exposure. Providing a built form marker is one potential response to these views however the amenity of users in a highly exposed location should also be considered.

6. **Buffer site from noise sources and explore potential for off-site noise buffering**

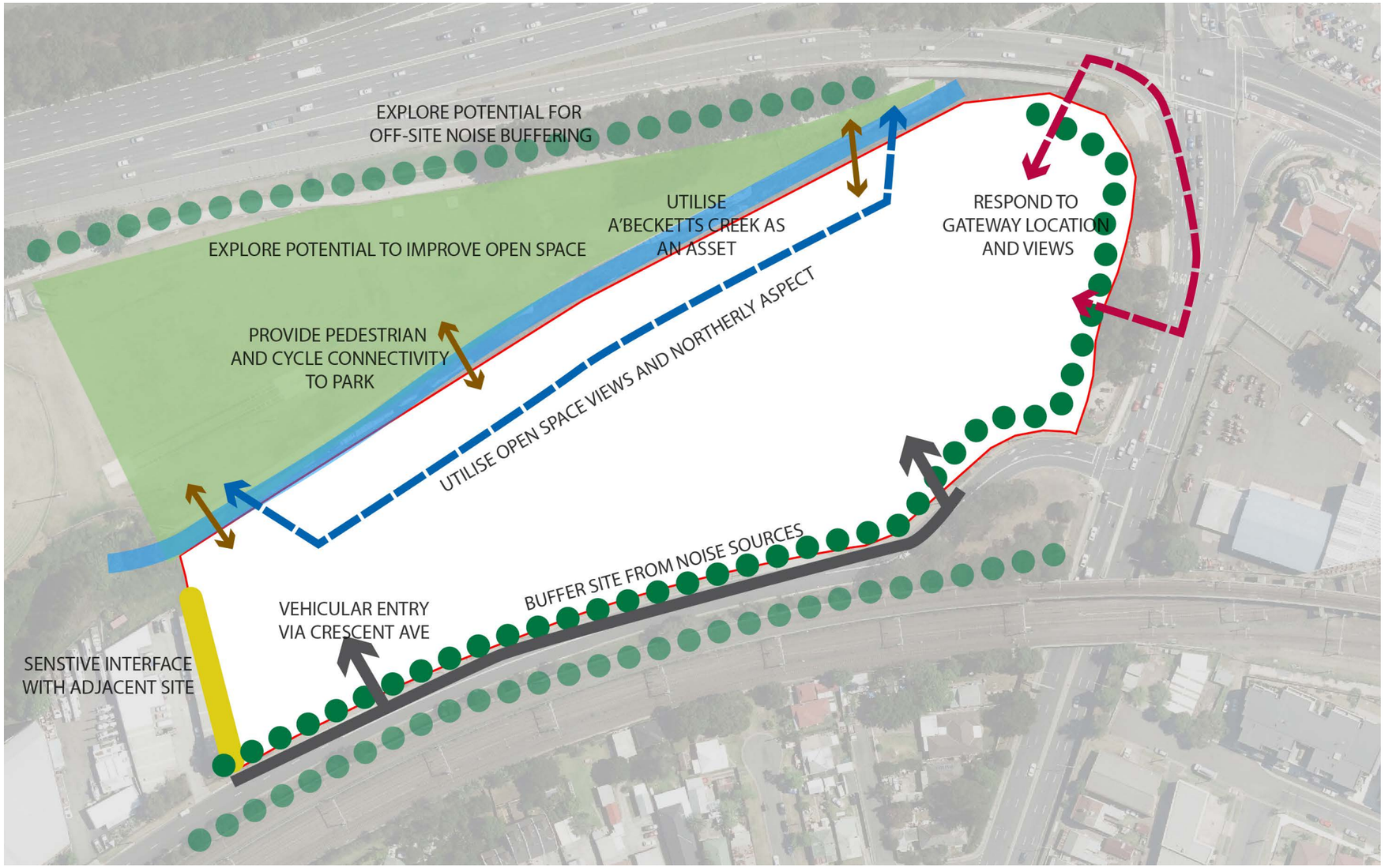
   The site is surrounded by busy roads and rail. Opportunities to mitigate negative amenity impacts (including noise, vibration and pollution) should be considered wherever possible.

7. **Vehicular entry via Crescent Street**

   It is unlikely that this site will be able to provide vehicular entry from any location other than Crescent Street. The site will have to provide an internal network of streets and parking for future uses which connects to Crescent Street.

8. **Sensitive interface with adjacent site**

   The site to the west (20 Crescent St) is a commercial site which provides a blank wall to the boundary. Development of the site should consider both buffering from the existing commercial uses and the potential that this site may also have the potential to redevelop in the future.



Site specific design principles

2 Principles for renewal

2.1 Density in Centres of Sydney

The following provides a summary of building heights and densities being planned within Regional Centres, Major Centres and Urban Activation Precincts/ Priority Precincts within Sydney.

Regional Centre + Major Centres typically have high densities and building heights of 20 - 40 storeys+. Better quality high rise design and better quality public domain are important in ensuring the liveability of these centres in the long-term.

The site compares well to many of these precincts and centres, with its strong links to some of Sydney's key centres and major transport connections. The proposal will respond to these heights and densities.

Parramatta
A recent review of the controls by Parramatta Council recommended the removal of maximum building height controls in the CBD, with expected development between 35-40 storeys. 'Aspire' Planning Proposal is for 90 residential storeys (pictured)

Chatswood
Building heights from 8 to 35 storeys

Green Square
Towers in the Green Square Town Centre are up to 28 storeys. In the majority of the wider Green Square Renewal Area, lower perimeter blocks and tall, slender buildings marking corners and providing landmarks is the adopted typology.

St Leonards
Building heights from 8 to 40 storeys.

Epping Town Centre
Building heights between 48m and 72m (approximately 15-23 storeys).

FSR between 4.5 and 6.0:1.

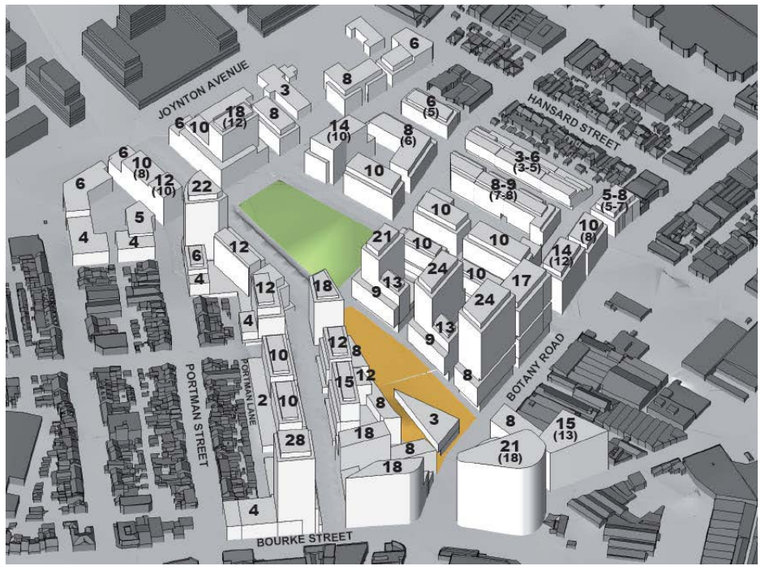
2.2 Lessons from Urban Renewal

Green Square Case Study
The $8 billion Green Square project has been a major focus of the City of Sydney in transforming an industrial precinct into a vibrant and sustainable urban environment.

A focal point of development has been the establishment of a built form typology comprising street wall heights (6-8 storeys) and tall, slender towers. This has been accepted as providing good design and amenity outcome for higher density residential sites. It provides for pedestrian scale streets with good solar access, and slender towers that are attractive and cast narrow shadows.

Key principles for development

- A 'podium and tower' approach should be adopted. Tall, slender towers and low street walls are a superior built form and amenity outcome compared to a consistent mid-rise building (slab blocks of around than 10-storeys or greater) in achieving a similar density with the same footprint.
- Any towers must be slender (see for further detail Architectus principles developed later in this document).
- Towers should be well separated. Ideally (particularly outside of Town Centre) they should be located at greater than the minimum separation identified in the Residential Flat Design Code (24m).
- Lower buildings (podium) should be 6-8 storeys. Upper levels should be recessed.
- Towers should be located to minimise overshadowing of open space.
- Non-residential uses should be encouraged at ground floor, particularly around public open spaces and in centres.



Approved heights in storeys, Green Square Town Centre


Photomontage of the approved development at 881-891 South Dowling Street, Waterloo


Aerial photo - Green Square


Victoria Park: An example of the preferred building typology

2.3 Urban Design Criteria for Urban Renewal

The following urban design criteria is provided as a guide for the development.

It is an accumulation of best practice urban design experience which is applicable to urban renewal, adapted from a core set of design principles by Jan McCredie, Urban Design Manager at Parramatta City Council and former City Architect at Liverpool Council.

The proposal presented later in this document represents a considered response to these criteria.

1 Street Layout

Objectives
The streets should:
- enable easy car access and / or pedestrian links
- relate to their context
- be fit for purpose
- have a minimal impact on the site.
- be designed to ensure that drivers are "aware" and do not have right of passage

Car parking should have minimal impact of the site.

Principles
To optimise the design of the street pattern introduce a pattern of long streets in a connected grid that responds to the natural features and the existing urban context

Locate the street network so it:
- forms a regular grid with dimension related to the proposed densities and building typologies.
- responds to the landform
- provides links to centres and transport nodes

Locate streets:
- to connect to the existing street pattern
- around the edges of open spaces
- that provide views and / or view corridors to:
  - key locations such as waterways and city centres
  - special places / significant trees and / or rock formations
  - enable view sharing from the private domain

- that link to:
  - the adjacent street system
  - that meet the requirements for movement and parking
  - that provide unobtrusive parking for cars, service vehicles, bikes and scooters

- that create:
  - regular street block patterns
  - regular patterns for lots and/or building sites
  - street blocks, lots and/or building sites that relate to the desired building typologies

- that enable buildings to be located and sited so that:
  - positive spaces are created with adjacent and neighbouring buildings
  - fronts of buildings can face fronts of buildings (usually across a street)
  - backs of buildings can face backs of buildings (usually at the rear of a street block)

- that enable buildings to:
  - address open spaces + streets both within the site + adjoining the site are faced by buildings
  - align with open space + streets
  - be sited to respond to the topography to minimize the impact of the street design on the landscape

2 Street Design

Objective: To minimise the impact of streets and optimize their value
Principles
To minimise the impact of streets on the land:
- use street widths and design that reflects appropriate speeds for the context
- use street trees to mitigate climate considerations
- use materials that:
  - reduce heat retention
  - are permeable
  - minimise noise

To optimise safety:
- make clear the typology of the street e.g. a shareway or a preferential vehicle
- use regular kerbs to contain the cars
- use tight and narrow roads and intersections to slow vehicles

To minimise the impact of car parking locate car parks so that they:
- are not at the ends of streets but along the sides of streets
- have narrow entrances
- do not conflict with main pedestrian routes

To minimise the impact of above grade car parking:
- screen car parks from the streets by appropriate uses
- embed car parks within blocks

To minimise the impact of at grade car parking:
- locate car parking along the sides of streets
- organise car parking in a regular not random way
- use regular kerb sections not roll kerbs
- landscape at-grade car parks

3 Open Space

Objective: To optimise the quality of the open space system
The open space system is to:
- reveal and enhance the land and the urban precincts
- provide amenity for the users

Principles
To optimise the quality of the open space system:
- locate the open space system within the site so that it forms linkages to the existing open space around the site

Locate any open spaces within the built upon areas:
- at the end of view corridors
- so that they are defined by buildings
- so that they highlight special features
- adjacent to waterways

Create communal and private spaces within the site that:
- are defined by the buildings; topographical features and / or vegetation
- provide a focus for existing key vegetation
- relate to the proportions of the buildings
- mitigate negative climate impacts / wind / cold etc.
- provide positive climate experiences sun / shelter / views
- support the range of desired activities
- provide an attractive outlook from the buildings
- where possible edge all open space adjoining the site and within the site with streets
- face + edge all open space adjoining the site and within the site with buildings
- relate the height of the buildings to the proportions of the private + communal spaces

4 Land As A Resource

Objective: To optimise the use of land
Land is a limited resource. The street and block patterns, the subdivision patterns and building sites should relate in dimensions and organisation to the proposed building typology so that the land is used in the most efficient way. The buildings should be of the highest appropriate density.

Principles
To optimise the use of land:
– retain and protect all environmentally sensitive land
– relate the characteristics of the land to the characteristics of the uses and building typologies

Relate the depth of the proposed street blocks and building sites to the footprint and height of the proposed buildings within the site in terms of:
– desired functions
– privacy
– solar access
– private and communal spaces
– use the highest densities of buildings that are in keeping with the desired future character and design principles
– introduce and maintain contiguous areas of deep soil and vegetation within the site
– develop building forms that are regular in plan + section: have modest projections plus simple roof profiles so that they relate one to another and minimise apparent density

5 Integration

Objective: To integrate the site into the existing context

New urban areas should be integrated into the existing urban settlement patterns to provide continuity in the urban fabric that reflects the history of settlement

Principles:

– extend any streets from the surrounding neighbourhood into (and where possible) through the site
– dedicate all streets as public streets
– make visual and pedestrian connections into (and where possible) through the site
– make visual connections to important places
– dedicate appropriate open space as public

6 A Safe Secure Environment

Objective: To create a safe secure environment

Design of urban areas should use the physical characteristics to optimise both the perception of safety and actual safety.

Principles

To create a safe secure environment:
– adopt the principles of CPTED (Crime Prevention Through Environmental Design)
– create secure outdoor areas with minimum use of fences
– face streets and open space with buildings
– maximise the number of building entries to the internal street system
– clearly delineate public; communal and private areas

7 Servicing

Objective: To minimise energy requirements and the impact of waste

Principles

Use best practice techniques to minimise energy use. These may include the use of photovoltaics; water collection and recycling.

Use best practice techniques for storing, the collection and disposal of waste

8 The Organisation Of Buildings

Objective: To organise the buildings to suit the density street and block pattern and public domain.

Buildings define and shape the external environment and create the internal living environment. To optimise the quality of the built environment buildings should be organised and designed to enhance the natural environment. Buildings therefore need to respond in two ways. Firstly the siting and arrangement of buildings is critical in impacting on the outcome and secondly the actual design of the buildings that impacts on the quality of amenity internally and externally.

Principles

To optimise the organisation of the built form, buildings should:

– define the spatial structure i.e. the streets and open spaces,
– provide continuity in the urban fabric
– enable flexibility and variety
– minimise the apparent density

9 The Spatial Structure

Objective: To define the spatial structure

The streets and open space areas define the spatial structure in plan. The buildings define the spatial structure in section. To enhance the natural features as revealed by the street and open space patterns as important places the individual buildings and / or groups of buildings should:

– define and reinforce the spatial structure as set out by the streets and open space.

Principles

The streets and open space areas define the spatial structure in plan. The buildings define the spatial structure in section. To reinforce the streets and open spaces the buildings should:

– align with the streets and open spaces
– face and address all external spaces including the streets
– create ‘positive’ not ‘left over’ spaces between and around the buildings
– be designed in plan and section to highlight special places and / or natural features

10 Continuity In The Urban Fabric

Objective: to create continuity in the urban fabric

Continuity of the built form ensures the dominance of the spatial system .The only buildings that should stand out are the ‘special’ buildings. Where buildings are more dominant than the spatial structure the precinct will appear more congested — the apparent density much greater. Legibility, identity and variety are diminished when the buildings do not complement the land.

Buildings should be designed so that there is continuity between the buildings in each precinct and between precincts. This is not to imply that they are all identical, but rather that there is some consistency derived from form, materials, spatial relationships. This will assist in allowing the topography and landscape setting to be more dominant.

Principles

To provide continuity in the urban fabric:

– site and organise buildings with other urban artefacts as a cohesive whole within the natural setting
– use space in plan and section to relate buildings to each other and the land
– align buildings to the street, open space and each other
– employ passive solar design within this regular context and not by orienting the whole building
– use compatible building forms
– use buildings with compatible scales
– provide consistency of treatment in the ground plane
– use compatible materials

11 Variety and Flexibility

Objective: To provide a framework for the urban area that provides variety and flexibility over time

The objective for the framework is that it becomes a vibrant public part of the city

Principles

To provide for variety and flexibility in the urban fabric:

– set up a connected public street and block pattern
– use multiple development parcels
– use multiple owners
– provide a range of lot sizes
– consider different architects

12 Minimising The Apparent Density Of Buildings

Objective: To minimise the 'apparent' density of buildings

Urban environments will present with varying levels of density. Urban areas with similar densities can appear to have very different densities based on how the buildings are organized relative to the land and sight lines. 'Apparent density depends on the street pattern, sight lines, siting of buildings, building form and size, relationship of one building to another.

Principles

To minimise the visual impact of buildings:

– use long 'straight' streets that enable long sight lines
– form view corridors along streets into and through the site
– group buildings tightly in a regular pattern
– align buildings with the streets + with adjacent buildings.
– locate larger + taller buildings along sides of streets and not at the ends of streets
– use a consistent height datum so that one building cuts off view of others and creates clear roof profiles to the sky
– shape buildings in plan and section so that they can define special curtilages for significant trees and / or natural features

13 The Design of Buildings

Objective: To provide planning controls that enable an appropriate design response

To use planning controls that do not impact negatively on best practice design outcomes, site planning and building design.

Well designed buildings are dependent on having a good architect and planning controls that enable the design of buildings to suit the use and the context.

Planning controls:

– should foster good design

Buildings should:

– be fit for purpose
– have an appropriate form and height
– be well designed in a contemporary style
– respond to the micro climate using passive solar techniques.
– use appropriate materials
– be adaptable over time

Principles

Planning controls should:

– be derived from the desired three dimensional outcome and not from the zoning

FSR should be based on:

– 75-80% of the building envelopes for the residential uses (including balconies)
– 80-85% of the building envelopes for the commercial uses

Height should allow for an appropriate response to the land and the roof design

14 Buildings Should Be Fit For Purpose

Objective: To be fit for purpose

Buildings should be designed so that they respond to their proposed uses, site characteristics and context

Principles

To ensure buildings are fit for purpose buildings should reflect:

– the use
– the climate
– the site characteristics
– be well constructed
– meet requirements for all users

15 The Form of Buildings

Objective: To have an appropriate form and height

Buildings should use an appropriate form and height related to use, typology and context

Principles

The form and height the buildings should relate to:

– use
– typology
– street pattern
– site characteristics
– subdivision characteristics
– the desired building forms
– the proportions of the streets and open spaces
– the natural skyline

The form and height the buildings should:

– be modest and respectful
– create positives spaces

The height should:

– relate to the footprint
– create a clear skyline
– allow for view sharing
– 'balance' the topography (This may be by locating a taller building at lower point on the topography and using a consistent height line across the site so that the slope of the topography is dominant.)
– 'hold and define the spatial structure in three dimensions
– 'mark' a special place within the context of the whole such as a community building

16 The Style of Buildings

Objective: To be well designed in a contemporary style

Principles

Buildings should:

– reflect the style of the period and not imitate other styles
– be well proportioned

The external wall of a building impacts on the presentation of the building in the three main ways. It is the part of a building that:

– can provide the scaling elements to proportion the building
– provide 'depth' when the building is viewed obliquely along a street or parallel pathway
– can be used to moderate climatic impacts

The following elements should be used to proportion a building as appropriate:

– roof line
– top floor and ground floor / first floor differentiation on taller buildings
– entrances
– climatic response / louvres / horizontal projections
– vertical circulation definition
– "hole in wall" windows contrasted with panels of glazing
– use of double storey height definition
– balconies / terraces
– window and door reveals and sills

17 The Climate

Objective: To design for the micro climate

Buildings should be designed to suit the climate. Many elements of a building can respond to the climate. These include the plan, the wall and roof design and materials.

The plan can locate living areas to face north, provide courtyards, shelter from winds etc. External walls can provide a range of responses to the climate. In "green" buildings many of the environmental benefits are gained through the design of the external walls It is therefore advantageous to have the external wall as climatically sensitive as possible, to improve the environmental and amenity of each building

Principles

To ensure buildings respond to the microclimate:

– use passive solar techniques

Design the external walls as:

– a shadowing element
– a mass to retain cool and heat
– an element where air passes over the external façade

Enable the use of:

– roof design that can provide shading, water collection, reflect heat
– verandahs, balconies, winter gardens, terraces, courtyards etc
– cross ventilation, louvres
– water tanks
– solar panels / photo voltaic cells
– use climate response to provide meaningful variation between the various orientations of buildings

18 The Materials

Objective: To use appropriate materials

Material selection should be appropriate to the context, construction and energy use.

Principles

Materials should:

– be contemporary
– respond to the construction techniques and site constraints
– have low embodied energy
– be compatible, within and across different buildings
– provide texture and colour
– assist in creating continuity between buildings. This is not to suggest that all buildings should use similar materials but rather where possible some theme of materials and/or colours should be used to create a more cohesive urban form.
– have an appropriate scale. Materials which are too small or large in scale can distort the overall scale of the building.
– require low maintenance and / or suit the maintenance regime
– not have a negative impact on neighbouring buildings such as reflective glass
– not "flatten" the appearance of the building

19 Long Life Loose Fit Buildings

Objective: To have 'long life loose fit' buildings

Buildings should be designed to be adaptable over time. This will optimise the use of energy, minimize construction and to provide elements of cultural reference

Principles

To ensure the longevity and flexibility of buildings:

– design buildings so they can be adapted over time 'Long Life Loose Fit'
– use floor to ceiling heights that are applicable for a range of uses
– do not link car parking requirements to use

20 Public Domain

Objective: To have a well-designed public domain

The design of the public domain should:

– be robust

Relate to the:

– context
– density of use
– climate
– maintenance regime
– materials

Principles

To enable a well-considered public domain design:

– retain and enhance role of existing vegetation
– use sustainable environmental planting within the urban precincts
– be sympathetic to the history and heritage of the site
– reinforce view corridors particularly the extension of streets through the site
– be cost effective and easily maintained
– employ WSUD and permeable paving
– require effective or no irrigation system
– facilitate composting
– use water storage tanks
– provide bike storage
– use appropriate fencing, street furniture etc
– design appropriate interface between the land and the water

21 Further General Design Principles:

Urban Fabric and Points of Difference

In common with all cities and towns laid out at this time, approximately 80% of an urban area is basic urban fabric. The basic urban fabric comprises the street pattern; most of the streets and the residential and commercial buildings. Approximately 15% of the urban areas are comprised of 'special' elements. These are points of minor difference and points of major difference. Minor points of difference include buildings and spaces such as important streets and intersections and minor civic buildings etc. Approximately 5% of an urban area comprises 'special' buildings and spaces. These are points of major difference and are usually those elements of which there is only one in the city or the nation. The site will have a limited number of major points of difference, possibly related to use and more minor points of difference. The minor points of difference may be elements such as a street intersection related to a topographical difference, a view or an important building.

Proportions

Given buildings of a similar size, the proportions of the building will largely determine its overall apparent scale. The proportions are created by the combination of the solids + voids; the articulation and modulation and the use of materials Proportions are the result of how all these elements are organised. Elevations on larger buildings need to be divided into horizontal and vertical patterns at the scale of the whole elevation and then further divided within that larger format .The skill of the architect is paramount in obtaining well proportioned buildings.

Modulation and Articulation

Because buildings are viewed obliquely along a street or pathway, it is essential that there is modulation and articulation in the external walls. The modulation and articulation is the result of how the building is designed, the size of the building, its relationship to its neighbours, climate and materials etc

The degree and type of modulation and articulation will depend on the type of building; its density; its context as well as whether the buildings are closer to the line of sight and / or the street boundary Modulation and articulation contribute to the proportions of a building and the depth in the elevations when viewed obliquely. Modulation and articulation provide shadow lines and rhythm. This presents the street and public domain with a sense of scale and with points of visual interest.

Modulation usually refers to the changes in the depth of the wall and the way in which elements are detailed. Detailing which may highlight openings; define a plinth etc. Elements such as the sill, window and door reveals; indentations in plan and/or section; blade party walls; balconies; verandas and canopies, pilasters all contribute.

Articulation usually refers to the shape of the building in plan and section.

Appropriate proportioning by modulation and articulation can result in the "apparent" bulk of a building being reduced. The external walls need to be articulated and modulated so that the buildings appear well proportioned, too much modulation and articulation and the buildings will appear larger in size, too little and the buildings will appear larger.

Renewal example - Rhodes DCP

2.4 Tower slenderness

Architectus has researched methods to achieve tower slenderness to provide good urban design, internal amenity and address impacts of tower bulk on surroundings. The aim of this research is to develop 'rules of thumb' for appropriate tower proportions.

Benefits of slender towers

As urban densities increase the slenderness of tall towers are becoming an important consideration – especially for residential towers and their separation.

Benefits of slender towers include:

– Overcomes the sense of tower bulkiness and overwhelming of the public domain.

– Opportunities for views of sky between buildings and a feeling of openness.

– Minimising overshadowing, particularly extended periods of overshadowing in comparison to long elevations of lower scale development.

– Enables a good sunlight and daylight to the public domain.

– Creating better separation between buildings and better views - improves the amenity, privacy and outlook of apartments.

– Increased residential amenity, as the floor-plates are more likely to achieve good solar access and ventilation requirements.

– Limits the number of apartments per level and the length of corridors.

– Ensures that apartments are not too deep and rooms don't rely on 'borrowed' light and air.

Local examples of floorplate controls

New South Wales

SEPP 65 and the Residential Flat Design Code provide design controls for all residential flat buildings in NSW. The Code has controls for building depth and separation and amenity. Together with fire regulations, the proper application of the Code should have the effect of limiting floorplates in residential buildings. There are however no specific state-wide floor-plate controls for tall buildings in NSW.

Green Square, City of Sydney Council

In the South Dowling St Precinct within Victoria Park, Zetland (part of Green Square) detailed consideration has been given to the slenderness of towers. The resulting controls allow for towers which are a height of 22-storey (approximately 70m) to be designed to a maximum of 750sqm of floor area including balconies (referred to here as 750sqm Gross Building Area).

A significant separation distance between towers is also provided as this precinct is an inner city area but is not within a designated urban centre.

Central Sydney

In Central Sydney, a 1,000sqm Gross Floor Area maximum is applied to residential tower buildings. This would equate to 1,333sqm GBA. A maximum horizontal dimension of the building facade of 40m is also applied. Towers in Central Sydney have maximum building heights ranging from 60m to 235m.

The examples provided on the following page have been collated by Architectus to demonstrate a broad range of residential tower footprints from recently developed sites in Sydney, and internationally where a local example cannot be found.

They have been ordered by envelope/floorplate size and reflect a range of:
– Site sizes
– Tower floorplates
– Approaches to key issues in SEPP65 and the Apartment Design Guide.
– Dimensions, bulk and visual slenderness.

Findings

There are a variety of different floorplate controls in other cities around the world. Ultimately, the controls are a function of different priorities for a city – whether the aspirations are access to sunlight, views, or densification and consolidation. Generally, it seems that larger cities have more relaxed floorplate controls, while smaller cities seek slimmer towers and more separation between towers.

A floorplate control that is simply a percentage of the site area can produce very bulky buildings on large sites or amalgamated sites.

Reducing the size of upper floorplates is a solution to reducing visual bulk for very tall buildings (say, over 50 storeys). In Sydney's climate, it is usually preferable to have a podium/tower form of development where the podium relates to the alignment and scale of the street and the tower relates to a wider context of towers. It is usually preferable to not have "wedding cake"or stepped built forms in favour of simplicity of built form.

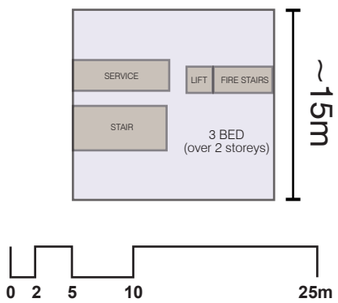
It is now commonly acknowledged that the Green Square provisions (700sqm floorplate, 22-25 storeys) produce a tower with slender proportions.

Taller buildings can accommodate larger footprints, and still achieve good internal amenity, as more floor space is dedicated to lift cores/services, which is demonstrated in the subject site's masterplan.

Tower slenderness

One Madison Park New York

~300sqm floorplate/GBA
50 storeys



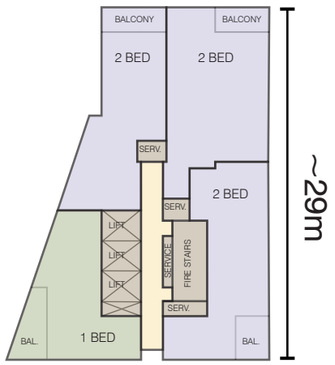
1 apartment per floor (typical)

Slenderness ratio (depth:height) approx 1:12

No similar examples in Sydney though some proposals in Melbourne.

“Metro Spire”, Chatswood

430sqm floorplate / GBA
36 storeys



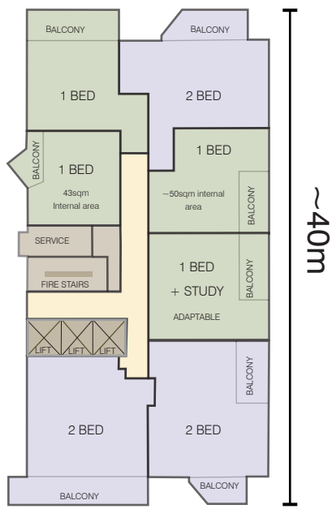
4 apartments per typical floor

Prominent location in group of towers (see ‘Metro Grande’ adjacent) has led to small floorplate.

Slenderness ratio (depth: height) approx. 1:5.5 - 1:10.5

Victoria Square North tower

750sqm floorplate / GBA
26 storeys



7 apartments per typical floor

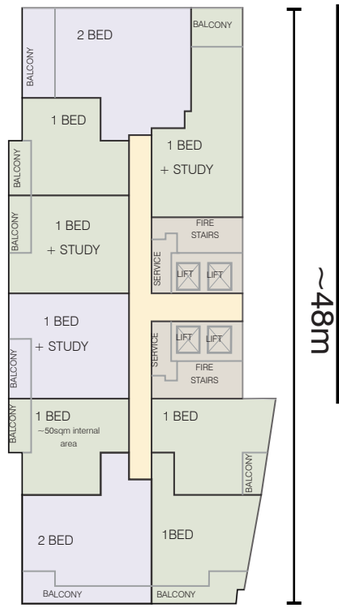
Apartment sizes include small studio (<50sqm)

Slenderness given detailed consideration

Slenderness ratio (depth: height) approx. 1:6

“Metro Grand”, Chatswood

830sqm floorplate / GBA
46 storeys (39 storeys above podium)



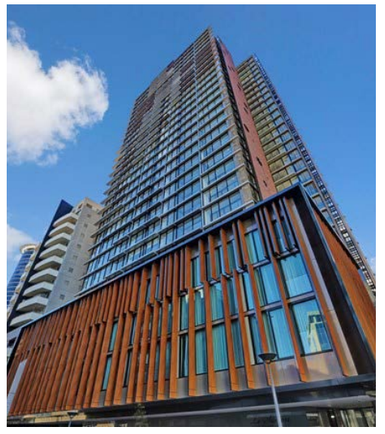
9 apartments per typical floor

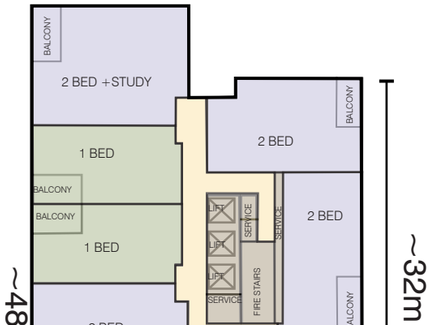
Height and common angle of views gives greater appearance of visual slenderness.

Slenderness ratio (depth : height) approx. 1:7.6 above podium

Atchison Street, St Leonards

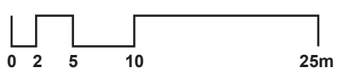
830sqm floorplate / GBA
28 storeys (24 storeys above podium)





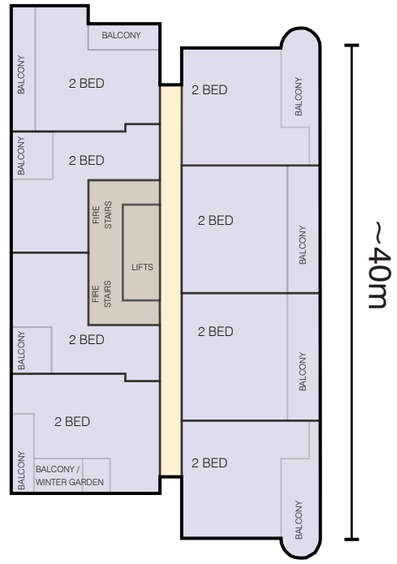
7 apartments per typical floor

Slenderness ratio (depth : height) approx. 1:2.6 above podium



“Skyline”, 42 Walker St Rhodes

1000 sqm floorplate / GBA
25 storeys



8 apartments per typical floor

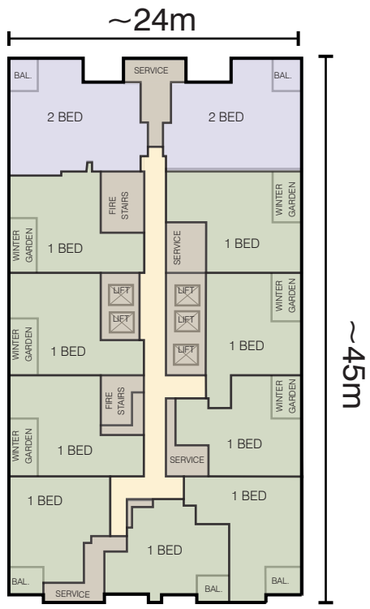
Height and common angle of views gives greater appearance of visual slenderness.

Slenderness ratio (depth : height) approx. 1:3 above podium

Tower slenderness

Meriton Chatswood (west)

1070sqm floorplate / GBA
17 storeys



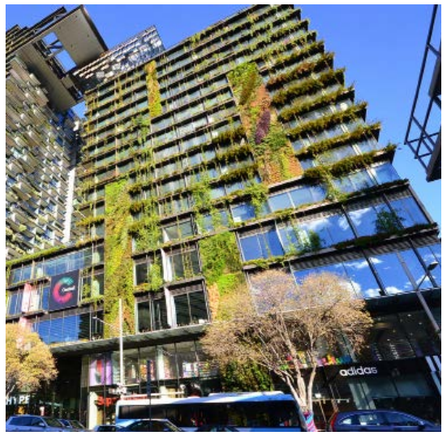
10 apartments per typical floor

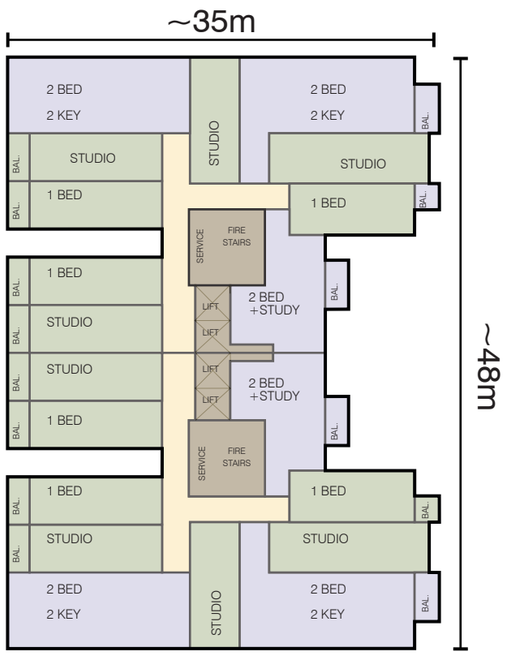
Common angle of views gives greater appearance of visual bulk.

Slenderness ratio (depth : height) approx. 1:3 above podium

One Central Park (west)

1650sqm floorplate / GBA
17 storeys





20 apartments per typical floor (10 / core, 12 incl. 2 key)

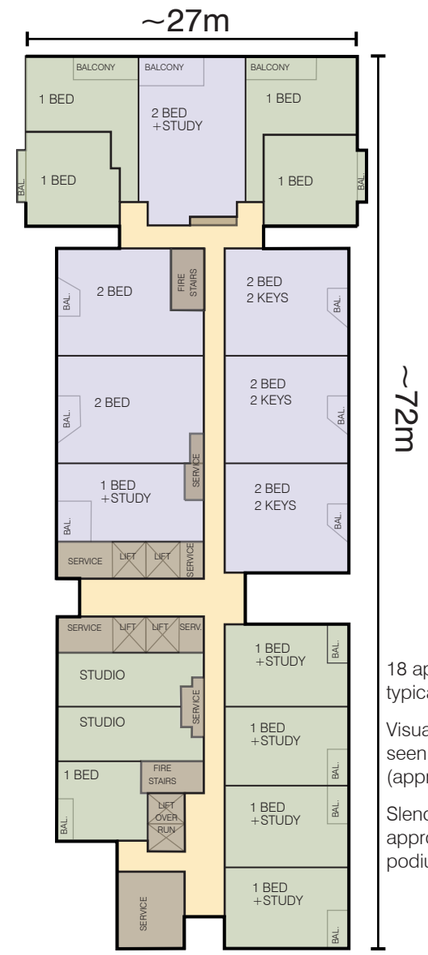
Indentations to not meet ADG requirements

Unlikely to be considered visually slender

Slenderness ratio approx. 1:1 above podium

Crown V Parramatta

~1750sqm floorplate / GBA
30 storeys



18 apartments per typical floor (2 cores)

Visually bulky when seen along long face (approx. 72m)

Slenderness ratio approx. 1:1 above podium

Architectus' recommendations

In order to achieve slender towers the following rules-of-thumb are recommended:

- **Tower lengths should generally be limited to a maximum between 35-45m**
- **Building articulation should be provided to divide longer towers (typically 40m+) into a series of vertical forms**
- **Views to towers should form a key part of the early design process**

The above recommendation is subject to detailed testing for each site, and in consideration of the site's context and constraints. Towers might not be able to achieve the above maximum floorplates if they cannot meet SEPP 65 standards for internal amenity.

These considerations have formed an integral part of the design processs for this site and the development of the proposed masterplan. In particular the tallest towers proposed have excellent slenderness outcomes as they are 30-35m in length.

Artists impression of landscape and public domain (Source: Arcadia)

3 The proposed master plan

3.1 The Proposed Masterplan

The preferred masterplan is shown opposite and further described through this document. Its key features include the following:

- A major new publicly accessible open space for Holroyd
- Excellent pedestrian connections and permeability
- Maximum building frontage to open space areas
- Well separated residential built form with proposed building heights from 8 to 28 storeys
- Building forms enjoy northerly aspect with views across open space and Sports ground
- Ground level commercial and retail uses
- Good vehicle access and circulation
- On and off-site overshadowing impacts minimised through superior design
- Appropriate interface with adjoining uses on the western boundary

Annotated Masterplan

1:1,500 0 15 30 45 60 75M

The Proposed Masterplan

3.2 Key Statistics of the Proposed Masterplan

Masterplan Building heights

– Generally 8 storeys (approx. 32m)

– Towers of 12-28 storeys (maximum approx. 96m)

Potential yield of land uses:

– 15,005sqm commercial GFA (approx. 12,755sqm NLA) including:
  – 3,500sqm supermarket
  – 2,000sqm showroom
  – 100 space childcare
  – gym, medical and other uses
– 97,856sqm approx. residential GFA or approx. 1,109-1,255 apartments depending on apartment sizes and mix.
– Floor Space Ratio - 3.4:1 in the RE1 zone and 4.2:1 in the B4 zone

A detailed schedule of uses is shown on the following page.

Site areas and open space

The site areas based on the current concept masterplan include approximately:

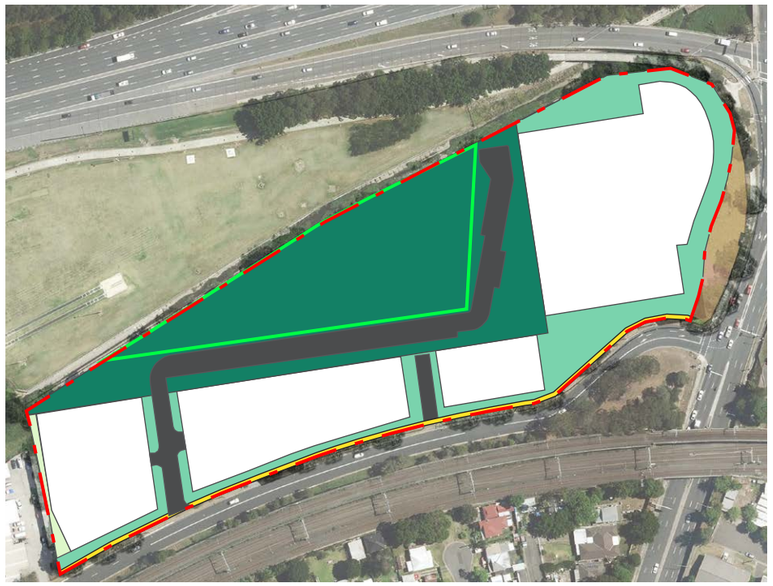
– 7,714sqm of RE1 zoned land for public recreation (approx. 20% of the site); plus a further

– 8,658sqm of other publicly accessible open space throughout the site

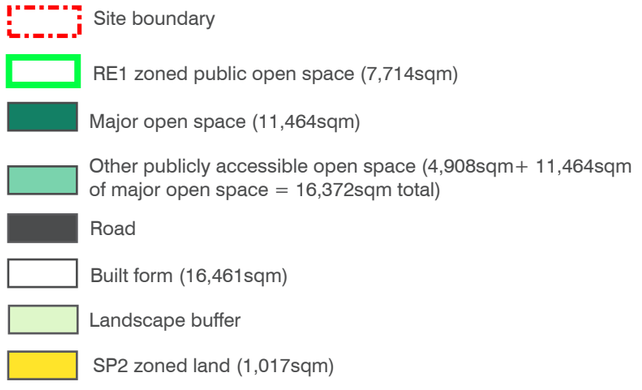
This provides a total of 16,372sqm or approx. 43% of the site area.

The open space provided has the potential to link through to the existing Holroyd Sports ground (approx. 4.8Ha), creating a combined open space of nearly 6 Hectares.

The open space outcomes for the site are significant, achieving around 43% of the site as publicly accessible open space, excluding the road around its edge. As a point of comparison, redevelopment of the Rhodes West area (Canada Bay Council) has delivered around 20% open space (excluding roads). Achieving this proportion of open space provides an excellent urban design outcome for the site.



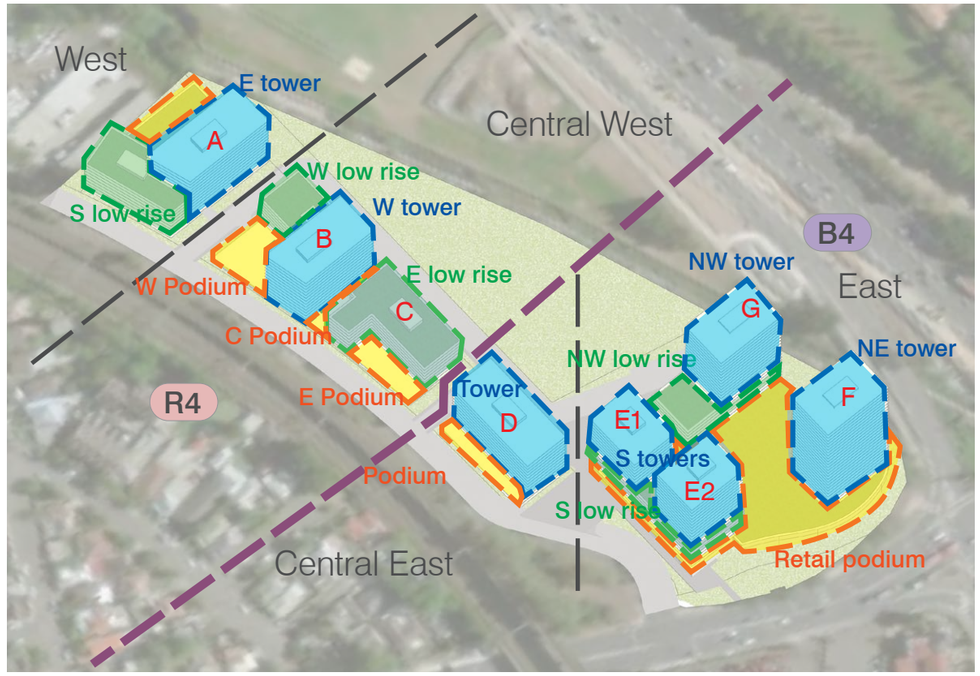
Provision of open space



Key Statistics of the Proposed Masterplan

Detailed block schedule and locations

Location of blocks identified in schedule
Note: 'Podium' is below other building parts in 'East' block, while not below in other areas



Schedule by zone

Zone	R4	B4	RE1	SP2-1 Crescent St	Totals	Total R4+B4
Area of zone	11,560	17,613	7,714	1,017	37,904	29,173
GFA shown in model envelopes	39,038	73,822			112,860	112,860
FSR as shown in model	3.4	4.2			2.98	3.87

Detailed block schedule

Zone	R4									B4							
Block	West			Central west						Central east		East					
Building part	South low rise	Podium	East tower A	West podium	West low rise	West tower B	Central Podium	East low rise C	East podium	Tower low rise D	Podium	Retail podium	South low rise	South tower E1	South tower E2	Northwest low rise	Northwest tower G	Northeast tower F
Envelope footprint (sqm)	796	1,236	1,067	695	616	911	343	1,267	417	1,100	277	7,736	1,780	720	720	1,300	840	840
Storeys of element	8	1	14	1	8	14	1	8	1	12	1	2	6	9	14	6	15	26
Total storeys (incl. elements below)	8	1	14	1	8	14	1	8	1	12	1	2	8	17	22	8	23	28
Total envelope area	6,369	1,236	14,938	695	4,928	12,754	343	10,136	417	13,200	277	15,472	10,680	6,480	10,080	7,800	12,600	21,840
Total GFA (75% envelope)	4,777	927	11,204	521	3,696	9,565	257	7,602	313	9,900	208	11,604	8,010	4,860	7,560	5,850	9,450	16,380
Total GFA - commercial		927		378	352	795	257	950	313	825	208	10,000						
Total GFA - residential	4,777		11,204	320	3,344	8,770		6,652		9,075		1,604	8,010	4,860	7,560	5,850	9,450	16,380

3.3 Solar Access Testing

The diagrams adjacent demonstrate the potential solar access impacts of the proposal in midwinter (June 21).

The proposal, when read with the illustrative floorplans over the previous page, is able to achieve good solar access outcomes and will be able to achieve SEPP65 solar access compliance.

The proposal will create overshadowing of some existing buildings. The most affected sites for overshadowing are those to the south between the railway line and Wallace Street. The design of the proposal has been arranged where possible to minimise overshadowing impacts on these neighbours through encouraging slender towers which are oriented to reduce the footprint of their shadow. The design is capable of ensuring that all properties receive a minimum of 2 hours sun in midwinter.

Areas receiving 2 hours or less solar access between 9am-3pm midwinter (June 21)

Solar access 9am Midwinter (June 21)

Solar access 10am Midwinter (June 21)

Solar Access Testing

Solar access 11am Midwinter (June 21)

Solar access 1pm Midwinter (June 21)

Solar access 3pm Midwinter (June 21)

Solar access 12pm Midwinter (June 21)

Solar access 2pm Midwinter (June 21)

3.4 Interface with Adjacent Business Development Land

The site's relationship with adjoining land within the B5 Business Development zone has been an important consideration in the design process.

There are four sites to the west of the subject site along Crescent Street within the B5 Business Development Zone. The site has a direct boundary relationship to 20 Crescent Street while other sites are further to the west. 20 Crescent Street includes a series of small commercial units accessed via a central driveway and includes blank walls to both side boundaries (including to the site).

Adjacent sites within B5 Business Development Zone

20 Crescent Street (from Crescent St)

Panoramic photograph of existing western boundary of site (towards 20 Crescent St)

Interface with Adjacent Business Development Land

Design and amenity of interface

The proposal has been designed to provide a sensitive interface to the boundary with 20 Crescent Street:

– A 30m setback is provided to where apartments within the proposal will face the boundary directly.

– Around 5-10m is provided from the nearest point. At this location the proposal will provide high-level or translucent windows only (apartments will not face the boundary directly).

This design provides:

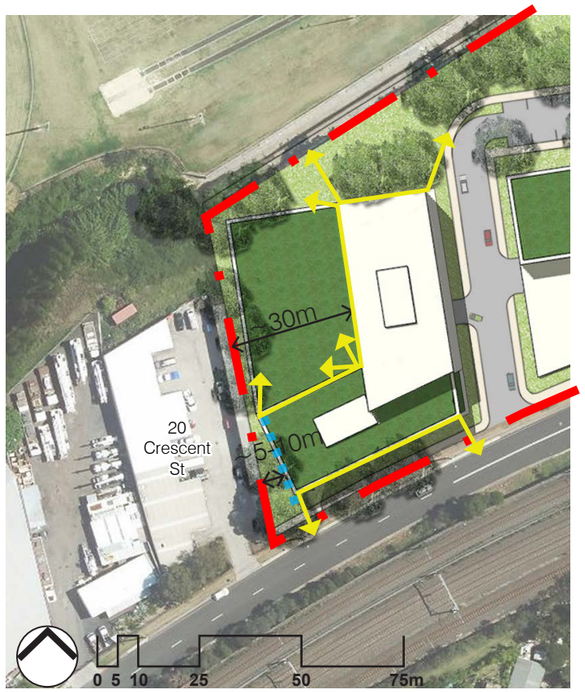
– A cohesive building form which addresses Crescent Street and provides passive surveillance of it.

– Good amenity outcomes for apartments, with minimised overlooking to and impacts from 20 Crescent St.

– Some articulation of the western building facades (through high level and translucent windows as well as design articulation) rather than a blank wall directly on the boundary.

Future potential of further B5 sites

Should the remaining B5 sites transition over time to permit residential use (as intended for this site and already complete for Holroyd Gardens to the south) the adjacent sites can develop to a similar development form as proposed for the site, as described in the plan opposite. This form allows for a podium to address Crescent Street with intermittent towers.



Proposed relationship to western boundary

Indicative development forms of adjacent sites if redeveloped for mixed use or residential uses

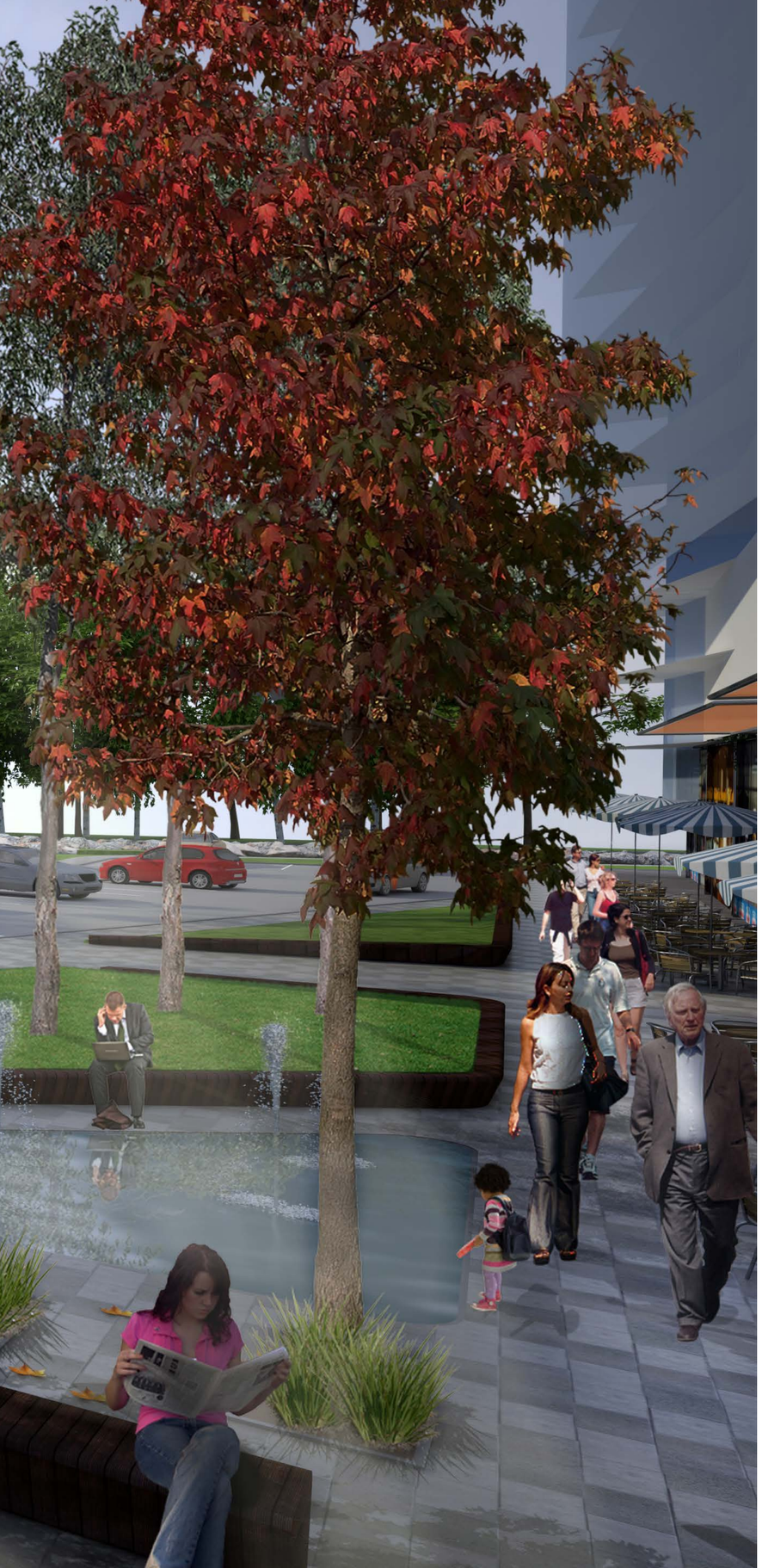
High level or translucent windows only - not used as primary aspect for apartment

Primary aspect for apartments

Built form

Potential open space

Artists impression of landscape and public domain (Source: Arcadia)



4 Conclusions and recommendations

4.1 Conclusions

The site and its strategic context

1 Crescent Street, Holroyd is a major site (approximately 3.9 hectares in area) located near the confluence of key transport routes and within walking distance of the major centres of Merrylands, Parramatta and Granville.

The site is on the edge of the GPOP area which is planned for significant growth and change. Much of the commercial corridor that the site lies within has transitioned to allow residential uses or is being considered for future residential or mixed use.

Key considerations for the masterplan

The proposed masterplan and landscape masterplan have been prepared for the site by Architectus and Arcadia in response to both strategic issues surrounding the site and its local influences. Key drivers for the design have included:

– Best practice urban design approaches including urban design principles for renewal, lessons from major urban renewal areas and tower slenderness principles described in this document.

– Consideration of the heights and densities being proposed within the near context of the site (particularly Parramatta and Granville) and in other centres and priority precincts within Sydney.

– Site specific opportunities and constraints, particularly where the site has the potential to contribute to connections to and engage with the Holroyd Sports ground site (subject to input from Council).

Key features of the proposal

Key features of the preferred masterplan include:

– The provision of a major new publicly accessible open space, with the amount of open space on site significantly exceeding that of other developments within Sydney.

– Excellent pedestrian connections and permeability

– Maximum building frontage to open space areas

– Well separated residential built form with proposed building heights from 8 to 28 storeys

– Building forms enjoy northerly aspect with views across open space and Sports ground

– Ground level commercial and retail use on eastern part of the site

– Good vehicle access and circulation

– On and off-site overshadowing impacts minimised through design

– Appropriate interface with adjoining uses on the western boundary

Key public benefits

Key public benefits of the proposal include:

– Major new open space which links to and engages with the Holroyd Sports ground

– Increased pedestrian and cycle accessibility, including provision of new links and improvements of others.

– New local shops and facilities (may include supermarket, speciality retail, gym, childcare, medical, showroom, cafes, restaurants, etc.)

– Visual improvement to prominent site at the Gateway to Holroyd

– Consistent with local and state planning strategies of metropolitan Sydney

– A commitment to design excellence

– Retention of on-site employment while also providing new housing.

Artists impression of landscape and public domain (Source: Arcadia)

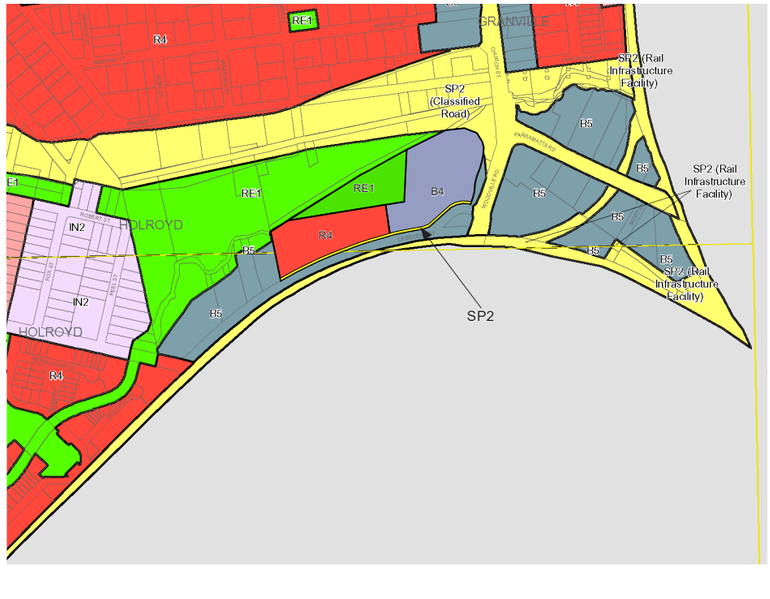
4.2 Recommendations and Proposed LEP Amendments

Consistent with the preferred masterplan for the site described in this document, this planning proposal is seeking to amend the maximum building height and FSR provisions for the site as well as permit residential uses on site.

Following feedback from DPE, a preferred approach to zones and controls have been developed. Recommendations for amendments to key LEP controls are shown on the page opposite.

These amendments allow the delivery of the preferred masterplan as shown in this document with some flexibility to allow for the evolution of this through the detailed design process and future changing needs.

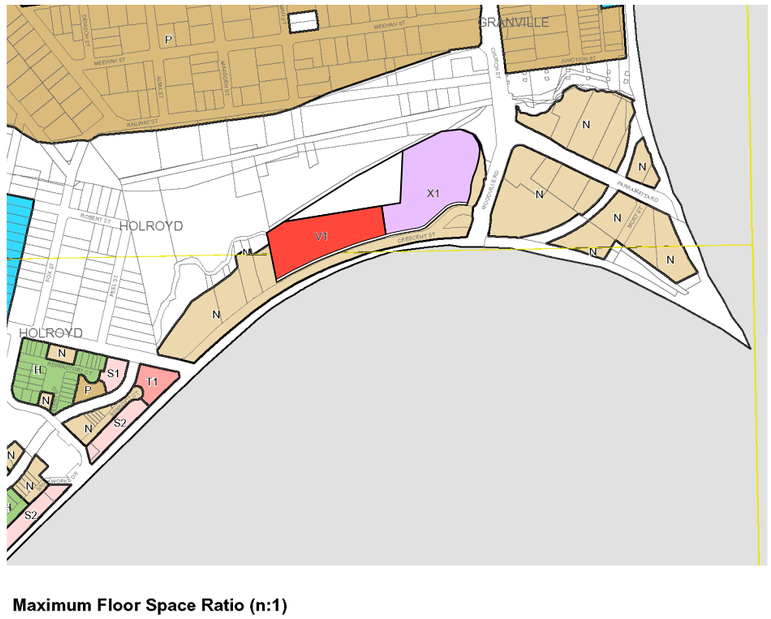
Proposed amendments to LEP Land Zoning Map (extract)



Zone

B1	Neighbourhood Centre
B2	Local Centre
B4	Mixed Use
B5	Business Development
B6	Enterprise Corridor
E2	Environmental Conservation
IN1	General Industrial
IN2	Light Industrial
R2	Low Density Residential
R3	Medium Density Residential
R4	High Density Residential
RE1	Public Recreation
RE2	Private Recreation
SP2	Infrastructure
UL	Unzoned Land
MD	SEPP (Major Development) 2005
WSE	SEPP (Western Sydney Employment Area) 2009

Proposed amendments to LEP Floor Space Ratio Map (extract)



Maximum Floor Space Ratio (n:1)

D	0.5
H	0.7
K	0.85
N	1
P	1.2
S1	1.5
S2	1.8
T1	2
T2	2.2
T3	2.4
U1	2.5
U2	2.8
V	3
W	3.5
X	4
Y	4.5
Z1	5
Z2	5.5
AA1	6
AA2	6.5
AB	7.5
AC	8.5
AD	9
V1	3.4
X1	4.2

Recommendations and Proposed LEP Amendments

The proposed building height controls have been refined from earlier proposals to respond to the Panel's comments including a greater number of height zones and to ensure lower heights particularly relating to the site to the west.

Although suggested by the Panel that the height map should be located directly around the envelope for the eastern towers, the proposed height of building map includes broader zones for heights. We understand the Panel's intent is to ensure that the Concept shown in this concept is delivered, however we consider that flexibility needs to be provided in controls to allow for:

- Detailed design development including improving SEPP65 outcomes through design refinement.
- Any site constraints that may arise as a result of further investigation of matters such as utilities and infrastructure, and any potential site contamination.
- Any future DCP requirements provided by Council that have not been foreseen (site specific or changes to the general provisions).

The intent is that the proposed built form will largely reflect the proposed Concept masterplan, however at zoning stage it should not be required to lock in a single design, as design there will be need for further refinement at a DA stage. A DCP will also be developed for the site to provide further guidance on these issues.

Proposed amendments to LEP Height of Buildings Map (extract)

Maximum Building Height (m)

O	15
U	32
Y	54
Y1	61
Z	77
AB	80
AB1	96

Note:
Assumptions in calculating heights include:
- 3.2m per residential storey
- 3.6m per commercial storey
- 5.4m for lift overrun and plant

The base calculations have then been rounded to the nearest metre or in some cases to a height designation existing in the LEP

Annotated proposed Concept masterplan

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