URBAN DESIGN REPORT FOR A MIXED USE DEVELOPMENT 181 JAMES RUSE DRIVE CAMELLIA

FOR STATEWIDE PLANNING
DECEMBER 2015

stanisic architects

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1 INTRODUCTION

1.1 EXECUTIVE SUMMARY

This Urban Design report has been prepared by STANISIC ARCHITECTS on behalf of Statewide Planning Pty Ltd to assist Parramatta City Council to review key planning controls for the site at 181 James Ruse Rive, Camellia. This site is has strategic importance being located along the Parramatta River opposite the University of Western Sydney and within 2km of Parramatta City Centre.

In parallel, the Department of Planning and Environment and Council have commissioned a discussion paper "Camellia: 21st Century Business, Industry and Entertainment Precinct - Discussion Paper, Version 1. It canvasses long term opportunities for this site and the wider precinct - known as the Camellia Precinct. This paper acknowledges that the Camellia Precinct is "one of the most important employment land precincts in metropolitan Sydney, with great strategic value in terms of its size, location, activity and opportunities for future development."

At a meeting of 28 April 2014, Council resolved to forward Statewide's planning proposal seeking a conditional gateway determination for the site and requested that additional studies and information is provided to Council, to satisfactorily address outstanding issues, prior to a public exhibition of the planning proposal which includes:

1. Site contamination and remediation (SEPP 55 – Remediation of Land)
2. Flood impacts (s117 Direction 4.3 Flood Prone Land)
3. Acid sulfate soils (s117 Direction 4.1)
4. Potential loss of employment land (s117 Direction 1.1 Business and Industrial Zones)
5. Traffic and transport
6. Flora and fauna
7. Social impact
8. Health and safety
9. Potential land use conflicts (proximity to heavy industry, James Ruse Drive and railway line) – including and noise
10. Infrastructure upgrades (water and energy)
11. Urban design analysis and master plan
12. Management of environmental containment cells

This report addresses item 11 and explores a number of building envelope options for the site and identifies a preferred built form that will inform a detailed master plan.

This Urban Design Report has examined the site at 181 James Ruse Drive, Parramatta for its appropriateness for redevelopment and rezoning. The report demonstrates that the site has the characteristics and qualities that can sustain mixed use densification with a focus on multiple housing, retail, enhanced public domain and rehabilitation of the natural environment.

The site is large, consolidated and relatively flat, with access to the riverfront of Parramatta River. The comprehensive redevelopment of the site will contribute to the environmental upgrade of the foreshore riparian zone and heritage mangrove landscape. The site requires adequate development capacity to support the extensive remediation using sub-surface containment cells of hazardous materials left over from the manufacture of building materials by James Hardie Pty Ltd.

The site is within the Camellia Precinct and has been identified as a mixed use area in the Camellia: 21st Century Business, Industry and Entertainment Precinct – Discussion Paper, prepared by Parramatta Future Generation. Key strategic advantages identified for the precinct include central location, proximity to key transport routes, available land, industry clustering, innovation and pipeline infrastructure. The site will act as a buffer between the Business-Orientated Land Use Transition Zone to the east and existing residential area to the west. It adjoins the Rosehill Racecourse Entertainment Precinct to the west. It is directly opposite the University of Western Sydney – Parramatta Precinct and the knowledge hub of Parramatta.

The site is well serviced by existing and future transport infrastructure. It is within easy walking distance (200m) of Camellia Rail station to the south. Existing road access from James Ruse Drive, a major arterial road, to the west provides vehicle access. The site has directs links to Sydney Olympic Park and M4 Western Motorway to the south. It will benefit from the potential Camellia Ferry Wharf on Parramatta River to east, and future light rail proposed by Parramatta Council within to the existing rail corridor and which will connect the site to Parramatta City Centre and the University of Western Sydney.

The planning framework describes the existing planning instruments, zoning, building heights, acid sulfate soils, riparian land and waterways. The contextual analysis includes detailed mapping of key site characteristics: topography, environment and heritage, surrounding buildings, building heights, redevelopment sites, transport and vehicular movement, pedestrian movement and cycleways, contamination, flooding. The site is positioned within its wider macro context; its existing land use and walking catchment; and existing natural context and heritage.

A design concept was prepared which is based upon an urban strategy and design principles for character areas, land uses, public domain, movement, containment cells, building height, view and solar access. Building envelope testing of height, setbacks, floor plate, efficiencies, bulk, mass and overshadowing, SEPP 65 amenity/ building separations has been carried out to identify the most suitable option. Three development options were prepared and Option C was identified as the most suitable option for the purposes of a report to Council in May 2015. Option C provided a gross floor area of 283,335sqm (FSR 5.10:1); building heights of 50m (14 storeys) to 113m (35 storeys); and mixed uses of residential, retail and commercial.

Option C is a vision for an interactive, urban living environment within a rehabilitated river setting. It is framed by an extensive and permeable public domain comprising new wide streets, central park, forum, foreshore park and walk; mid-block pedestrian ways; extensive landscaping with street trees, swales and footways; building forms aligned to streets; tower forms of various heights orientated to optimise views, breezes and sun; underground parking; containment of contamination within environmental cells below new streets and along the boundary with James Ruse Drive; retail and commercial uses along new streets; and visual and physical connections to the riverfront.

Option D is a design concept which interprets the resolutions of Council that resolved two heights of 35m and 126m, and a FSR of 5.3:1 as resolved on 11 May 2015.

Subsequent to the development of a detailed masterplan and draft development control plan for the site, Council officers reviewed the planning proposal including an earlier this report and recommended two (2) alternative building envelope options which aim to reduce building heights along the foreshore. At a meeting on 11 May 2015, Council endorsed the following recommendation and Option D:

a) That Council adopt the revised heights listed in the table Option B, consistent with the outcome of the Statewide Planning draft Planning Proposal and Urban Design Scheme, as the controls for the maximum building heights and floor space ratios to be included in the revised planning proposal with:

- a 35m maximum height for foreshore buildings;
- a 126m maximum height for the development site;
- a floor space ratio of 5.3:1 of the development site.

b) That Council authorises the CEO:

- to prepare the amendments to the draft revised planning proposal at Attachment 1 in accordane with the Council endorsed Option for the
- maximum building heights and floor space ratios
- to correct any minor anomalies of a non-policy nand administrative nature that may arise during the plan amendment process
- to include the folowing amendment:
  - all development applications for the site must include a "Design Excellence Process" with a Design Integrity Panel in accordance with the Director General's guidelines.

(c) That Council's amended planning proposal be submitted to the DP&E for the purposes of seeking a revised Gateway Determination.

(d) That during the comminity consultation of the planning proposal further consultation be undertaken with the relevant public authorities concerning a suitable "satisfactory arrangements" clause to address Section 117 Direction 6.1 Approval and Referral Requirements.

(e) That as required by Section 117 Director 4.1 Acid Sulphate Soils, a copy of the acid sulfate soils study (part of the Remediation Action Plan) be provided to the Director General of the Department of Planning and Environment prior to the commencement of community consultation.

(f) Further, that a report be put to Council on the outcome of the community consultation of the planning proposal.

Option D was tested for its compliance with SEPP 65 principles, including solar access to determine how the floor space can be redistributed on site while achieving lower building heights on the foreshore. The studies demonstrate that Option D is capable of satisfying these principles.

Option E is a design concept which is consistent with the Alteration of Gateway Determination by the Department of Planning and Environment for two heights of 28m and 126m, and a FSR of 5.3:1.

The Alteration to Gateway Determination also requested further information regarding the adequacy of public open space and amenity of future apartments. Overshadowing studies indicated that the proposed square was overshadowed at mid-winter. Subsequently, the location of the square was relocated closer to the foreshore and named the foreshore square.

This new location achieves more than 71% solar access between 12-2pm at mid-winter. Building N has also been relocated where the square used to be, further south with the overall total floor space unchanged from Option D.

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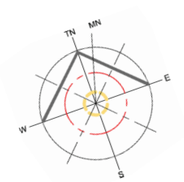
2 LOCATION

The site is located between James Ruse Drive, Carlingford Railway Line and Parramatta River and is known as 118 James Ruse Drive, Camellia. It is located approximately 1km from the Parramatta City Centre. The site is located at Camellia Railway Station, directly opposite University of Western Sydney and 200m from Rosehill Racecourse. The site is within 1.5km of Victoria Road, the M4 motorway and from the Great Western Railway Line.



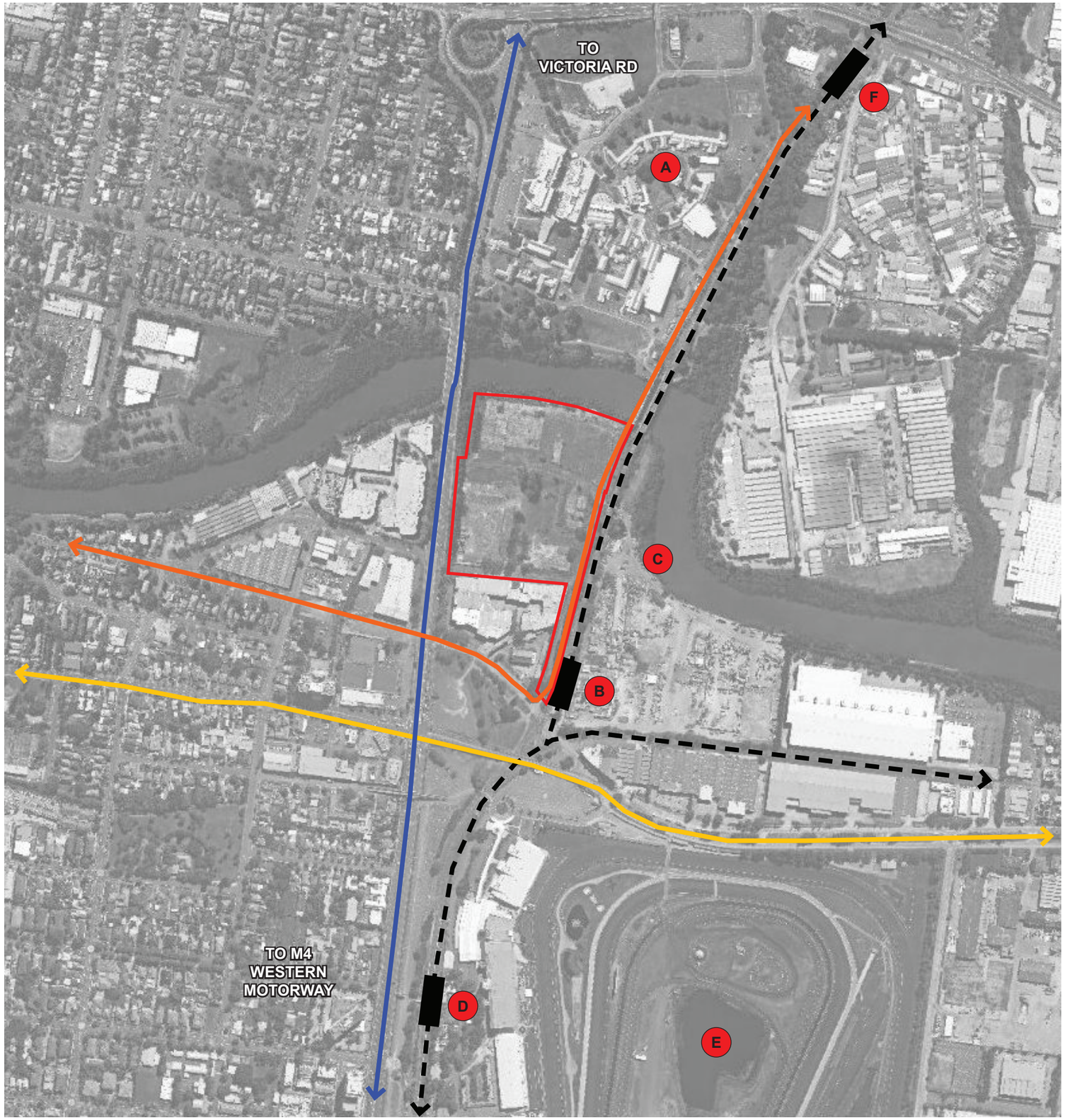
2 LOCATION

The Camellia Precinct is located to the east of James Ruse Drive to the south of the Parramatta River. It comprises light to heavy industrial uses, some of which have recently vacated. There are existing petrochemical uses to the east of the precinct along Duck River. The Rosehill Racecourse and Sydney Speedway are located to the west adjacent to James Ruse Drive.

The site is well serviced by existing and proposed future transport infrastructure, including the Camellia Rail Station at the site, proposed new Camellia Ferry Wharf and is directly opposite the University of Western Sydney - Parramatta Campus.

This site was once an industrial site operated by James Hardy, which included the manufacture of Fibrous Cement which is now known to be a contaminant. The site is currently unoccupied with remnant foundations of previous industrial buildings and hardstand areas that once occupied the site. There is also a mangrove along the foreshore to the Parramatta River. The site has an area approximately 68,166sqm with a developable area of some 60,000sqm. The site is approximately 250m wide to the north, 270m to the east, 190m to the south and 285m to the west, with a long handle providing a narrow frontage to Grand Avenue North.

The site has a frontage Parramatta River to the north, Carlingford Railway Line to the east and James Ruse Drive to the west. Existing light/ medium industrial uses are located adjacent to the site to the south.



A UNIVERSITY OF WESTERN SYDNEY
B CAMELLIA RAIL STATION
C PROPOSED CAMELLIA FERRY WHARF
D ROSEHILL RAIL STATION
E ROSEHILL RACECOURSE
F RYDALMERE RAIL STATION
LIGHT RAIL
RAILWAY LINE
SITE

3 PLANNING FRAMEWORK

Parramatta City is currently planning for significant change and is undertaking a strategic review of the existing Parramatta City Centre LEP 2007 and Parramatta City Centre DCP 2007. Council, together with the Department of Planning and Environment have commissioned a discussion paper for the Camellia Precinct, which includes the site - which is now in draft form.

The following key planning instruments have been reviewed in order to establish the current planning controls which apply to the site:

- Parramatta LEP 2011
- Camellia: 21 Century Business, Industry + Entertainment Precinct - Discussion Paper (Version 1)

3.1 PARRAMATTA LEP 2011

The primary planning instrument that controls the mass and scale of a development are contained within the Parramatta LEP 2011. While this instrument outlines the strategic direction of Council, it needs to be considered together with the Camellia Discussion Paper.

Key controls that affect development on the site are detailed below and described on the following pages:

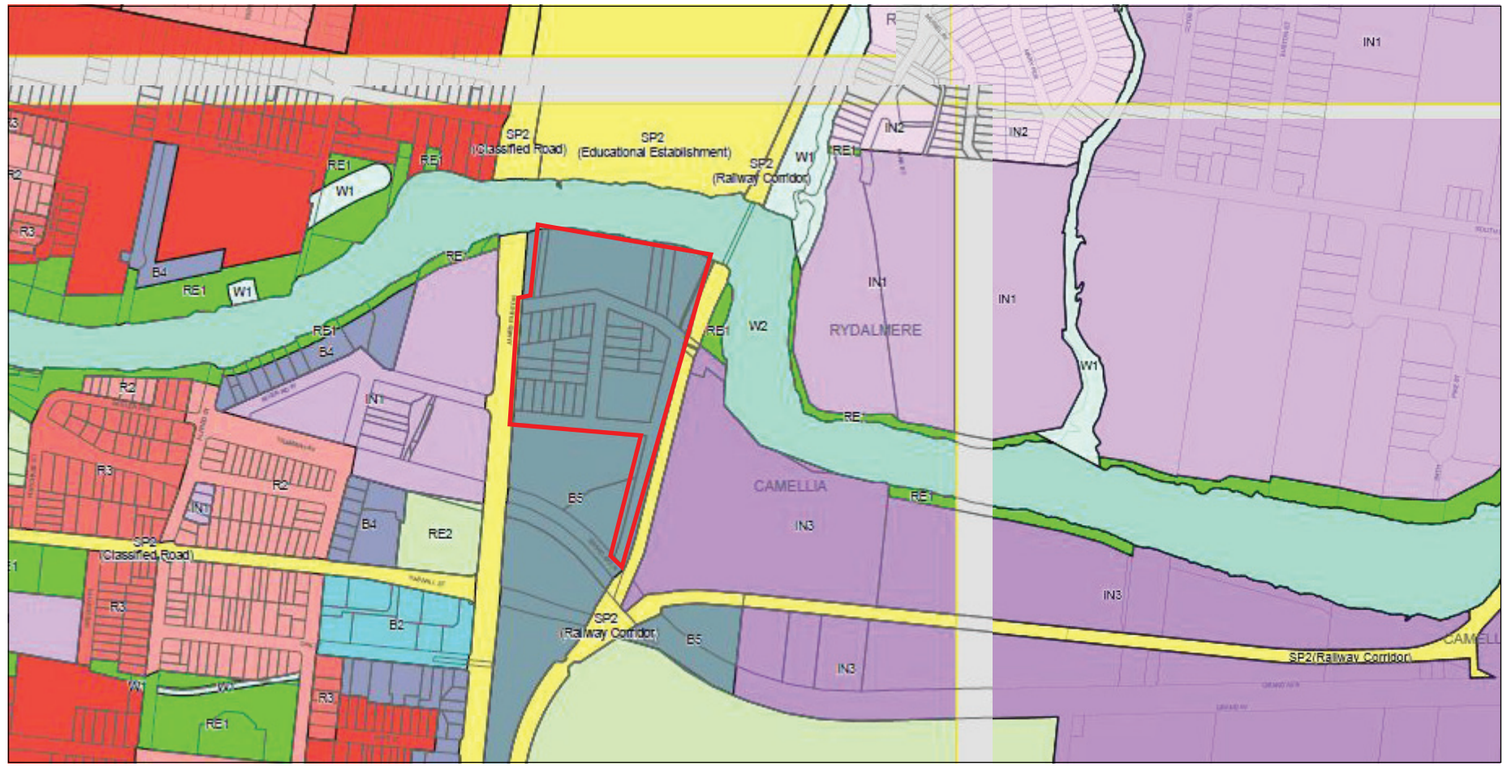
- Land Zoning
- Floor space ratio
- Height of building
- Heritage
- Acid sulfate soils
- Land reservation acquisition
- Riparian land + waterways

Source:
Parramatta LEP 2011
Prepared by Parramatta City Council

LAND ZONING

The site is zoned B5 - Business Development which prohibits residential accommodation also extending south of the site to Rosehill Station. Sites to the east are zoned IN3 - Heavy industrial.

- B2 LOCAL CENTRE
- B4 MIXED USE
- B5 BUSINESS DEVELOPMENT
- IN1 GENERAL INDUSTRIAL
- IN2 LIGHT INDUSTRIAL
- IN3 HEAVY INDUSTRIAL
- R2 LOW DENSITY RESIDENTIAL
- R3 MEDIUM DENSITY RESIDENTIAL
- R4 HIGH DENSITY RESIDENTIAL
- RE1 PUBLIC RECREATION
- RE2 PRIVATE RECREATION
- SP2 INFRASTRUCTURE
- W1 NATURAL WATERWAYS
- W2 RECREATIONAL WATERWAYS
- SITE

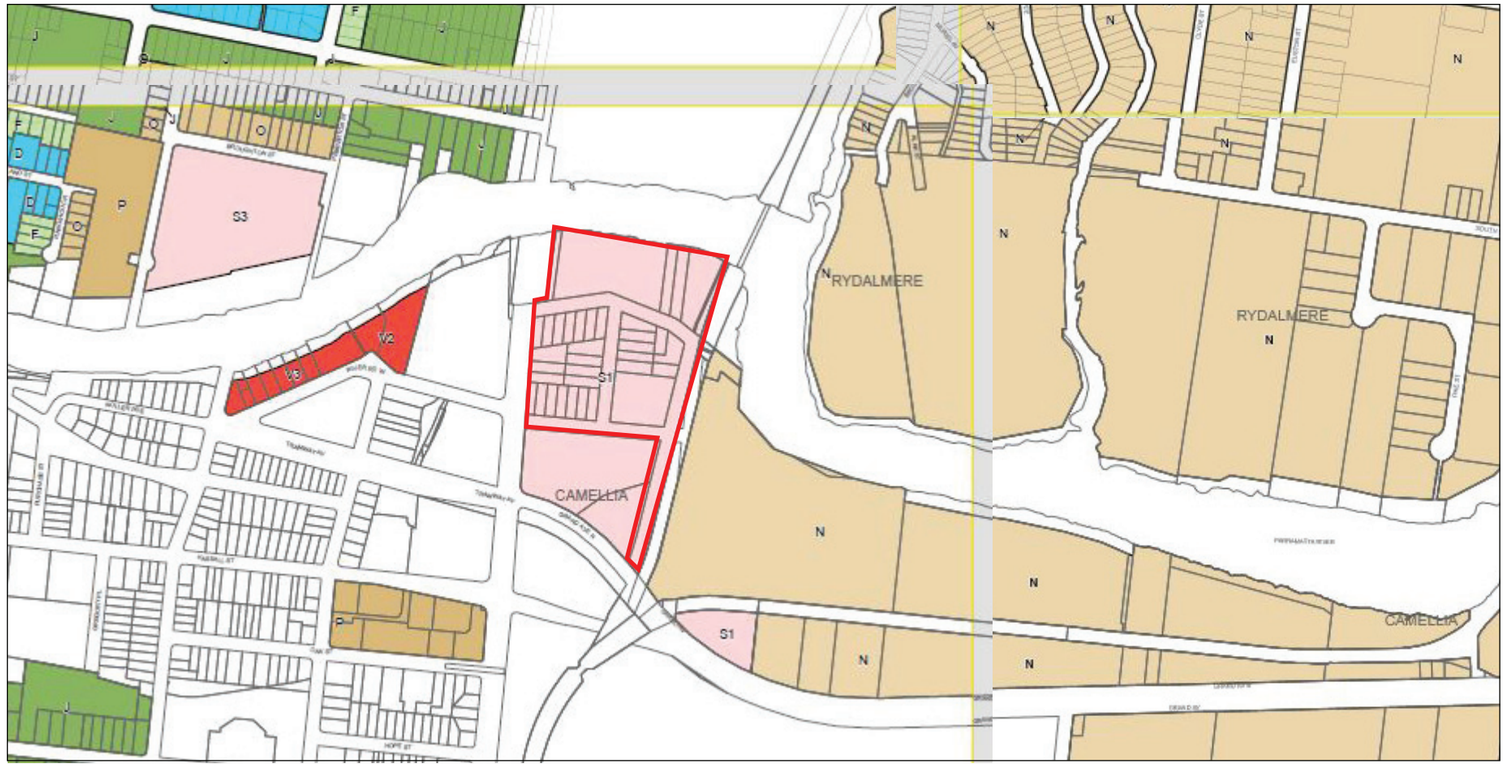


FLOOR SPACE RATIO

The site is permitted to have a floor space ratio of 1.5:1 (S1). With a site area of 68,166sqm, the maximum floor space permitted is 102,975sqm.

MAXIMUM FLOOR SPACE RATIO (N:1)

- D 0.5
- F 0.6
- J 0.8
- N 1.0
- O 1.1
- P 1.2
- S1 1.5
- S3 1.75
- V2 3.3
- V3 3.4
- SITE



HEIGHT OF BUILDINGS

The site is permitted to have a building height of 9m (J1) along Parramatta River stepping up to 12m (M) to the south.

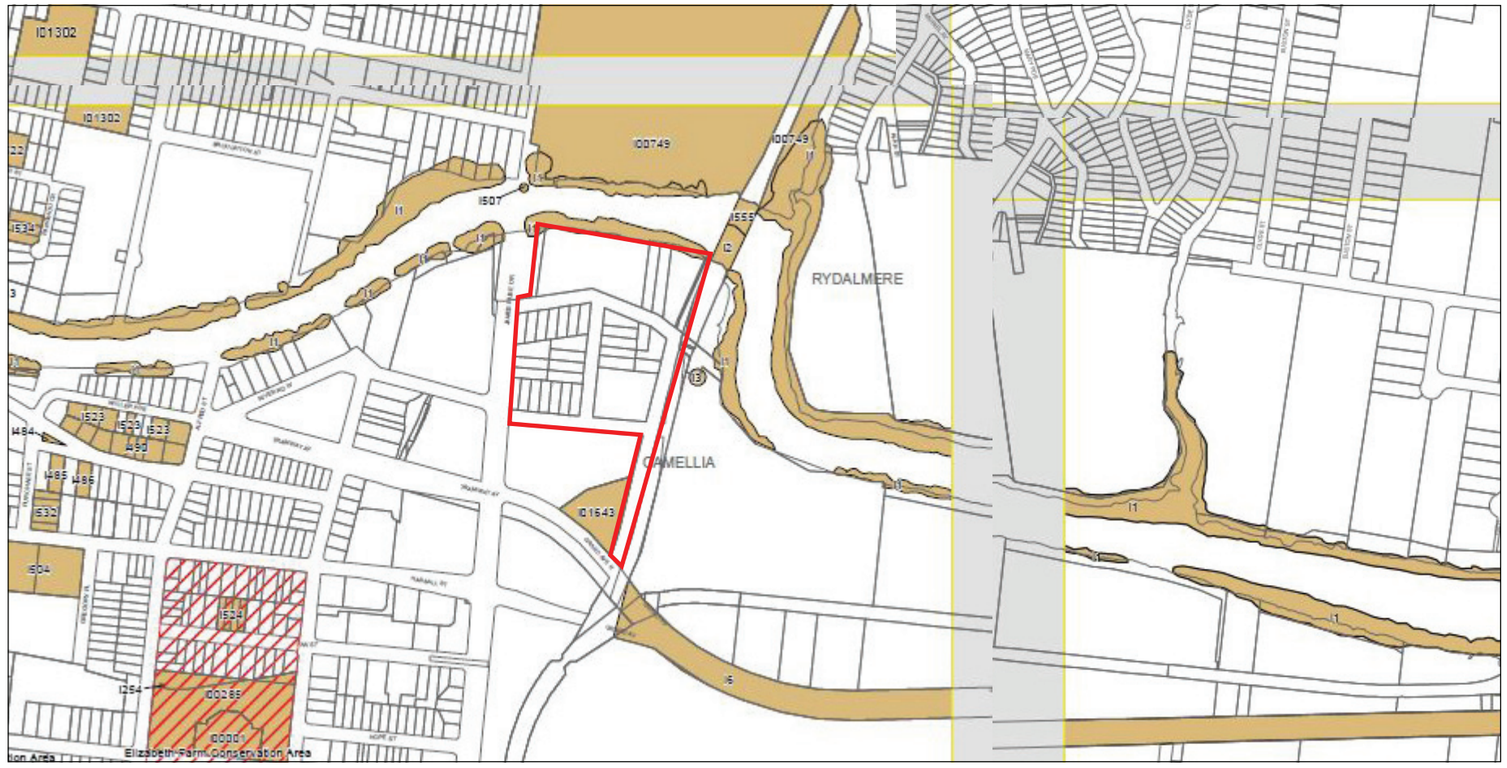
The low-rise forms extend to the east and south of the site.

MAXIMUM BUILDING HEIGHT (M)

J1	9
J2	9.2
L	11
M	12
N1	13
N2	14
O1	15
U2	34
V	37
W	40
	SITE

MAXIMUM BUILDING HEIGHT (RL)

	11M
	14M



HERITAGE

There are a number of heritage items on and surrounding the site including of state and local significance:

Local significance:

- I1 - Wetlands, Parramatta River
- I01643 - Sewage Pumping Station, 1B Grand Avenue, Camellia
- I6 - Tram Alignment, Grand Avenue, Camellia
- I2 - Clyde Carlingford Rail Bridge abutments, 1A Grand Avenue (north of), Camellia
- I507 - Boundary Stone, James Ruse Drive - under bridge (north bank of river), Parramatta
- I555 - Clyde Carlingford Rail Bridge abutments, 171 Victoria Road (adjacent), Parramatta

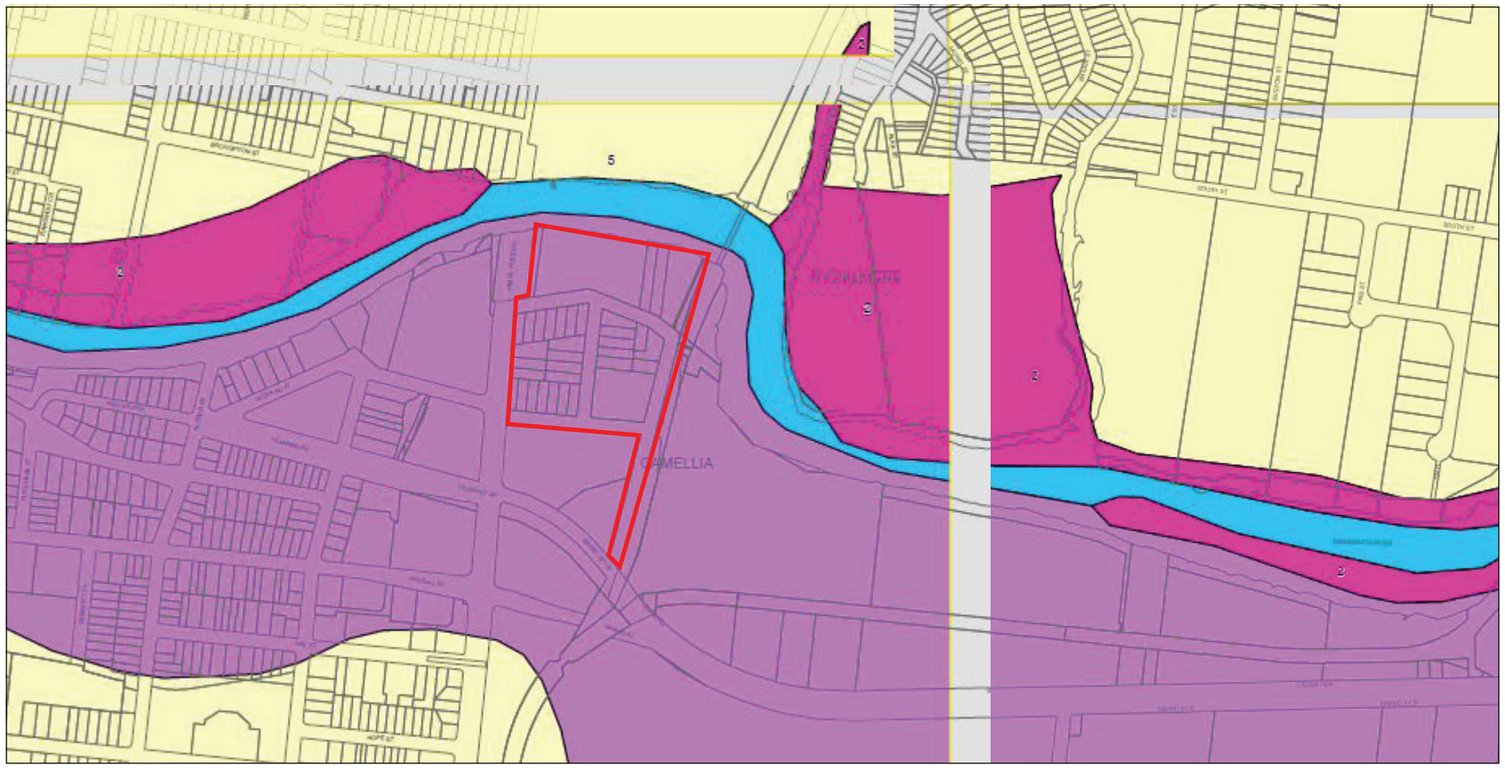
State significance:

- I00749 - UWS Parramatta Campus (former Rydalmere Hospital and Female Orphan School), Parramatta

ITEMS - GENERAL
CONSERVATION AREA - GENERAL
SITE

ACID SULFATE SOILS

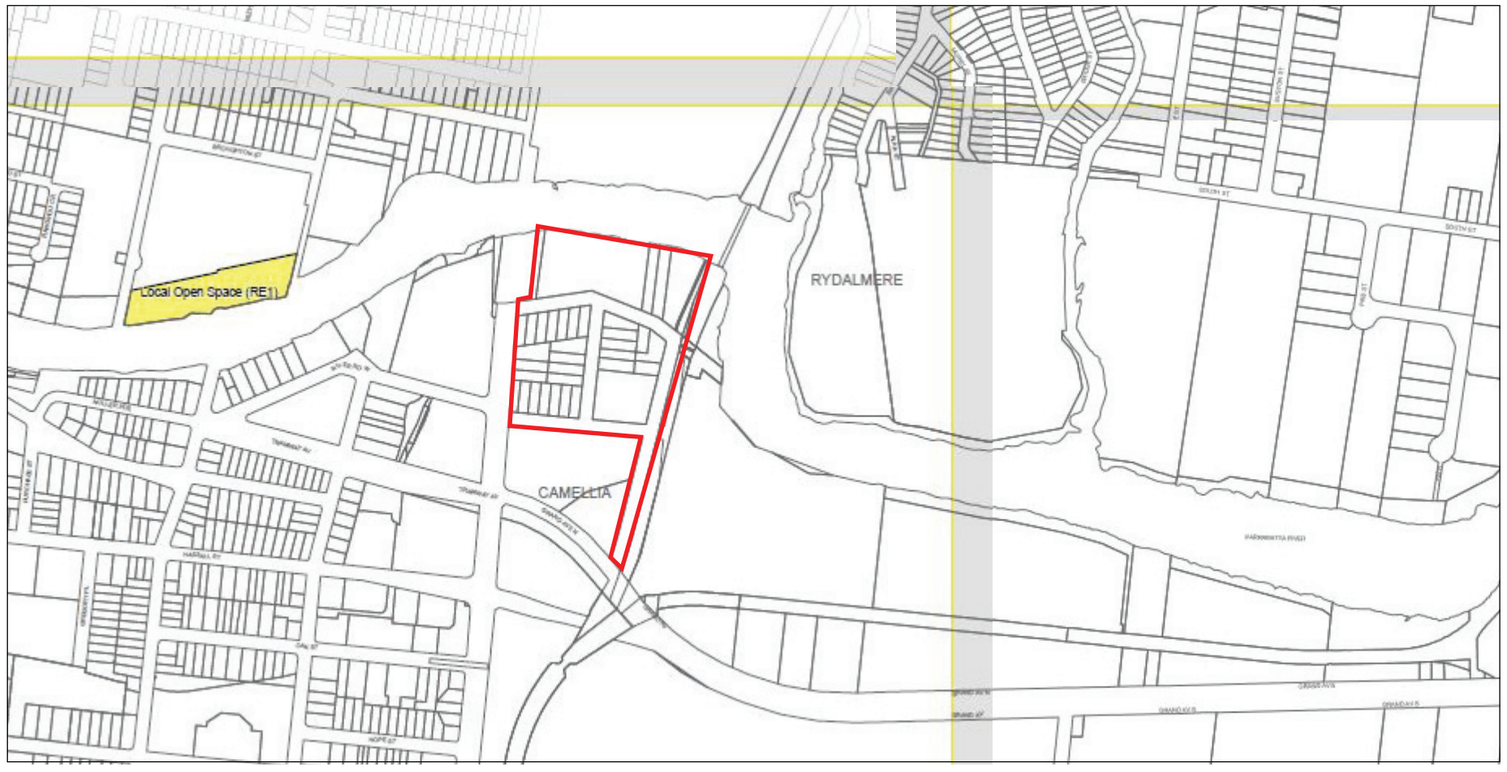
The site has an acid sulfate soil classification of part Class 4 which means that the watertable is likely to be lowered more than 2 metres below the natural ground surface.



CLASS 1
CLASS 2
CLASS 3
CLASS 4
CLASS 5
SITE

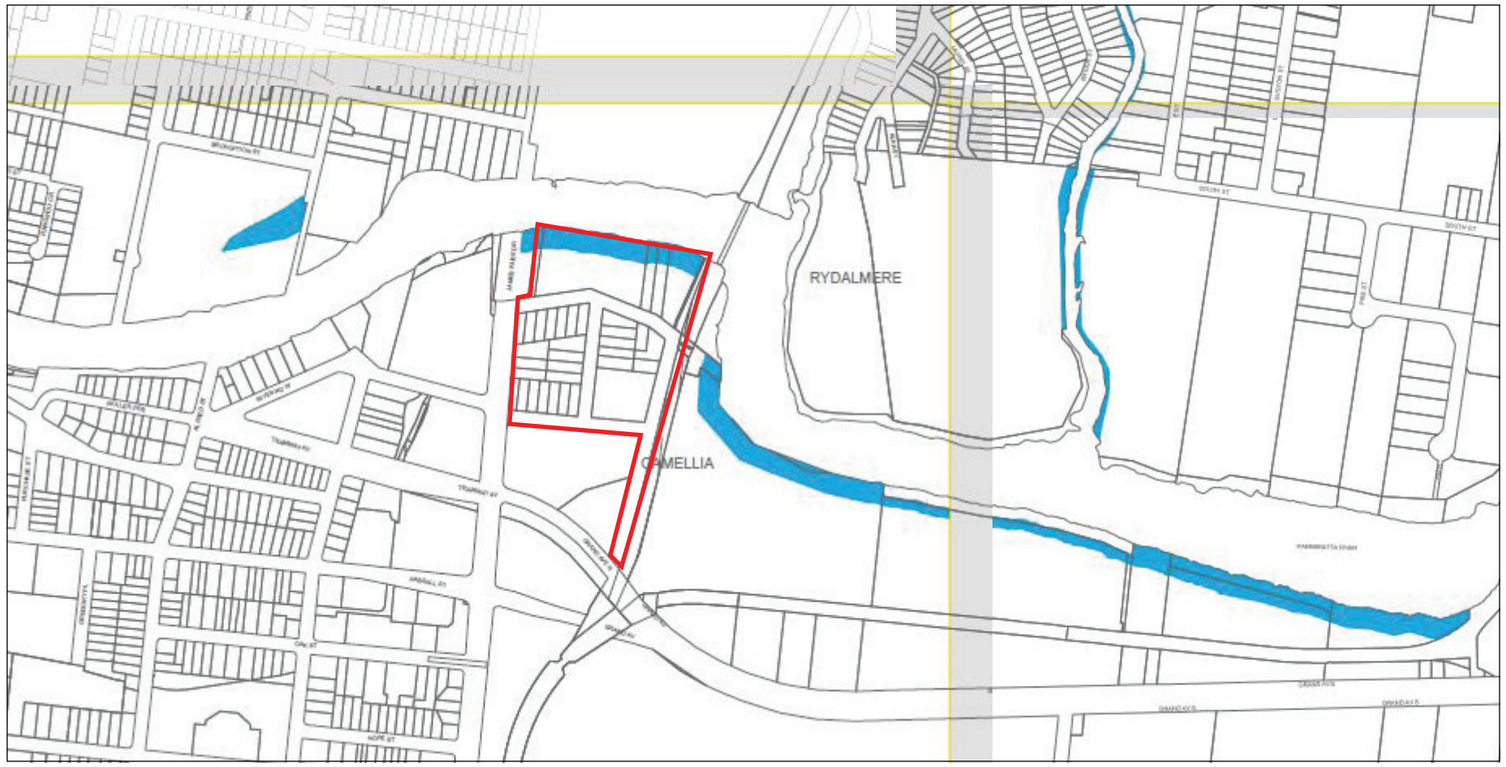
LAND RESERVATION ACQUISITION

The is no land reservation acquisition applicable to the site.



LOCAL OPEN SPACE (RE1)

SITE



RIPARIAN LAND AND WATERWAYS MAP

The site has a natural resource riparian land and waterway classification to the north adjacent to the Parramatta River.

There is a currently a 30m foreshore building line to Parramatta River that requires any new buildings to be setback.

RIPARIAN LAND AND WATERWAYS
SITE

3.2 CAMELLIA: 21ST CENTURY BUSINESS, INDUSTRY & ENTERTAINMENT PRECINCT - DISCUSSION PAPER (VERSION 1)

The Department of Planning and Environment and Council have commissioned a discussion paper "Camellia: 21st Century Business, Industry and Entertainment Precinct - Discussion Paper, Version 1. It canvasses long term opportunities for this site and the wider precinct - known as the Camellia Precinct. The precinct boundary is between Parramatta River, James Ruse Drive, M4 Motorway and Duck River.

This paper acknowledges that the Camellia Precinct is "one of the most important employment land precincts in metropolitan Sydney, with great strategic value in terms of its size, location, activity and opportunities for future development."

Key strategic advantages identified for the precinct, include:
- Central location
- Proximity to key transport routes
- Available land
- Industry clustering
- Innovation precinct
- Pipeline infrastructure

Challenges identified for the precinct, include:
- Transport and access
- Contamination
- Flooding
- Land use and ownership
- Former refinery

Opportunities identified for the precinct, include:
- Improved road access
- Western Sydney Light Rail
- Remediation of land
- Diversity of land uses
- Innovative industries and infrastructure
- Enhanced public domain and pedestrian connections
- Partnerships
- Natural value
- Rosehill Racecourse as a natural buffer.

The draft land use concept plan illustrates a vision for the Precinct which is supported by 6 draft guiding principles:

1. Allow for some mixed use development, including residential, in the north-western part of the precinct fronting James Ruse Drive and adjacent to the Carlingford Railway line.

2. Facilitate a renewed entertainment precinct at Rosehill Racecourse, and use it as a buffer between the residential and industrial parts of the precinct.

3. Retain the majority of the precinct in the southern and eastern parts for industrial development, but facilitate its transition to more contemporary industries, including warehousing and logistics, and also high tech and eco industries, so as to generate more jobs.

4. Provide a dynamic, business-oriented land use transition zone in the northern part of the precinct on Grand Avenue adjacent to Parramatta River, allowing for a smooth transition between the mixed use precinct to the west and industrial precinct to the east.

5. Provide for new traffic access points in the eastern part of the precinct over Duck River and also in the southern part connecting to the M4, so as to allow for improved access to the industrial zone and minimise any land use conflicts with industrial traffic needing to pass through any new residential development in the west.

6. Improve the viability of existing public transport options in the precinct by focussing any new residential development intensification around the existing rail stations at Rosehill and Camellia and also providing for a new Camellia ferry wharf on the Parramatta River in the north-western part of the precinct.

The draft land use concept plan also identifies a number of potential infrastructure upgrades to accommodate potential growth in the precinct including:
- Upgrade and improvements to Grand Avenue
- New Link to Sydney Olympic Park (bridge over Duck River)
- New Link to Silverwater (bridge over Duck River)
- New direct link to the M4 Motorway (to southern part of precinct)
- Potential new Ferry Wharf on Parramatta River (in north-western part of precinct)
- Western Sydney Light Rail to connect the Camellia Precinct with the Parramatta CBD.

Council is now consulting with stakeholders and the community as it seeks to refine its vision and determine a rezoning pathway, either to prepare a structure plan and amend the LEP or to nominate the Precinct as an Urban Activation Precinct.

The draft land use concept plan identifies the site as part of a mixed use precinct with a new light rail line connecting the Parramatta CBD to Camellia Rail Station and UWS to the north. A new ferry wharf to the east of the site and the existing railway line is proposed at the bend in the Parramatta River. A major upgrade of the intersection with Hassall Street and James Ruse Drive is proposed to faciliate improved access to the Precinct from the west.

Source:
Camellia: 21st Century Business, Industry + Entertainment Precinct - Discussion Paper (Version 1)
Prepared by Parramatta Future Generation

SITE ANALYSIS

CAMELLIA SITE ANALYSIS MAP

LEGEND

- Precinct boundary
- Mixed use
- Low density residential
- Medium density residential
- Place of interest e.g - school / heritage item
- Petrochemical
- Medium / Heavy Industrial
- Small Business/ General Industrial
- Private recreation
- Open space network
- Endangered ecological communities
- River corridor
- Heliport
- Business name
- Railway line
- Disused freight rail line
- Motorway
- Parramatta-Circular Quay Ferry Route
- Existing road access

Source:
Camellia: 21st Century Business, Industry + Entertainment Precinct - Discussion Paper (Version 1)
Prepared by Parramatta Future Generation

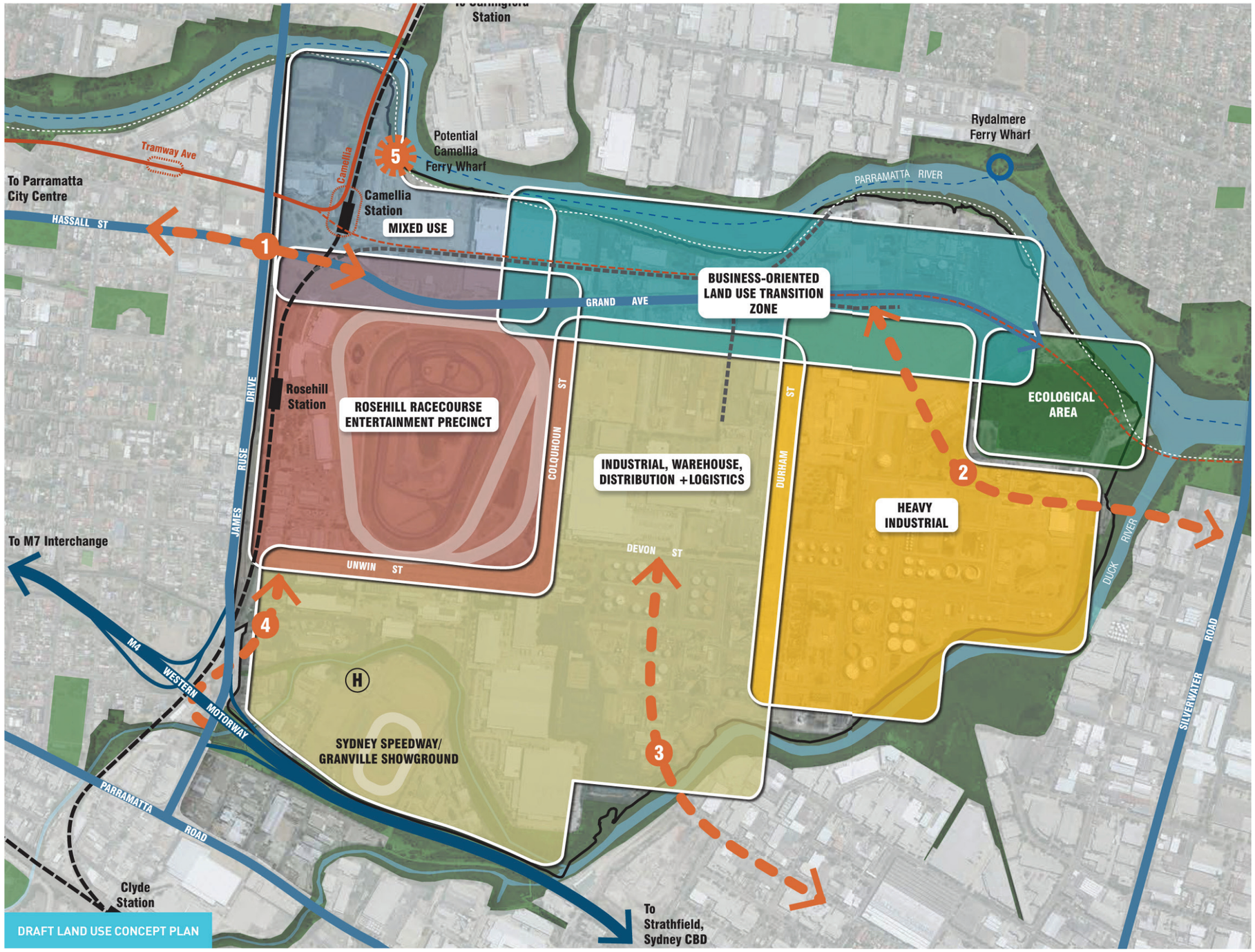
DRAFT LAND USE CONCEPT PLAN

POTENTIAL INFRASTRUCTURE IMPROVEMENTS

1. Grand Avenue improvements
2. Link to Sydney Olympic Park (Location TBD)
3. Link to Silverwater (Location TBD)
4. M4 Western Motorway link
5. New Camellia Ferry Wharf

LEGEND

- Precinct Boundary
- Motorway
- Major roads
- Potential infrastructure improvements
- Railway line
- Disused freight rail line
- Indicative Light Rail Route / Stop
- Indicative Light Rail Route - Stage 2
- Heliport
- Potential riverside pedestrian access
- Parramatta-Circular Quay Ferry Route
- Open space network
- River corridor



Source:
Camellia: 21st Century Business, Industry + Entertainment Precinct - Discussion Paper (Version 1)
Prepared by Parramatta Future Generation

4.1 NORTH AREA

Source: maps.google.com.au

1 - SILVERWATER RD AT PARRAMATTA RIVER LOOKING WEST

2 - CNR BRODIE ST + PARRAMATTA CYCLEWAY LOOKING WEST

3 - UWS PARRAMATTA AT PARRAMATTA RIVER LOOKING WEST

4 - UWS LOOKING SOUTH TOWARDS SITE

5 - PARRAMATTA RIVER + DUCK RIVER

6 - JAMES RUSE DR AT PARRAMATTA RIVER LOOKING EAST

4.2 WEST AREA

Source: maps.google.com.au

1 - GRAND AVE NORTH LOOKING EAST TO CAMELLIA STATION

8

2 - GRAND AVE NORTH LOOKING EAST TOWARDS CAMELLIA STATION

6 - CAMELLIA STATION LOOKING

7

3 - JAMES RUSE DRIVE AT GRAND AVE NORTH LOOKING WEST

Source: maps.google.com.au

1 - CNR JAMES RUSE DR + GRAND AVE NORTH LOOKING NORTH

4 - GRAND AVE LOOKING NORTH TO CAMELLIA STATION

2 - GRAND AVE AT CAMELLIA STATION LOOKING WEST

2 - GRAND AVE AT RAILWAY LINE LOOKING EAST

5 - JAMES RUSE DR LOOKING WEST NEAR THOMAS ST

4 - JAMES RUSE DR AT GRAND AVE NORTH LOOKING WEST

3 - CNR JAMES RUSE DR + RIVER RD WEST LOOKING EAST

1 - GRAND AVE LOOKING TOWARDS ROSEHILL RACECOURSE

6 - GRAND AVE LOOKING AT CAMELLIA STATION

4.4 THE SITE

1 - CENTRE OF SITE LOOKING NORTH

2 - CENTRE OF SITE LOOKING SOUTH

3 - NORTH OF SITE LOOKING SOUTH WEST

4 - NORTH EAST OF SITE LOOKING SOUTH WEST

5 - CENTRE OF SITE LOOKING NORTH TO UWS

6 - NORTH EAST OF SITE LOOKING SOUTH WEST TO PARRAMATTA CBD

7 - JAMES RUSE DRIVE LOOKING SOUTH EAST ALONG PARRAMATTA RIVER

Source: GM Urban Design + Architecture, Urban Design Report, November 2011

Source: GM Urban Design + Architecture, Urban Design Report, November 2011

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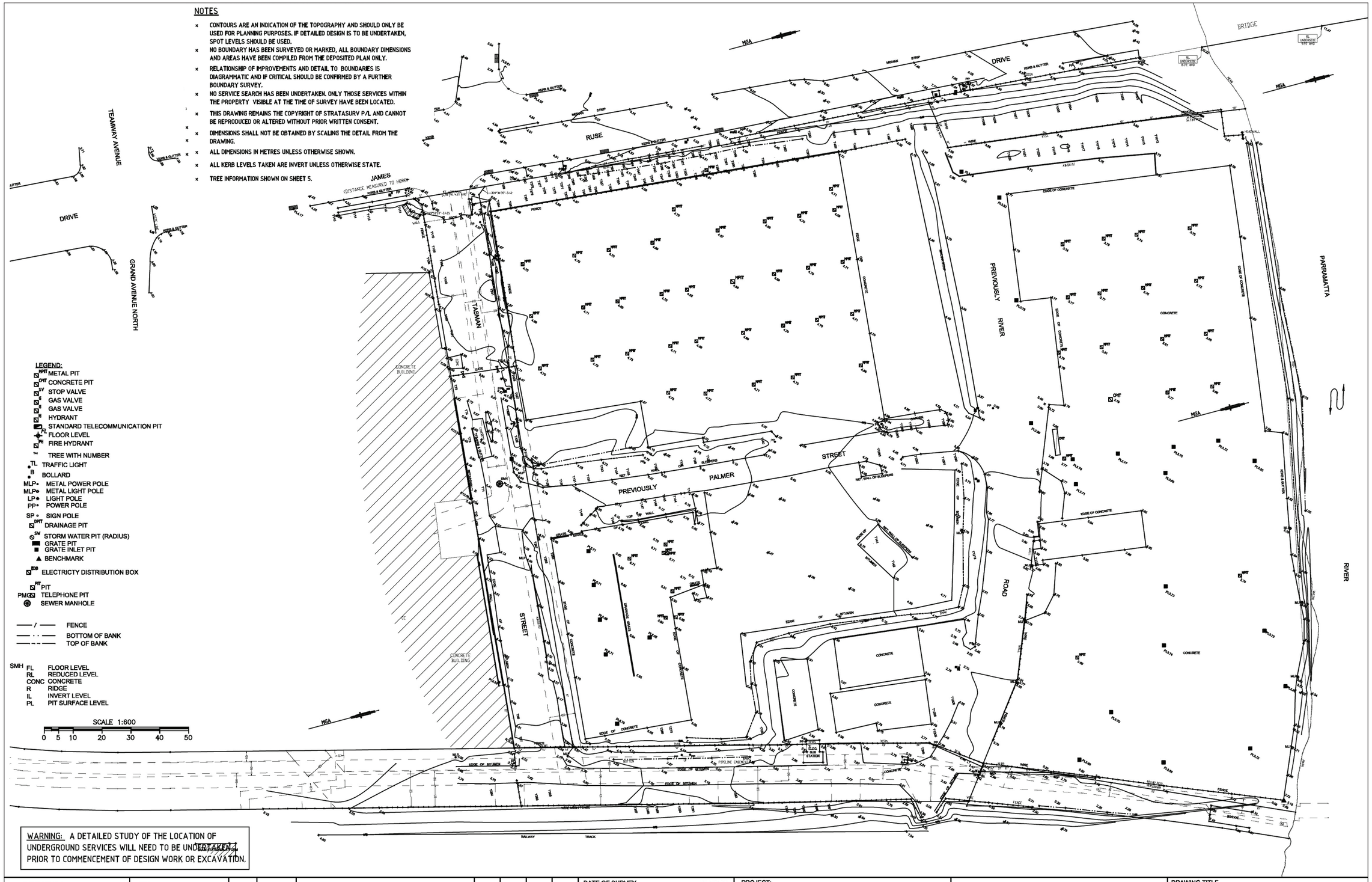
4.5 SITE SURVEY



CLIENT DETAILS	KEY:
CHARLIE DEMIAN	

REV	DATE	REVISION DETAILS	DESIGN	SURV	DWN	CHK
C	29.10.07	SITE PLAN ADDED			PL	PS
B	22.10.07	BOUNDARIES, EASEMENTS & INTERSECTION ADDED		KB	PL	PS
A	28.09.07	PLAN ISSUED		J.M. & P.L	K.C.	P.S.

DATE OF SURVEY	28.08.07
ORIGIN OF RL'S	SSM 50207, RL 4.281
DATUM	AHD
CONTOUR INTERVAL	NA
CAD REF FILE:	

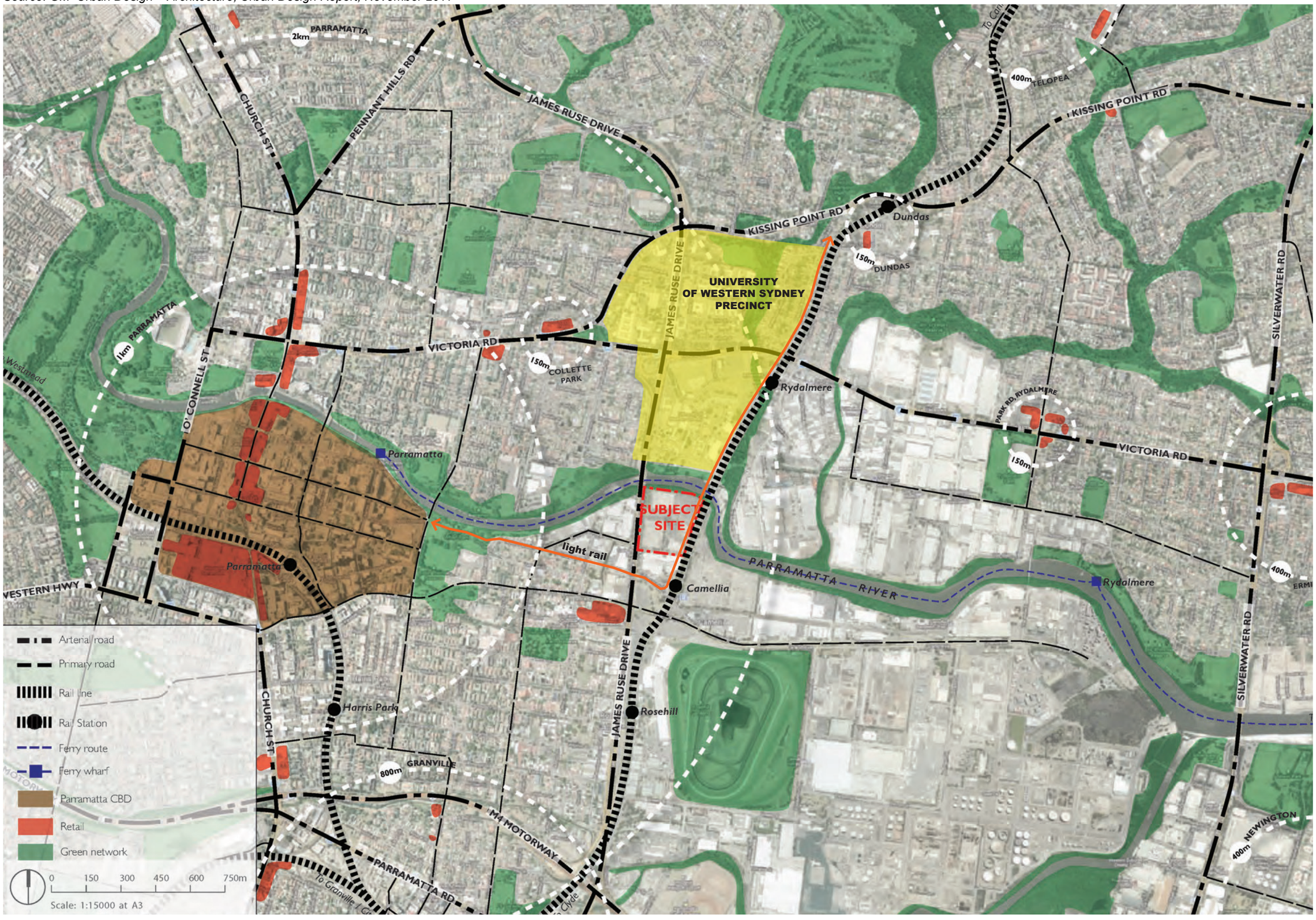
PROJECT:
CAMELLIA (WEST)
JAMES RUSE DRIVE

STRATASURV
REGISTERED SURVEYORS
DEVELOPMENT CONSTRUCTION STRATUM
Sydney · Melbourne · Brisbane · Newcastle · Gold Coast
TEL: +61 9715 1133 FAX: +61 9715 1144
EMAIL: surveyors@stratasurv.com.au

DRAWING TITLE
PLAN SHOWING DETAIL OF CAMELLIA (WEST)

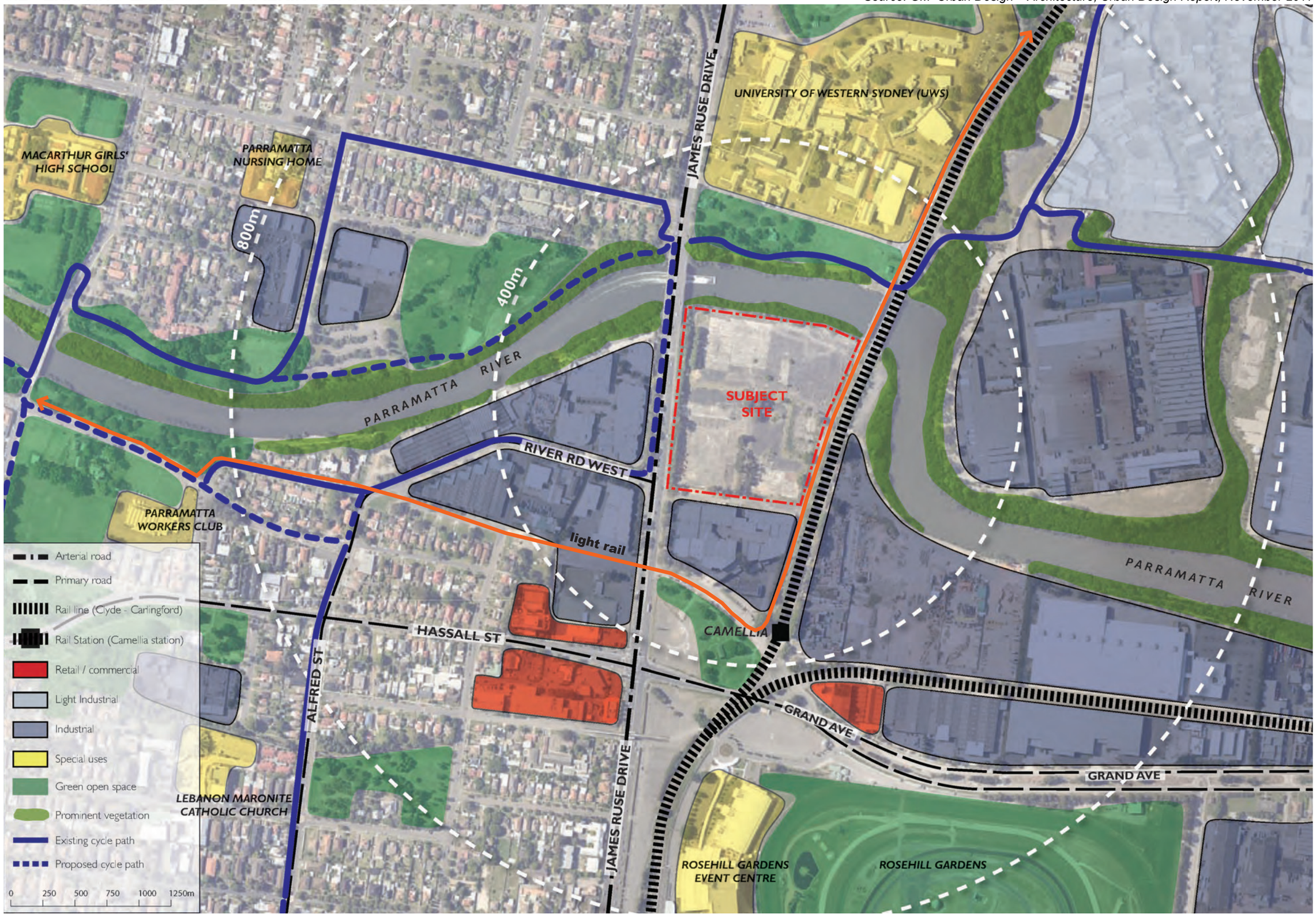
DRAWING NUMBER	Sheet	Sheets	SCALE	REVISIO
2226 - 01	06 OF	06	1:600@A1	B2

Source: GM Urban Design + Architecture, Urban Design Report, November 2011



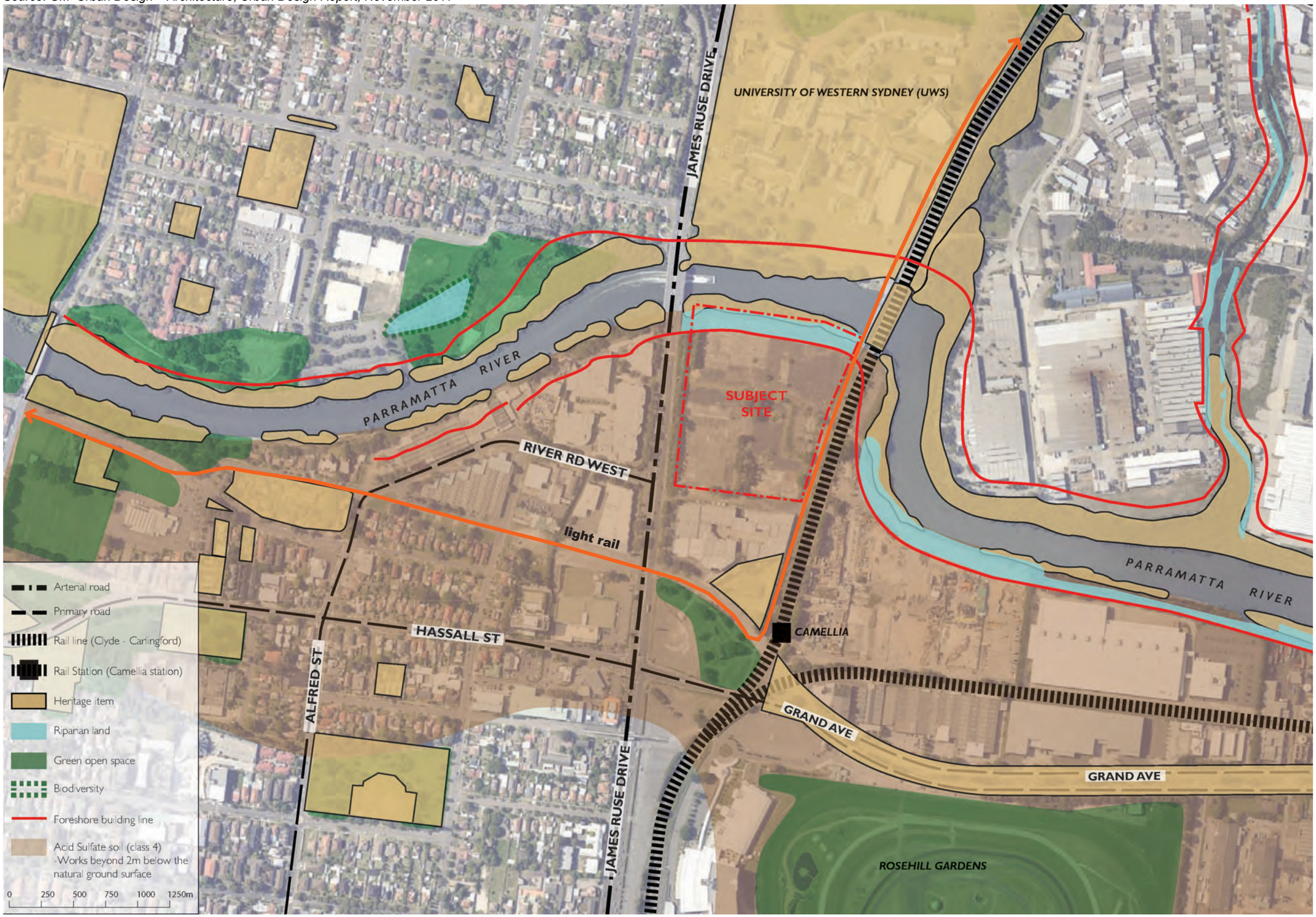
5.2 EXISTING LAND USE + WALKING CATCHMENT

Source: GM Urban Design + Architecture, Urban Design Report, November 2011



5.3 EXISTING NATURAL CONTEXT + HERITAGE

Source: GM Urban Design + Architecture, Urban Design Report, November 2011



5.4 HERITAGE VIEW ANALYSIS

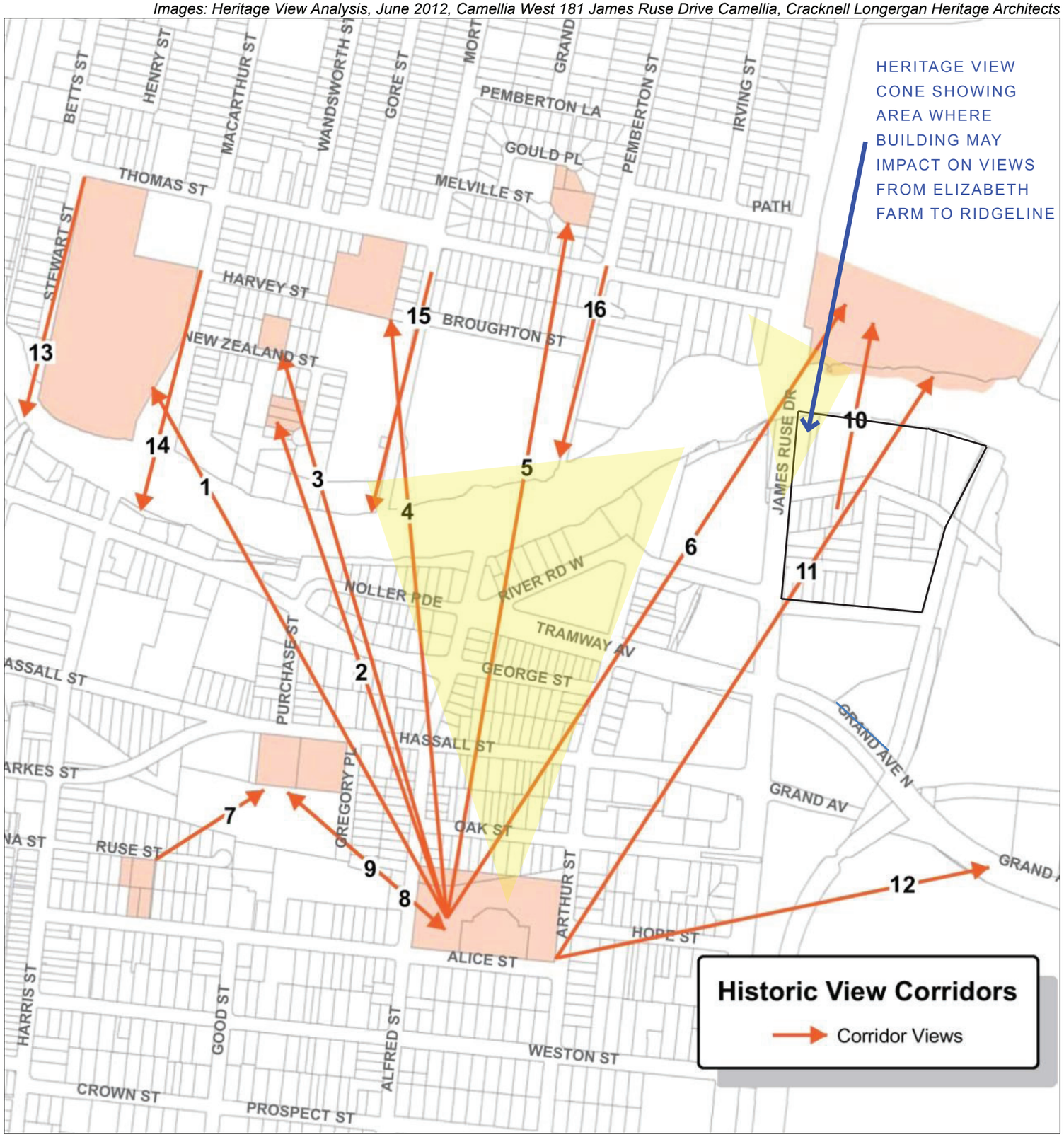
A heritage view analysis has been undertaken by Cracknell Longergan Architects. It also highlights that view corridor 6 and 11 are affected by development in the area and topography and have little significance from Elizabeth Farm. This analysis has identified a heritage view corridor in the north-west corner of the site adjacent James Ruse Drive.

A heritage assessment has been undertaken by NBRS+Partners. It concludes that there are no significant heritage value attached to the site other than those already identified by the Parramatta LEP and the liklihood of any significant sub-grade archaeology is minimal.

View from Elizabeth Farm (Cnr Alice Street + Arthur Street) looking towards site in the direction of View 11, showing vegetation, buildings and topography blocking views to Parramatta River and Female Orphan School - only small section of ridgeline is still visible and is defined by a heritage view cone.

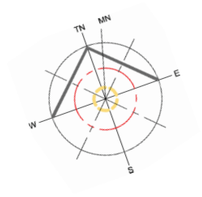
View from Elizabeth Farm Reserve along Arthur Street looking in the direction of View 6 showing vegetation and buildings blocking views to Parramatta River and Female Orphan School - only small section of ridgeline is still visible.

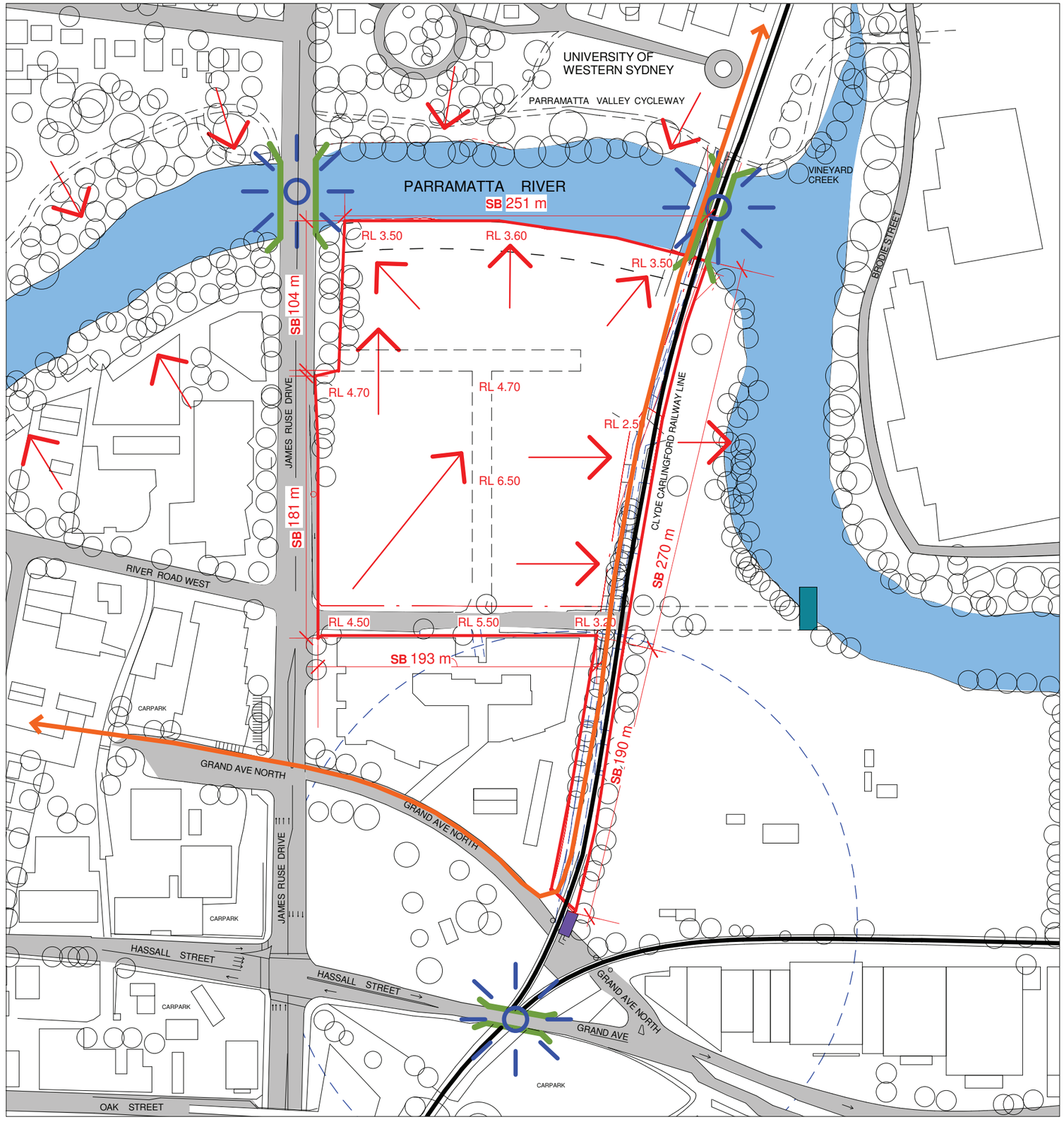
Images: Heritage View Analysis, June 2012, Camellia West 181 James Ruse Drive Camellia, Cracknell Longergan Heritage Architects



5.5 TOPOGRAPHY

The site is relatively flat with a 1-2m fall to the north. The fall is greatest at the frontage to Parramatta River. There is also a cross fall to the east of some 2.2m. The Clyde Carlingford Rail line is raised above the flood level and is a barrier between development sites to the east of the site. North of the River, the land rises steeply.





OVERHEAD ROAD + RAIL

FALL

BRIDGE

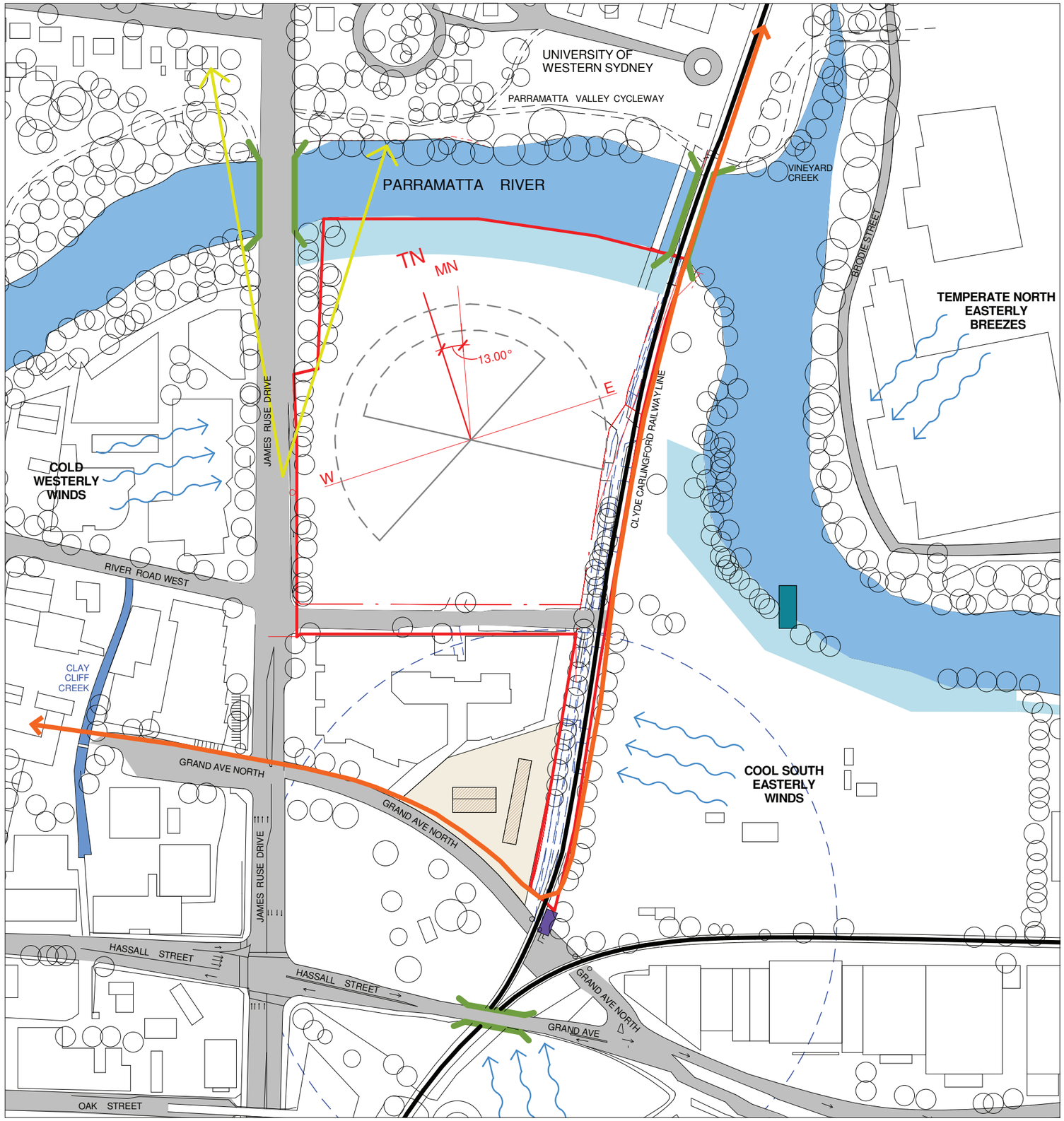
RAILWAY LINE

PROPOSED CAMELLIA FERRY WHARF

PROPOSED LIGHT RAIL

CAMELLIA RAIL STATION

SITE



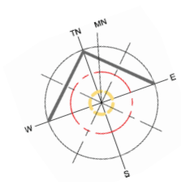
5.6 ENVIRONMENT + HERITAGE

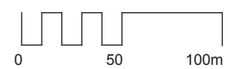
The site is irregular in shape with a long access handle providing access to the site from River Road West. The grid of Parramatta has generally been set to magnetic north - James Ruse Drive also aligns with the grid. In Sydney, true north is 13-13.5 degrees west of magnetic north.

The site itself is orientated to the north-east, which will make it difficult for any units to the east to achieve 2 hours of solar access as required by SEPP 65/ RFDC. Therefore, units must be arranged with living rooms and private open spaces to the north and west in order to comply with the solar access requirements of SEPP 65.

The site is subject to an annual cycle of warm, temperate and cold winds which swing from the north to south direction. In summer, the site receives temperate, north-easterly breezes and in winter is receives cooler southerly winds. Between winter and summer, the site is subject to south-westerly and north-westerly winds. Parramatta does not benefit from cooler sea-breezes in the warmer months as it is too far from the coast.

There is a riparian zone along Parramatta River which provides a buffer between the River and the site.

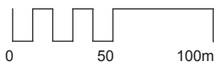




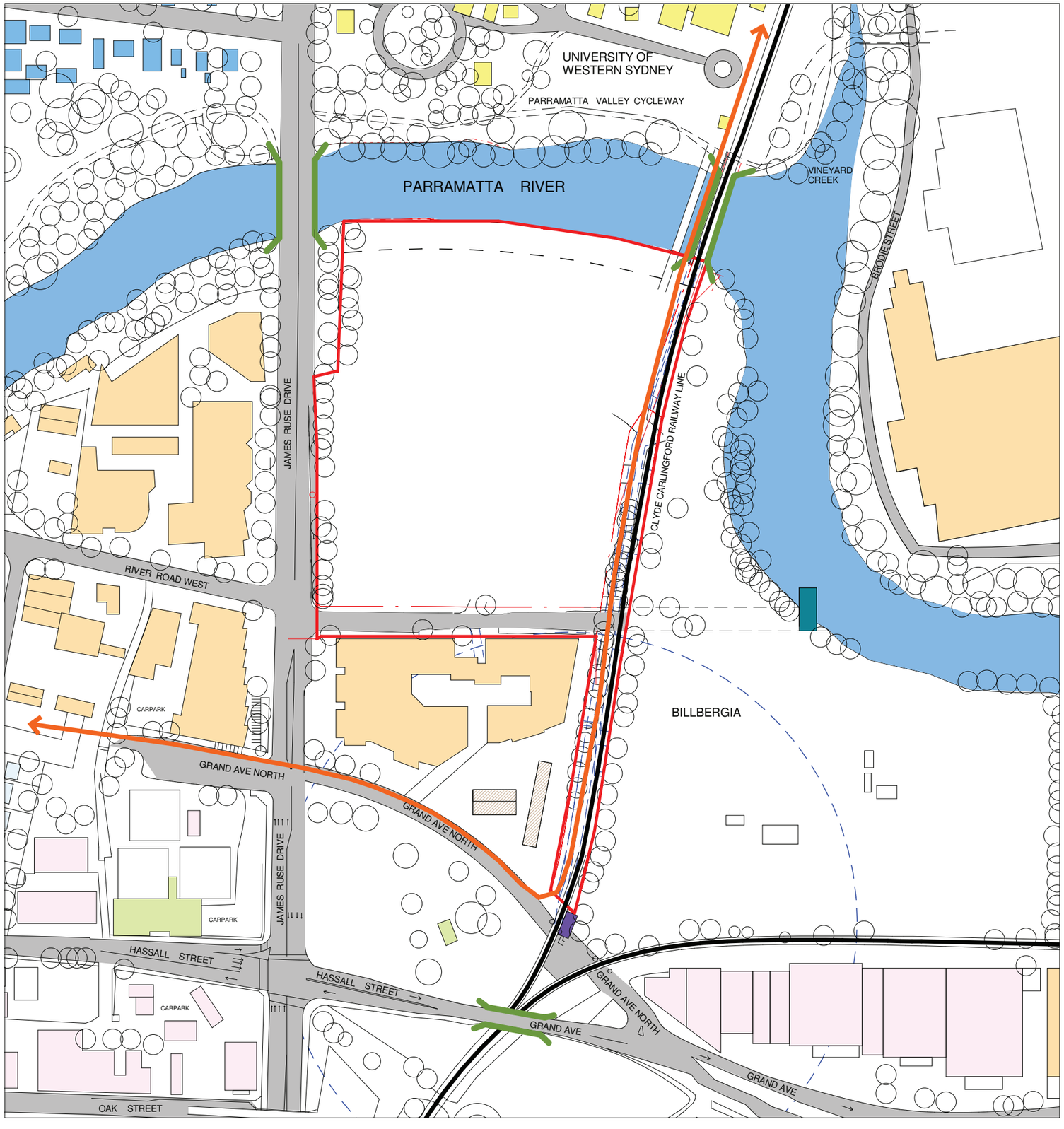
- HERITAGE
- RIPARIAN LAND
- BRIDGE
- RAILWAY LINE
- PROPOSED CAMELLIA FERRY WHARF
- CAMELLIA RAIL STATION
- PROPOSED LIGHT RAIL
- HERITAGE VIEW CONE (REFER TO HERITAGE VIEW ANALYSIS PREPARED BY CRACKNELL LONERGAN HERITAGE ARCHITECTS)
- SITE

5.7 SURROUNDING BUILDINGS

The site is directly adjacent to Camellia Station. The site is currently vacant with remnant slabs and hardstand areas remaining from its former industrial past. The surrounding context has predominantly medium / heavy industrial uses. The University of Western Sydney - Parramatta Campus, is located to the north of the site. Further to the south along Hassall Street/ Grand Avenue, there are some retail/ commercial uses.

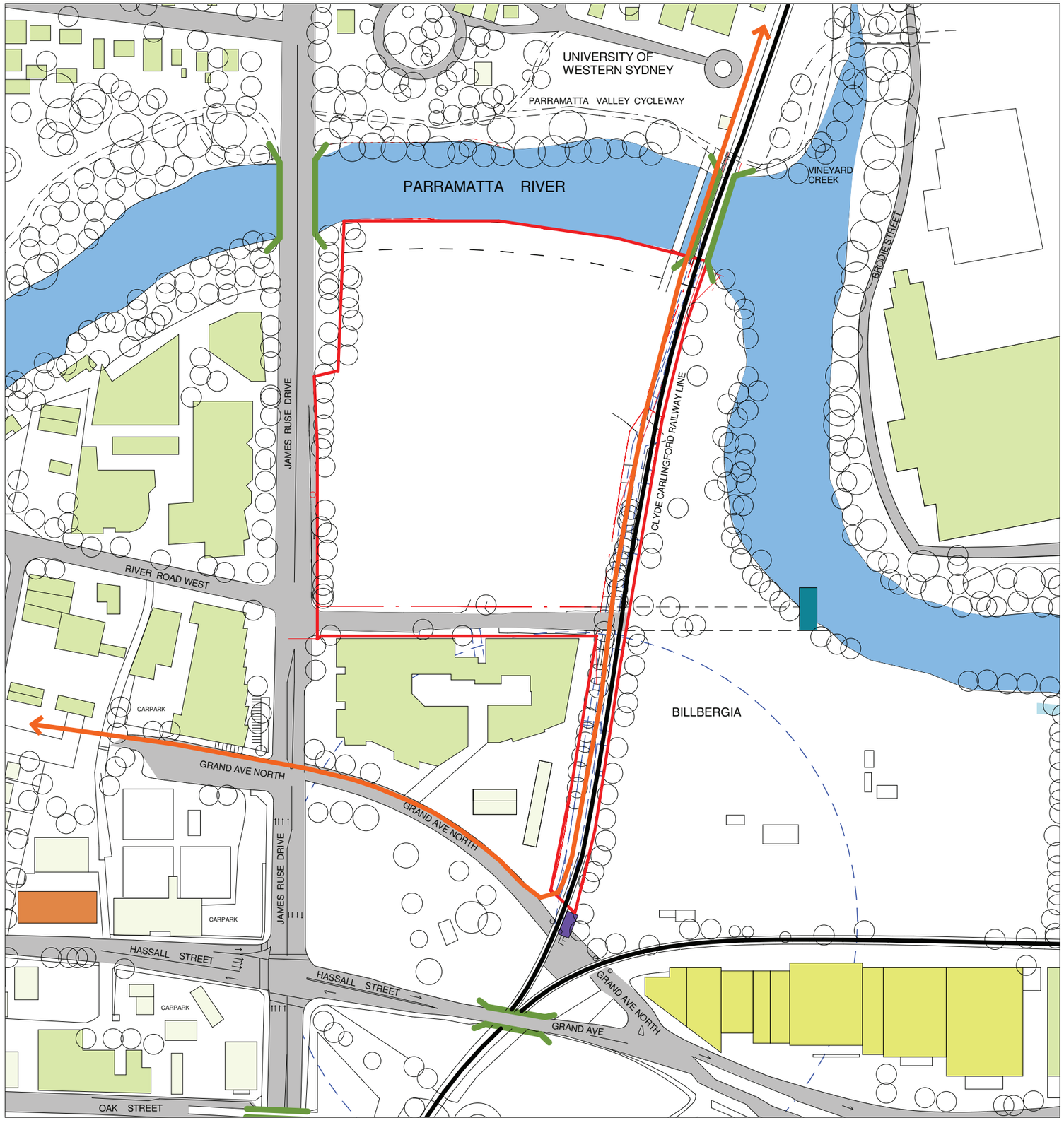


- MEDIUM / HEAVY INDUSTRIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- RETAIL / COMMERCIAL
- PRIVATE RECREATION
- EDUCATION
- HERITAGE
- BRIDGE
- RAILWAY LINE
- PROPOSED CAMELLIA FERRY WHARF
- CAMELLIA RAIL STATION
- PROPOSED LIGHT RAIL
- SITE



5.8 BUILDING HEIGHTS

The existing surrounding context is predominantly low rise (1-3 storeys), with some medium rise (4-9 storeys) developments along Hassall Street and Grand Avenue. There are currently no high rise developments in this area. Existing industrial buildings further east of the site are low to medium rise, equivalent to 3-4 residential storeys.



1 STOREY
2 STOREY
3 STOREY — LOW RISE
4 STOREY
5 STOREY
6 STOREY — MEDIUM RISE
7 STOREY
8 STOREY

BRIDGE

RAILWAY LINE

PROPOSED CAMELLIA FERRY WHARF

CAMELLIA RAIL STATION

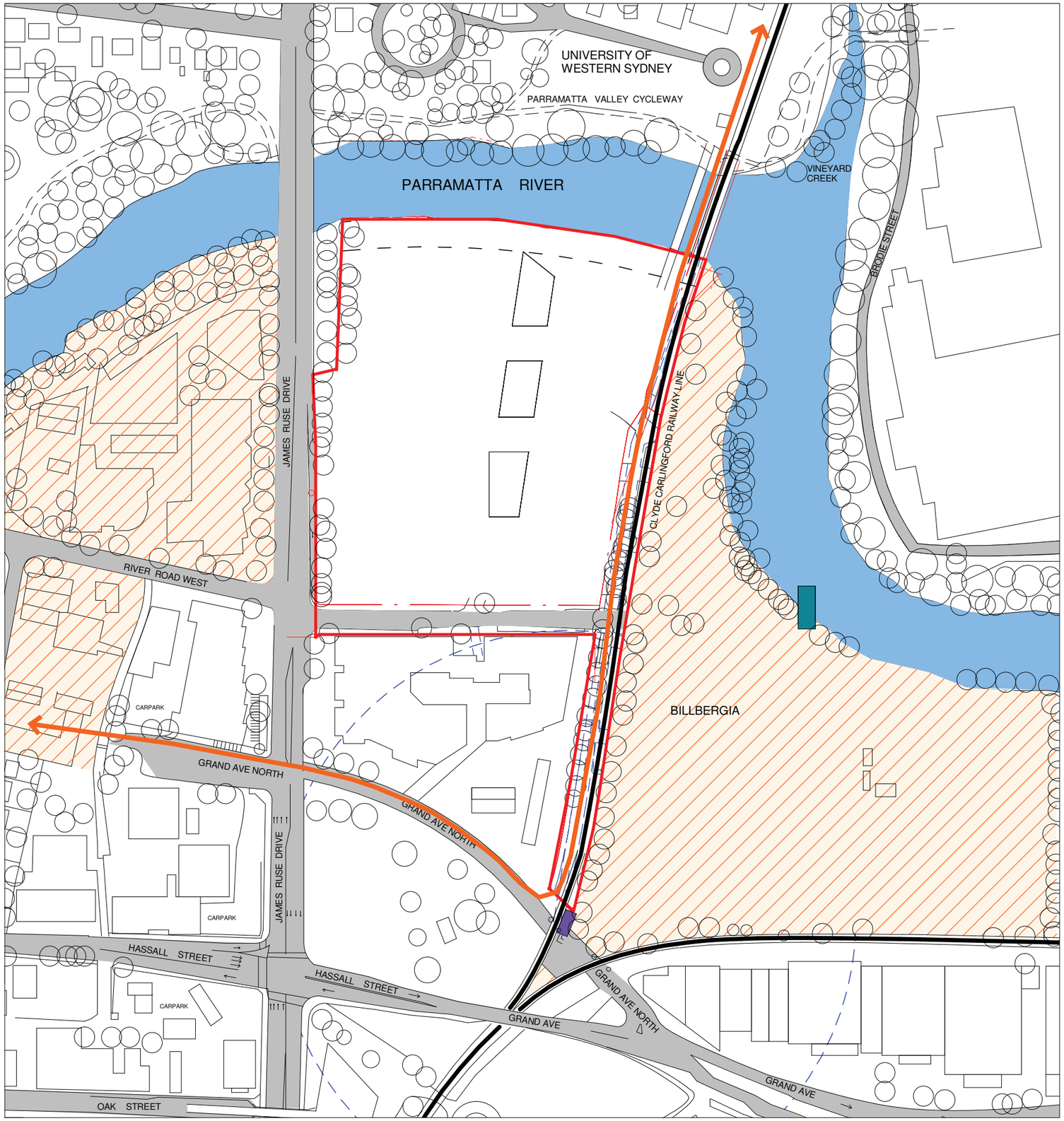
PROPOSED LIGHT RAIL

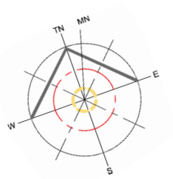
SITE

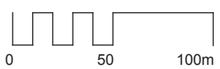
5.9 REDEVELOPMENT SITES

The Department of Planning and Council are currently exploring options for the future use and redevelopment of land in the Camellia Precinct. All sites here are well suited to redevelopment - although many will require some form of decontamination due to their current or former industrial past.

The site to the west ‘Billbergia’ and sites to the east of James Ruse Drive along the River is also well suited to redevelopment







POTENTIAL REDEVELOPMENT SITES

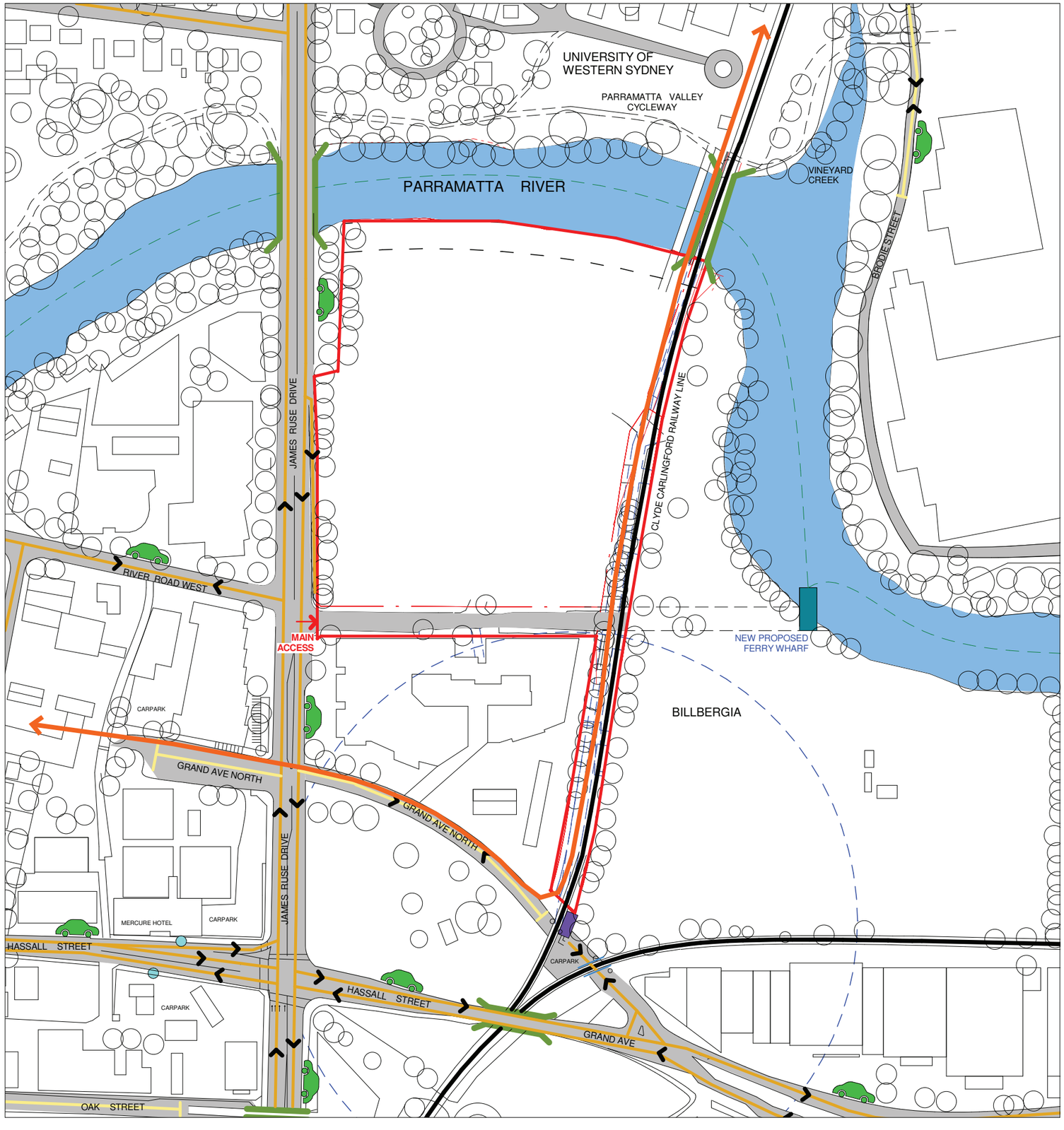
RAILWAY LINE

PROPOSED CAMELLIA FERRY WHARF

CAMELLIA RAIL STATION

PROPOSED LIGHT RAIL

SITE



5.10 TRANSPORT + VEHICULAR MOVEMENT

The site is surrounded by excellent infrastructure to support public transport and vehicular movement. The Camellia precinct, bounded by James Ruse Drive, the Parramatta River, Duck River and the M4 motorway. The site is located in a strategically important position close to the Camellia industrial precinct, the University of Western Sydney (UWS) and with proximity to key transport routes.

James Ruse Drive is a key arterial road that connects the north with the M4 Motorway and Great Western Highway to the south as well as south-western Sydney. The Clyde Carlingford Railway Line is located to the west of the site, with Camellia Station located along the access handle of the site. There are no opportunities to access the site form the west.

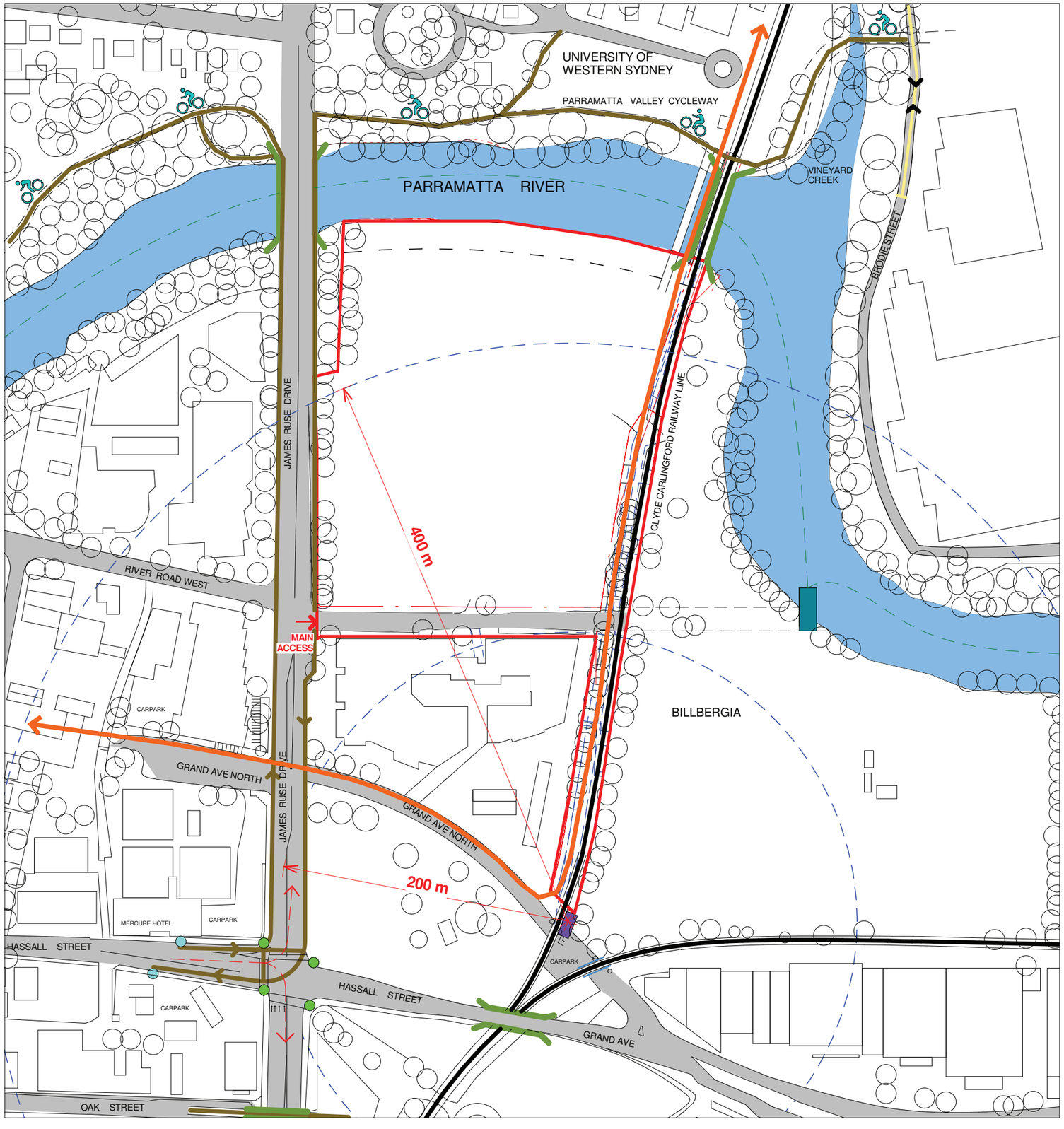
Hassall Street is a primary street that provides direct access to the Parramatta CBD. It extends over James Ruse Drive as Grand Avenue. Main access to the site is via James Ruse Drive opposite River Road West.

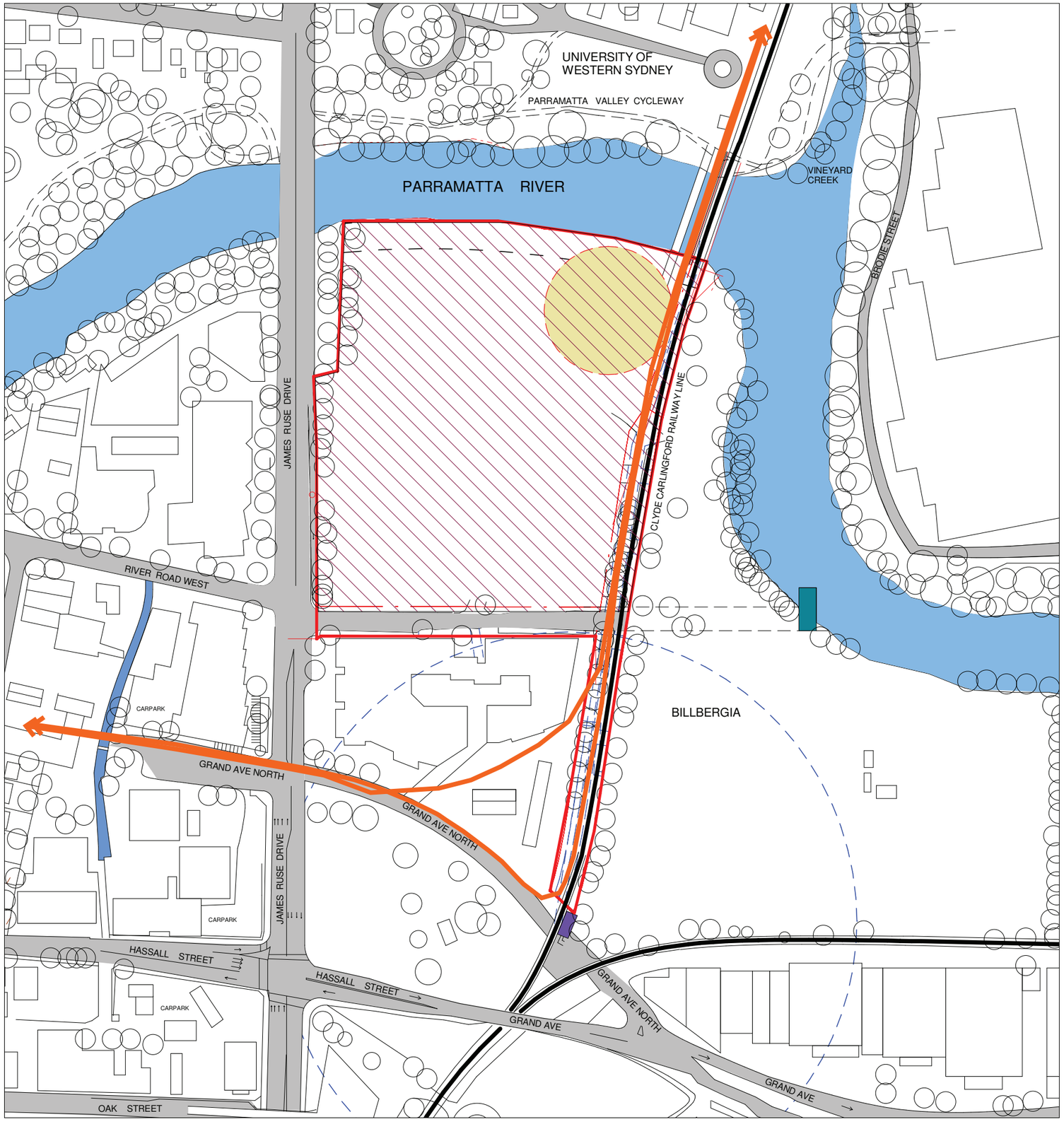
5.11 PEDESTRIAN MOVEMENT + CYCLEWAYS

The site is surrounded by an extensive cycle network that runs on the northern side of the Parramatta River, connecting UWS to the Parramatta CBD - Parramatta Valley Cycleway. Access to this cycleway is via a shared pedestrian and bicycle pathway along the western side of James Ruse Drive.

The Camellia Precinct is not suited to pedestrian movement due to its current industrial uses. There is a pedestrian bridge over James Ruse Drive, connecting existing hotels, serviced apartments and residential development on the western side of James Ruse Drive to Rosehill Racecourse.

A ferry wharf is proposed on the 'Billbergia' site along the Parramatta River with pedestrian access to Camellia Station.





5.12 CONTAMINATION

The site was previously occupied for a range of industrial purposes including James Hardie Pty Ltd and was used for the manufacture of building materials. The site is currently vacant and is capped to limit any exposure to the hazardous materials.

Subsequently, a preliminary environmental assessment has found hazardous materials including asbestos, hydrocarbon impacted soil and clinker material (RAD dated 25 June 2013, URS) on the site and a significantly contaminated hotspot in the north-eastern corner of the site which will require remediation. Preliminary studies have proposed that all of the contaminated material is contained within environmental cells below proposed new streets. These environmental containment cells are a significant constraint and will limit the street layout for the site.

Any works to the site will require the approval from the Environmental Protection Authority.

5.13 FLOODING

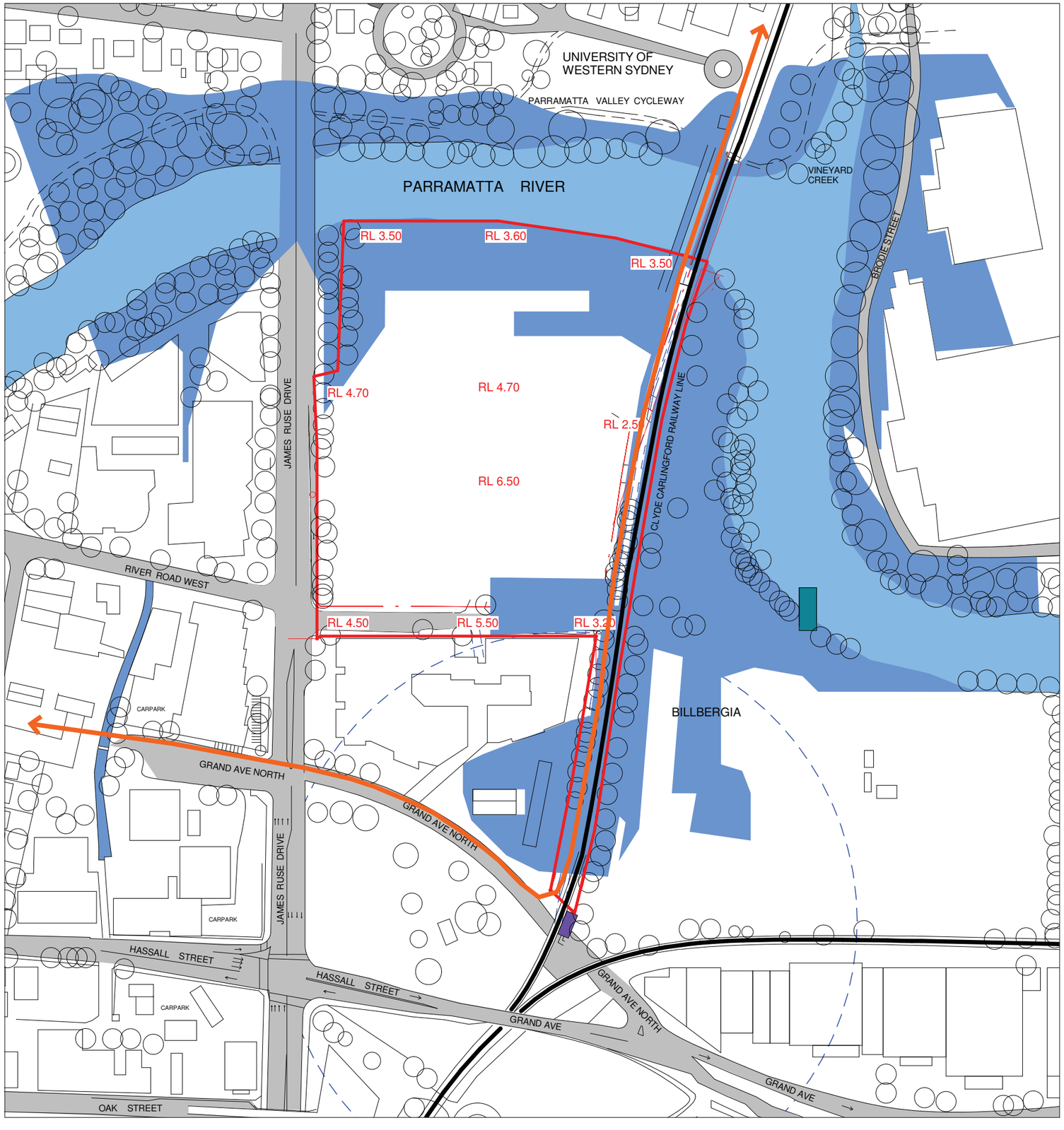
A flood assessment has been carried out by Mott Macdonald which indicates areas on the site that are subject to 100 year ARI flooding. This has identified the minimum floor levels for any proposed redevelopment:

- RL 6.50 - Commercial premises RL 6.50
- RL 8.00 - Lowest habitable floor area

These areas include a freeboard level of 500mm.

At Parramatta River, the lowest commercial premises permitted is some 2-3m above the natural ground level. This level corresponds with the natural ground level at the centre of the site.

0 50 100m



RL 6.50M AHD LOWEST FINISHED FLOOR LEVEL (FFL)
COMMERCIAL PREMISES (INCLUDES FREEBOARD LEVEL)

RL 8.00M AHD LOWEST HABITABLE FLOOR AREA
ELEVATED 1.50M ABOVE FFL

100 YEAR ARI FLOOD EXTENTS

CLYDE-CARLINGFORD RAILWAY LINE

PROPOSED CAMELLIA FERRY WHARF

CAMELLIA RAIL STATION

PROPOSED LIGHT RAIL

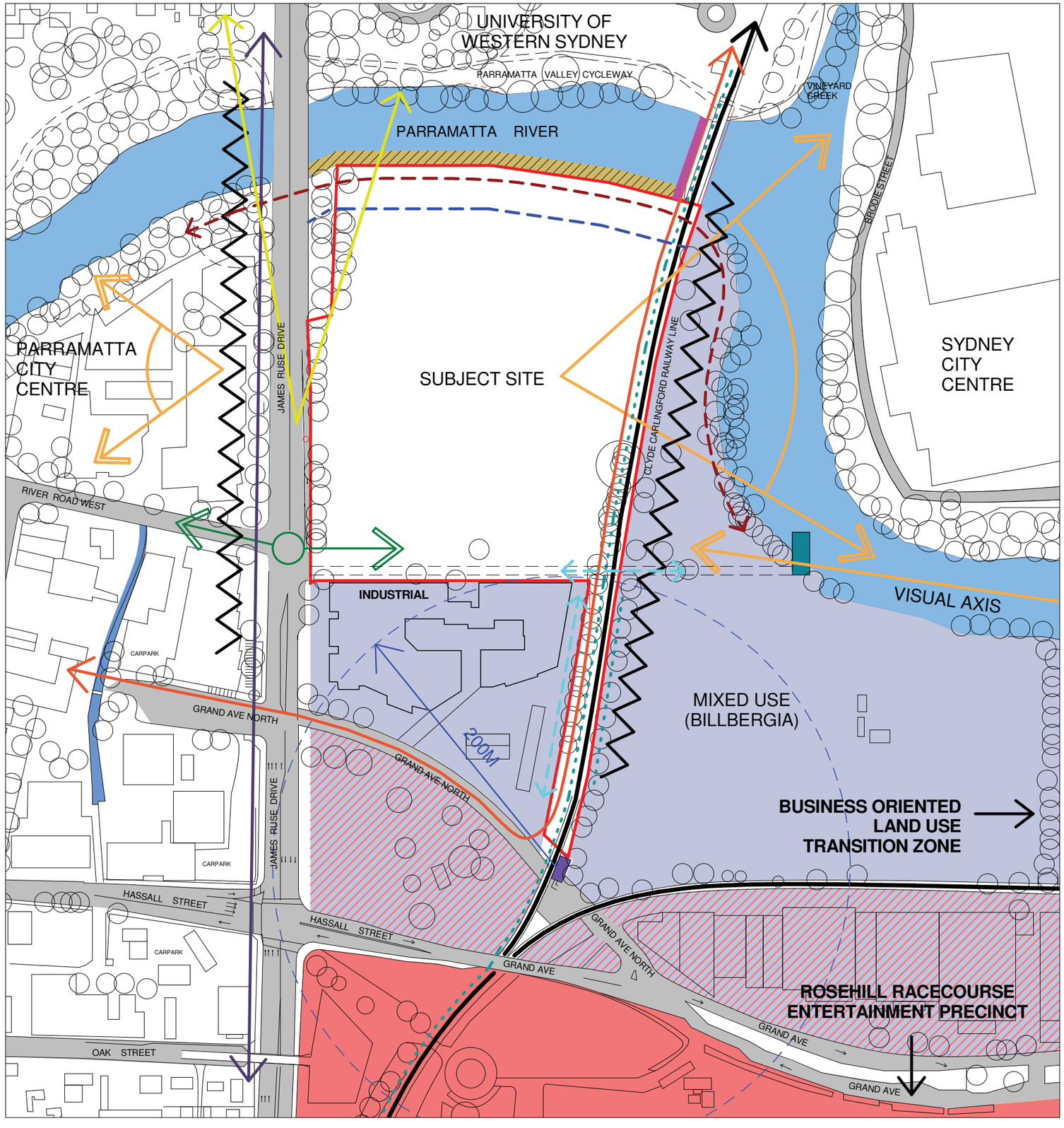
SITE

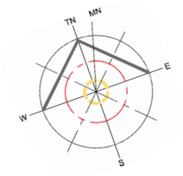
5.13 OPPORTUNITIES + CONSTRAINTS

The site has many opportunities and constraints that are detailed below:

- large consolidated, relatively flat site, suitable for mixed-use densification with multiple housing, retail and public domain
- adjoins future mixed-use, development site to the east (Billbergia)
- adjacent to future employment and entertainment zones: Business-Oriented Land Use Transition Zone to the east and Rosehill Entertainment Precinct to the south
- adjoins industrial buildings to the south which are part of future Mixed Use Zone
- easy walking distance (200m) to Camellia Rail station to the south
- Clyde/Carlingford railway line bounds the site to the east and restricts access
- railway line is generator of noise and may experience increased usage of freight trains
- existing road access from James Ruse Drive, a major arterial road, to the west, and generator of noise with potential traffic conflict when entering and exiting the site
- links to Sydney Olympic Park and M4 Western Motorway link to the south
- potential Camellia Ferry Wharf on Parramatta River to east
- future light rail route to connect the site to Parramatta City Centre and University of Western Sydney
- adjacent to University of Western Sydney to the north with future pedestrian bridge
- pipeline and pipe bridge presents visual impacts and potential visual barriers
- foreshore building line on northern boundary defines riverfront development
- foreshore riparian zone and heritage landscape (mangroves) along the river edge to the north
- outlook and access to Parramatta River corridor to the north and east
- high level district views to Parramatta City Centre to the west
- high level views to the Sydney City Centre to the east
- unimpeded solar access to north, east and west
- potential flooding and acid sulfate soil impacts
- some trees on site may require retention
- contamination can be capped and sealed on site
- no buildings over containment cells/ locate containment cells below streets or in setback zones

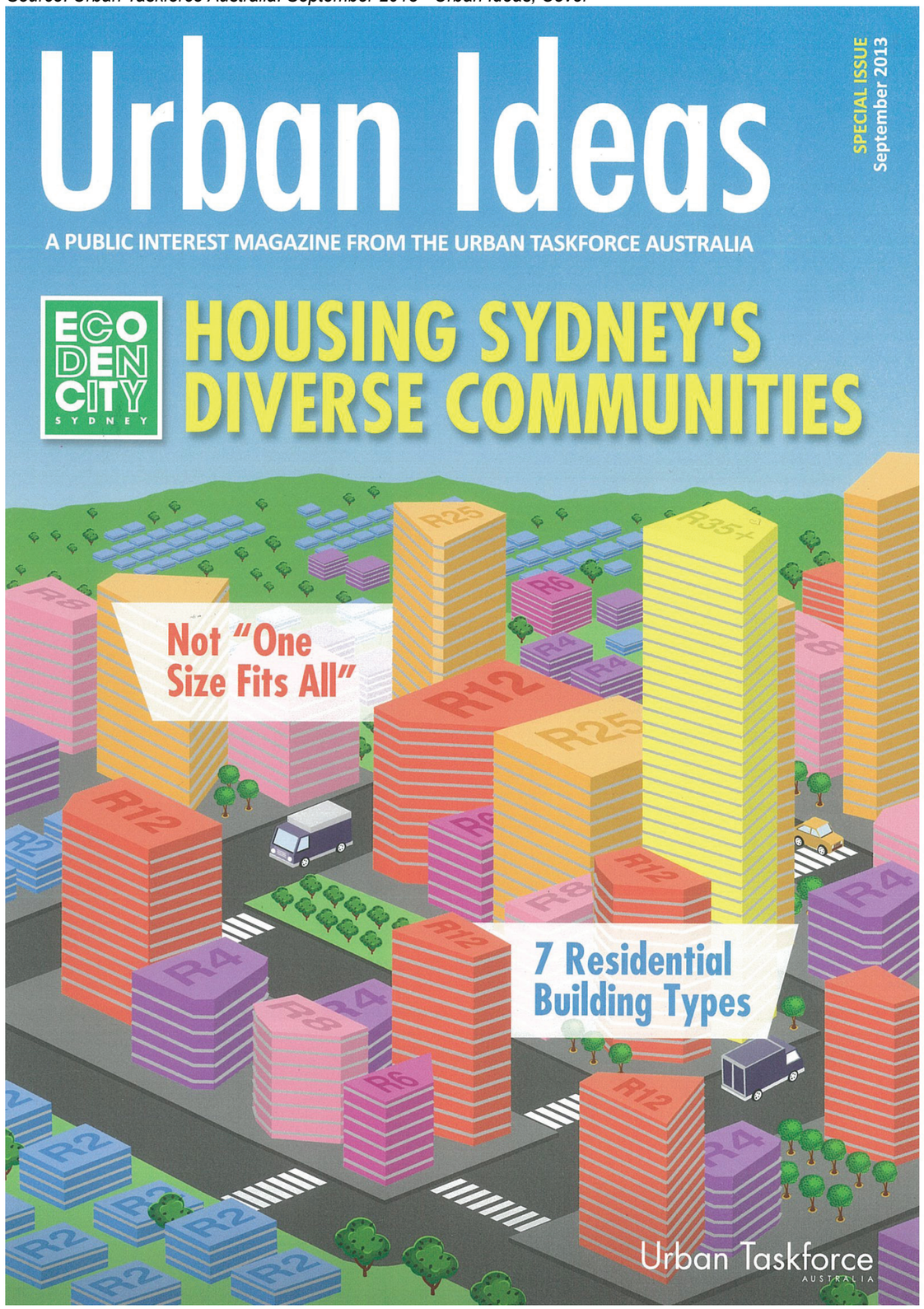
5 CONTEXTUAL ANALYSIS





- MAJOR ARTERIAL ROAD
- RAIL LINE
- HERITAGE VIEW CONE (REFER TO HERITAGE VIEW ANALYSIS PREPARED BY CRACKNELL LONERGAN HERITAGE ARCHITECTS)
- PIPELINE
- MIXED USE PRECINCT
- ENTERTAINMENT PRECINCT
- MIXED USE/ ENTERTAINMENT PRECINCT TRANSITION ZONE
- VIEWS
- NOISE GENERATOR
- INTERSECTION + TRAFFIC CONFLICT
- 30M FORESHORE BUILDING LINE
- HERITAGE LANDSCAPE
- PIPELINE BRIDGE VISUAL IMPACT
- PROPOSED LIGHT RAIL
- POTENTIAL CAMELLIA FERRY WHARF
- CAMELLIA STATION
- SITE

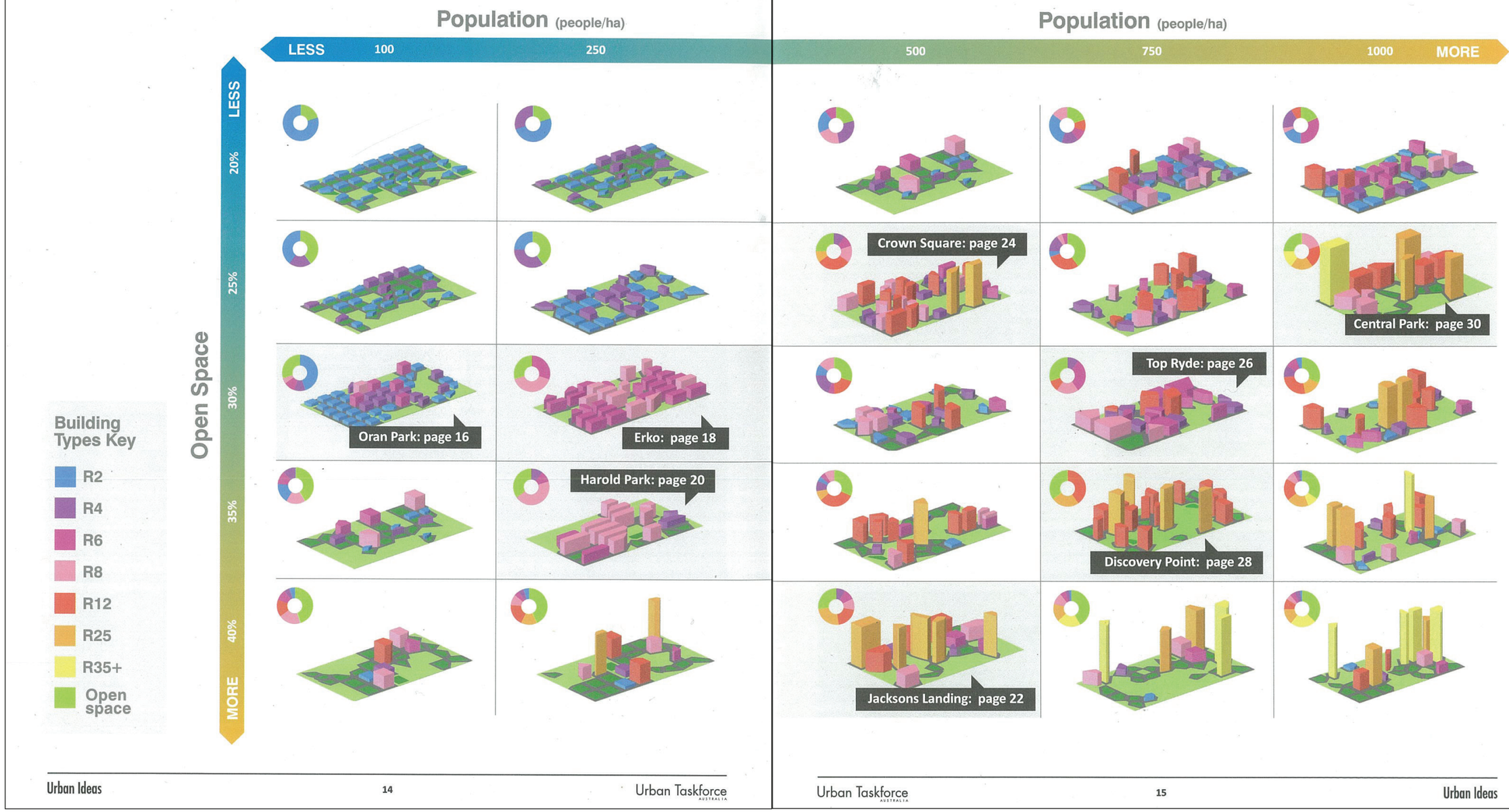
Source: Urban Taskforce Australia: September 2013 - Urban Ideas, Cover



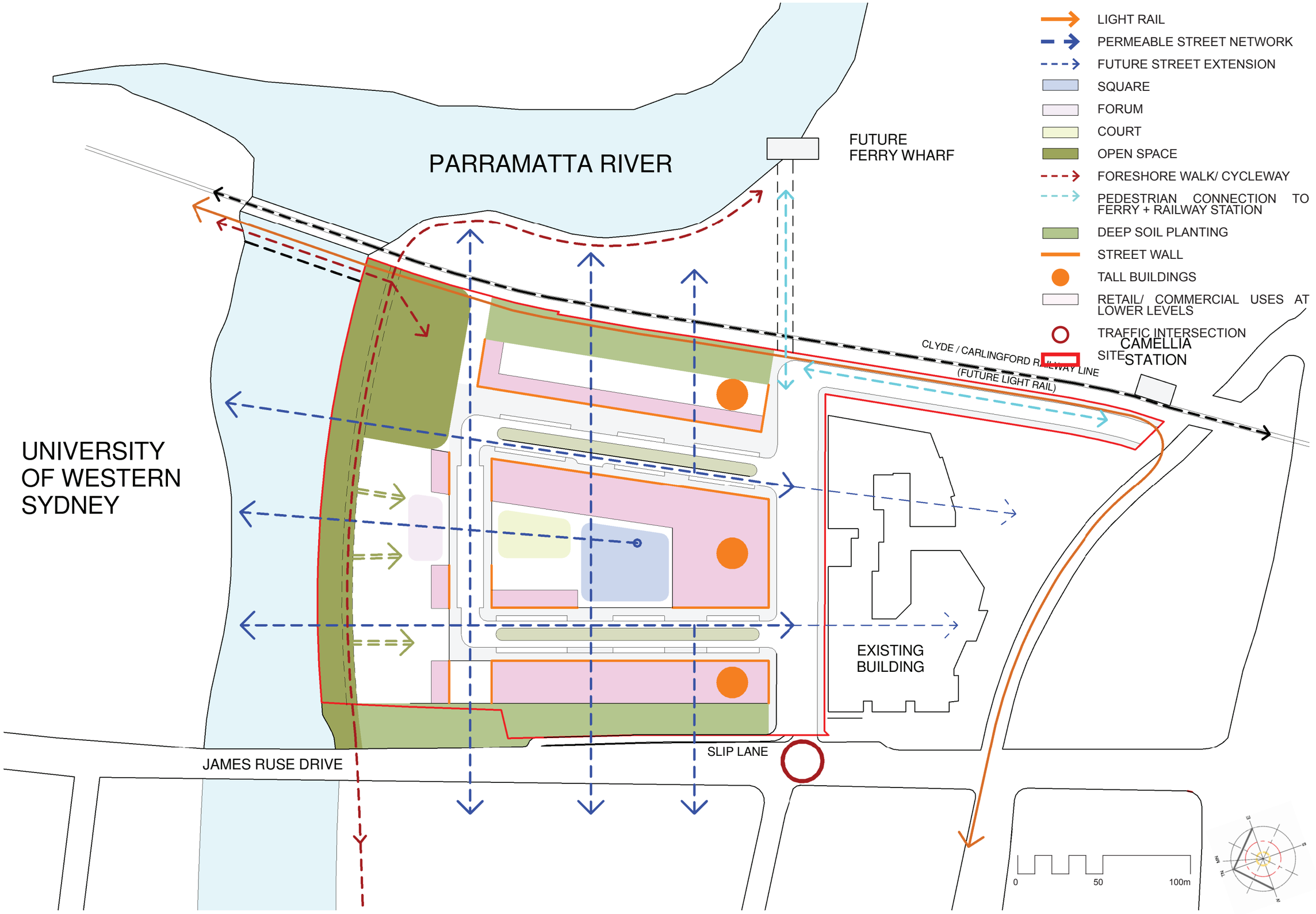
Source: Urban Taskforce Australia: September 2013 - Urban Ideas, p. 14-15

Most developments have a mixture of heights giving a more interesting built form while still providing different densities and different open space solutions

As sites closer to town centres are likely to have more people per hectare it is also likely that greater height will lead to better open space provisions. The 25 mixed height options on these pages demonstrate a range of solutions suitable for sites from the city fringe to the centre of Sydney's CBD. We have indicated where the options are similar to real projects undertaken by members of the Urban Taskforce.



6.1 URBAN STRATEGY



SITE

CHARACTER AREA

PROPOSED LIGHT RAIL

PARRAMATTA RIVER

FUTURE
FERRY WHARF

CLYDE / CARLINGFORD RAILWAY LINE

CAMELLIA
STATION

UNIVERSITY
OF WESTERN
SYDNEY

3. TRANSPORT

1. FORESHORE

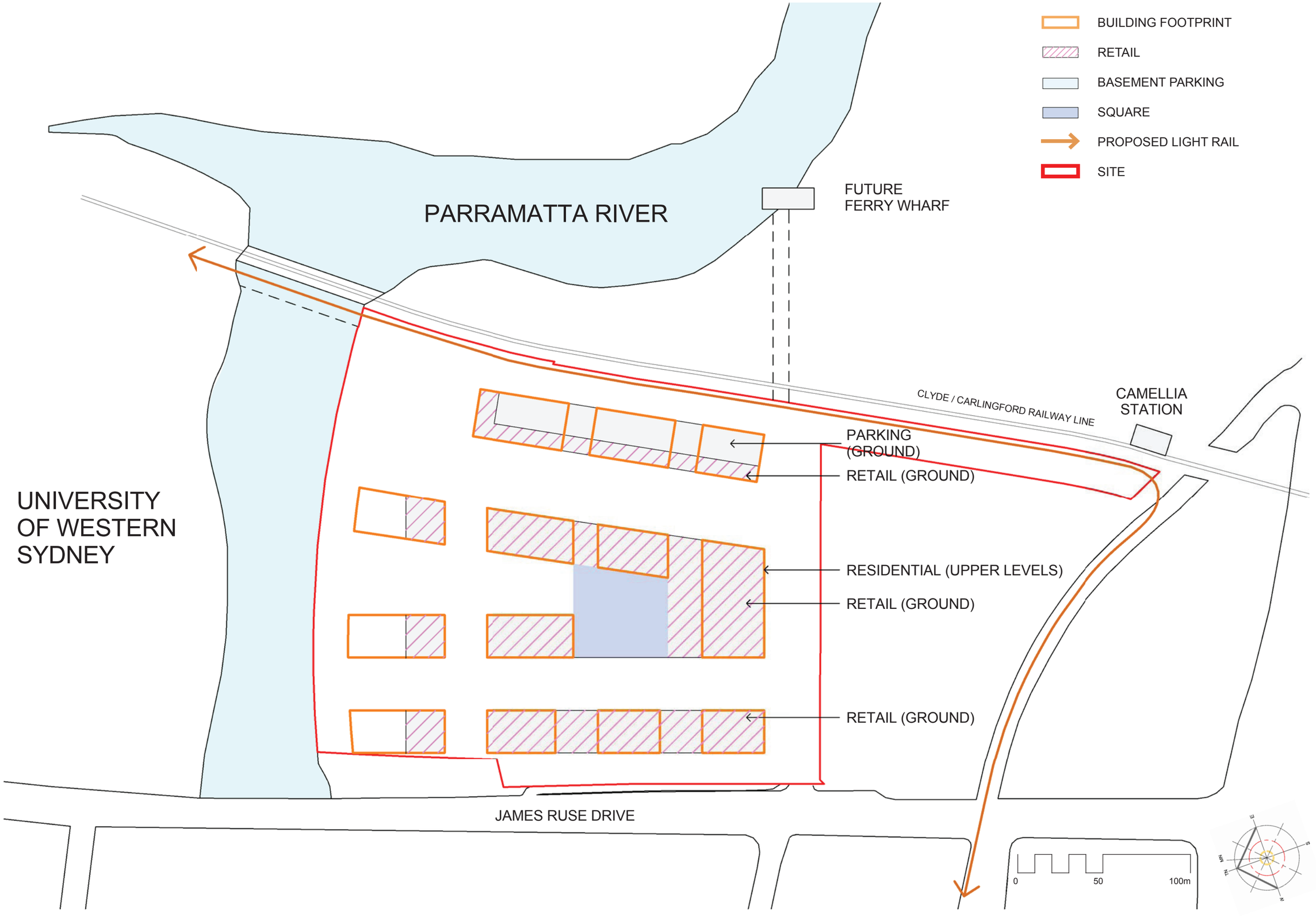
4. CENTRAL

2. JAMES RUSE DRIVE

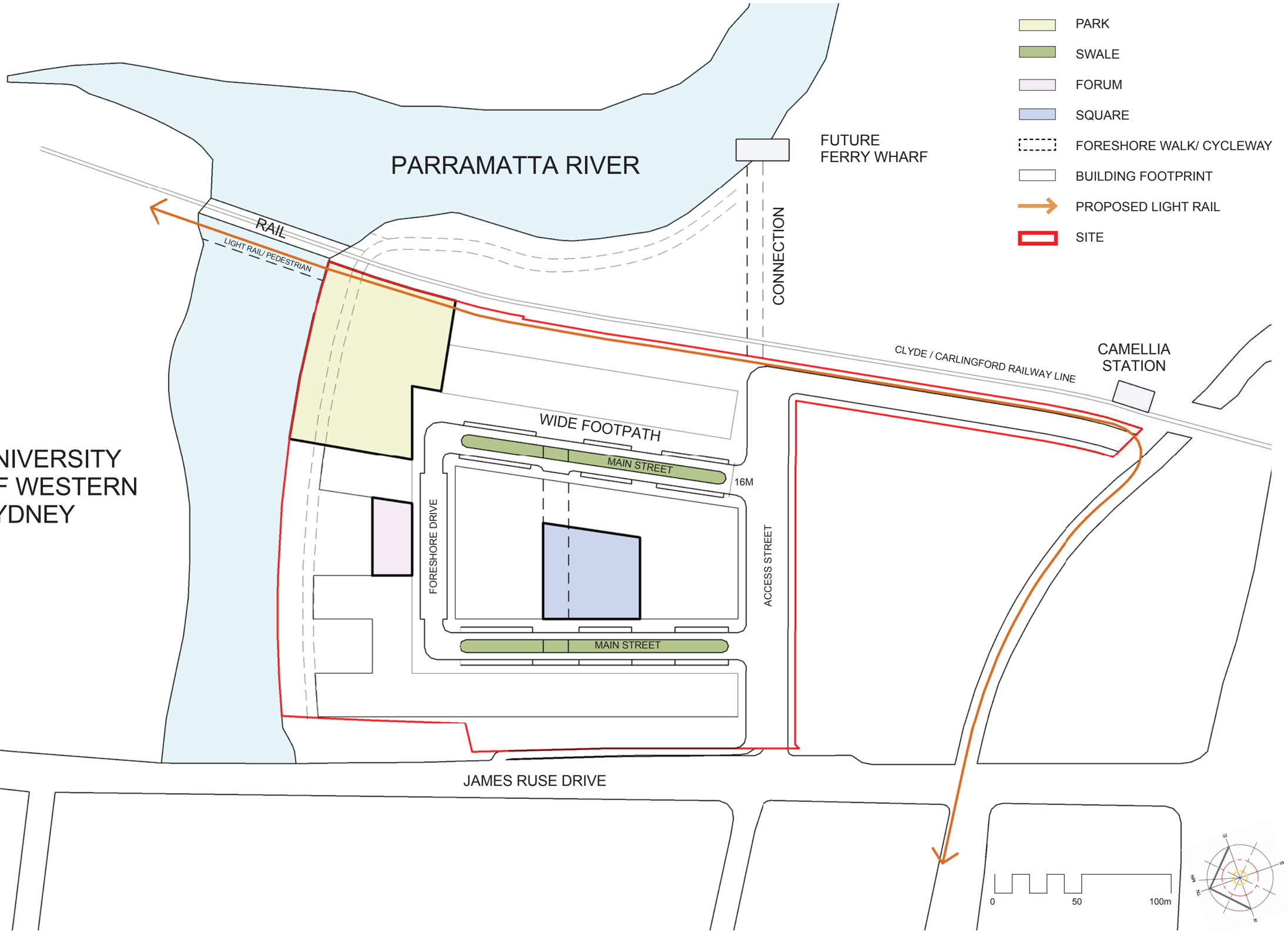
JAMES RUSE DRIVE

0 50 100m

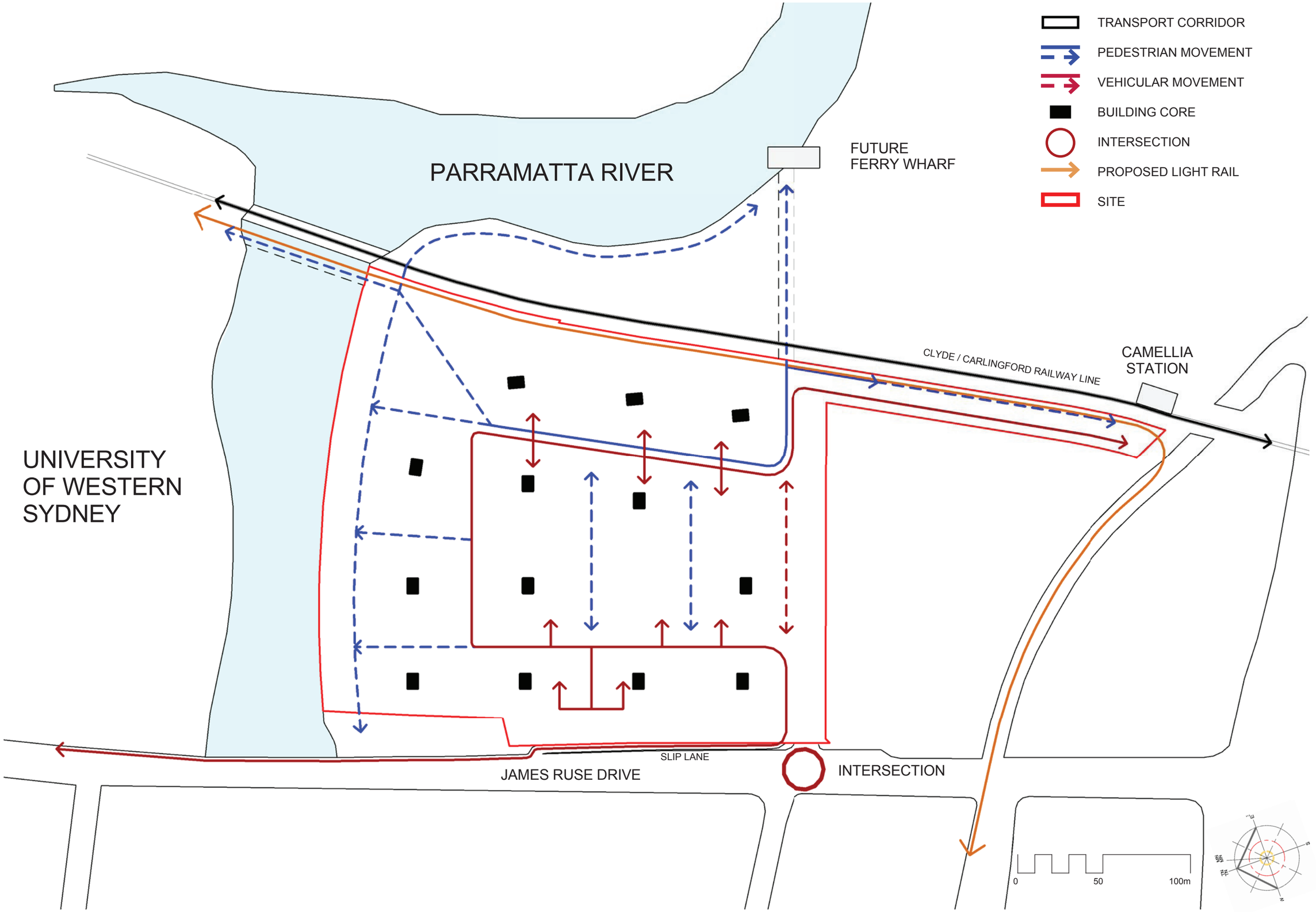
DESIGN PRINCIPLES - LAND USES



DESIGN PRINCIPLES - PUBLIC DOMAIN



DESIGN PRINCIPLES - MOVEMENT



DESIGN PRINCIPLES - CONTAINMENT CELLS

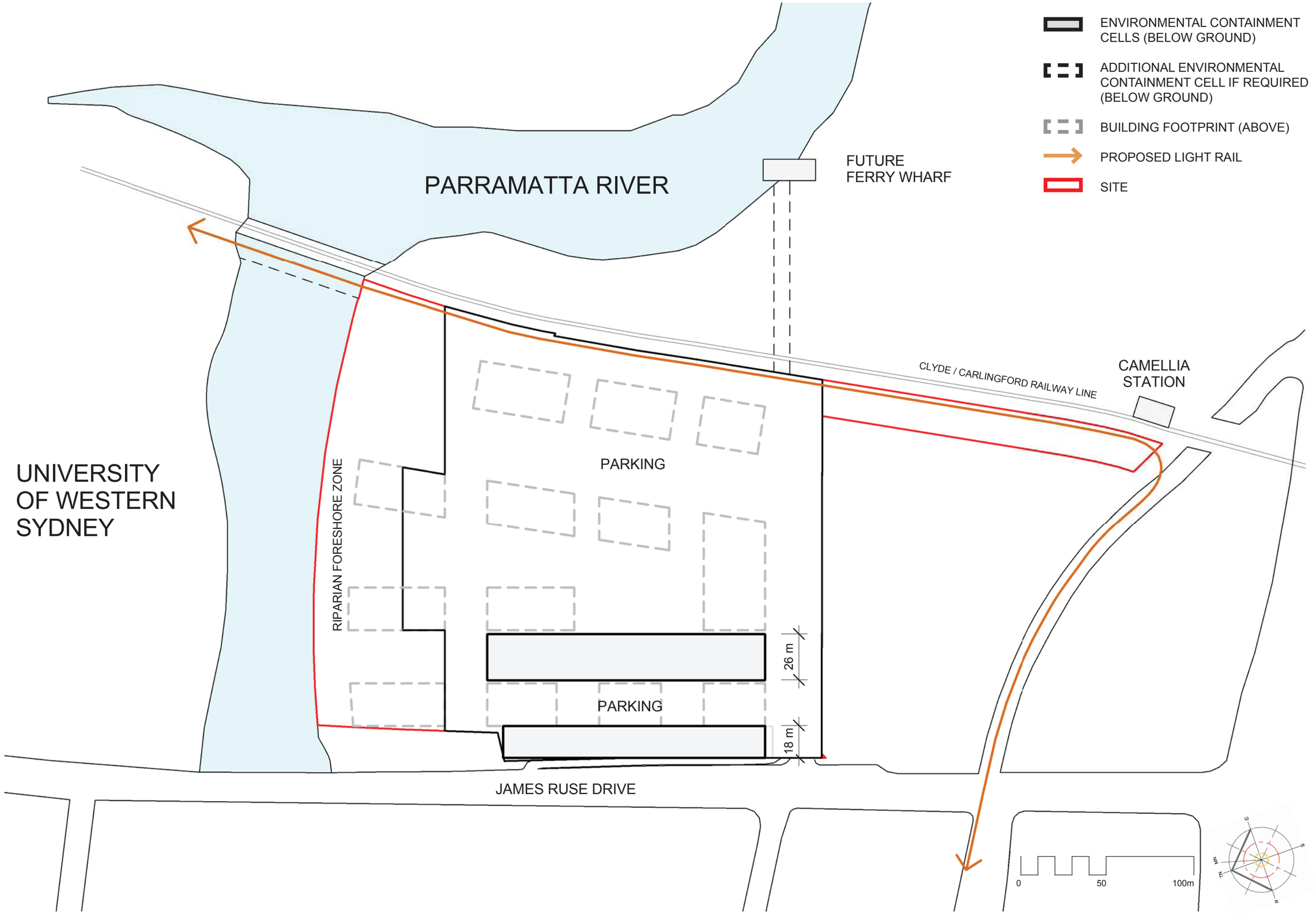
ENVIRONMENTAL CONTAINMENT CELLS (BELOW GROUND)

ADDITIONAL ENVIRONMENTAL CONTAINMENT CELL IF REQUIRED (BELOW GROUND)

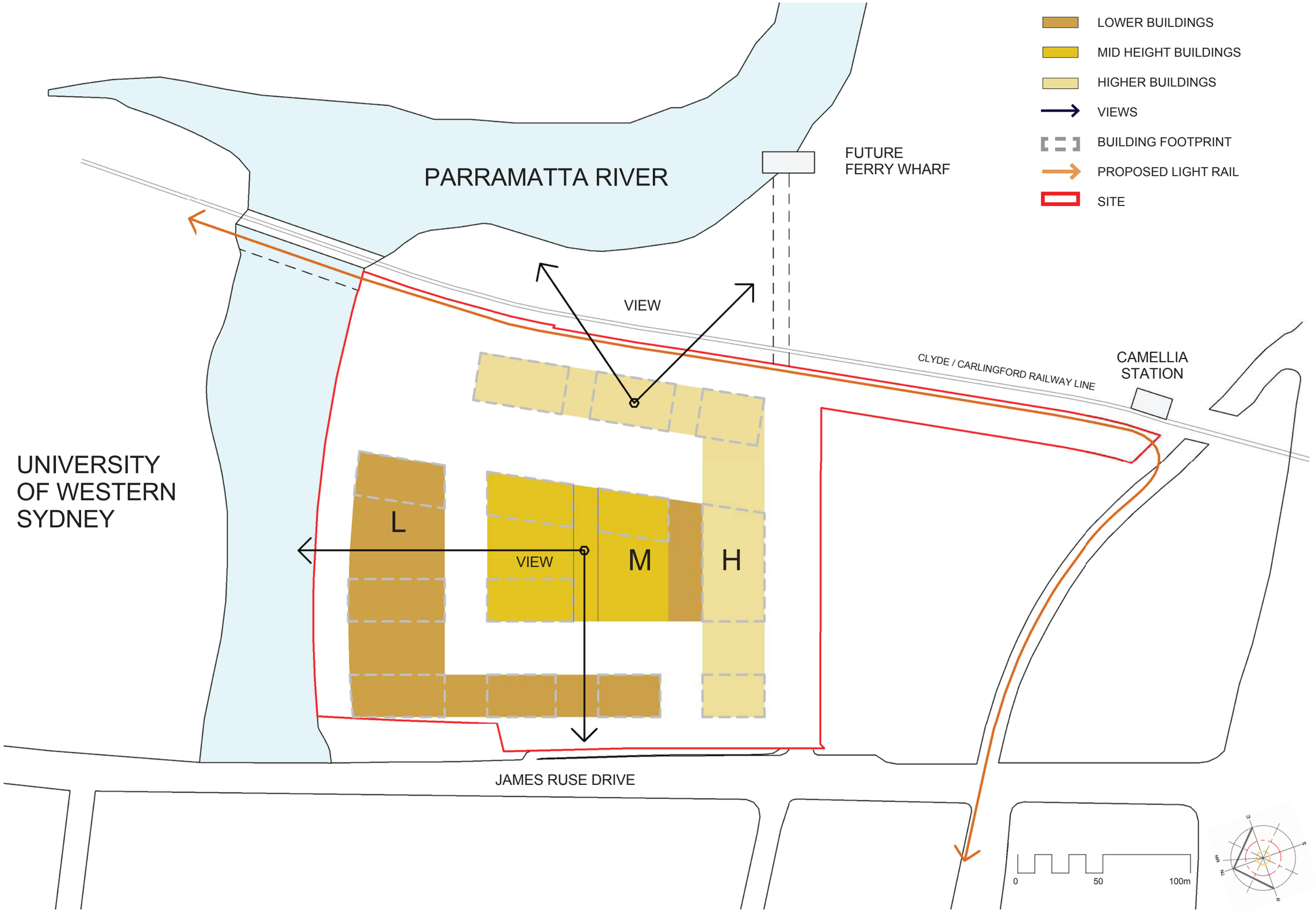
BUILDING FOOTPRINT (ABOVE)

PROPOSED LIGHT RAIL

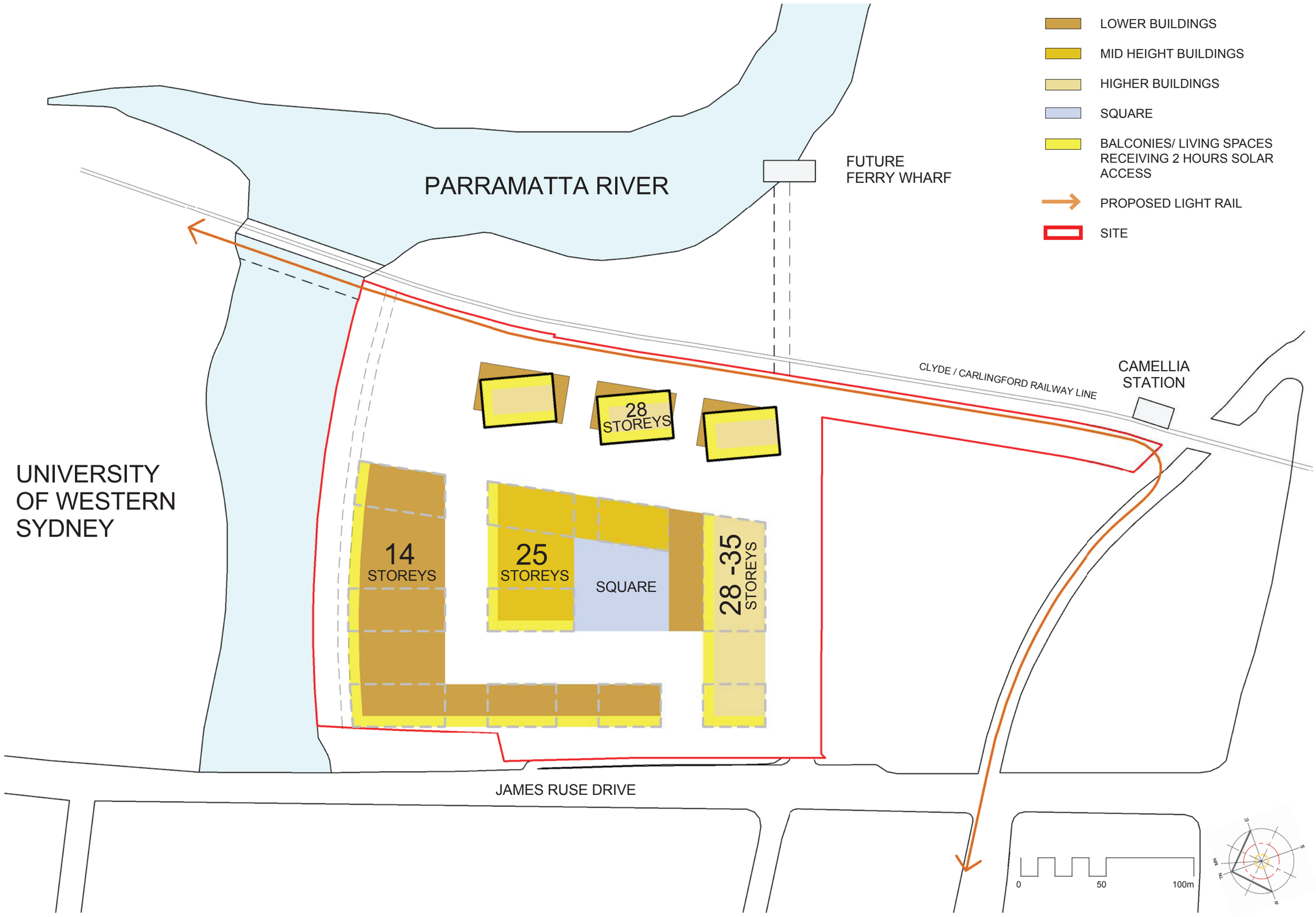
SITE



DESIGN PRINCIPLES - BUILDING HEIGHT + VIEW



DESIGN PRINCIPLES - SOLAR ACCESS



7.1 BUILDING ENVELOPE TESTING

In order to identify key opportunities and constraints for the site, a number of building envelopes have been tested and are summarised below, Further options (Option D + E) were developed following comments from Council and an Alteration of Gateway Development.

OPTION A - TOWER + COURTYARDS (3.18:1)

Option A has the following characteristics:

- courtyard and perimeter towers that increase in height from Parramatta River (10 storeys) towards Camellia Station (35 storeys) to the south-east
- building envelopes aligned to the streets with the courtyards opening up to the north to maximise the midday sunlight with visual connection to the river
- average 20-40M wide river foreshore zone
- retail + commercial uses along new main street and to the north along the river
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers aligned with the rail line (25 storeys) and along James Ruse Drive (16 storeys) to define the edges to the precinct and create a noise buffer.
- building envelopes are varied in height from 16 to 35 storeys stepping from western to eastern boundary
- wide central swales with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets
- limited solar access to building along eastern boundary (clyde carlingford rail line)

OPTION B - TOWER + PERIMETER/ PODIUM (3.99:1)

Option B has the following characteristics:

- street wall/ podium with perimeter towers that increase in height from Parramatta River (12 storeys) towards Camellia Station (30 storeys) to the south-east
- building envelopes aligned to the streets with the courtyard opening up to the north to reinforce the visual connection to the river with an open forum
- podium and tower forms that create a continuous street wall, increased density within building heights similar to option A.
- retail and commercial uses along new streets
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers rotated along east boundary with the rail line (24 storeys). Towers along. James Ruse Drive (21 storeys) define the edges to the precinct and create a noise buffer.
- building envelopes are similar in height and overshadow each other limiting solar access to units to the east and west
- wide central swale with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets

OPTION C - TOWER + CENTRAL PARK (4.13:1) - PREFERRED

Option C (preferred) has the following characteristics:

- central park that opens up to new west main street with perimeter towers that increase in height from Parramatta River (14 storeys) towards Camellia Station (35 storeys) to the south-west
- building envelopes aligned to the streets with the central park opening up to the north to reinforce the visual connection to the river with an open forum
- tower forms to primary north-south streets with increased density
- retail and commercial uses along new streets and active edges to the new open space
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers rotated along east boundary with the rail line (28 storeys). Towers along. James Ruse Drive (20 - 35 storeys) define the edges to the precinct and create a noise buffer.
- increased daylight penetration to Central Park and increased solar access to units to the east and west
- wide central swale with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets

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7.2 OPTION A - TOWERS + COURTYARDS

Option A has the following characteristics:

- courtyard and perimeter towers that increase in height from Parramatta River (10 storeys) towards Camellia Station (35 storeys) to the south-east
- building envelopes aligned to the streets with the courtyards opening up to the north to maximise the midday sunlight with visual connection to the river
- average 20-40M wide river foreshore zone
- retail + commercial uses along new main street and to the north along the river
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers aligned with the rail line (25 storeys) and along James Ruse Drive (16 storeys) to define the edges to the precinct and create a noise buffer.
- building envelopes are varied in height from 16 to 35 storeys stepping from western to eastern boundary
- wide central swales with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets
- limited solar access to building along eastern boundary (clyde carlingford rail line)

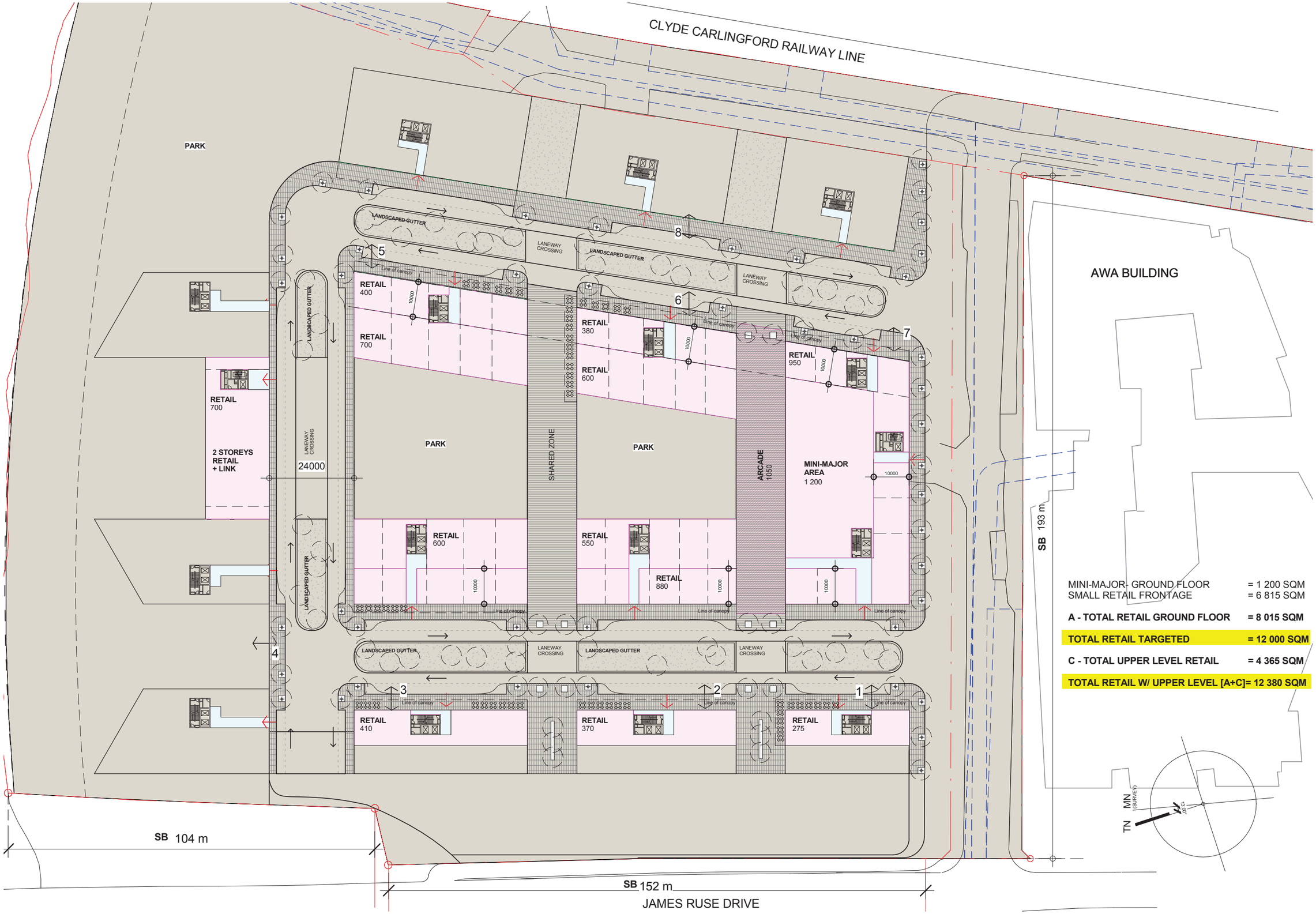
OPTION A - STRUCTURE PLAN

OPTION A:	
GFA	218,316 sqm
FSR (DEVELOPABLE AREA)	3.91:1
FSR (SITE AREA)	3.18:1

7 BUILDING ENVELOPE TESTING

7 BUILDING ENVELOPE TESTING

OPTION A - GROUND LEVEL PLAN 1:1000



MINI-MAJOR- GROUND FLOOR = 1 200 SQM
SMALL RETAIL FRONTAGE = 6 815 SQM

A - TOTAL RETAIL GROUND FLOOR = 8 015 SQM

TOTAL RETAIL TARGETED = 12 000 SQM

C - TOTAL UPPER LEVEL RETAIL = 4 365 SQM

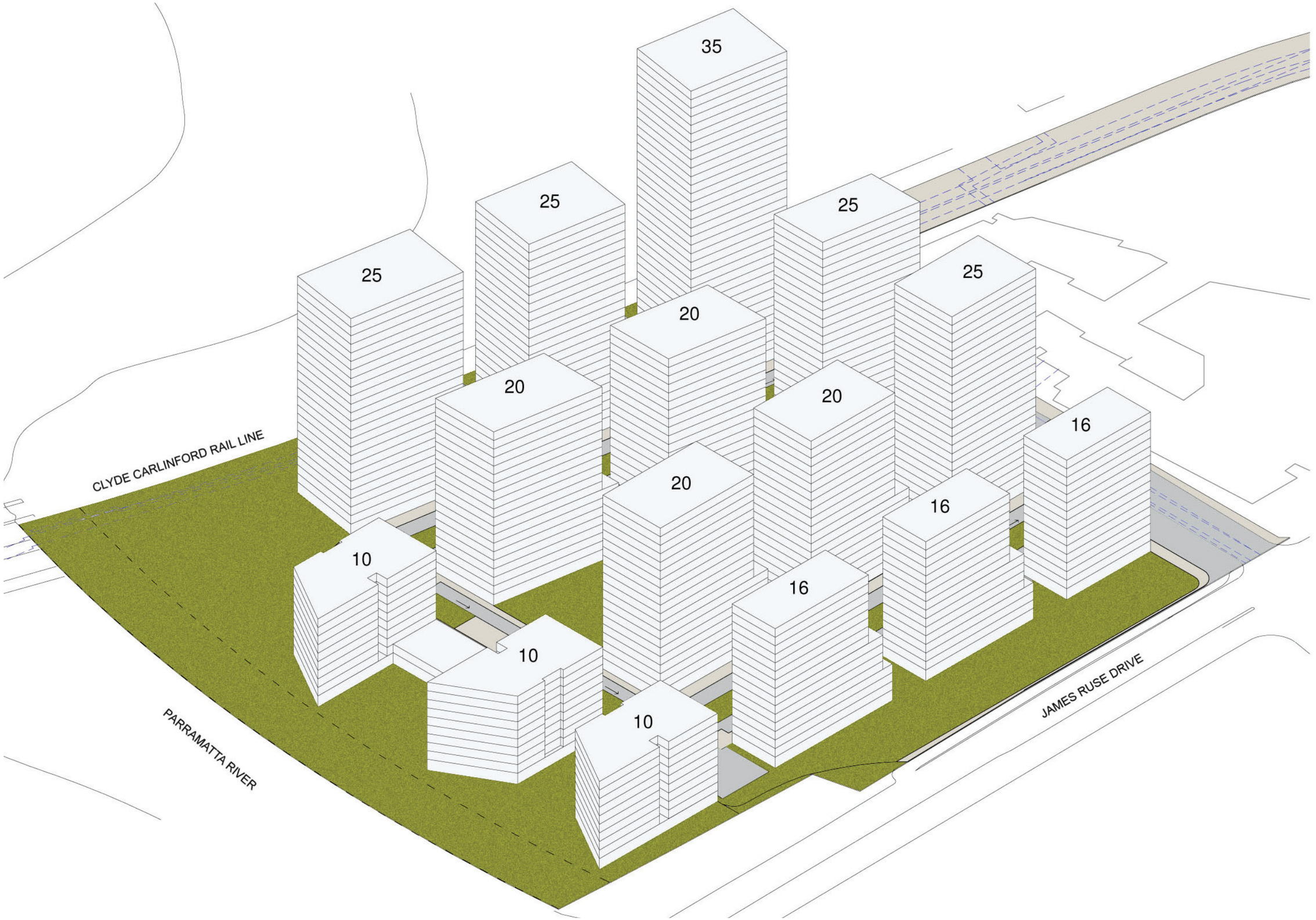
TOTAL RETAIL W/ UPPER LEVEL [A+C]= 12 380 SQM

OPTION A - AERIAL VIEW FROM THE NORTH EAST

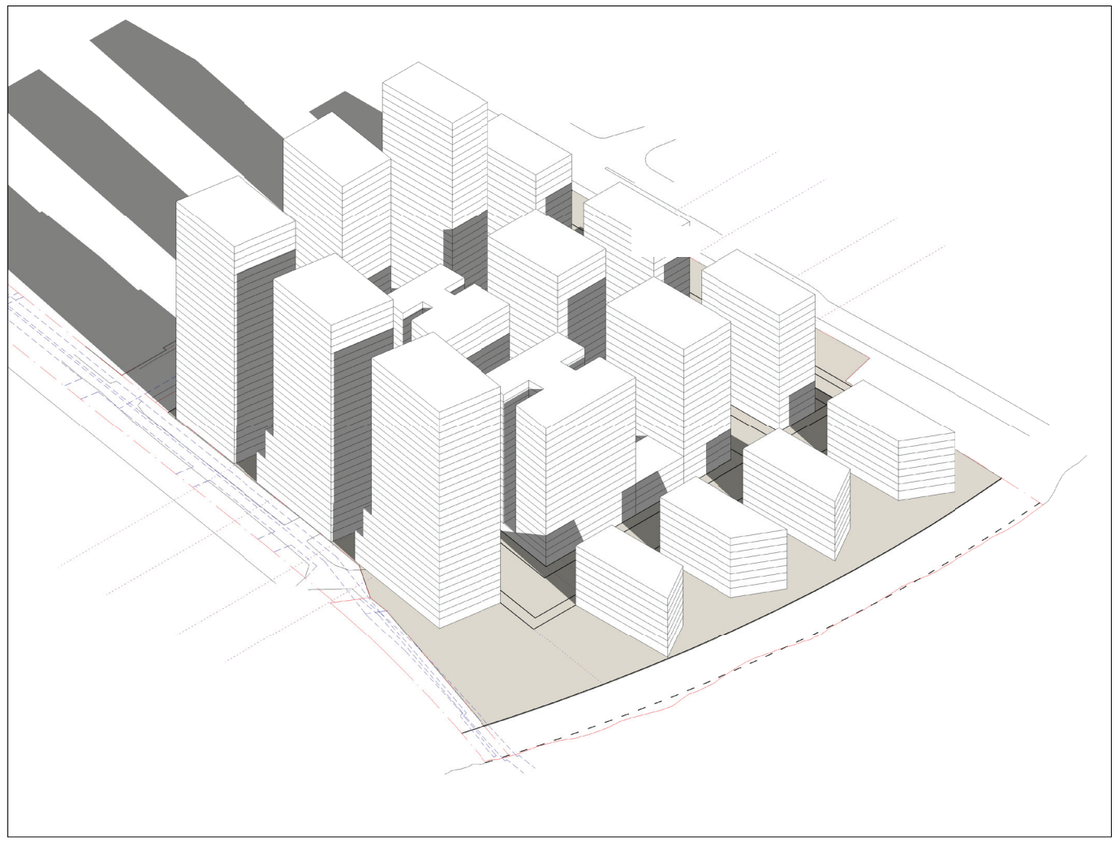
7 BUILDING ENVELOPE TESTING

7 BUILDING ENVELOPE TESTING

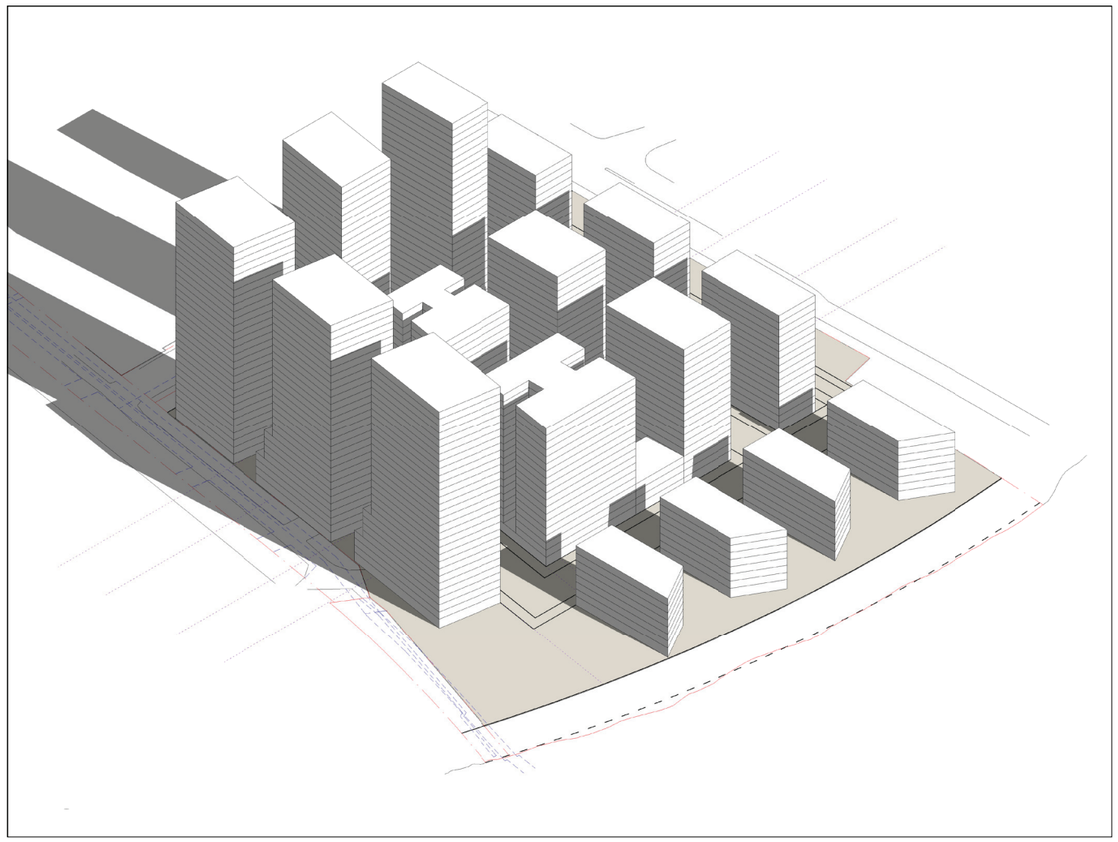
OPTION A - AERIAL VIEW FROM THE NORTH WEST



OPTION A - SOLAR ACCESS STUDY

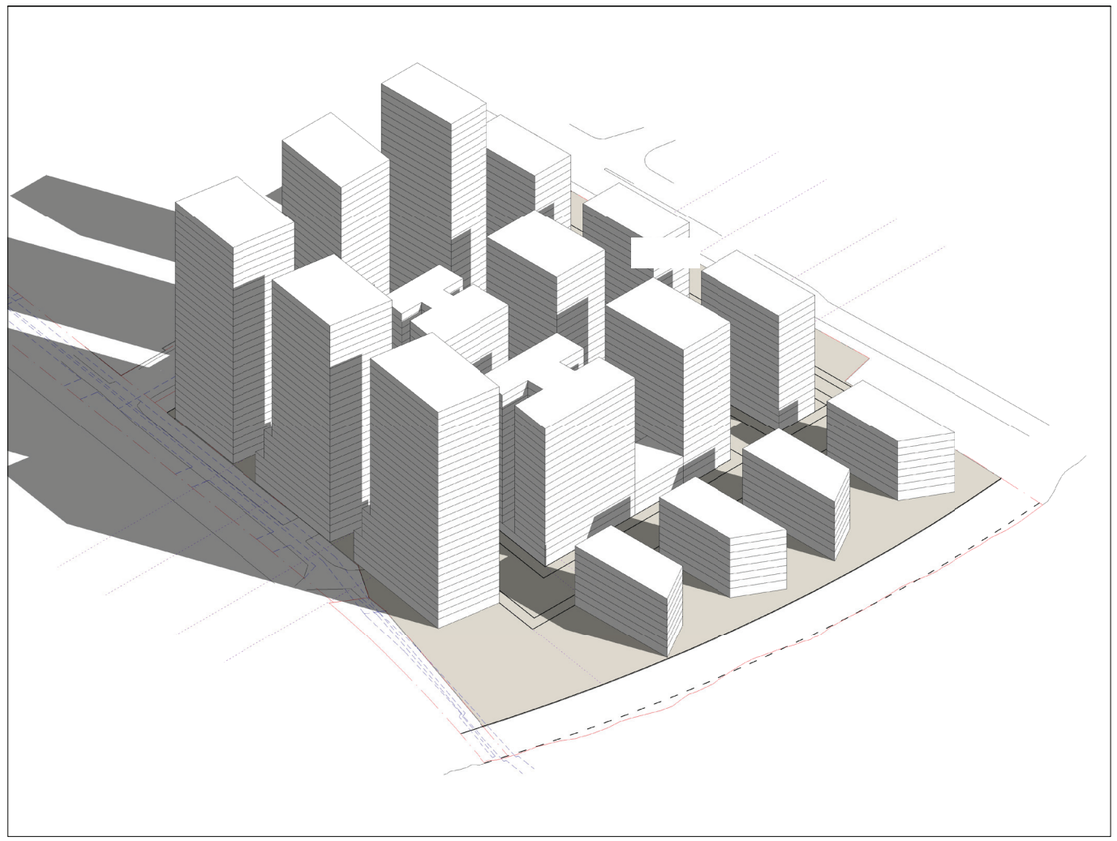


JUNE 21 (WINTER SOLSTICE) 10AM

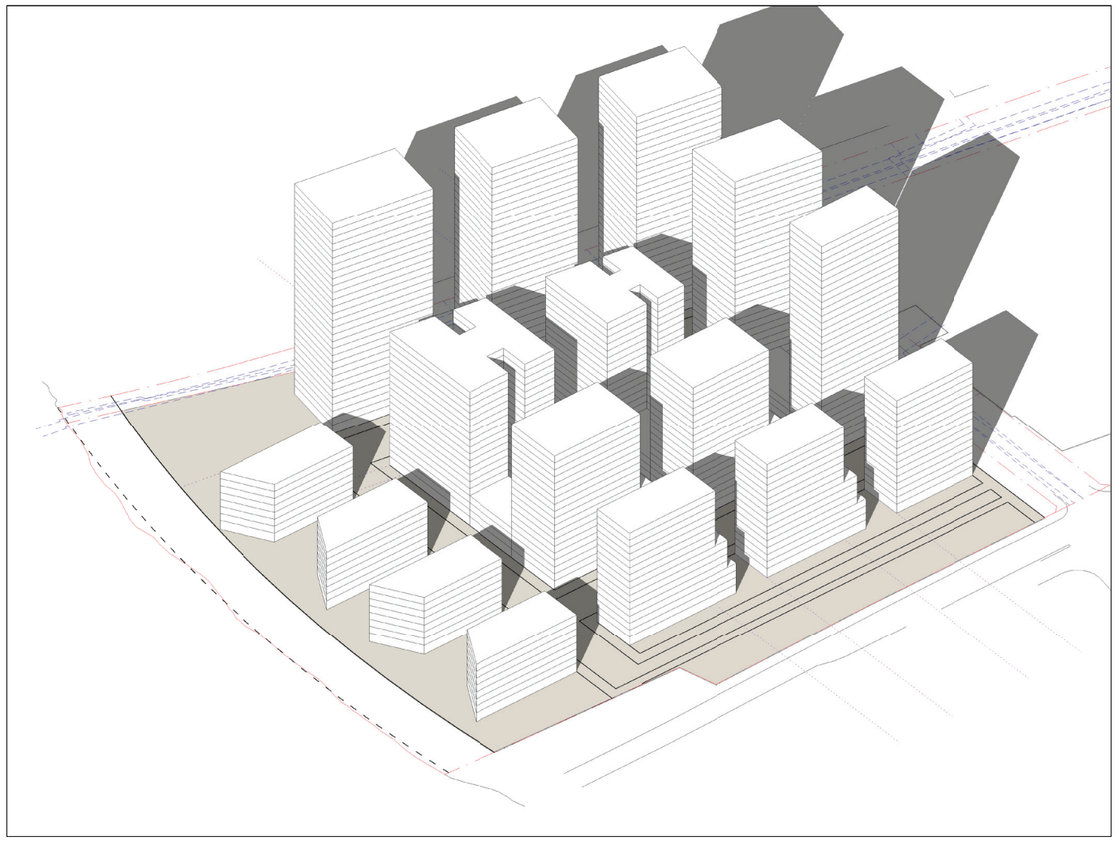


JUNE 21 (WINTER SOLSTICE) 11AM

OPTION A - SOLAR ACCESS STUDY

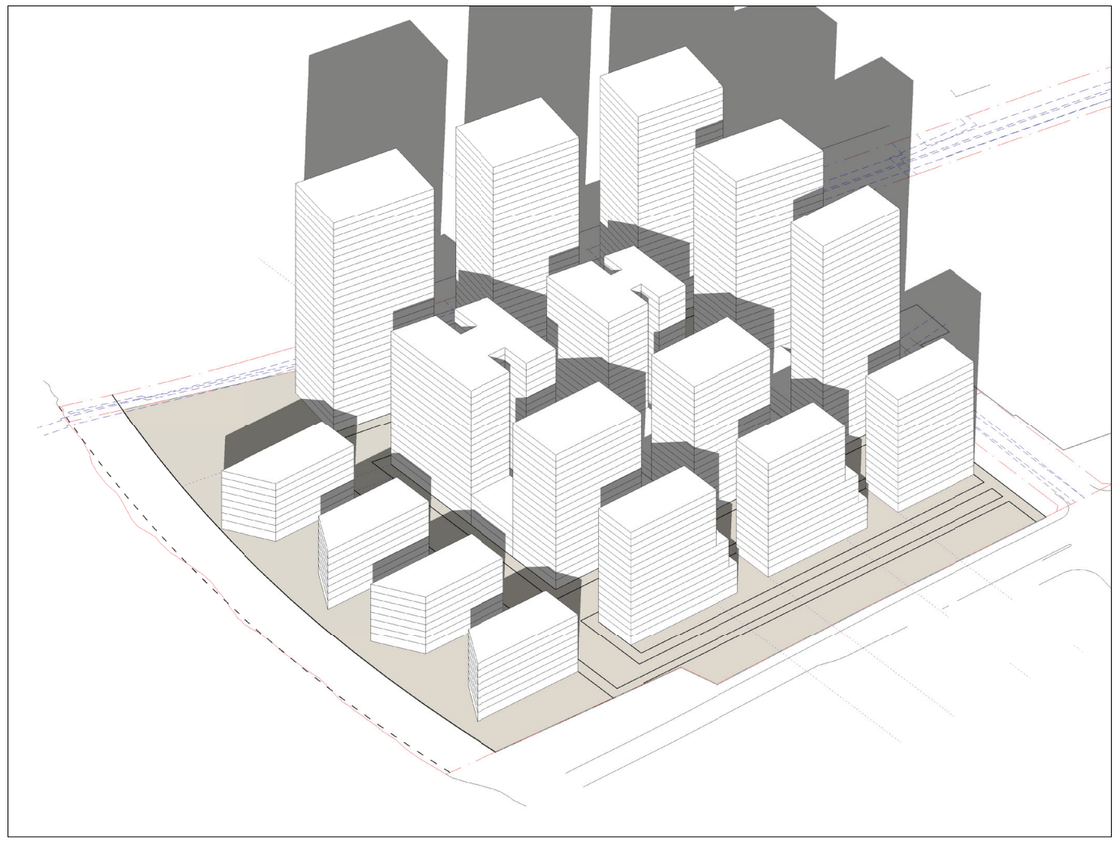


JUNE 21 (WINTER SOLSTICE) 12PM

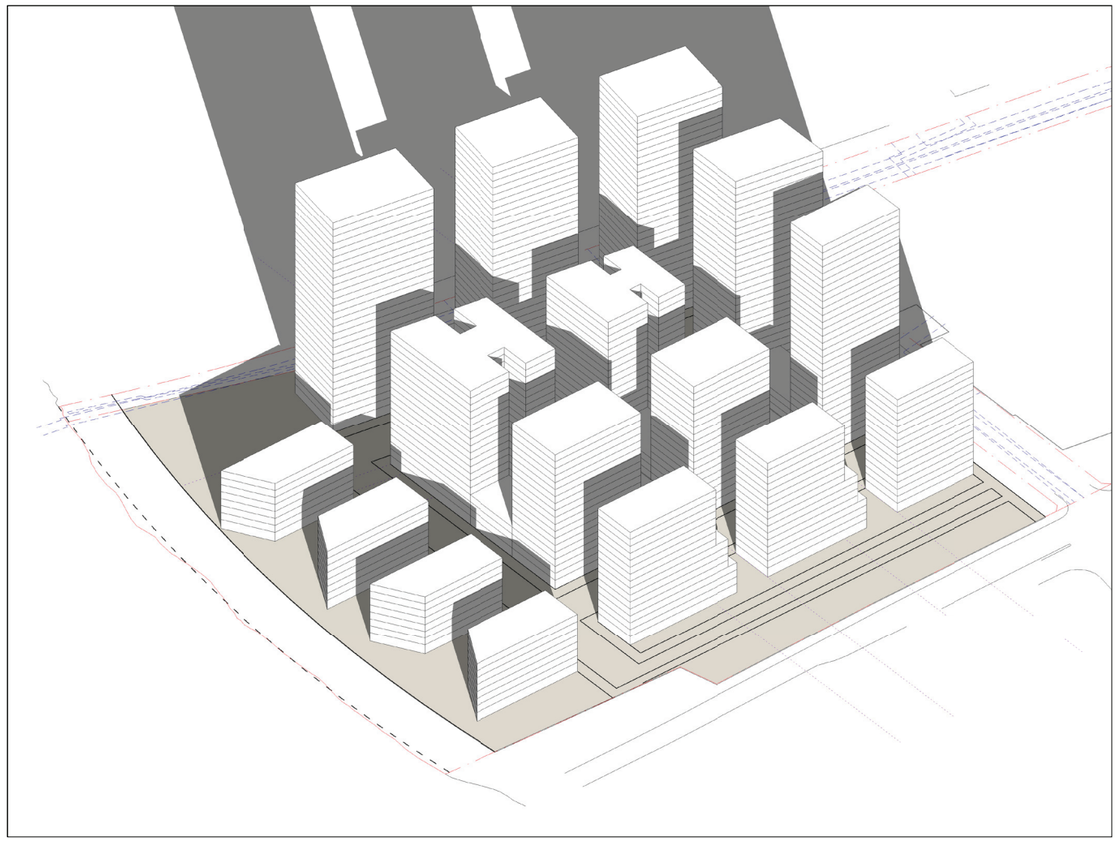


JUNE 21 (WINTER SOLSTICE) 1PM

OPTION A - SOLAR ACCESS STUDY



JUNE 21 (WINTER SOLSTICE) 2PM



JUNE 21 (WINTER SOLSTICE) 3PM

7.3 OPTION B - TOWER + PERIMETER/ PODIUM

Option B has the following characteristics:

- street wall/ podium with perimeter towers that increase in height from Parramatta River (12 storeys) towards Camellia Station (30 storeys) to the south-east
- building envelopes aligned to the streets with the courtyard opening up to the north to reinforce the visual connection to the river with an open forum
- podium and tower forms that create a continuous street wall, increased density within building heights similar to option A.
- retail and commercial uses along new streets
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers rotated along east boundary with the rail line (24 storeys). Towers along. James Ruse Drive (21 storeys) define the edges to the precinct and create a noise buffer.
- building envelopes are similar in height and overshadow each other limiting solar access to units to the east and west
- wide central swale with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets

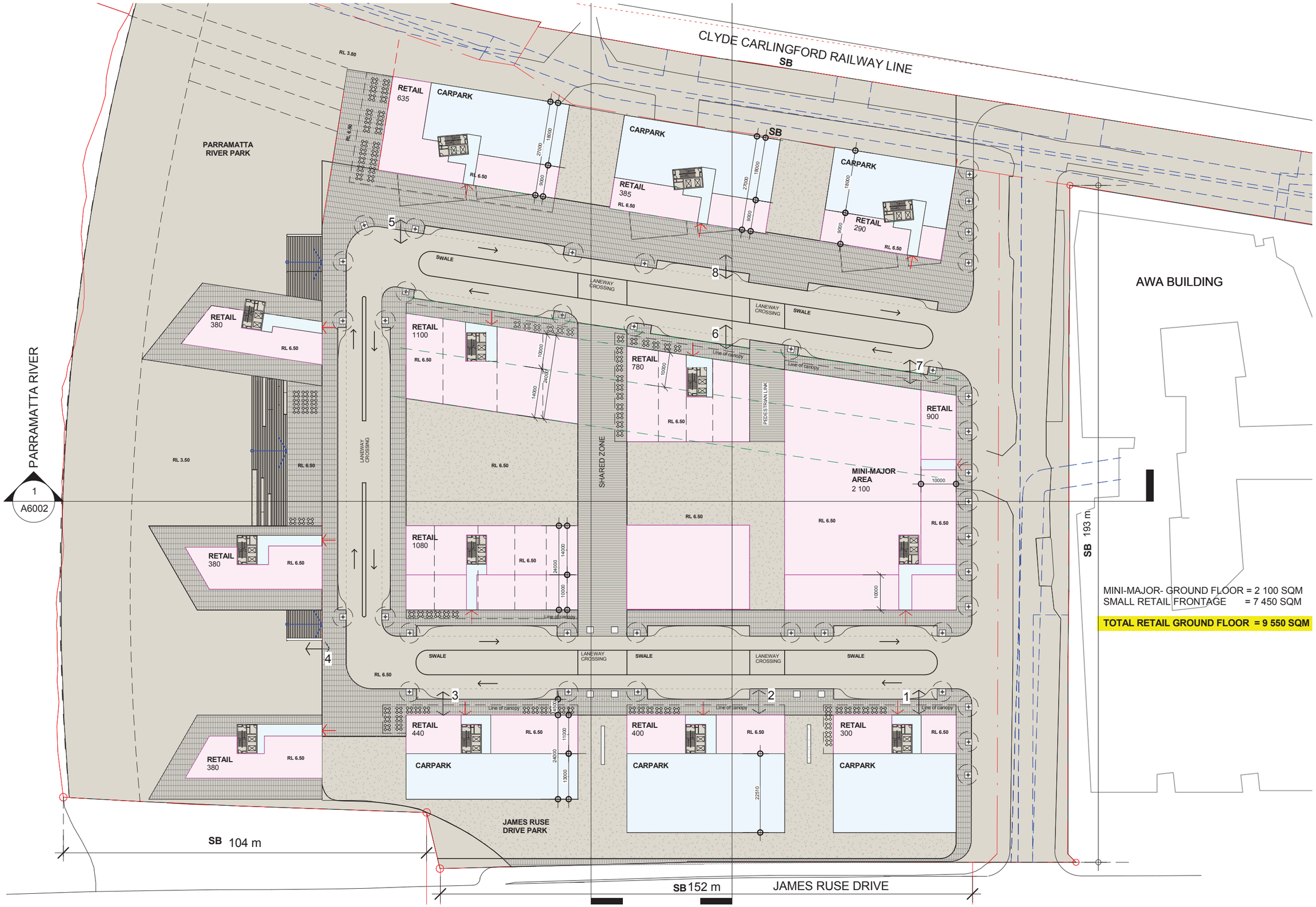
OPTION B - STRUCTURE PLAN

OPTION B:	
GFA	273,464 sqm
FSR (DEVELOPABLE AREA)	4.89:1
FSR (SITE AREA)	3.99:1

7 BUILDING ENVELOPE TESTING

OPTION B - GROUND LEVEL PLAN 1:1000

7 BUILDING ENVELOPE TESTING



MINI-MAJOR- GROUND FLOOR = 2 100 SQM
SMALL RETAIL FRONTAGE = 7 450 SQM

TOTAL RETAIL GROUND FLOOR = 9 550 SQM

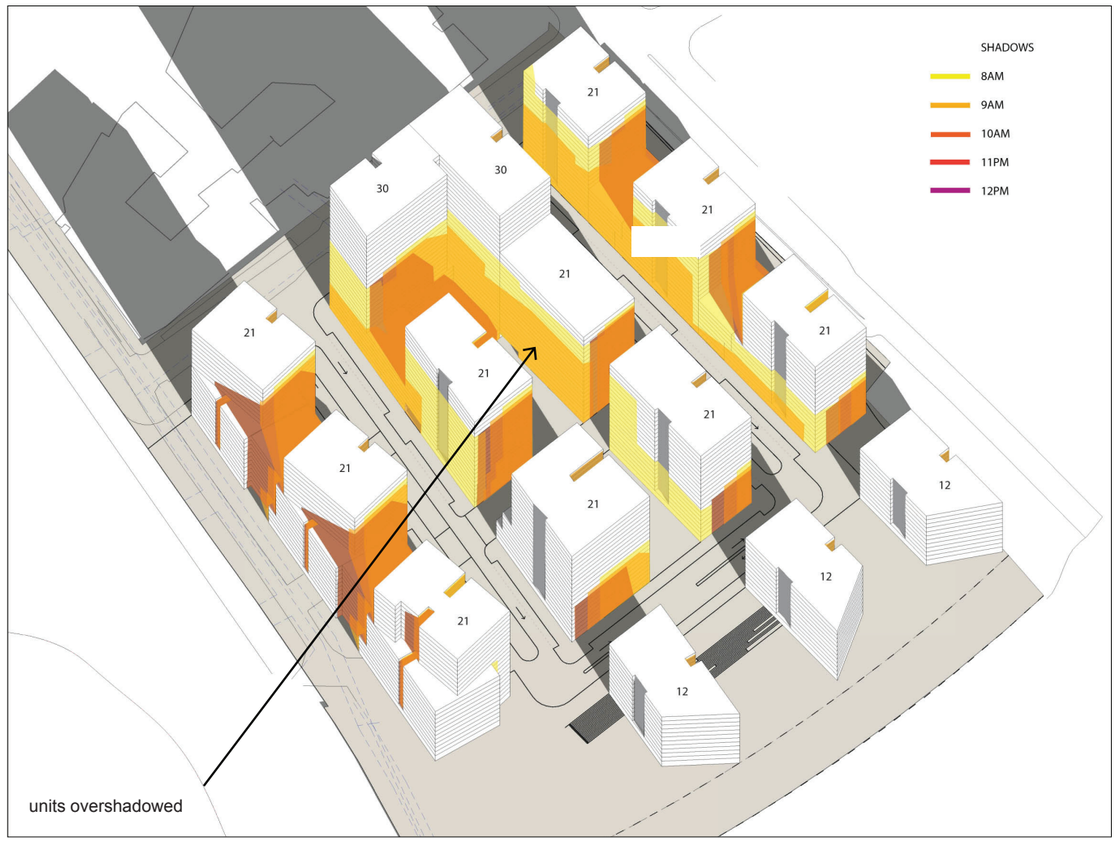
OPTION B - AERIAL VIEW FROM THE NORTH EAST

7 BUILDING ENVELOPE TESTING

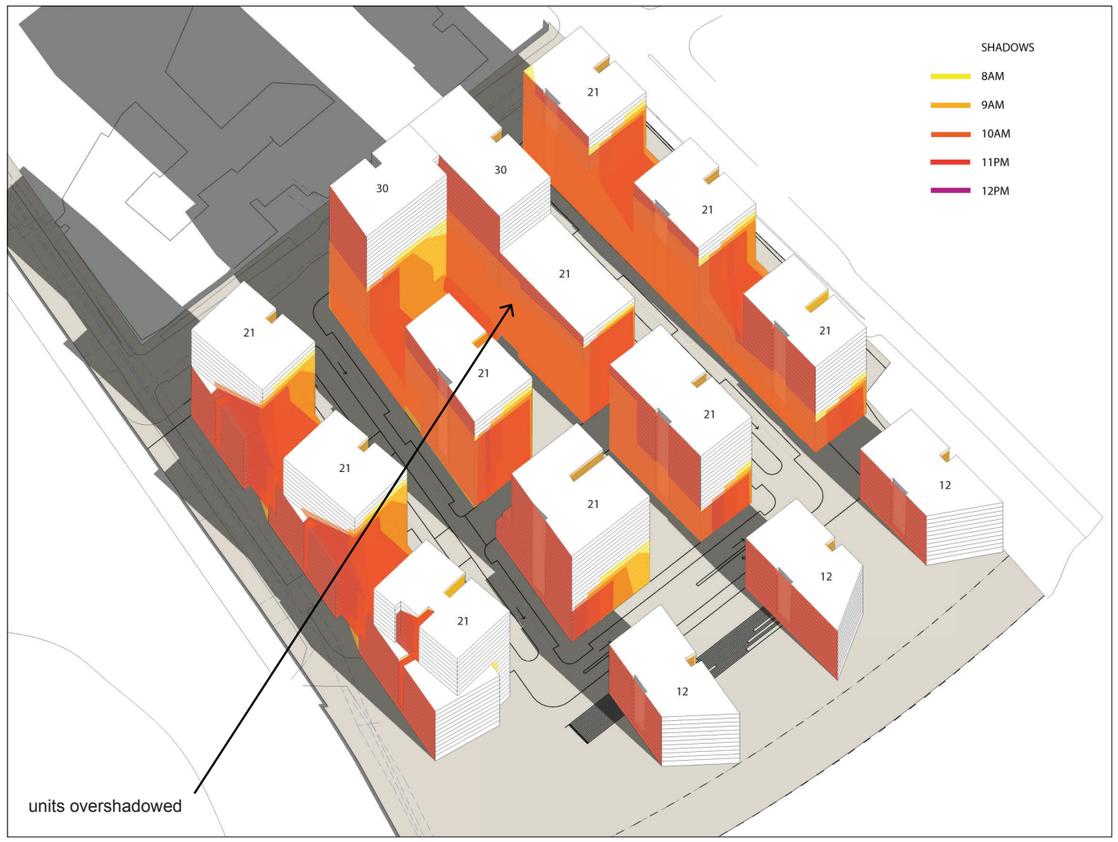
7 BUILDING ENVELOPE TESTING

OPTION B - AERIAL VIEW FROM THE NORTH WEST

OPTION B - SOLAR ACCESS STUDY

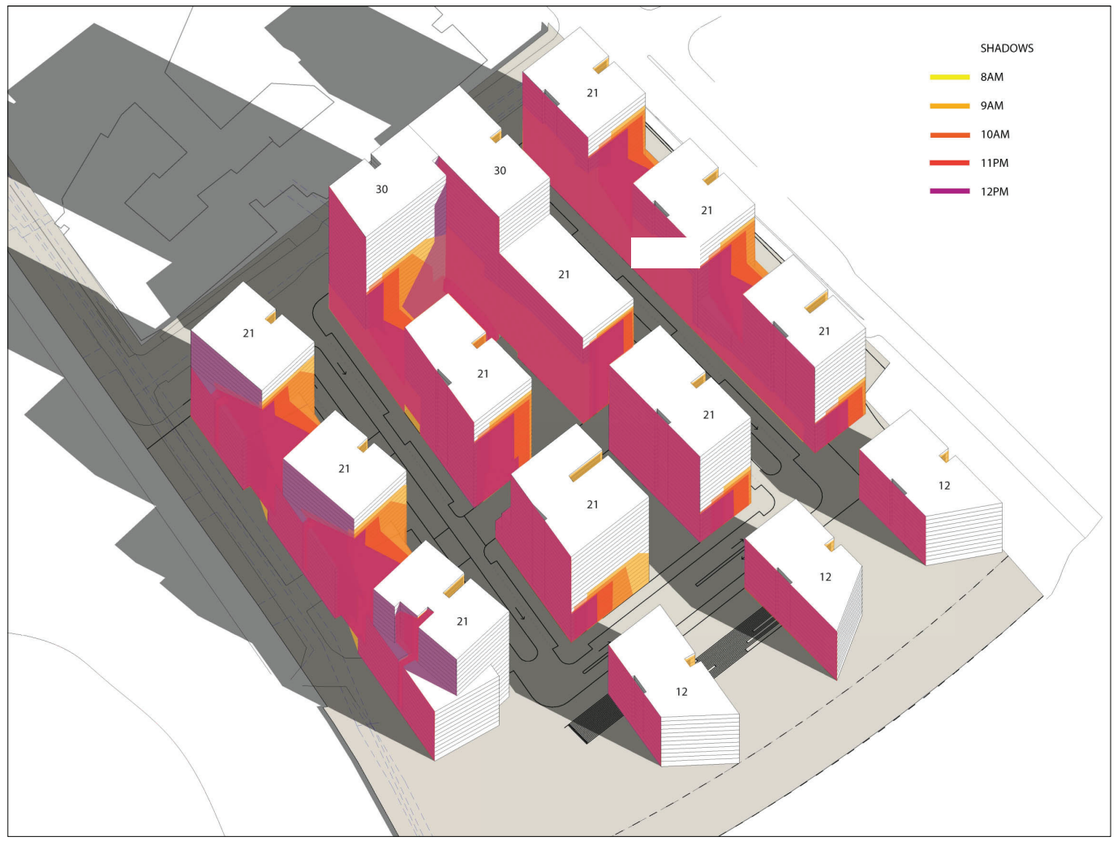


JUNE 21 (WINTER SOLSTICE) 10AM



JUNE 21 (WINTER SOLSTICE) 11AM

OPTION B - SOLAR ACCESS STUDY

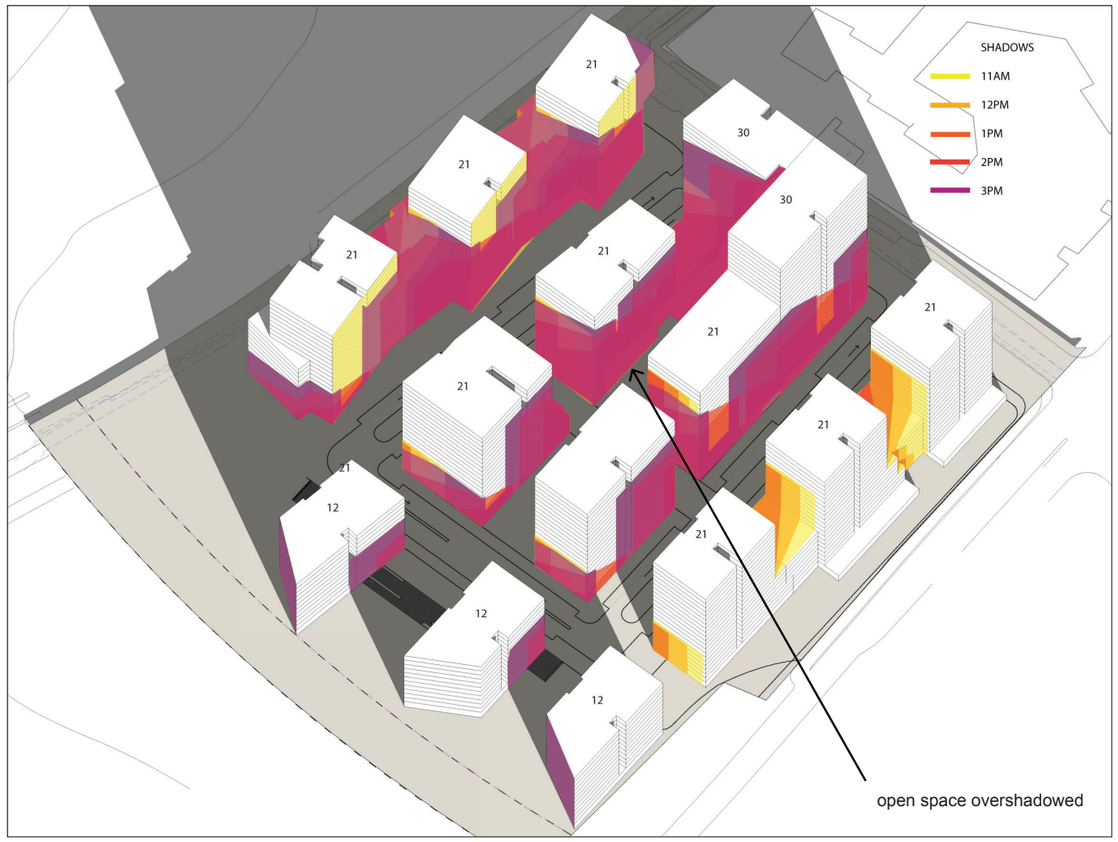


JUNE 21 (WINTER SOLSTICE) 12PM

JUNE 21 (WINTER SOLSTICE) 1PM

OPTION B - SOLAR ACCESS STUDY

JUNE 21 (WINTER SOLSTICE) 2PM



JUNE 21 (WINTER SOLSTICE) 3PM

7.4 OPTION C - TOWER + CENTRAL PARK

Option C is a vision for an interactive, urban living environment within a rehabilitated river setting. It is framed by an extensive and permeable public domain comprising new wide streets, central park, forum, foreshore park and walk; mid-block pedestrian ways; extensive landscaping with street trees, swales and footways; building forms aligned to streets; tower forms of various heights orientated to optimise views, breezes and sun; underground parking; containment of contamination within environmental cells below new streets and along the boundary with James Ruse Drive; retail and commercial uses along new streets; and visual and physical connections to the riverfront.

Option C has the following characteristics:

- central park that opens up to new west main street with perimeter towers that increase in height from Parramatta River (14 storeys) towards Camellia Station (35 storeys) to the south-west
- building envelopes aligned to the streets with the central park opening up to the north to reinforce the visual connection to the river with an open forum
- tower forms to primary north-south streets with increased density
- retail and commercial uses along new streets and active edges to the new open space
- new street network providing access to the site from James Ruse Drive and visual connection to the river
- mid-block pedestrian ways to connect the new north-south streets to provide access to the mini-major area + provide pedestrian permeability
- large public open space to the north-east corner of the site along the river
- towers rotated along east boundary with the rail line (28 storeys). Towers along. James Ruse Drive (20 - 35 storeys) define the edges to the precinct and create a noise buffer.
- increased daylight penetration to Central Park and increased solar access to units to the east and west
- wide central swale with street trees along new streets and tree planting along James Ruse Drive
- contaminated site material is contained within environmental cells below new streets

Option C was tested for its compliance with the key amenity standards of SEPP 65, including solar access to determine how the floor space can be redistributed on site while achieving lower building heights on the foreshore. The studies demonstrate that Option C is capable of meeting these standards.

OPTION C - STRUCTURE PLAN

OPTION C:	
GFA	283,335 sqm
FSR (DEVELOPABLE AREA)	5.10:1
FSR (SITE AREA)	4.13:1

7 BUILDING ENVELOPE TESTING

OPTION C - GROUND LEVEL PLAN 1:1000

[INDICATIVE ONLY]

7 BUILDING ENVELOPE TESTING

CLYDE CARLINGFORD RAILWAY LINE

SB

PARRAMATTA RIVER PARK

RL 3.80

RETAIL 635

CARPARK

RL 6.50

27000

18000

9000

CARPARK

SB

RETAIL 385

RL 6.50

27000

CARPARK

RETAIL 290

RL 6.50

AWA BUILDING

5

8

6

7

SWALE

LANEWAY CROSSING

SWALE

LANEWAY CROSSING

SWALE

RETAIL 900

RL 6.50

RETAIL 1500

RL 6.50

RETAIL 780

RL 6.50

Line of canopy

RETAIL 900

RL 3.50

RL 6.50

LANEWAY CROSSING

RL 6.50

MINI-MAJOR AREA 4000

RL 6.50

RL 6.50

RETAIL 1080

RL 6.50

24000

14000

10000

CENTRAL PARK

RETAIL 380

RL 6.50

4

RL 6.50

SB 193 m

SWALE

LANEWAY CROSSING

SWALE

LANEWAY CROSSING

SWALE

3

2

1

RETAIL 1100

RL 6.50

24000

RETAIL 1000

RL 6.50

Line of canopy

RETAIL 750

RL 6.50

Line of canopy

RETAIL 380

RL 6.50

PLANTING

SB 104 m

SB 152 m

JAMES RUSE DRIVE

MINI-MAJOR- GROUND FLOOR = 4 000 SQM
SMALL RETAIL FRONTAGE = 9 180 SQM

TOTAL RETAIL GROUND FLOOR = 13 180 SQM

[INDICATIVE ONLY]

OPTION C - ENVIRONMENTAL CONTAINMENT CELLS

7 BUILDING ENVELOPE TESTING

CLYDE CARLINGFORD RAILWAY LINE

SB

SB

CARPARK 5
AREA = 4 500 SQM

IN/OUT ENTRY 5

8 IN/OUT ENTRY

6 IN/OUT ENTRY

7 IN/OUT ENTRY

AWA BUILDING

CARPARK 4
AREA = 5 000 SQM

CARPARK 3
AREA = 5 200 SQM

CARPARK 2
AREA = 13 000 SQM

SB 193 m

IN/OUT ENTRY 4

ENVIRONMENTAL CELL 2
BULK EXCAVATION LEVEL APPROX. 7 M
BELOW EXISTING N.G.L
A = 4 400 SQM

IN/OUT ENTRY 3

IN/OUT ENTRY 2

1 IN/OUT ENTRY

CARPARK 1
AREA = 9 700 SQM

ENVIRONMENTAL CELL 1
BULK EXCAVATION LEVEL APPROX. 7 M
BELOW EXISTING N.G.L
A = 2 000 SQM

SB

SB 152 m

162 m JAMES RUSE DRIVE

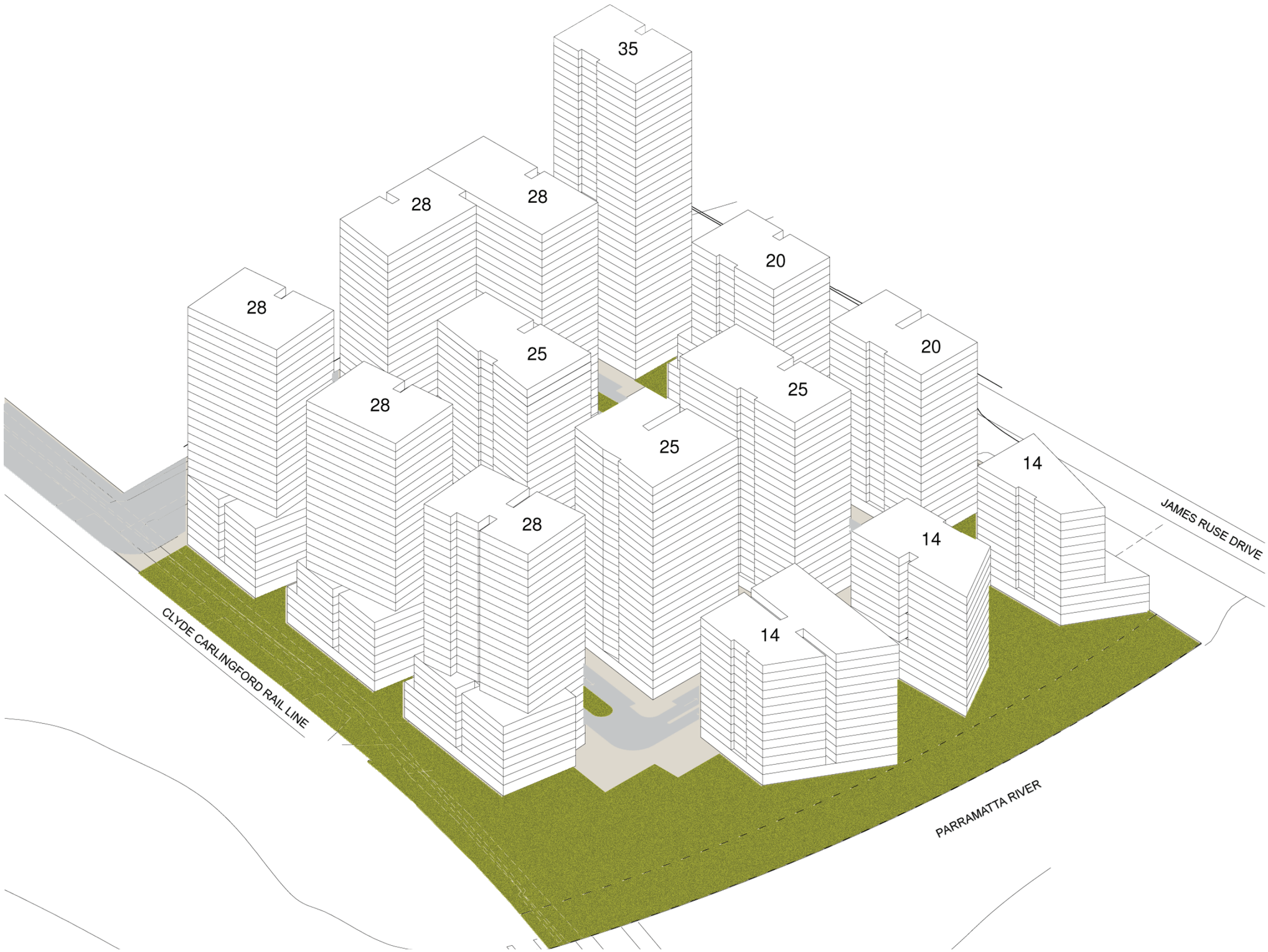
A - OVERALL CARPARK AREA
[ENV.CELLS INCLUDED] = 49 000 SQM

B - ENV. CELL AREA
CELL 1 = 4 400
CELL 2 = 2 600 **=7 000 SQM**
(Cf 10 344 SQM)

CAR PARKING AREA [A-B] **= 38 400 SQM**
(/30sqm = **1400** carspaces per level)

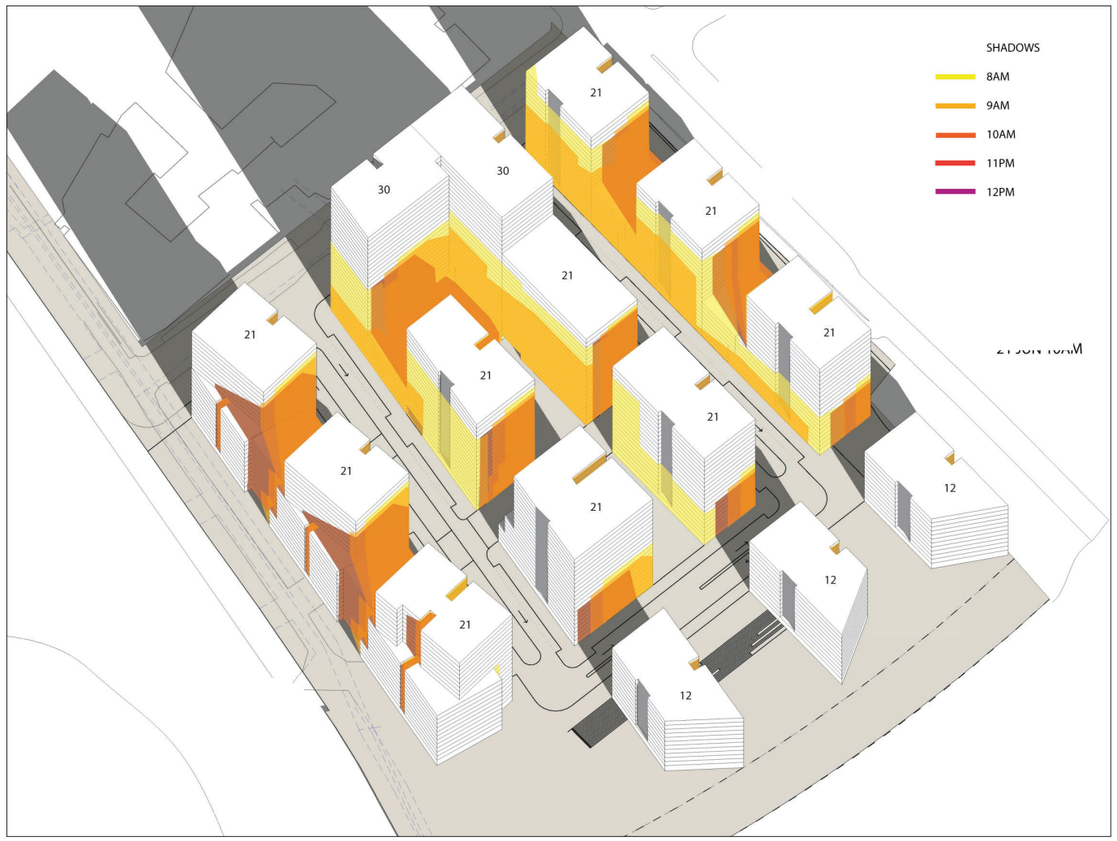
MN (SURVEY)
TN (GRID)

OPTION C - AERIAL VIEW FROM THE NORTH EAST

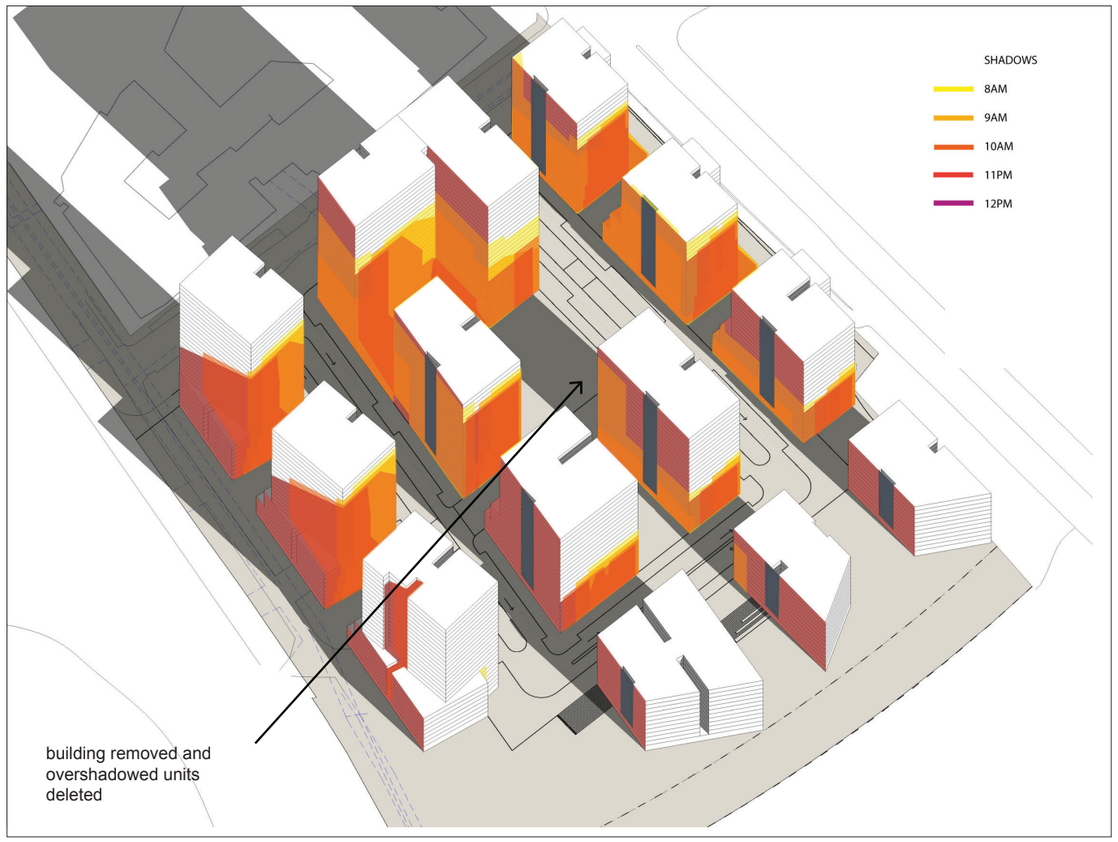



28
28
28
28
28
35
25
25
25
2
20
20
14
14
14
CLYDE CARLINGFORD RAIL LINE
PARRAMATTA RIVER
JAMES RUSE DRIVE

OPTION C - SOLAR ACCESS STUDY

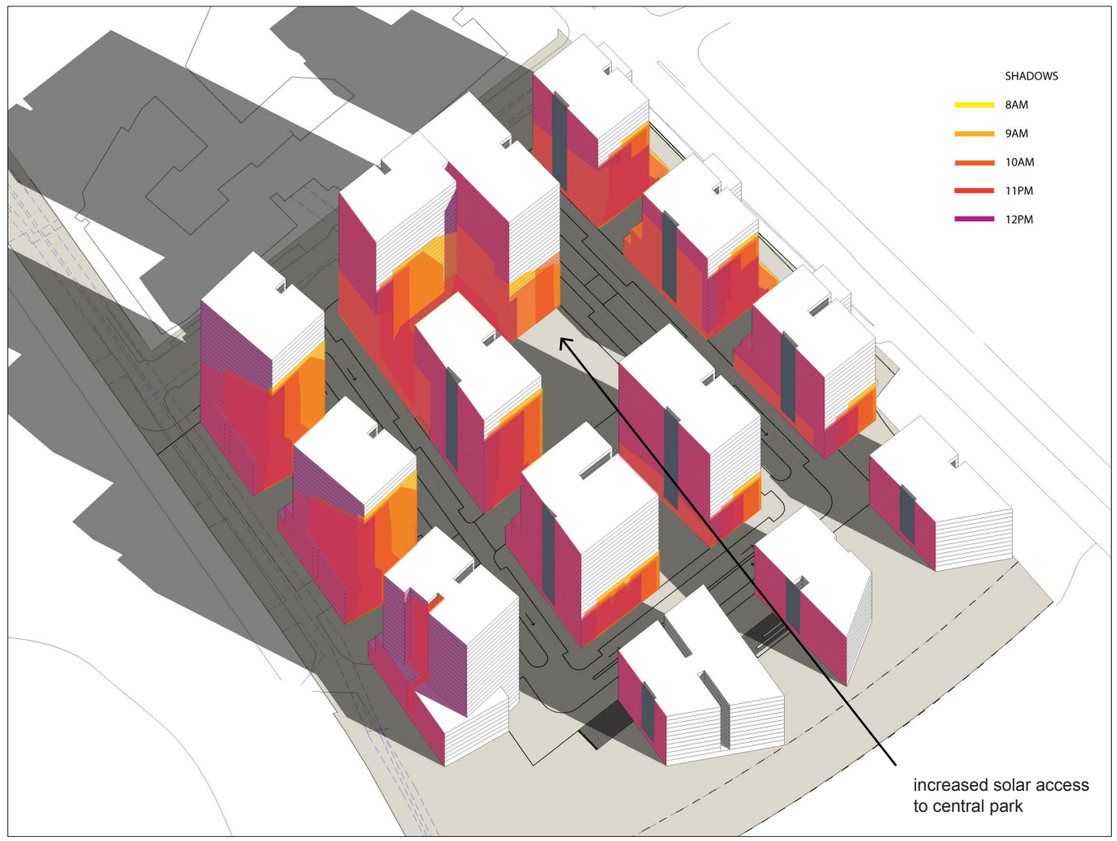


JUNE 21 (WINTER SOLSTICE) 10AM

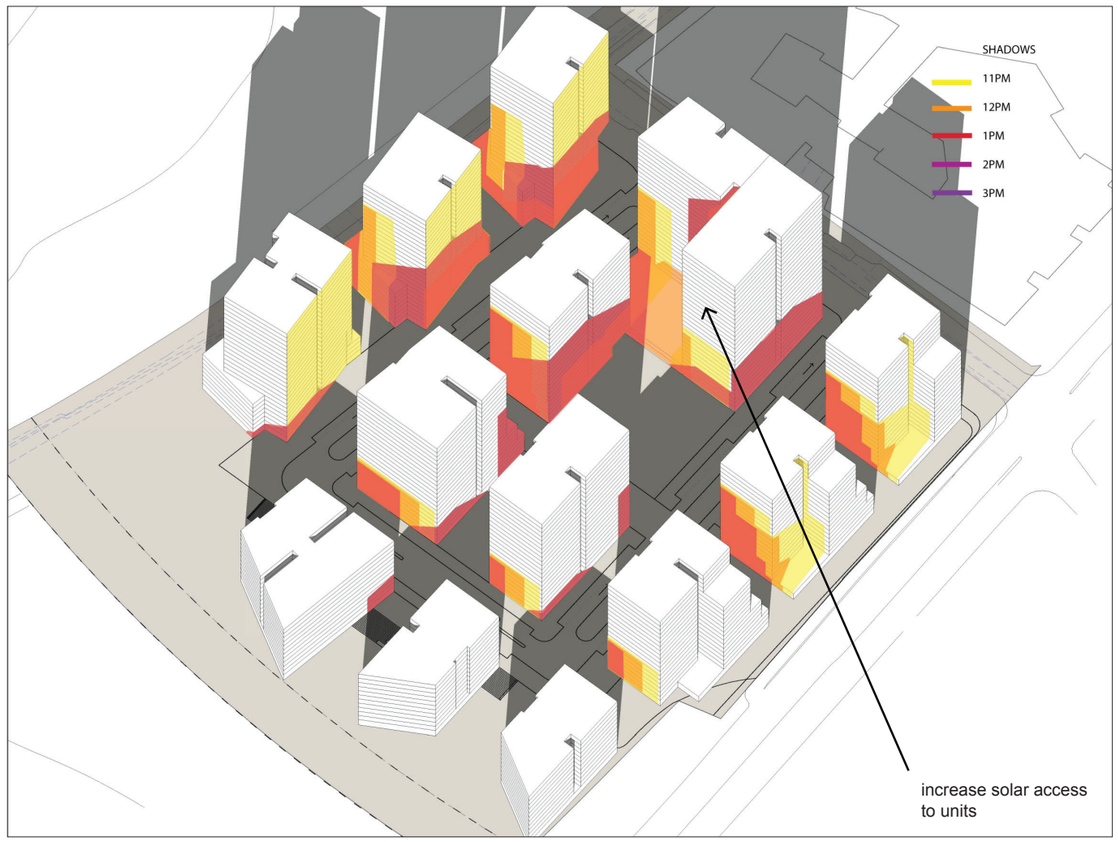


JUNE 21 (WINTER SOLSTICE) 11AM

OPTION C- SOLAR ACCESS STUDY

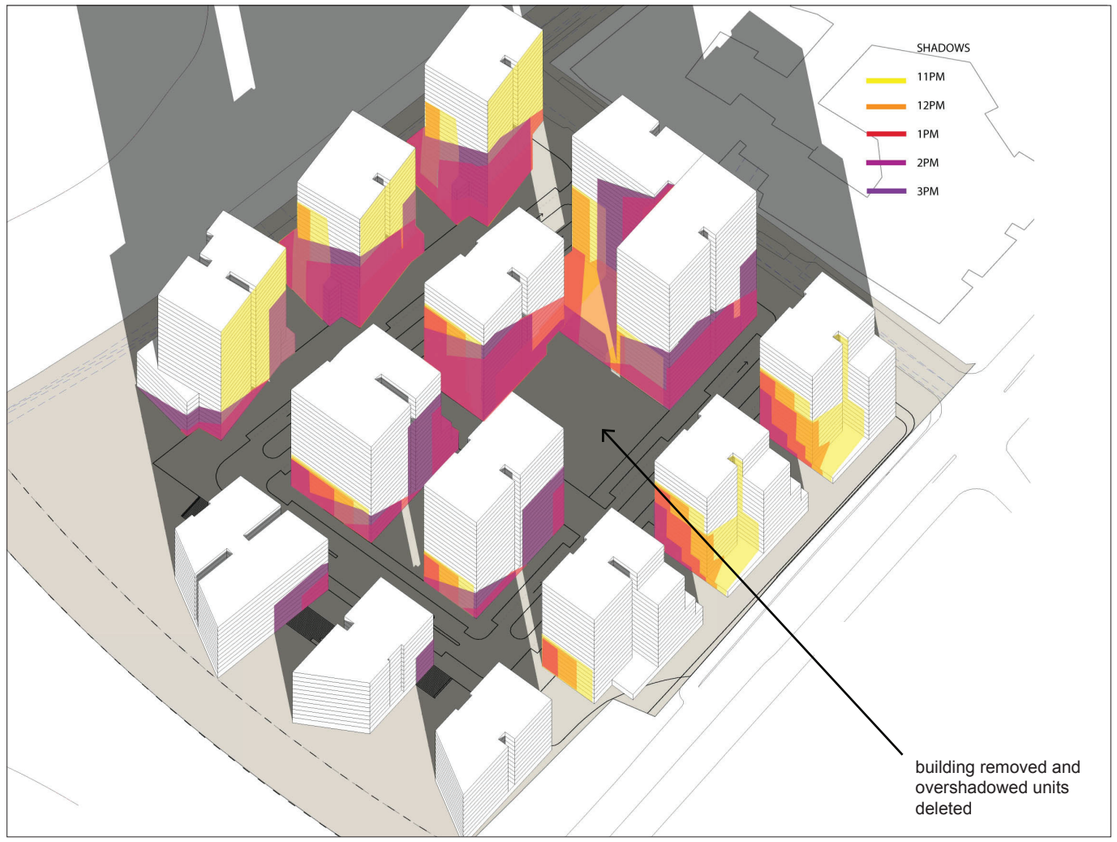


JUNE 21 (WINTER SOLSTICE) 12PM



JUNE 21 (WINTER SOLSTICE) 1PM

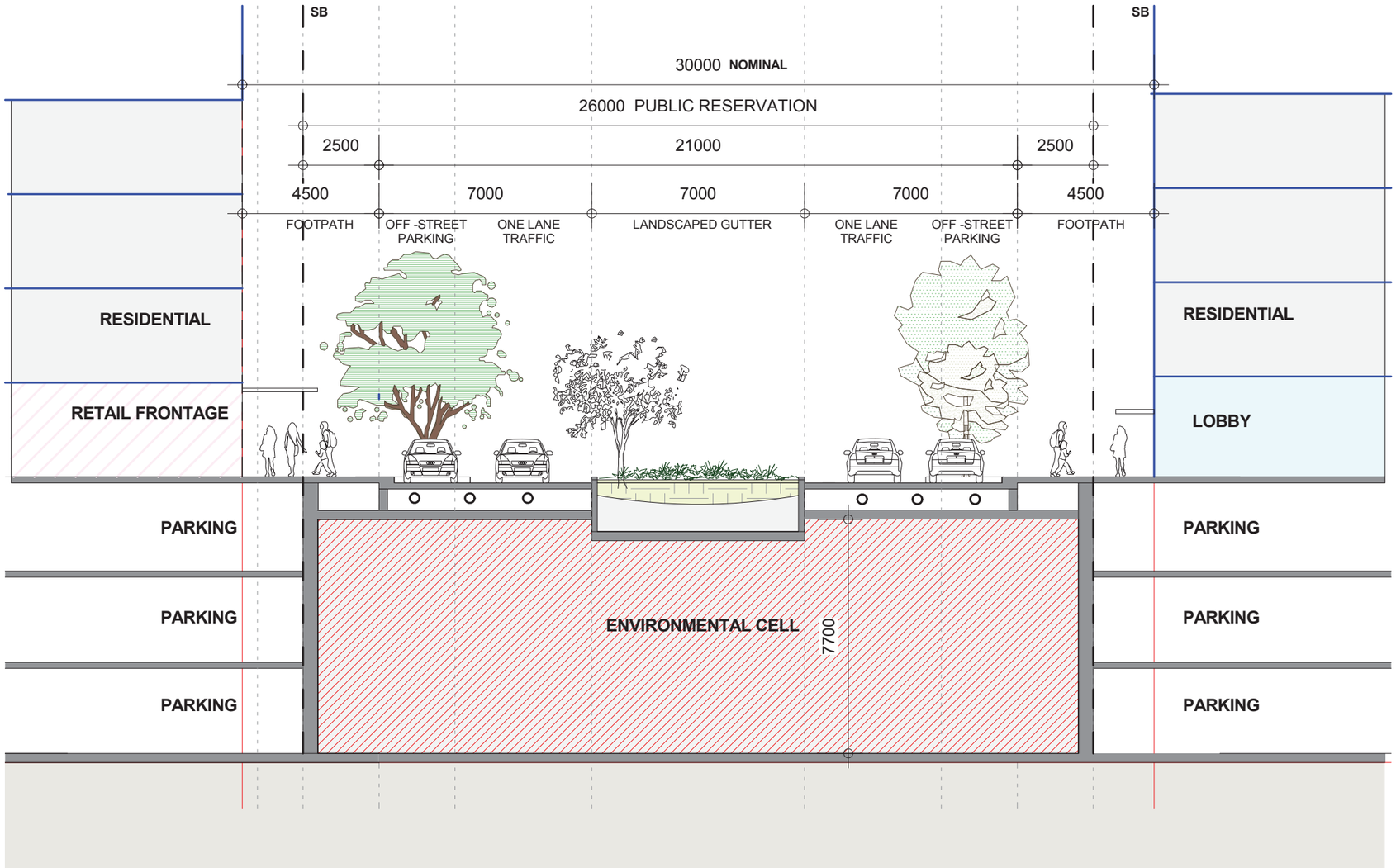
OPTION C - SOLAR ACCESS STUDY



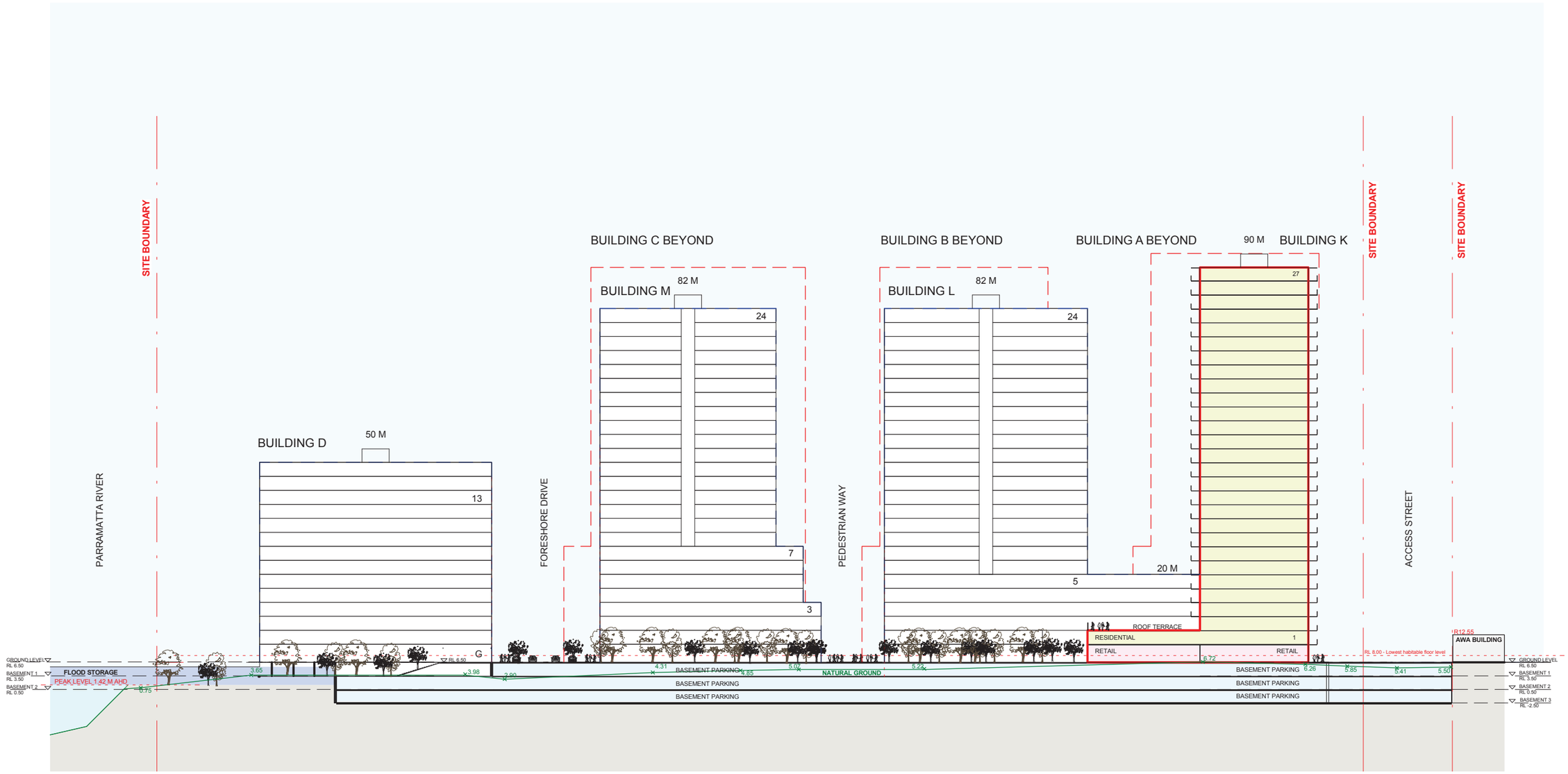
JUNE 21 (WINTER SOLSTICE) 2PM

JUNE 21 (WINTER SOLSTICE) 3PM

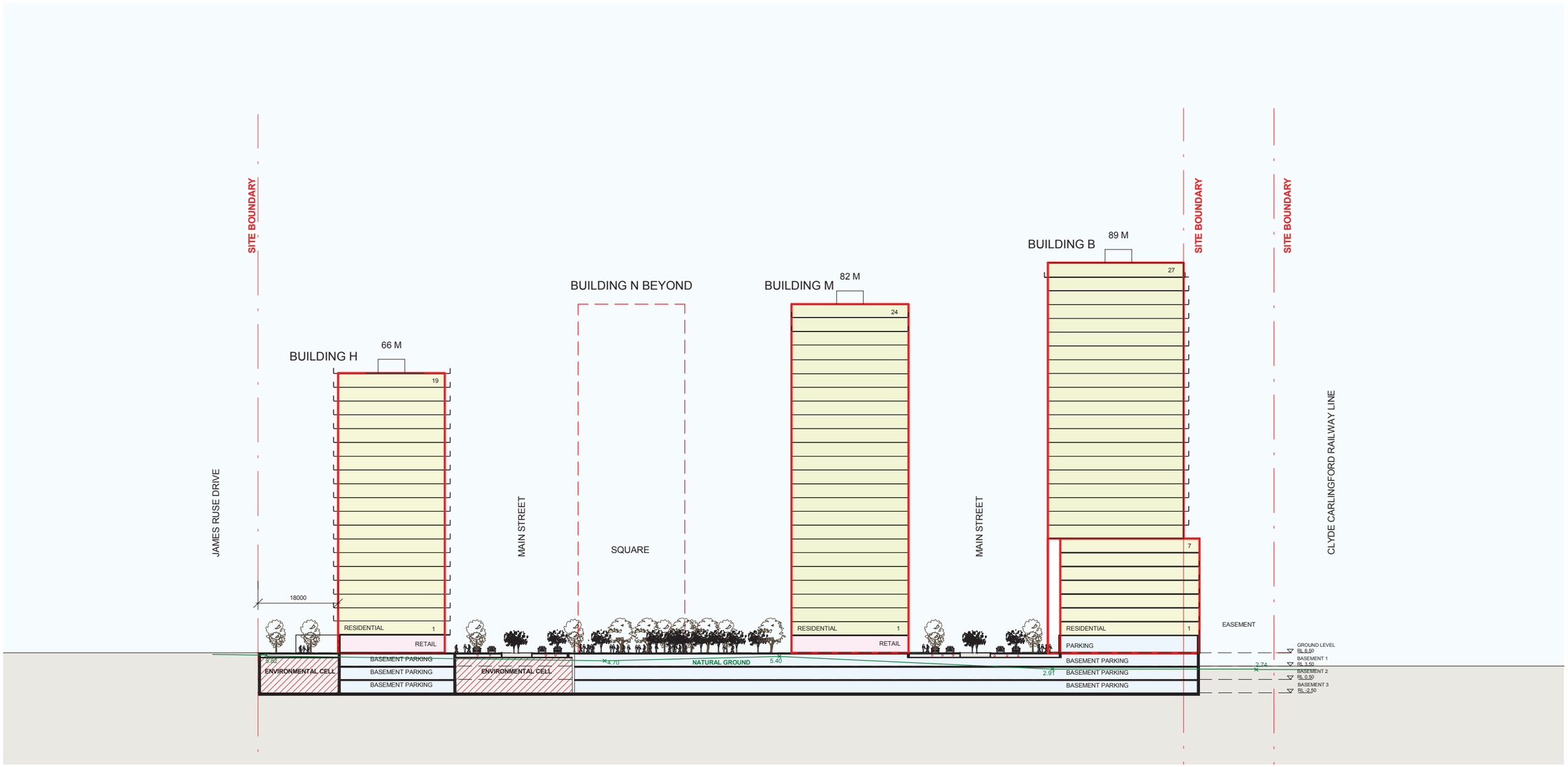
OPTION C - TYPICAL STREETSCAPE SECTION



OPTION C - SECTION 1

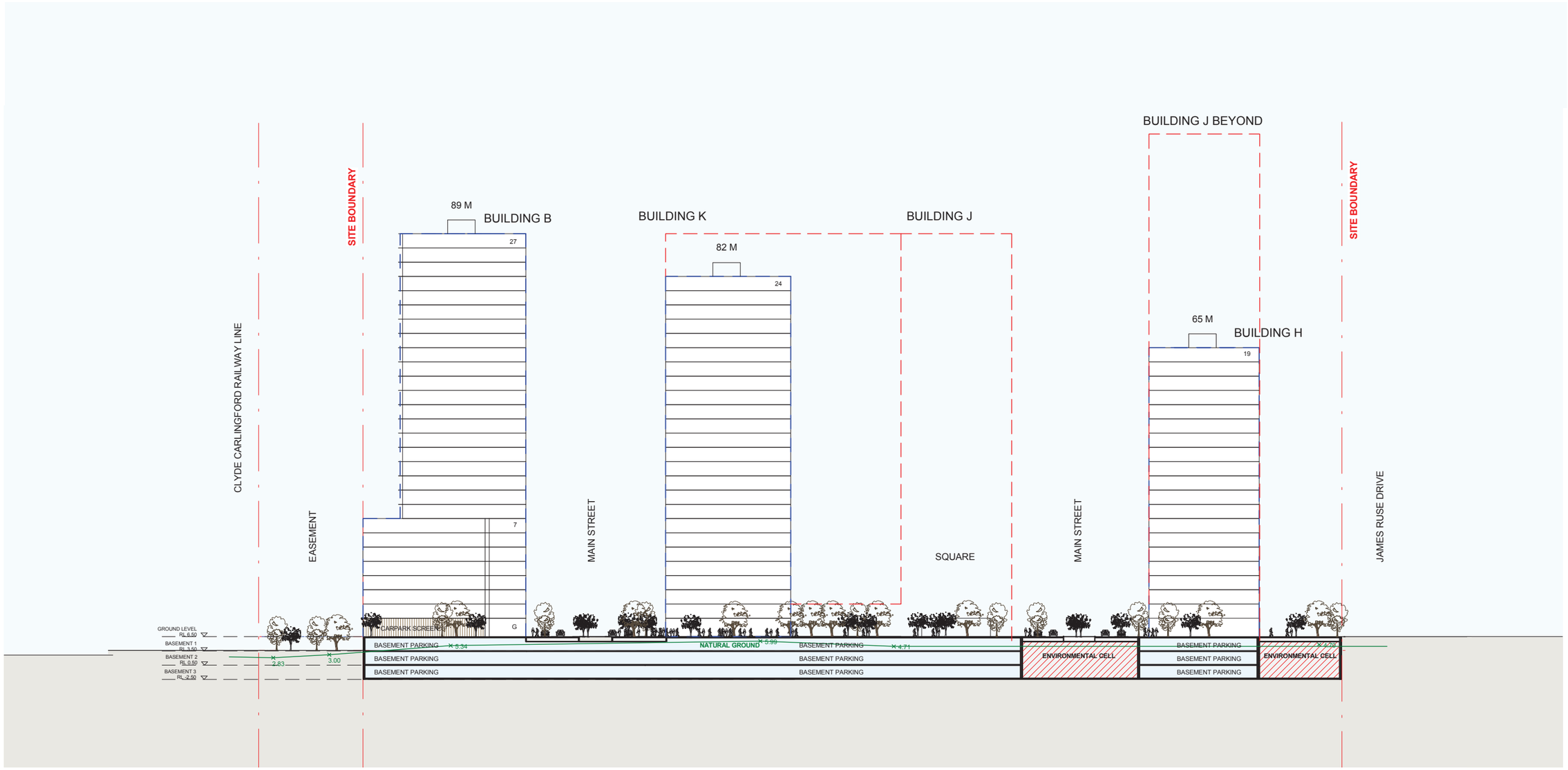


7 BUILDING ENVELOPE TESTING



OPTION C - SECTION 3

7 BUILDING ENVELOPE TESTING



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7.5 OPTION D - TOWER, CENTRAL PARK + LOWER FORESHORE BUILDINGS

Option D is a design concept which interprets the resolutions of Council that resolved two heights of 35m and 126m, and a FSR of 5.3:1 as resolved on 11 May 2015.

Subsequent, to the development of a detailed masterplan and draft development control plan for the site, Council officers reviewed the planning proposal including an earlier this report and recommended two (2) alternative building envelope options which aim to reduce building heights along the foreshore. At a meeting on 11 May 2015, Council endorsed the following recommendation and Option D:

a) That Council adopt the revised heights listed in the table Option B,consistent with the outcome of the Statewide Planning draft Planning Proposal and Urban Design Scheme, as the controls for the maximum building heights and floor space ratios to be included in the revised planning proposal with:

- a 35m maximum height for foreshore buildings;
- a 126m maximum height for the development site;
- a floor space ratio of 5.3:1 of the development site.

b) That Council authorises the CEO:

- to prepare the amendments to the draft revised planning proposal at Attachment 1 in accordane with the Council endorsed Option for the
- maximum building heights and floor space ratios
- to correct any minor anomalies of a non-policy nand administrative nature that may arise during the plan amendment process
- to include the folowing amendment:
  - all development applications for the site must include a “Design Excellence Process” with a Design Integrity Panel in accordance with the Director General’s guidelines.

(c) That Council’s amended planning proposal be submitted to the DP&E for the purposes of seeking a revised Gateway Determination.

(d) That during the comminity consultation of the planning proposal further consultation be undertaken with the relevant public authorities concerning a suitable “satisfactory arrangements” clause to address Section 117 Direction 6.1 Approval and Referral Requirements.

(e) That as required by Section 117 Director 4.1 Acid Sulphate Soils, a copy of the acid sulfate soils study (part of the Remediation Action Plan) be provided to the Director General of the Department of Planning and Environment prior to the commencement of community consultation.

(f) Further, that a report be put to Council on the outcome of the community consultation of the planning proposal.

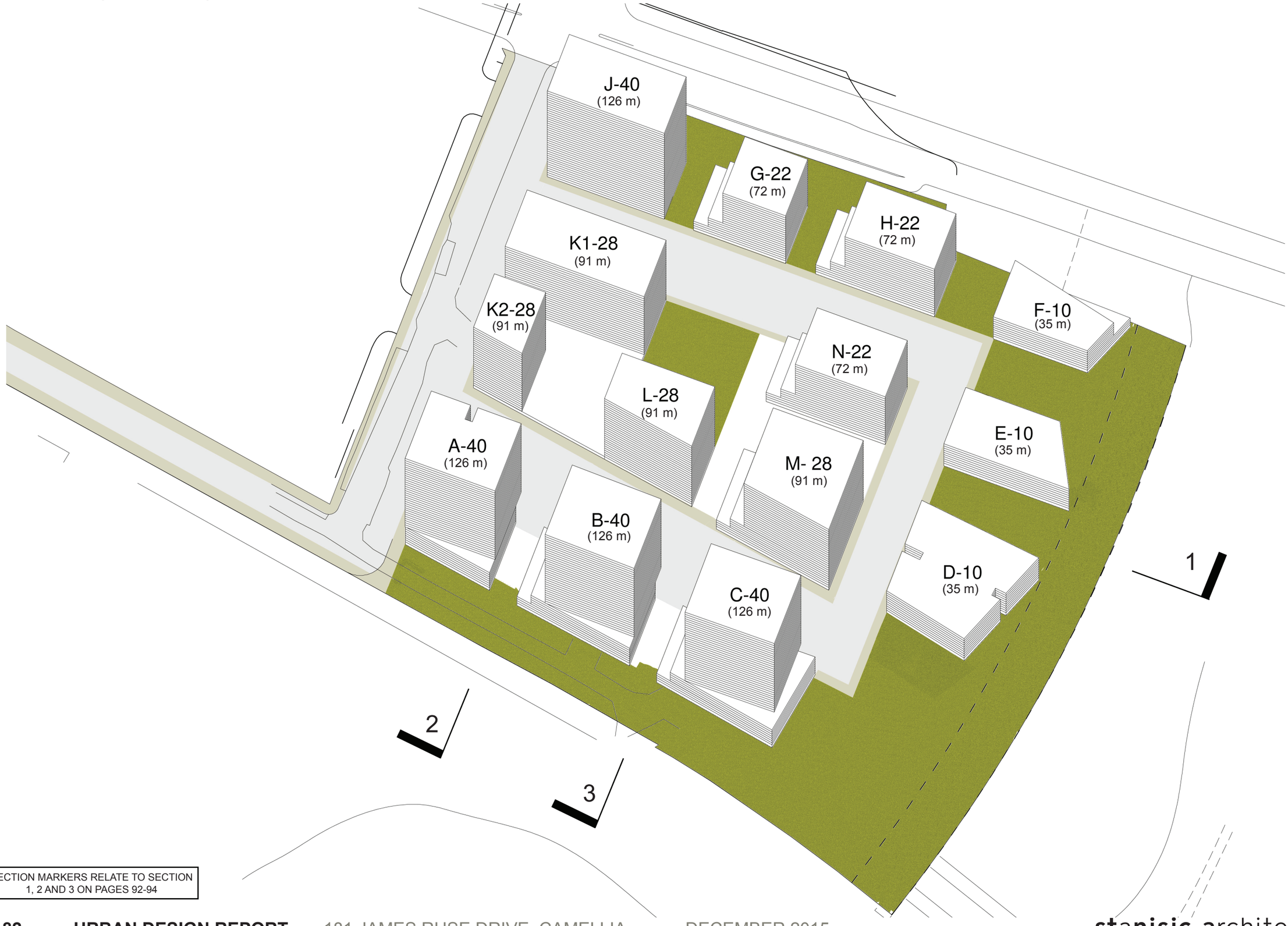
Option D was tested for its compliance with SEPP 65 principles, including solar access to determine how the floor space can be redistributed on site while achieving lower building heights on the foreshore. The studies demonstrate that Option D is capable of meeting these principles.

OPTION D - STRUCTURE PLAN

8.1 OPTION D (ENDORSED) - STRUCTURE PLAN

OPTION D:	
GFA	318,000 sqm
FSR (DEVELOPABLE AREA)	5.30:1
FSR (SITE AREA)	4.56:1

OPTION D (ENDORSED) - AERIAL VIEW FROM THE NORTH EAST



SECTION MARKERS RELATE TO SECTION 1, 2 AND 3 ON PAGES 92-94

OPTION D (ENDORSED) - AERIAL VIEW FROM THE NORTH WEST VIEW

SECTION MARKERS RELATE TO SECTION 1, 2 AND 3 ON PAGES 92-94

OPTION D (ENDORSED)- SOLAR ACCESS STUDY

9AM WINTER SOLSTICE [NORTH EAST VIEW]

10AM WINTER SOLSTICE [NORTH EAST VIEW]

9AM WINTER SOLSTICE [NORTH WEST VIEW]

10AM WINTER SOLSTICE [NORTH WEST VIEW]

11AM WINTER SOLSTICE [NORTH EAST VIEW]

12PM WINTER SOLSTICE [NORTH EAST VIEW]

11AM WINTER SOLSTICE [NORTH WEST VIEW]

12PM WINTER SOLSTICE [NORTH WEST VIEW]

OPTION D (ENDORSED) - SOLAR ACCESS STUDY

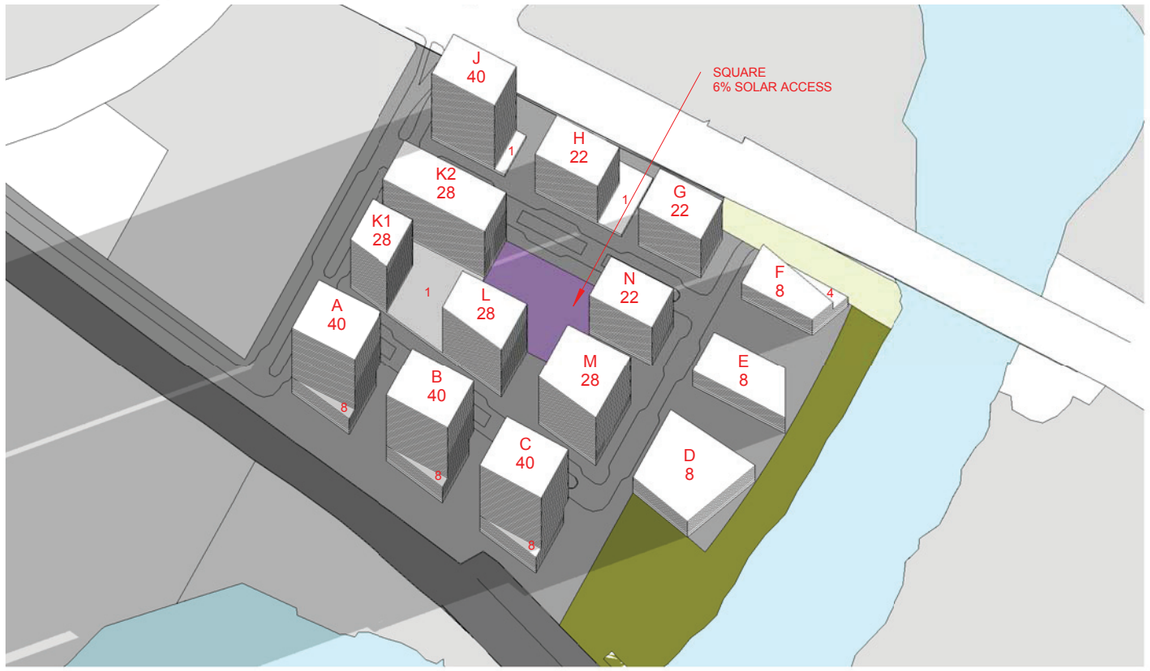
1PM WINTER SOLSTICE [NORTH EAST VIEW]

2PM WINTER SOLSTICE [NORTH EAST VIEW]

1PM WINTER SOLSTICE [NORTH WEST VIEW]

2PM WINTER SOLSTICE [NORTH WEST VIEW]

OPTION D (ENDORSED)- SOLAR ACCESS STUDY



3PM WINTER SOLSTICE [NORTH EAST VIEW]

3PM WINTER SOLSTICE [NORTH WEST VIEW]

BUILDING	NO. OF STORIES	ORIENTATION	OPTION D - PERCENTAGE OF FACADE 'IN SUN' WITH THE POTENTIAL FOR APARTMENTS TO RECEIVE SOLAR ACCESS MID-WINTER					
			9am-10am	10am-11am	11am-12pm	12pm-1pm	1pm-2pm	2pm-3pm
A	40	East-west	100%	100%	80%	80%	85%	50%
B	40	East-west	100%	100%	80%	80%	85%	50%
C	40	East-west	100%	100%	100%	100%	100%	95%
D	8	East-west	100%	100%	100%	100%	100%	100%
E	8	East-west	100%	100%	100%	100%	100%	100%
F	8	East-west	100%	100%	100%	100%	100%	95%
G	22	East-west	95%	95%	95%	95%	95%	100%
H	22	East-west	20%	75%	70%	60%	90%	100%
J	40	East-west	40%	70%	75%	75%	85%	95%
K1	28	East-west	10%	20%	90%	75%	60%	35%
K2	28	East-west	5%	35%	75%	75%	30%	5%
L	28	East-west	15%	70%	80%	60%	35%	35%
M	28	East-west	95%	95%	95%	95%	95%	95%
N	28	East-west	90%	90%	90%	90%	95%	90%

70% or more solar access received to facade 'in sun'

To comply with the Apartment Design Guide, a minimum of 70% of apartments are required to receive 2 hours of direct solar access to living areas and private open spaces between 9am - 3pm at mid-winter. At this stage, building forms have been design, not buildings. Future apartment layouts will need to harness the sun to satisfy the Apartment Design Guide Requirement. Option D, has building envelopes that are oriented to the east-west, with the ability to receive sun on the long facdes in the morning and afternoon in addition to the north facade. It also demonstrates that the taller buildings with the largest number of apartments receive in excess of the minimum requirement for solar access.

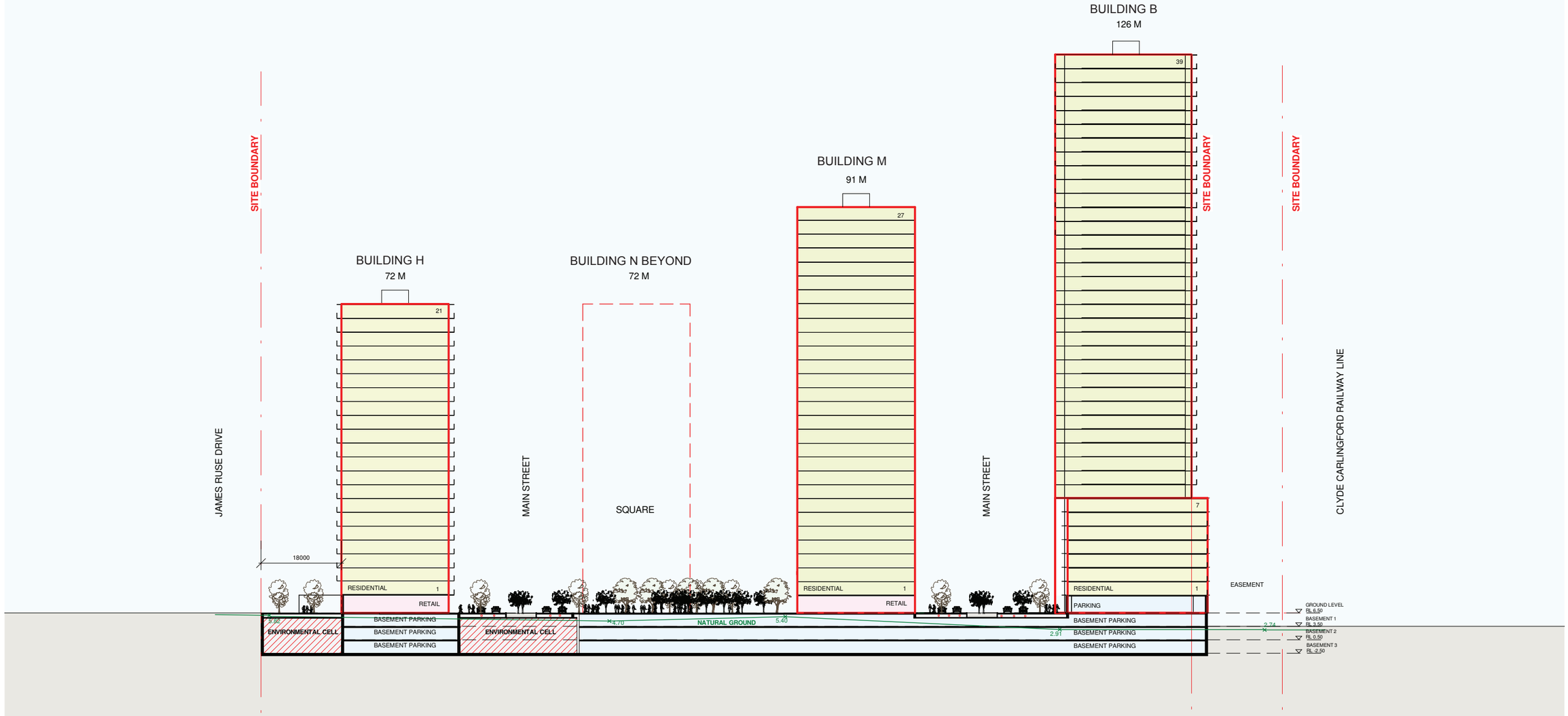
If future development applications have unit layouts that maximise the number of apartments with living rooms and open spaces to facades that receive 2 hours of solar access at mid-winter, then the development is capable of satisfying the solar access requirement of the Apartment Design Guide. It will also be a requirement of future development applications for the site, that this requirement is achieved, monitored and reconciled. The table above indicates that building forms in Option E, achieve the floor space while maximising the percentage of solar access to facades.

These overshadowing studies also illustrate that between 12pm - 2pm at mid-winter, between 5-42% of the square receives direct solar access which is unsatisfactory.

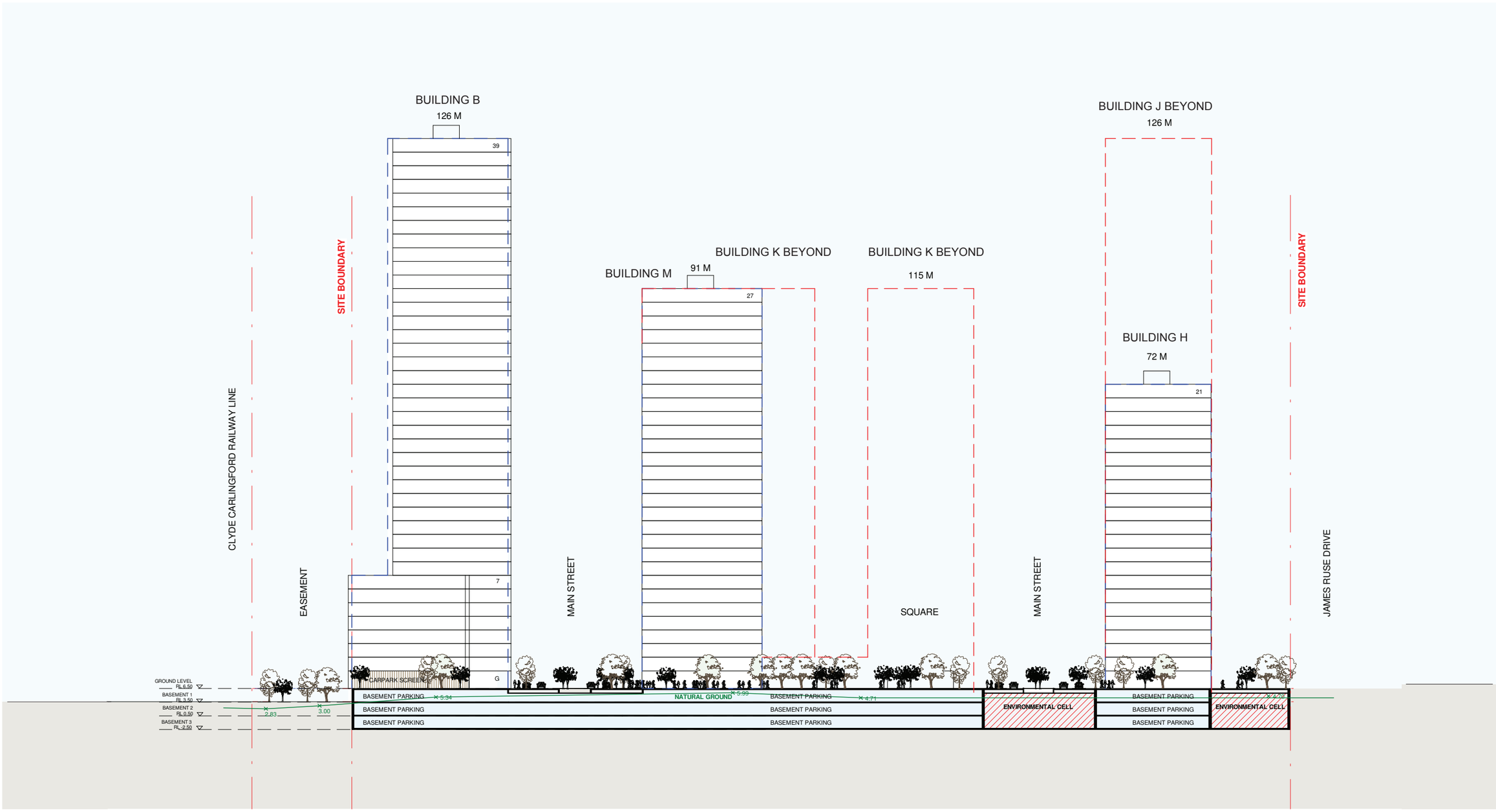
OPTION D (ENDORSED) - SECTION 1

7 BUILDING ENVELOPE TESTING

OPTION D (ENDORSED) - SECTION 2



OPTION D (ENDORSED) - SECTION 3



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7.6 OPTION E - AMENDED FORESHORE SQUARE + LOWER FORESHORE BUILDINGS

Option E is a design concept which is consistent with the Alteration of Gateway Determination by the Department of Planning and Environment for two heights of 28m and 126m, and a FSR of 5.3:1.

The differences between Option D + E are outlined below:

Building	Option D	Option E
A	40 storeys (126m)	40 storeys (126m)
B	40 storeys (126m)	40 storeys (126m)
C	40 storeys (126m)	40 storeys (126m)
D	10 storeys (35m)	8 storeys (28m)
E	10 storeys (35m)	8 storeys (28m)
F	10 storeys (35m)	8 storeys (28m)
G	22 storeys (72m)	22 storeys (72m)
H	22 storeys (72m)	22 storeys (72m)
J	40 storeys (126m)	40 storeys (126m)
K1	28 storeys (91m)	28 storeys (91m)
K2	28 storeys (91m)	28 storeys (91m)
L	28 storeys (91m)	28 storeys (91m)
M	28 storeys (91m)	28 storeys (91m)
N	22 storeys (72m)	28 storeys (91m)

- Building N relocated further south
- Foreshore square relocated further north adjacent to Foreshore Drive

The Alteration to Gateway Determination also requested further information regarding the adequacy of public open space and amenity of future apartments. Overshadowing studies indicated that the proposed square was overshadowed at mid-winter. Subsequently, the location of the square was relocated closer to the foreshore and named the foreshore square. This new location achieves more than 71% solar access between 12-2pm at mid-winter. Building N has also been relocated where the square used to be, further south with the overall total floor space unchanged from Option D.

Additional studies are appended to the planning proposal that assess this design concept in the context of SEPP 65 and impact of adjoining lands, the adequacy of the proposed RE1 lands. Indicative visualisations are also appended to the planning proposal that illustrate the design concept.

Option E was tested for its compliance with SEPP 65 principles, including solar access to determine how the floor space can be redistributed on site while achieving lower building heights on the foreshore. The studies demonstrate that Option E is capable of satisfying these principles.

Option E forms the basis of the Masterplan.

OPTION E - STRUCTURE PLAN [PREFERRED]

OPTION E:	
GFA	318,000 sqm
FSR (DEVELOPABLE AREA)	5.30:1
FSR (SITE AREA)	4.63:1

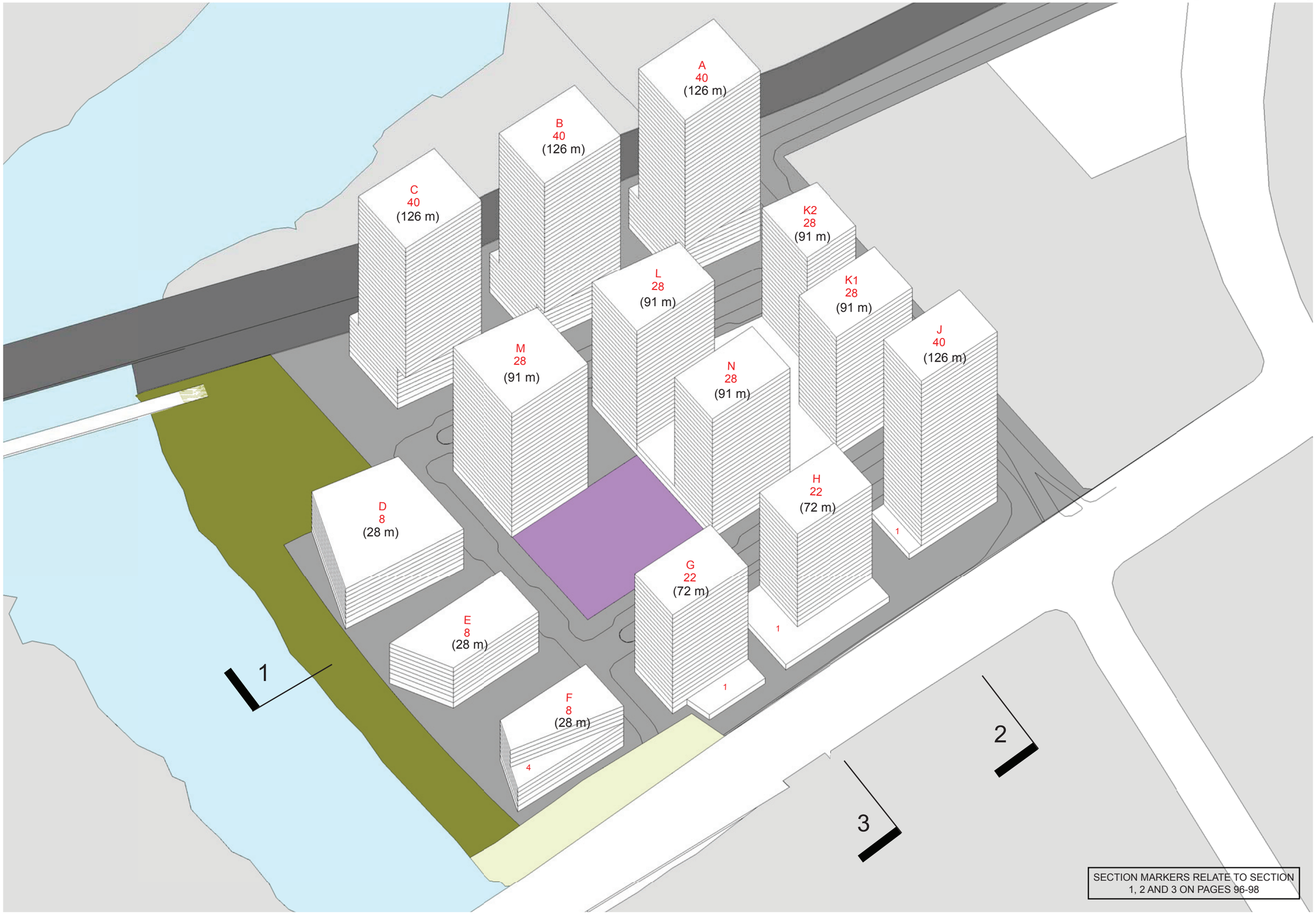
7 BUILDING ENVELOPE TESTING

OPTION E - AERIAL VIEW FROM THE NORTH EAST [PREFERRED]

7 BUILDING ENVELOPE TESTING

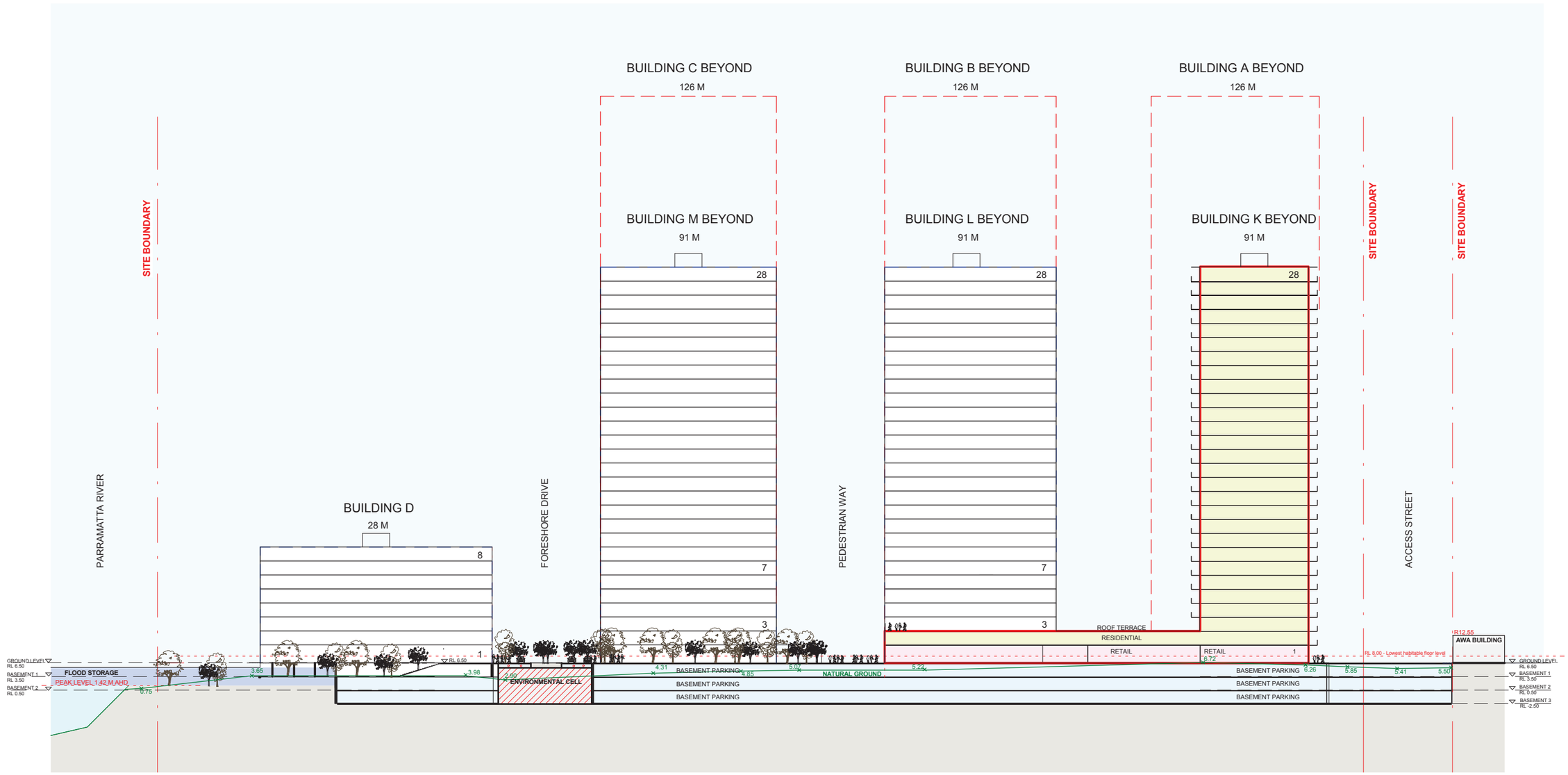
OPTION E - AERIAL VIEW FROM THE NORTH WEST VIEW [PREFERRED]

7 BUILDING ENVELOPE TESTING



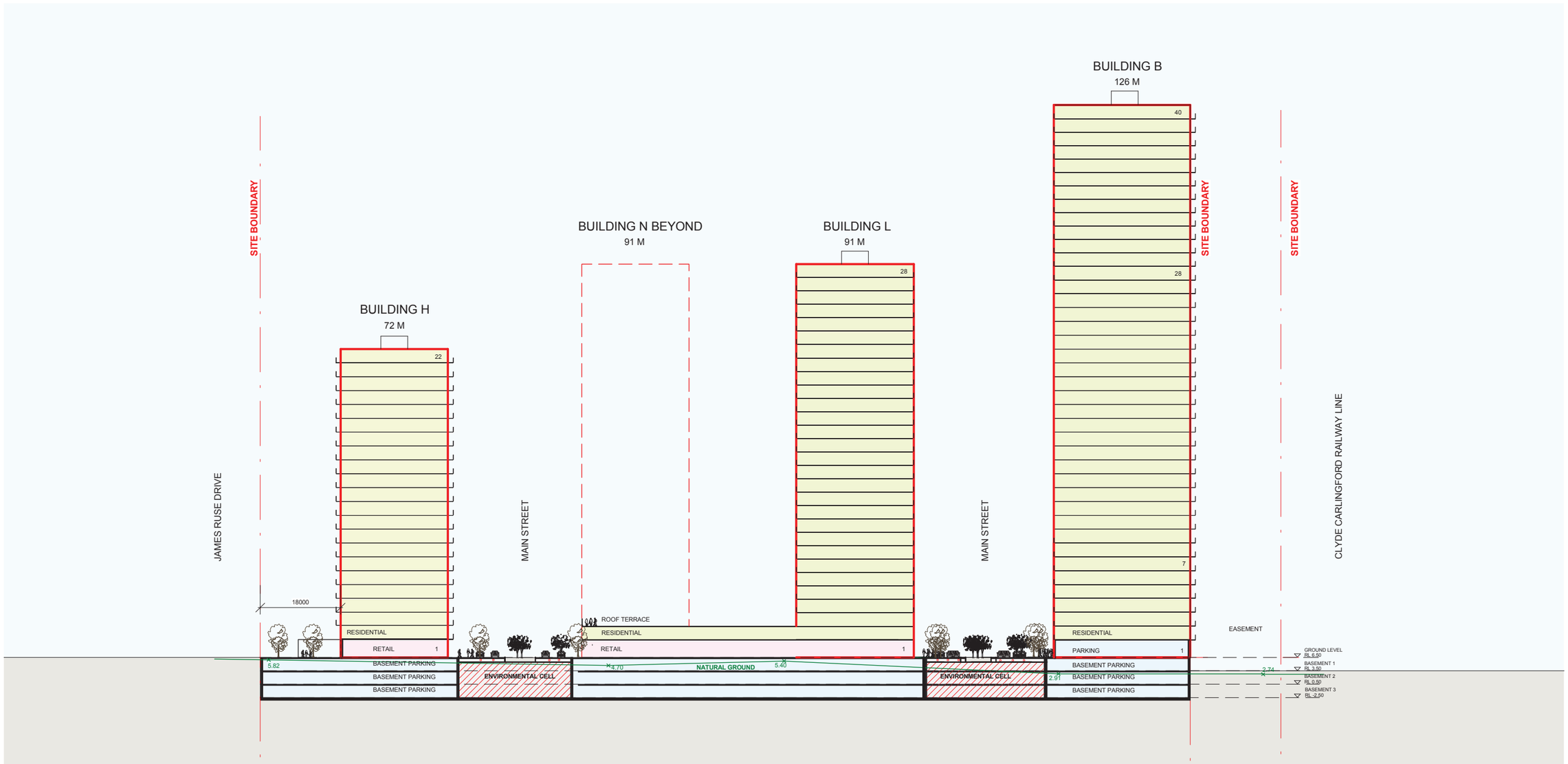
OPTION E - SECTION 1 [PREFERRED]

7 BUILDING ENVELOPE TESTING



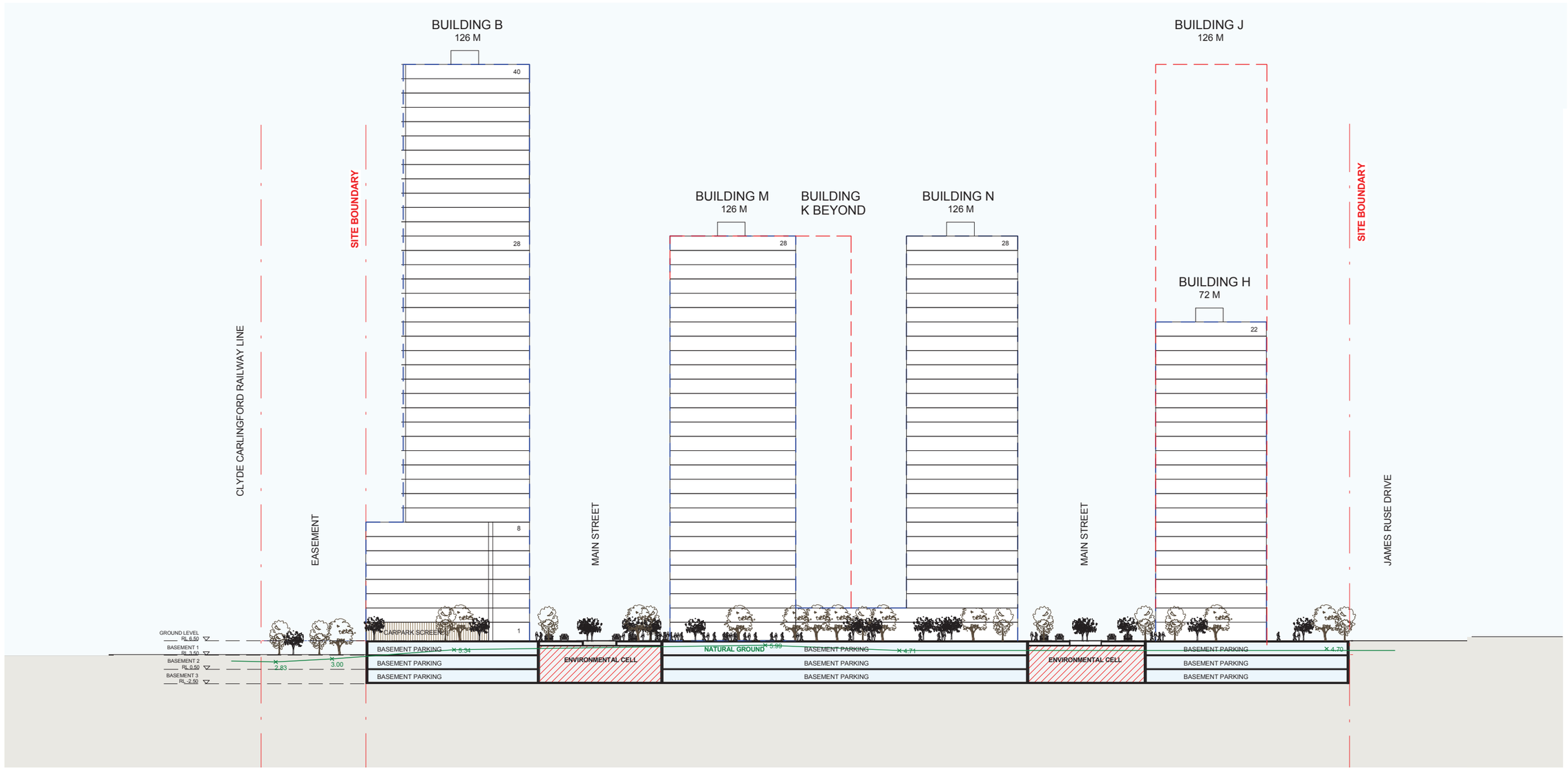
OPTION E - SECTION 2 [PREFERRED]

7 BUILDING ENVELOPE TESTING



OPTION E - SECTION 3 [PREFERRED]

7 BUILDING ENVELOPE TESTING



OPTION E - SOLAR ACCESS STUDY [PREFERRED]

9AM WINTER SOLSTICE [NORTH EAST VIEW]

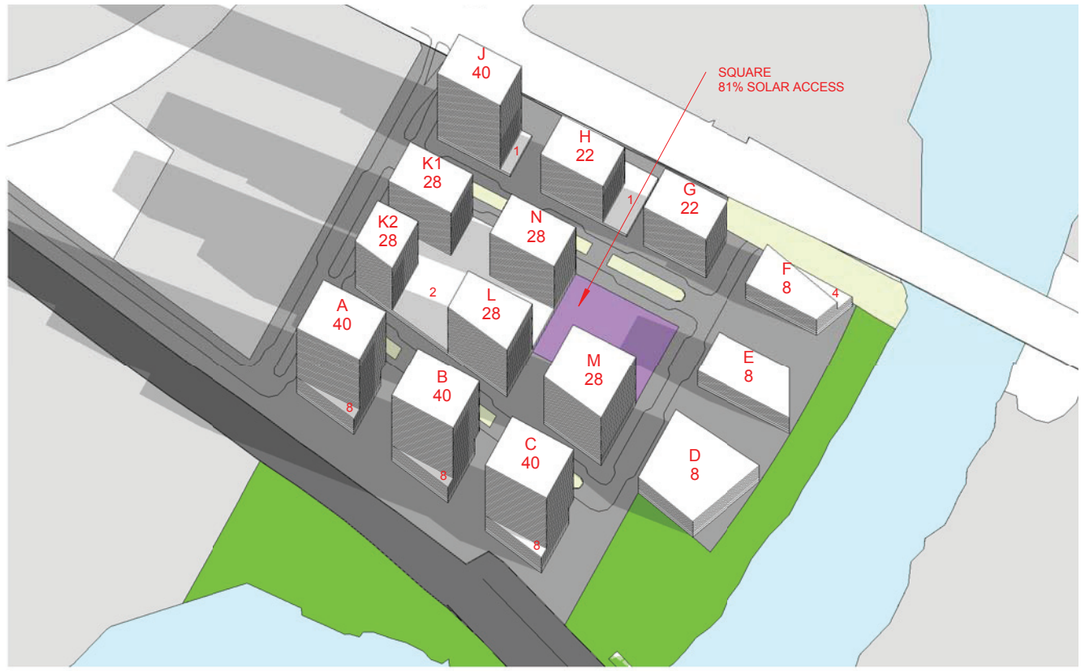
10AM WINTER SOLSTICE [NORTH EAST VIEW]

9AM WINTER SOLSTICE [NORTH WEST VIEW]

10AM WINTER SOLSTICE [NORTH WEST VIEW]

OPTION E - SOLAR ACCESS STUDY [PREFERRED]

11AM WINTER SOLSTICE [NORTH EAST VIEW]



12PM WINTER SOLSTICE [NORTH EAST VIEW]

11AM WINTER SOLSTICE [NORTH WEST VIEW]

12PM WINTER SOLSTICE [NORTH WEST VIEW]

OPTION E - SOLAR ACCESS STUDY [PREFERRED]

1PM WINTER SOLSTICE [NORTH EAST VIEW]

2PM WINTER SOLSTICE [NORTH EAST VIEW]

1PM WINTER SOLSTICE [NORTH WEST VIEW]

2PM WINTER SOLSTICE [NORTH WEST VIEW]

OPTION E - SOLAR ACCESS STUDY [PREFERRED]

3PM WINTER SOLSTICE [NORTH EAST VIEW]

3PM WINTER SOLSTICE [NORTH WEST VIEW]

BUILDING	NO. OF STORIES	ORIENTATION	OPTION E - PERCENTAGE OF FACADE 'IN SUN' WITH THE POTENTIAL FOR APARTMENTS TO RECEIVE SOLAR ACCESS MID-WINTER					
			9am-10am	10am-11am	11am-12pm	12pm-1pm	1pm-2pm	2pm-3pm
A	40	East-west	100%	100%	80%	80%	85%	50%
B	40	East-west	100%	100%	80%	80%	85%	50%
C	40	East-west	100%	100%	100%	100%	100%	95%
D	8	East-west	100%	100%	100%	100%	100%	100%
E	8	East-west	100%	100%	100%	100%	100%	100%
F	8	East-west	100%	100%	100%	100%	100%	95%
G	22	East-west	95%	95%	95%	95%	95%	100%
H	22	East-west	95%	75%	70%	60%	90%	100%
J	40	East-west	50%	70%	75%	75%	85%	95%
K1	28	East-west	25%	20%	75%	75%	50%	35%
K2	28	East-west	15%	35%	75%	75%	30%	15%
L	28	East-west	15%	70%	80%	80%	80%	80%
M	28	East-west	95%	95%	95%	95%	95%	95%
N	28	East-west	20%	30%	90%	90%	75%	35%

70% or more solar access received to facade 'in sun'

To comply with the Apartment Design Guide, a minimum of 70% of apartments are required to receive 2 hours of direct solar access to living areas and private open spaces between 9am - 3pm at mid-winter. At this stage, building forms have been design, not buildings. Future apartment layouts will need to harness the sun to satisfy the Apartment Design Guide Requirement. Option E, has building envelopes that are oriented to the east-west, with the ability to receive sun on the long facdes in the morning and afternoon in addition to the north facade. It also demonstrates that the taller buildings with the largest number of apartments receive in excess of the minimum requirement for solar access.

If future development applications have unit layouts that maximise the number of apartments with living rooms and open spaces to facades that receive 2 hours of solar access at mid-winter, then the development is capable of satisfying the solar access requirement of the Apartment Design Guide. It will also be a requirement of future development applications for the site, that this requirement is achieved, monitored and reconciled. The table above indicates that building forms in Option E, achieve the floor space while maximising the percentage of solar access to facades.

These overshadowing studies also illustrate that between 12pm - 2pm at mid-winter, more than 71% of the foreshore square receives direct solar access.

8.1 CONCLUSION

This Urban Design report has been prepared by STANISIC ARCHITECTS on behalf of Statewide Planning Pty Ltd to assist Parramatta City Council to review key planning controls for the site at 181 James Ruse Rive, Camellia. This site is has strategic importance being located along the Parramatta River opposite the University of Western Sydney and within 2km of Parramatta City Centre.

In parallel, the Department of Planning and Environment and Council have commissioned a discussion paper "Camellia: 21st Century Business, Industry and Entertainment Precinct - Discussion Paper, Version 1. It canvasses long term opportunities for this site and the wider precinct - known as the Camellia Precinct. This paper acknowledges that the Camellia Precinct is "one of the most important employment land precincts in metropolitan Sydney, with great strategic value in terms of its size, location, activity and opportunities for future development."

At a meeting of 28 April 2014, Council resolved to forward Statewide's planning proposal seeking a conditional gateway determination for the site and requested that additional studies and information is provided to Council, to satisfactorily address outstanding issues, prior to a public exhibition of the planning proposal which includes:

1. Site contamination and remediation (SEPP 55 – Remediation of Land)
2. Flood impacts (s117 Direction 4.3 Flood Prone Land)
3. Acid sulfate soils (s117 Direction 4.1)
4. Potential loss of employment land (s117 Direction 1.1 Business and Industrial Zones)
5. Traffic and transport
6. Flora and fauna
7. Social impact
8. Health and safety
9. Potential land use conflicts (proximity to heavy industry, James Ruse Drive and railway line) – including and noise
10. Infrastructure upgrades (water and energy)
11. Urban design analysis and master plan
12. Management of environmental containment cells

This report addresses item 11 and explores a number of building envelope options for the site and identifies a preferred built form that will inform a detailed master plan.

This Urban Design Report has examined the site at 181 James Ruse Drive, Parramatta for its appropriateness for redevelopment and rezoning. The report demonstrates that the site has the characteristics and qualities that can sustain mixed use densification with a focus on multiple housing, retail, enhanced public domain and rehabilitation of the natural environment.
The site is large, consolidated and relatively flat, with access to the riverfront of Parramatta River. The comprehensive redevelopment of the site will contribute to the environmental upgrade of the foreshore riparian zone and heritage mangrove landscape. The site requires adequate development capacity to support the extensive remediation using sub-surface containment cells of hazardous materials left over from the manufacture of building materials by James Hardie Pty Ltd.

The site is within the Camellia Precinct and has been identified as a mixed use area in the Camellia: 21st Century Business, Industry and Entertainment Precinct – Discussion Paper, prepared by Parramatta Future Generation. Key strategic advantages identified for the precinct include central location, proximity to key transport routes, available land, industry clustering, innovation and pipeline infrastructure. The site will act as a buffer between the Business-Orientated Land Use Transition Zone to the east and existing residential area to the west. It adjoins the Rosehill Racecourse Entertainment Precinct to the west. It is directly opposite the University of Western Sydney – Parramatta Precinct and the knowledge hub of Parramatta.

The site is well serviced by existing and future transport infrastructure. It is within easy walking distance (200m) of Camellia Rail station to the south. Existing road access from James Ruse Drive, a major arterial road, to the west provides vehicle access. The site has directs links to Sydney Olympic Park and M4 Western Motorway to the south. It will benefit from the potential Camellia Ferry Wharf on Parramatta River to east, and future light rail proposed by Parramatta Council within to the existing rail corridor and which will connect the site to Parramatta City Centre and the University of Western Sydney.

The planning framework describes the existing planning instruments, zoning, building heights, acid sulfate soils, riparian land and waterways. The contextual analysis includes detailed mapping of key site characteristics: topography, environment and heritage, surrounding buildings, building heights, redevelopment sites, transport and vehicular movement, pedestrian movement and cycleways, contamination, flooding. The site is positioned within its wider macro context; its existing land use and walking catchment; and existing natural context and heritage.

A design concept was prepared which is based upon an urban strategy and design principles for character areas, land uses, public domain, movement, containment cells, building height, view and solar access. Building envelope testing of height, setbacks, floor plate, efficiencies, bulk, mass and overshadowing, SEPP 65 amenity/ building separations has been carried out to identify the most suitable option. Three development options were prepared and Option C was identified as the most suitable option for the purposes of a report to Council in May 2015. Option C provided a gross floor area of 283,335sqm (FSR 5.10:1); building heights of 50m (14 storeys) to 113m (35 storeys); and mixed uses of residential, retail and commercial.

Option C is a vision for an interactive, urban living environment within a rehabilitated river setting. It is framed by an extensive and permeable public domain comprising new wide streets, central park, forum, foreshore park and walk; mid-block pedestrian ways; extensive landscaping with street trees, swales and footways; building forms aligned to streets; tower forms of various heights orientated to optimise views, breezes and sun; underground parking; containment of contamination within environmental cells below new streets and along the boundary with James Ruse Drive; retail and commercial uses along new streets; and visual and physical connections to the riverfront.

Subsequent to the development of a detailed masterplan and draft development control plan for the site, Council officers have reviewed the planning proposal including this report and recommended two (2) alternative building envelope options which aim to reduce building heights along the foreshore. At a meeting on 11 May 2015, Council endorsed the following recommendation and Option D:

a) That Council adopt the revised heights listed in the table Option B, consistent with the outcome of the Statewide Planning draft Planning Proposal and Urban Design Scheme, as the controls for the maximum building heights and floor space ratios to be included in the revised planning proposal with:

- a 35m maximum height for foreshore buildings;
- a 126m maximum height for the development site;
- a floor space ratio of 5.3:1 of the development site.

b) That Council authorises the CEO:

- to prepare the amendments to the draft revised planning proposal at Attachment 1 in accordane with the Council endorsed Option for the
- maximum building heights and floor space ratios
- to correct any minor anomalies of a non-policy nand administrative nature that may arise during the plan amendment process
- to include the folowing amendment:
  - all development applications for the site must include a "Design Excellence Process" with a Design Integrity Panel in accordance with the Director General's guidelines.

(c) That Council's amended planning proposal be submitted to the DP&E for the purposes of seeking a revised Gateway Determination.

(d) That during the community consultation of the planning proposal further consultation be undertaken with the relevant public authorities concerning a suitable "satisfactory arrangements" clause to address Section 117 Direction 6.1 Approval and Referral Requirements.

(e) That as required by Section 117 Director 4.1 Acid Sulphate Soils, a copy of the acid sulfate soils study (part of the Remediation Action Plan) be provided to the Director General of the Department of Planning and Environment prior to the commencement of community consultation.

(f) Further, that a report be put to Council on the outcome of the community consultation of the planning proposal.

Option D was tested for its compliance with the key amenity standards of SEPP 65, including solar access to determine how the floor space can be redistributed on site while achieving lower building heights on the foreshore. The studies demonstrate that both Option C + D are capable of meeting these standards. Further modifications to built form have been made to increase the amount of sunlight into the square.

Option E was prepared in response to the Alteration to Gateway Determination, which requested further information regarding the adequacy of public open space. Shadow studies indicated that the proposed square was overshadowed at mid-winter. Subsequently, the location of the square was relocated closer to the foreshore and named the foreshore square. This new location achieves more than 71% solar access between 12-2pm at mid-winter. Building N has been relocated where the square used to be, further south with the overall total floor space unchanged from Option D.

Additional studies are appended to the planning proposal that assess this design concept in the context of SEPP 65 and impact of adjoining lands, the adequacy of the proposed RE1 lands. Indicative visualisations are also appended to the planning proposal that illustrate the design concept.

Option E is the preferred option to proceed to the exhibition phase as it has superior qualities when compared to Option D including:

- Foreshore square has a direct relationship to Main Street A, Foreshore Drive and the foreshore.
- Foreshore square receives more than 71% solar access between 12-2pm at mid-winter.
- Building heights reduced from 10 storeys (35m) to 8 storeys (28m) along the foreshore.
- Lower stepped forms have been removed from Buildings G, H, M + N and the space between these buildings increased to 24m. At ground level, the building separation between Building G and H is 10m and between Building H and J is 18m which complies with the Apartment Design Guide.

8.2 RECOMMENDATIONS

It is recommended that Option E, subject to numerous detailed studies and which is consistent with the Alteration to Gateway Determination, together with the Masterplan for the site at 181 James Ruse Drive, Camellia, is adopted by Council.

It is recommended that the planning proposal map for height is amended to reduce the maximum building height along the foreshore from 35m to 28m as required by the Alteration of Gateway Determination.

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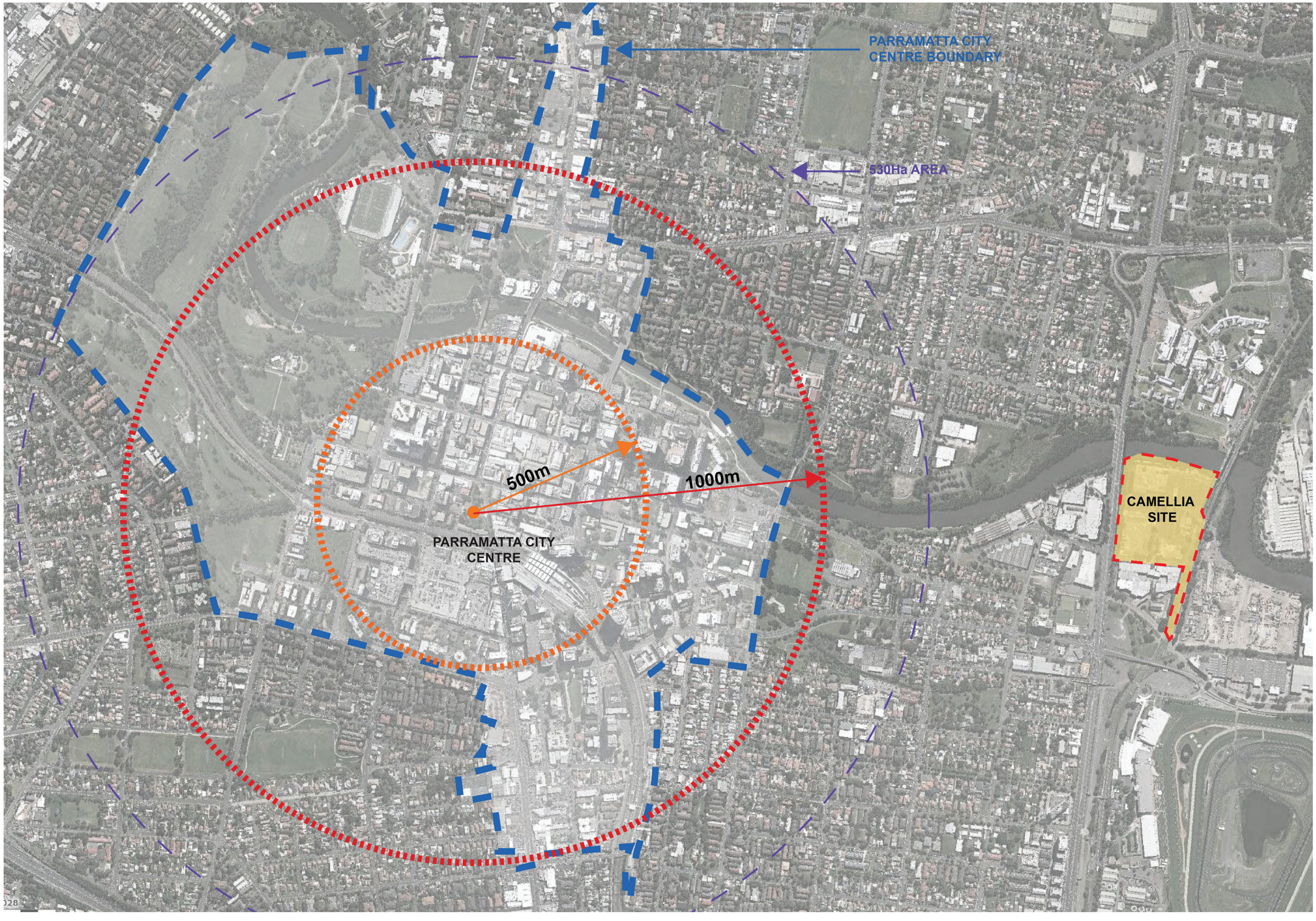
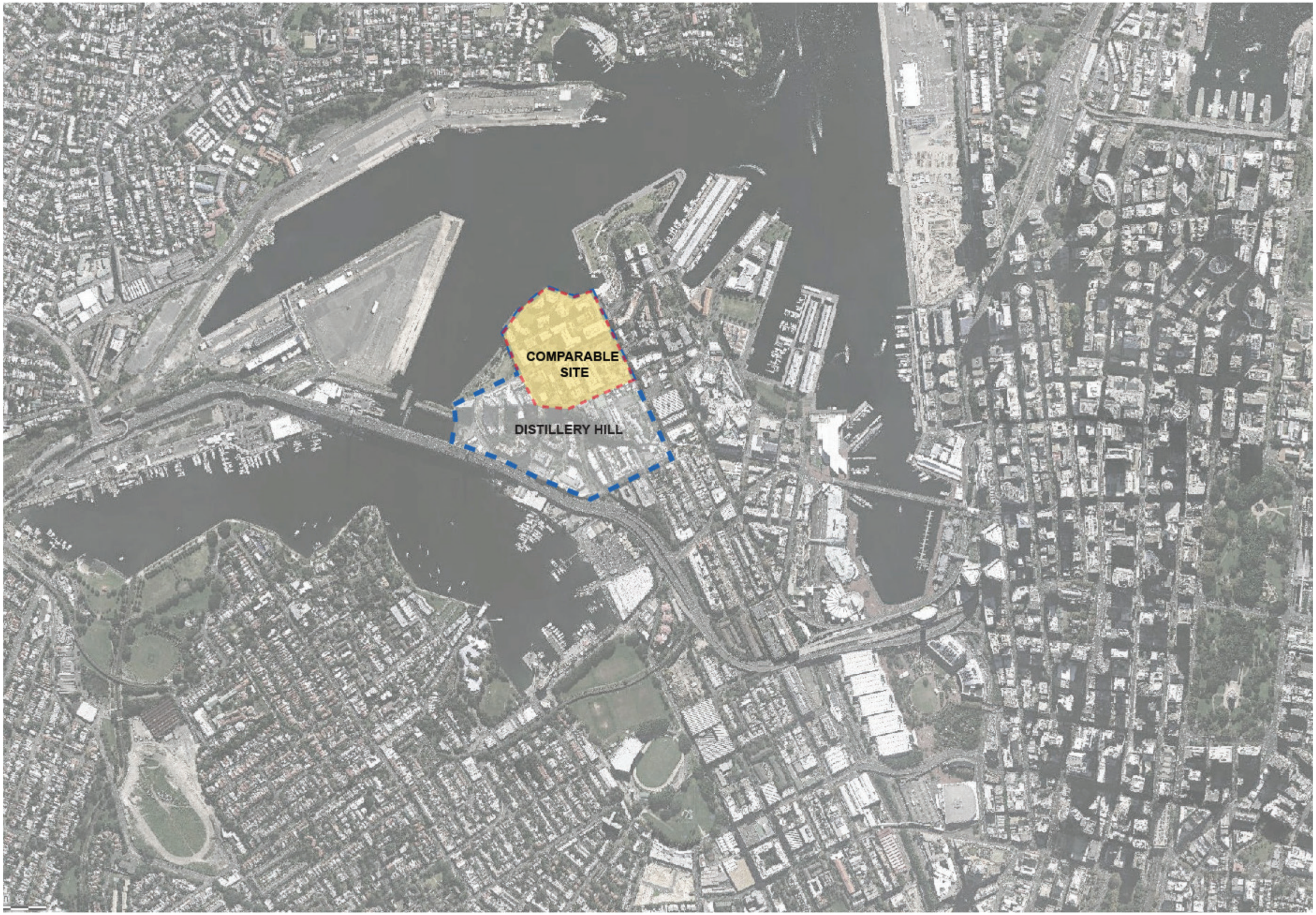
APPENDIX 1: RIVERFRONT COMPARABLES

CAMELLIA/ PARRAMATTA CITY CENTRE



APPENDIX A: RIVERFRONT COMPARABLES

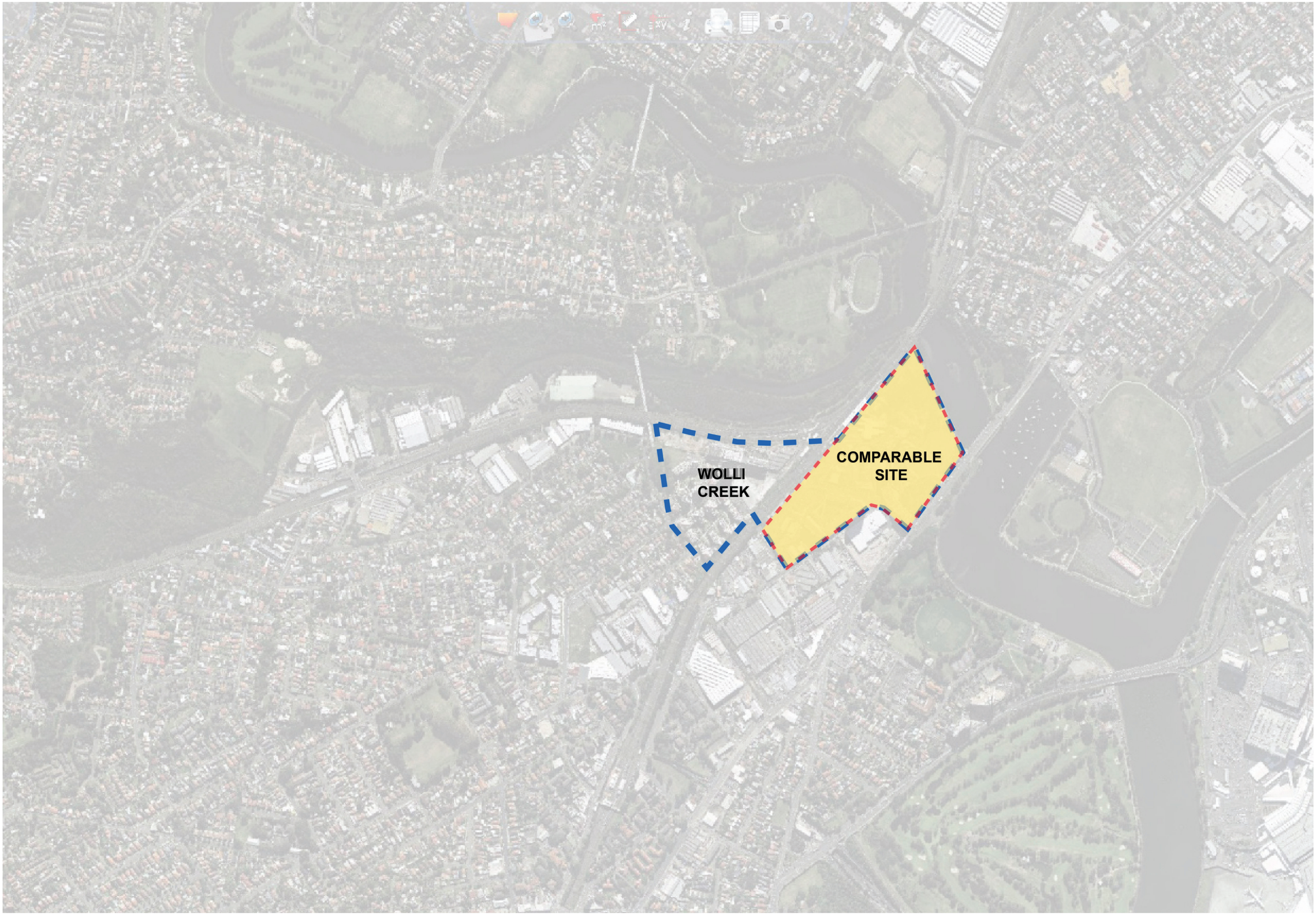
WENTWORTH POINT



APPENDIX A: RIVERFRONT COMPARABLES

VICTORIA PARK

APPENDIX A: RIVERFRONT COMPARABLES



DEVELOPMENT COMPARISON SCHEDULE (POPULATION PER Ha)

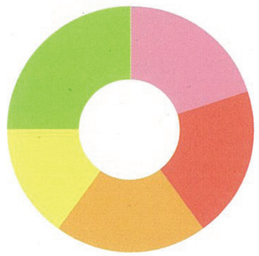
COMPARISON	SAMPLED AREA (Ha)	DEVELOPABLE AREA (Ha)	BUILDING HEIGHTS	AVERAGE FSR (X:1)	TOTAL FLOOR SPACE RESIDENTIAL	TOTAL NUMBER OF UNITS	PERSONS PER UNIT	POPULATION	POPULATION PER Ha	DISTANCE FROM CBD (KM)
PARRAMATTA		523.00	VARIES	0.18	965,050	9650.50	2	19301	36.93	0
CAMELLIA	6.85	5.59	3ST, 19ST, 26ST	5.0	254,295	2542.95	2	5086	742.47	2.0
RHODES	6.85	5.59	6ST, 8ST, 24ST, 26ST	3.5	195,650	1956.50	2	3913	571.24	7.5
DISTILLERY HILL	6.85	5.59	17ST, 20ST	6.0	335,400	3354.00	2	6708	979.27	1.3
VICTORIA PARK	6.85	5.59	6ST, 8ST - 12ST, 27ST	3.5	195,650	1956.50	2	3913	571.24	4.0
WOLLI CREEK	6.85	5.59	6ST, 10ST, 12ST, 14ST, 20ST	4.6	256,900	2569.00	2	5138	750.00	8.5

ASSUMPTIONS:	BUILDING HEIGHTS	FSR
	4 STOREYS	1.2:1
	6 STOREYS	1.5:1
	8 STOREYS	2.0:1
	12 STOREYS	2.5:1
	14 STOREYS	3.0:1
	18 STOREYS +	6.0:1

APPENDIX 2: URBAN DESIGN TASKFORCE EXAMPLES

Source: Urban Taskforce Australia: September 2013 - Urban Ideas, p. 30-31

High Rise Housing Adjacent to Sydney's Central Railway Station on the edge of the CBD: Central Park by Frasers Property and Sekisui House



R8 20%
R12 20%
R25 20%
R35+ 15%
Open space 25%

Central Park is located very close to Central Station, with excellent bus connections and within walking distance to three universities.

Clearly the people who will want to live here will be interested in being close to the bustle of the city. Many will be connected to university life and many will walk to work. While car parking is provided it is mainly of a shared basis so residents can choose a car when they need one.

Amenities include a large park with an assortment of public artworks, swimming pools, gymnasiums, child care facilities and a large shopping centre. Central Park also has innovative ESD systems including a Trigen energy system and the extensive use of landscape growing over some of the buildings.

Building heights range from 8 storeys to 35 storeys with buildings representing most of our R categories. They are located so they can relate to their context with the taller buildings on the city edge next to the UTS tower and the lower buildings on the Chippendale side relating to the warehouses and terrace houses of this suburb.

Population Density
1000
people per hectare

Typical Demographic
Students, singles, working couples

Location
Central Sydney

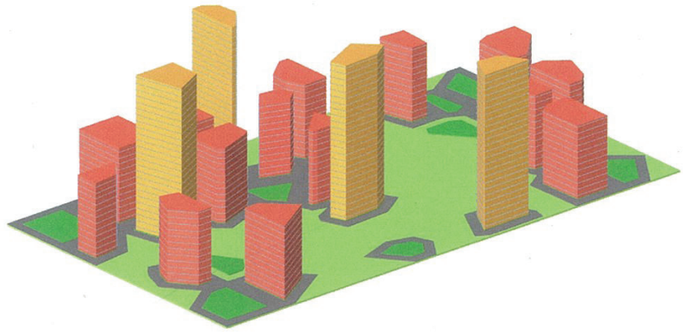
Amenities
+ swimming pools
+ park
+ public art
+ shops
+ universities
+ supermarket
+ gym
+ cafés
+ cinemas
+ heavy rail
+ light rail
+ buses

To view the works of Frasers Property go to:
www.fraserspropery.com.au

To view Central Park go to:
www.centralparksydney.com/master-plan

Middle Ring medium and high density housing over a train station: Discovery Point by Australand

R12 40%
R25 25%
Open space 35%



Population Density
750
people per hectare

Typical Demographic
Working couples, singles, young families, some retirees

Location
Wolli Creek

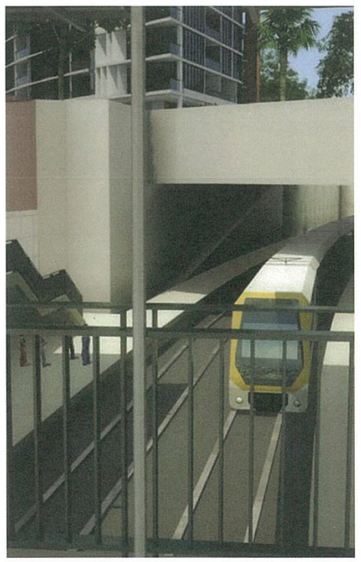
Amenities
+ train station on site
+ parks
+ pools
+ gyms
+ community meeting rooms
+ village square

Discovery Point

Australand's development at Discovery Point is a good example of medium and high density living.

The precinct has a good variety of building heights ranging from 8 storeys to 22 storeys. The site layout is focussed around historic Tempe House which is used as a shared community centre and a large parkland area that fronts the Cooks River.

The density is high enough to justify its own Railway Station (Wolli Creek) which is accessed via the Village Square or directly from one of the buildings in the complex. The precinct also has its own retail court where residents can shop or have a cup of coffee. The scale and location of the development has led to the construction of a new Woolworths supermarket next door.



Discovery Point

Clemton Park Village by Australand

This development is on a redundant industrial site surrounded by 2 storey residential development. To be compatible with the surroundings the new buildings are 3 to 7 storeys high giving a consistent character to the precinct. The complex will include over 20 retail outlets including a supermarket, over one acre of parks, a child care centre and a site for retirement living.

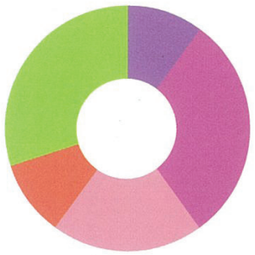
To view the flythrough of Discovery Point go to:
www.discoverypoint.com.au

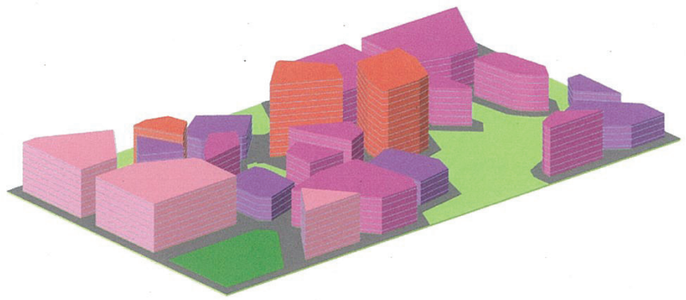
To view the flythrough of Clemton Park Village go to:
www.cpvillage.com.au/masterplan-video.php

To view the works of Australand go to: **www.australand.com.au**

Source: Urban Taskforce Australia: September 2013 - Urban Ideas, p. 26-27

Town Centre Housing over a Shopping Centre and near a train station: Top Ryde by Crown Group





R4 10%
R6 30%
R8 20%
R12 10%
Open space 30%

Population Density
700
people per hectare

Typical Demographic
Retirees, young couples

Location
In the middle of an urban town centre

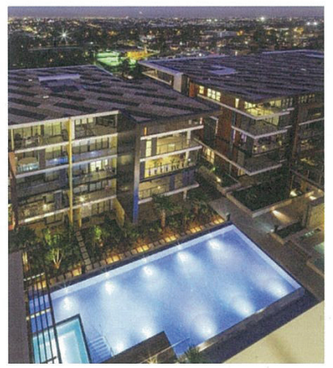
Amenities
+ swimming pool
+ spa
+ gardens
+ gym
+ theatrettes
+ library
+ large shopping centre
+ buses

Top Ryde

The Top Ryde housing by the Crown Group appears to be on ground level with its gardens, landscaping and pools but it is located over the top of a massive shopping centre right in the middle of Top Ryde.

Living here feels like it is a resort with views to the city and across to the Parramatta River but the complex is right in the heart of a bustling town centre. The project demonstrates the benefit of having density connected to amenity and this has attracted retiring baby boomers who want to have facilities nearby.

Top Ryde also provides its residents with many amenities including a club room, swimming pool and gardens located in the open space between the 8 and 10 storey buildings.

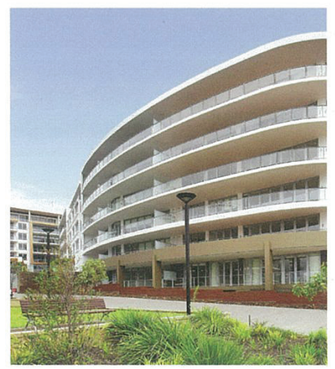


Top Ryde

Sanctum at Rhodes by Crown Group

Crown has developed a 6 storey apartment building at Rhodes that sits on a site between the waterfront and the town centre with its train station.

The housing enables maximum views of the water and has a scale that sits comfortably with the surrounding landscape.



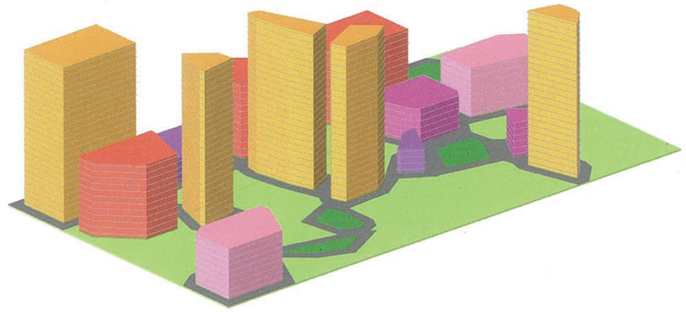
To view website for Top Ryde go to:
toprydecityliving.com.au

To view the flythrough for Sanctum go to:
www.youtube.com/watch?v=8YLuI9yuj0o

To view the work of the Crown Group go to:
www.crowngroup.com.au

Tall towers maximise views on an urban waterfront site: Jacksons Landing by Lend Lease

R4 8%
R6 10%
R8 10%
R12 20%
R25 25%
Open space 27%



Jacksons Landing is a good example of 25 storey residential towers being sited to create an urban precinct on the end of the Pyrmont peninsular.

Along with the tall towers there are lower residential buildings and a number of commercial buildings as well as retail. The precinct has become popular with retiring baby boomers as can be seen from interviews on their website.

The advantage of the towers is to maximise the spectacular views across the harbour to the city as well as freeing up considerable amounts of space at ground level for gardens. There are significant amenities including a foreshore promenade, a number of restaurants, coffee shops, some large parklands, shops and medical facilities.

The precinct is located close to the city cultural facilities and to the CBD employment area for those wanting to catch the light rail to work.

Population Density

400
people per hectare

Typical Demographic

Urban evolvers, working couples, urban families

Location

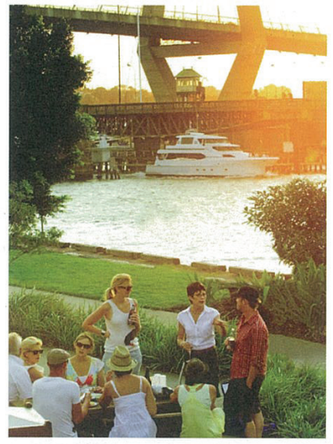
Urban waterfront

Amenities

+ covered pool
+ waterfront promenade
+ restaurants
+ parks
+ gym
+ shops
+ buses
+ light rail

Jacksons Landing by Lend Lease

The Distillery at Jacksons Landing



Silk at Jacksons Landing

Evolve at Jacksons Landing

To view Jacksons Landing go to:
www.lendlease.com/en/australia/projects/jacksons-landing

To view the work of Lend Lease go to:
www.lendlease.com/Australia

Source: Lachlan's Line - Expressions of Interest: November 2014, Urban Growth NSW/ Matric Property + CBRE

Source: Lachlan's Line - Expressions of Interest: November 2014, Urban Growth NSW/ Matric Property + CBRE

Artist's impressions of pedestrian plaza to central park

EXECUTIVE SUMMARY

Address	25 – 27 Epping Road (corner Delhi Road) MACQUARIE PARK NSW 2113
Legal Description	Proposed Lot 104 & Lot 105 being a subdivision of Lot 101 in Deposited Plan 1131776
Site Area	Proposed Lot 104: 12,531m² Proposed Lot 105: 2,822m² **Total: 15,353m² (approx.)**
Zoning	B4 mixed-use according to Ryde Local Environmental Plan 2010
Maximum Building Height*	57m
Gross Floor Area (GFA)*	The following GFA is allocated via a Stage 1 State Significant Development Application: Proposed Lot 104: 51,836m² Proposed Lot 105: 21,684m² **Total GFA: 73,520m² (approx.)**
Indicative Concept**	860 residential apartments and 6,000m² retail floor space
Section 94 Contributions	Maximum $7.8 million liability to deliver cold shell community facility as a stratum
Consent Authority	City of Ryde Council
GST	General Tax Rule
Settlement	Approximately mid 2016
Method of Sale	**Stage One - Expressions of Interest** Closing 3pm Friday 12 December 2014 **Stage Two - Invitation to Tender** Sale by tender for shortlisted groups likely to commence early March 2015 and targeting land sale documentation exchange by June 2015.
Vendor's Selling Agents	**CBRE** **Matthew Ramsay** **0413 743 555** **Ben Wicks** **0422 206 015** **Scott Gray-Spencer** **0400 222 226** **Matrix Property** **Andrew Antonas** **0412 253 131** **John Chancellor** **0412 888 839** **Helen Xu** **0421 638 868**

*Awaiting approval by the Department of Planning and Environment (ref: SSD_5093)
**Provided for illustrative purposes only and subject to planning approval

Source: Lachlan's Line - Expressions of Interest: November 2014, Urban Growth NSW/ Matric Property + CBRE

Artist's impression of retail street

INDICATIVE CONCEPT

Objectives

Award winning architects Bates Smart, in collaboration with Leffler Simes Architects and Aspect Studios, have prepared an indicative concept design for around 860 apartments and 6,000m² neighbourhood retail.

The key objectives of the design are to demonstrate:

- A potential development option for the super lots
- A minimum benchmark for the built form response
- Reinforce the key urban design principles of the Lachlan's Line master plan
- Assess possible apartment yield and mix within SEPP 65, solar access and building height controls
- Ground floor retail options to activate street, park frontage and bridge landing areas
- A potential response to Council's Community Centre location and brief requirements
- Investigate basement and loading dock access options for the residential and retail component
- Investigate a potential delivery staging option for the development.

The indicative concept comprises 6 residential buildings ranging in height from 7 to 17 levels above a retail podium and basement car parking based on the following:

	Mix (%)	Area (m²)	No. Apts	Car Spaces
1 bed	20%	55	172	172
1 bed + study	30%	60	258	258
2 bed	30%	75	258	258
2 bed + study	15%	80	129	129
3 bed	5%	105	43	43
Visitors				86
Sub-total (Residential)	**100%**		**860**	**946**
Supermarket		3,693		62
General Retail		2,431		24
Community Centre		2,500		37
TOTAL				**1,069**

Respondents should note the design is a **concept only**. It has not been submitted for planning approval. Respondents should rely on their own investigations to confirm the super lot development options.

Staging

The scheme has been prepared with a potential staging strategy for the super lots, and residential buildings with stand alone basement structures. It also provides for the delivery of the City of Ryde Council's required cold shell community centre within the development of proposed Lot 104.

Artist's impressions of pedestrian plaza to central park

EXECUTIVE SUMMARY

Address	25 – 27 Epping Road (corner Delhi Road) MACQUARIE PARK NSW 2113
Legal Description	Proposed Lot 104 & Lot 105 being a subdivision of Lot 101 in Deposited Plan 1131776
Site Area	Proposed Lot 104: 12,531m² Proposed Lot 105: 2,822m² **Total: 15,353m² (approx.)**
Zoning	B4 mixed-use according to Ryde Local Environmental Plan 2010
Maximum Building Height*	57m
Gross Floor Area (GFA)*	The following GFA is allocated via a Stage 1 State Significant Development Application: Proposed Lot 104: 51,836m² Proposed Lot 105: 21,684m² **Total GFA: 73,520m² (approx.)**
Indicative Concept**	860 residential apartments and 6,000m² retail floor space
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*Awaiting approval by the Department of Planning and Environment (ref: SSD_5093)
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APPENDIX 4: INDICATIVE YIELD SCHEDULE

118 JAMES RUSE DRIVE, CAMELLIA
SCHEDULE OF AREAS + ACCOMMODATION

SUMMARY	ALL BUILDINGS				BUILDING A				BUILDING B				BUILDING C			
	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS
LEVEL 1	16,012	0	16,012	0	975	0	975	0	957	0	957	0	943	0	943	0
LEVEL 2	0	15,282	15,282	161	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 3	0	12,484	12,484	131	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 4	0	12,484	12,484	131	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 5	0	12,279	12,279	129	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 6	0	12,279	12,279	129	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 7	0	12,279	12,279	129	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 8	0	12,279	12,279	129	0	975	975	10	0	957	957	10	0	943	943	10
LEVEL 9	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 10	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 11	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 12	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 13	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 14	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 15	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 16	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 17	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 18	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 19	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 20	0	8,889	8,889	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 21	0	8,933	8,933	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 22	0	8,933	8,933	94	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 23	0	7,479	7,479	79	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 24	0	7,479	7,479	79	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 25	0	7,479	7,479	79	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 26	0	7,435	7,435	78	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 27	0	7,435	7,435	78	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 28	0	7,435	7,435	78	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 29	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 30	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 31	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 32	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 33	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 34	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 35	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 36	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 37	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 38	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 39	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
LEVEL 40	0	3,612	3,612	38	0	975	975	10	0	946	946	10	0	934	934	10
TOTAL	16,012	301,982	317,994	3,179	975	38,031	39,006	400	957	36,975	37,932	389	943	36,491	37,434	384
	16,000	302,000	318,000	3,200												
FSR (DEVELOPABLE AREA)	5.30 :1				0.65 :1				0.63 :1				0.62 :1			
DEVELOPABLE SITE AREA	60,000 sqm				60,000 sqm				60,000 sqm				60,000 sqm			
FSR (TOTAL SITE AREA)	4.63 :1				0.57 :1				0.55 :1				0.55 :1			
TOTAL SITE AREA	68,613 sqm				68,613 sqm				68,613 sqm				68,613 sqm			

SUMMARY	BUILDING D				BUILDING E				BUILDING F				BUILDING G			
	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS
LEVEL 1	1,313	0	1,313	0	986	0	986	0	922	0	922	0	1,020	0	1,020	0
LEVEL 2	0	1,667	1,667	18	0	986	986	10	0	922	922	10	0	727	727	8
LEVEL 3	0	1,667	1,667	18	0	986	986	10	0	922	922	10	0	727	727	8
LEVEL 4	0	1,667	1,667	18	0	986	986	10	0	922	922	10	0	727	727	8
LEVEL 5	0	1,667	1,667	18	0	986	986	10	0	717	717	8	0	727	727	8
LEVEL 6	0	1,667	1,667	18	0	986	986	10	0	717	717	8	0	727	727	8
LEVEL 7	0	1,667	1,667	18	0	986	986	10	0	717	717	8	0	727	727	8
LEVEL 8	0	1,667	1,667	18	0	986	986	10	0	717	717	8	0	727	727	8
LEVEL 9	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 10	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 11	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 12	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 13	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 14	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 15	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 16	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 17	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 18	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 19	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 20	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 21	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 22	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	8
LEVEL 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1,313	11,668	12,980	123	986	6,902	7,888	73	922	5,636	6,559	59	1,020	15,262	16,282	161
FSR (DEVELOPABLE AREA)	0.22 :1				0.13 :1				0.11 :1				0.27 :1			
DEVELOPABLE SITE AREA	60,000 sqm				60,000 sqm				60,000 sqm				60,000 sqm			
FSR (TOTAL SITE AREA)	0.19 :1				0.11 :1				0.10 :1				0.24 :1			
TOTAL SITE AREA	68,613 sqm				68,613 sqm				68,613 sqm				68,613 sqm			

	BUILDING H				BUILDING J				BUILDING K			
	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS
	1,518	0	1,518	0	757	0	757	0	3,150	0	3,150	0
	0	727	727	8	0	757	757	8	0	3,150	3,150	33
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	727	727	8	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	1,127	1,127	12
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
	0	0	0	0	0	757	757	8	0	0	0	0
TOTAL	1,518	15,262	16,780	161	757	29,504	30,260	311	3,150	32,460	35,610	342
FSR (DEVELOPABLE AREA)	0.28 :1				0.50 :1				0.59 :1			
DEVELOPABLE SITE AREA	60,000 sqm				60,000 sqm				60,000 sqm			
FSR (TOTAL SITE AREA)	0.24 :1				0.44 :1				0.52 :1			
TOTAL SITE AREA	68,613 sqm				68,613 sqm				68,613 sqm			

	BUILDING L				BUILDING M				BUILDING N			
	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS	GFA RETAIL	GFA RESI	GFA TOTAL	UNITS
	817	0	817	0	1,105	0	1,105	0	1,550	0	1,550	0
	0	817	817	9	0	1,105	1,105	12	0	1,550	1,550	16
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	768	768	8	0	1,032	1,032	11	0	940	940	10
	0	768	768	8	0	1,032	1,032	11	0	940	940	10
	0	768	768	8	0	1,032	1,032	11	0	940	940	10
	0	768	768	8	0	1,032	1,032	11	0	940	940	10
	0	768	768	8	0	1,032	1,032	11	0	940	940	10
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	817	817	9	0	1,105	1,105	12	0	774	774	8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	817	21,811	22,628	230	1,105	29,470	30,575	310	1,550	22,511	24,060	237
FSR (DEVELOPABLE AREA)	0.38 :1				0.51 :1				0.40 :1			
DEVELOPABLE SITE AREA	60,000 sqm				60,000 sqm				60,000 sqm			
FSR (TOTAL SITE AREA)	0.33 :1				0.45 :1				0.35 :1			
TOTAL SITE AREA	68,613 sqm				68,613 sqm				68,613 sqm			

stanisic architects

Level 2, 243 Liverpool Street,
East Sydney NSW 2010
AUSTRALIA

T +612 9358 2588
E fs@stanisic.com.au
W www.stanisic.com.au