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## **Site Location**

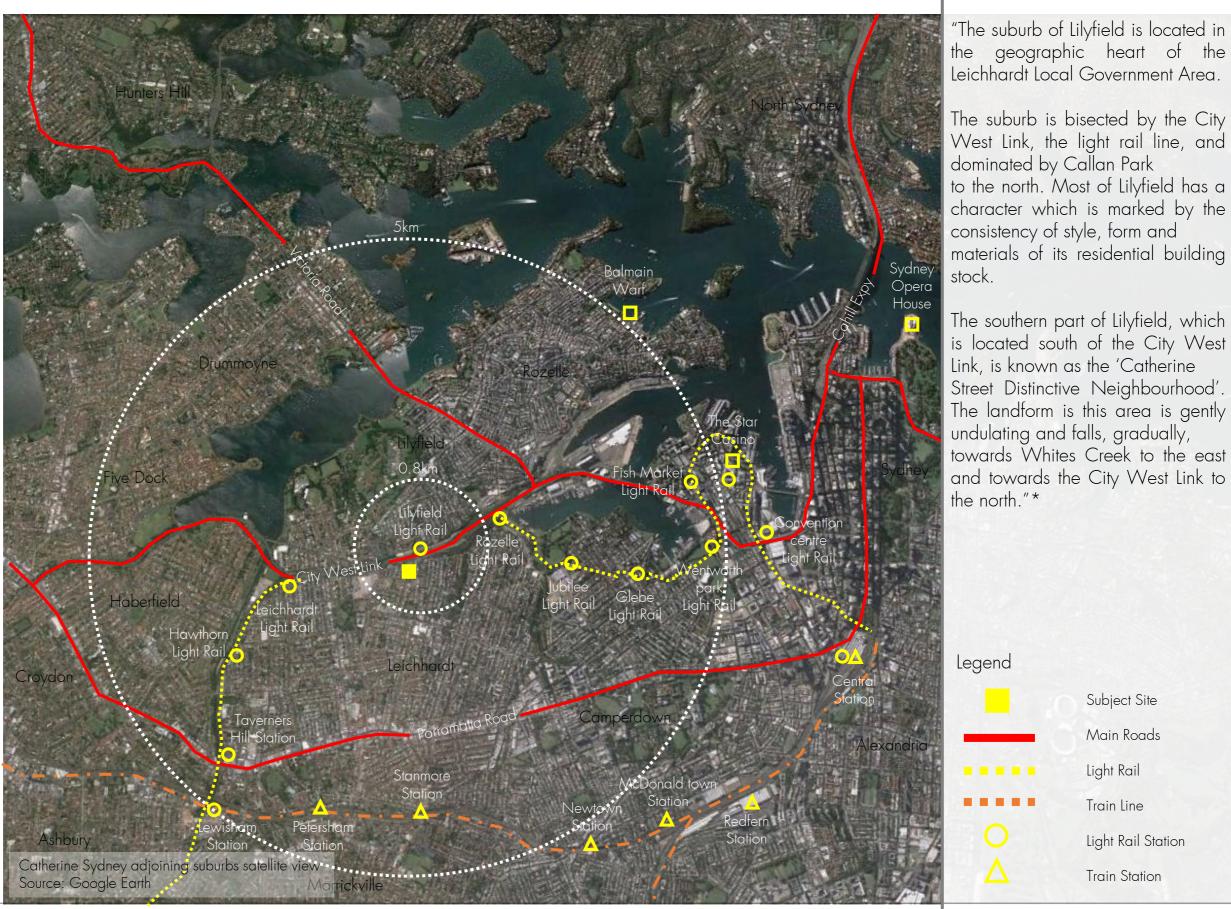


Intersection between Lonsdale and City West Link. Source: Google Street View



Intersection between Catherine st. and City West

Source: Google Street View



Subject Site

Main Roads

Light Rail

Train Line

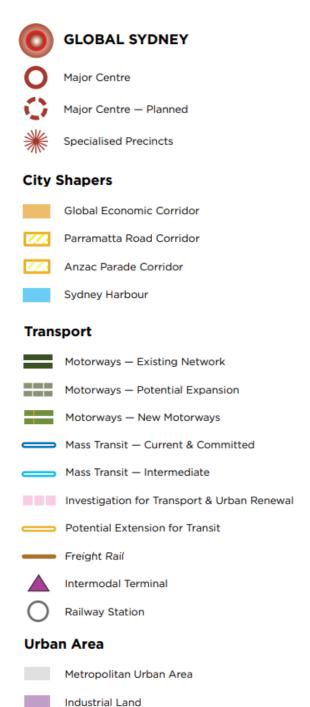
Light Rail Station

Train Station

# Planning Strategies – Metropolitan Plan

MACQUARIE PARK

**BUSINESS PARK** 



Investigation of cross regional transit links between Chatswood Macquarie Park and Parramatta OFFICE CLUSTER NORTH SYDNEY RHODES BUSINESS PARK Second Harbour Crossing: protect corridor **GLOBAL SYDNEY** Sydney's Arts & Cultural Ribbon: protect and invest Bondi Randwick and South Randwick RANDWICK Urban Activation Precincts **EDUCATION &** Proposed Westconnex motorway HEALTH Mascot Station SYDNEY Urban Activation Precinct AIRPORT Sydney Harbour & Coastline: Increase access to promote Sydney as world class, high quality visitor destination. Enfield intermodal logistics centre: Protect the long term health, Plan for adjoining land uses and scenic quality, heritage and freight connections based on economic contribution of the continued long term operation harbour and ocean PORT Port Botany and Sydney Airport: BOTANY Plan for Port Botany road and rail upgrades; develop precinct action plan for Port and Airport

A Metropolis of Three Cities- The Greater Sydney Region Plan guides the metropolitan land-use planning and infrastructure delivery by the state government.

The suburb of Lilyfield is located within the Parramatta Road Corridor linking Sydney CBD to Parramatta. The guidelines of Corridor Renewal aims to facilitate the delivery of the WestConnex Motorway and urban residential renewal.

Metropolitan priorities for the Central Sub region (Source: Draft Metropolitan Strategy for Sydney, pg.82)

National Park / Nature Reserve / State

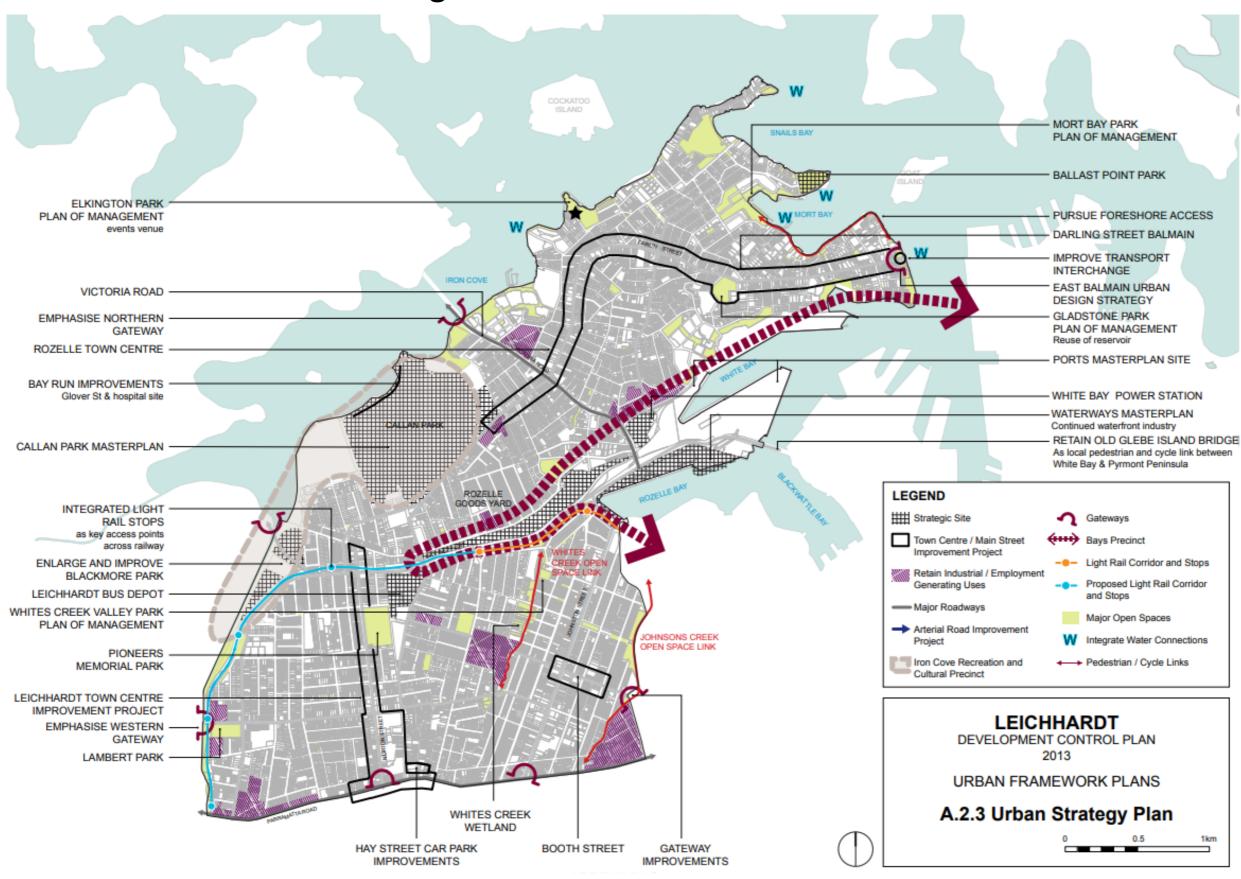
Waterbody / River / Reservoir

Conservation Area

Regional Park

**Environment** 

# Planning Controls – Leichhardt Council DCP 2013



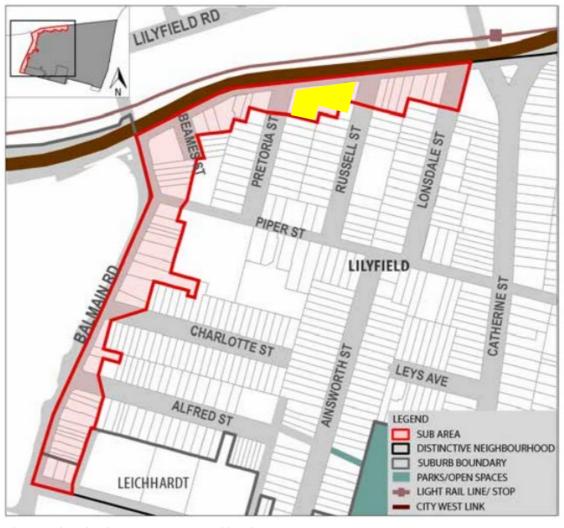
The subject site is within the strategic Urban Framework Plan outlined in the Leichhardt DCP 2013.

# LDCP 2013 - Catherine Street Distinctive Neighbourhood

## C2.2.4.1 Catherine Street Distinctive Neighbourhood

# DISTINCTIVE NEIGHBOURHOOD SUBURB BOUNDARY PARKS/OPEN SPACES LIGHT RAIL LINE/ STOP CITY WEST LINK LILYFIELD BRENANS MOONE ST AMNON ST ANNANDALE ARGUMBAN ST LEICHHARDT

## C2.2.4.1(b) The Peripheral Sub Area



The Peripheral Sub Area (Source:Leichhardt DCP 2013, pg.275)

## Catherine Street Distinctive Neighbourhood (Source:Leichhardt DCP 2013, pg.270)

## Objective

**Desired Future Character** 

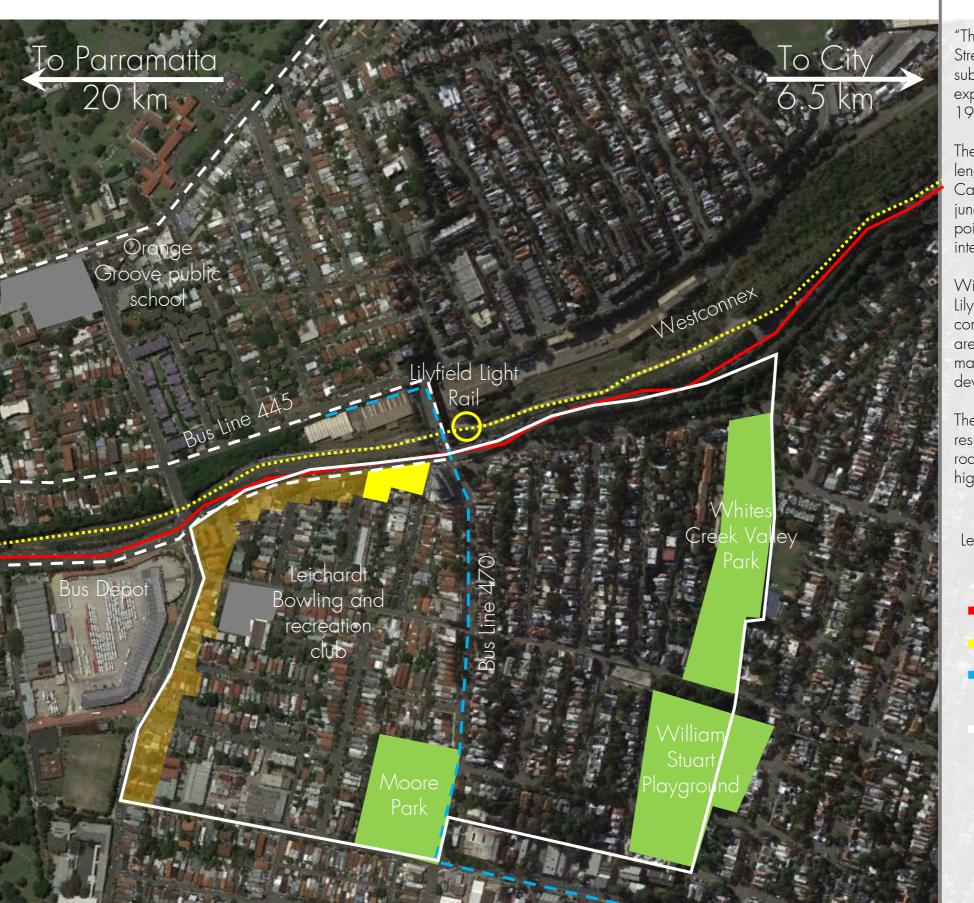
O1 To facilitate development that is consistent with the Desired Future Character and Controls for the Distinctive Neighbourhood.

## Controls

- C1 Maintain the character of the area by keeping development consistent in architectural style, form and materials.
- C2 Maintain and enhance the predominant low scale 'cottage' character of the residential streets.
- Promote the consistent rhythm in the residential streetscapes created by the regular allotment sizes, predominance of detached dwellings and predominance of hipped and gabled roof forms.
- C4 Encourage larger buildings consisting of a variety of accommodation types at the edge of the Distinctive Neighbourhood.
- C5 Preserve the prevalence of mature and/or regularly spaced street trees, as well as mature and visually significant trees on private land.

- Preserve and enhance the aesthetic and environmental significance of the vegetation corridor made up of War Memorial Park, the properties on the southern side of Ilka Street and the Whites Creek Valley.
- C7 Preserve and enhance the availability of views, particularly towards the City.
- 28 Enhance and promote the viability and potential for neighbourhood shops.
- C9 Promote the continuing development of a neighbourhood centre and identity.
- C10 Building wall height is to be a maximum of 3.6m, unless an alternate building wall height is prescribed under the relevant Sub Area controls.
- C11 Neighbourhood shops or buildings originally designed for non-residential use may have a maximum building wall height of 7.2m in order to incorporate a parapet.
- C12 Development is to be consistent with any relevant Sub Area objective(s) and condition(s).

## **Site Context**



"The area making up the 'Catherine Street' Distinctive Neighbourhood was subdivided following the suburban expansion of Leichhardt during the early 1900s.

The Peripheral Sub Area consists of the length of the City West Link west of Catherine Street to the junction of Ralmain Road, and from this

junction of Balmain Road, and from this point on Balmain Road south to the intersection with Moore Street.

With the introduction of the nearby Lilyfield Light Rail stop, and the mix of commercial and residential uses in this area, there is potential for Council to make provision for future multi-unit development around this node.

The location, and mixed residential/commercial character of the road, lends itself to higher density development."\*

Legend



Light Rail

Catherine Street distinctive neighbourhood

Cycle Lane

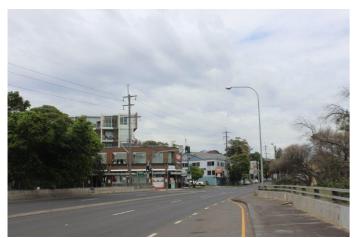
The Peripheral Sub Area

Parks



Catherine Street neighbourhood satellite view Source: Google Earth

## **Site Context**



View 1



View 2



View 3



Catherine Street neighbourhood map view Source: Google Earth



View 4 Source: Google Street View



View 5 Source: Google Street View

"The area making up the 'Catherine Street' Distinctive Neighbourhood was subdivided following the suburban expansion of Leichhardt during the early 1900s.

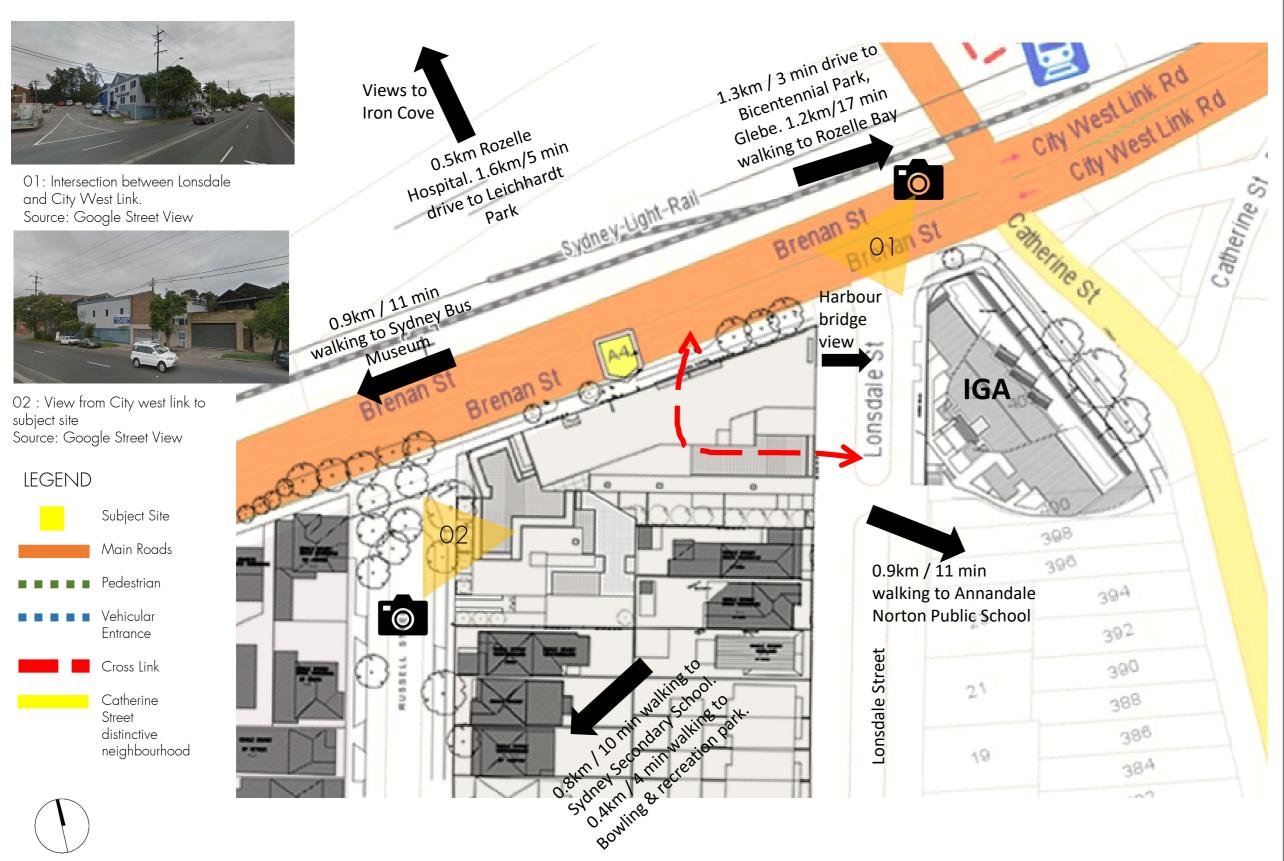
The Peripheral Sub Area consists of the length of the City West Link west of Catherine Street to the junction of Balmain Road, and from this point on Balmain Road south to the intersection with Moore Street.

With the introduction of the nearby Lilyfield Light Rail stop, and the mix of commercial and residential uses in this area, there is potential for Council to make provision for future multi-unit development around this node.

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## Site and Context Analysis



## **AMENITY**

Developments in dense urban centres usually have limited availability to open space, however this development proposes communal open space at the rear of the site. This provides a private landscape for the residents of the development hidden from the public domain. This has a positive effect on the local environment as it creates a green barrier between the proposed development and the single/double storey dwellings behind it.

The proposed development is within walking/driving distance of the following:

- -Lilyfield Light Rail Station and IGA
- -0.9km / 11 min walking to Annandale Norton Public School
- -1.3km / 3 min drive to Bicentennial Park, Glebe. 1.2km/17 min walking to Rozelle Bay
- -0.5km Rozelle Hospital. 1.6km/5 min drive to Leichhardt Park
- -0.9km / 11 min walking to Sydney Bus Museum
- -0.8km / 10 min walking to Sydney Secondary School.
- -0.4km / 4 min walking to Bowling & recreation park

The proposed development will have views of the Harbour bridge and Iron Cove.

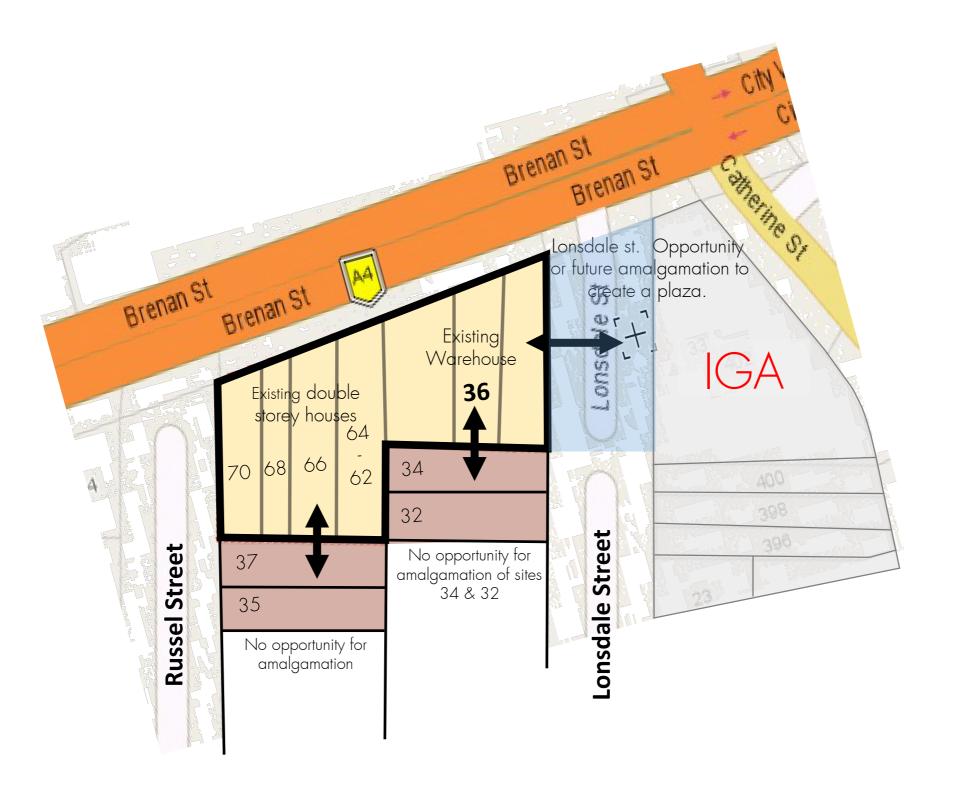
## STRFFT ACTIVATION

The new development will significantly increase the amount of active street frontage, not only to Brenan St but also to Russel St & Lonsdale ST. As outlined in the Urban Study the lane way is undesirable and in need of gentrification. The activation of the laneway along with new cross site link are ingredients for an improved laneway environment.

## CROSS SITE LINK

A new cross site link joins Brenan St to Lonsdale Stree. This allows for easy pedestrian travel in any direction.

## Site and Design Opportunities



## FACILITY INTEGRATION

The existing site currently uses the entire rear of the property for landscaping. The proposal amalgamates lots 36, and lots 62-70. The existing exterior brick façade of the warehouse on Lot 36 is retained and extended to the amalgamated lots 62-70 to maintain the visual characteristics of the area.

## OPPORTUNITY OF

## AMALGAMATION

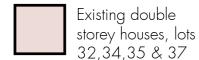
It is important to note that the site as a development has no opportunity to amalgamate with the neighbouring sites in the south to achieve a more desirable development.

With the intention to amalgamate the developer has approached both neighbours to the south with no success.

But the no-through street, Lonsdale Street, between the proposed development and the IGA can be amalgamated to create a plaza which can serve as a community space.

## Legend









# Height of Buildings



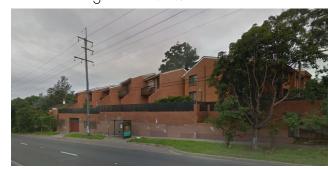
359-365 Catherine St, Lilyfield. Source: Google Street View



402 Catherine St, Lilyfield. Source: Google Street View



13-29 Russel St, Lilyfield. Source: Google Street View



72 Brennan St, Lilyfield. Source: Google Street View



In this analysis we describe the height of the surrounding buildings within the are.

## Legend

Subject Site

1 Store

2 Storeys

3 Storeys

4 Storeys

5 Storeys

6 Storeys

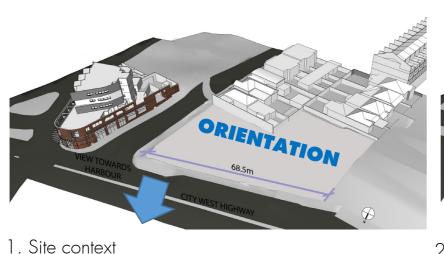
Green areas

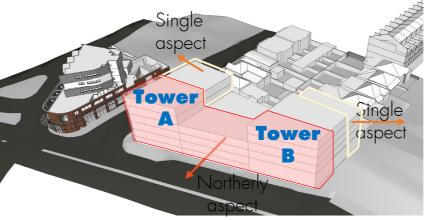
InnerCity Steel Pty



Height of buildings map

# Feasibility / Massing







3. Two separate towers for better architectural articulation

Site context 2. Building Orientation

Initially we came up with the design concept to integrate two towers and podium massing on site for the continuity of building typology inspired from adjacent site.

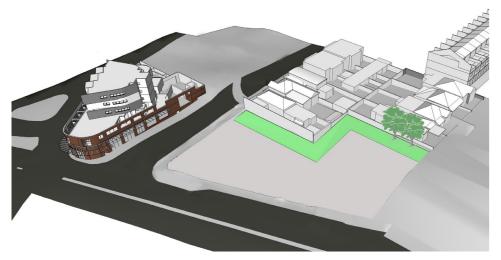
However there are a few limitations with this scheme. Firstly significant overshadowing impact will be imposed to the adjoining southern and eastern properties to the rear; Secondly, the density of the proposal limits the adjoining residents' amenity, i.e. solar access, visual privacy and overlooking.



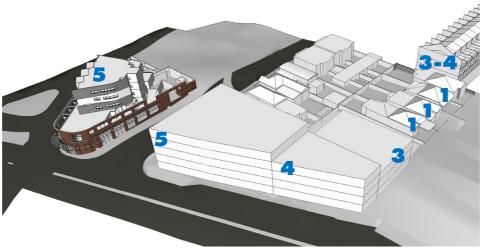


Current Scheme

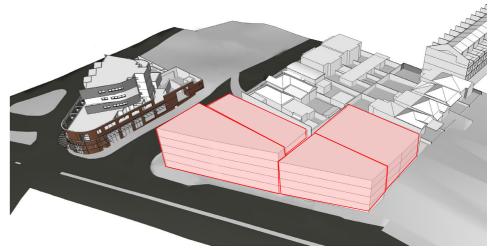
# Refine Building Envelope



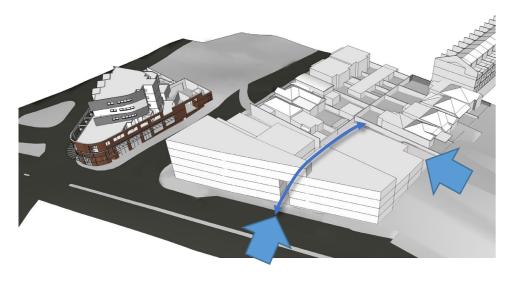
1. RETENTION OF TREES AND LANDSCAPE BUFFER ZONE



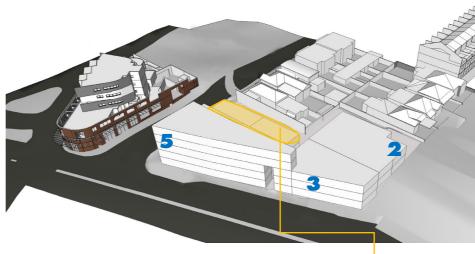
2. HEIGHT OF BUILDING TRANSITION



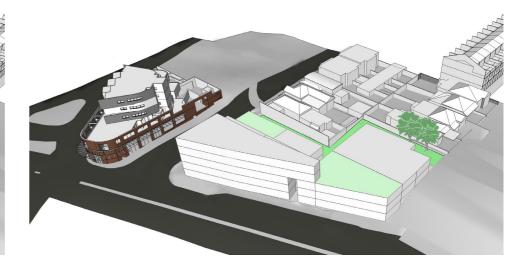
3. BREAK- UP THE MASSING



4. CUT- OUT MASSING FOR CIRCULATION AND CROSS VENTILATION



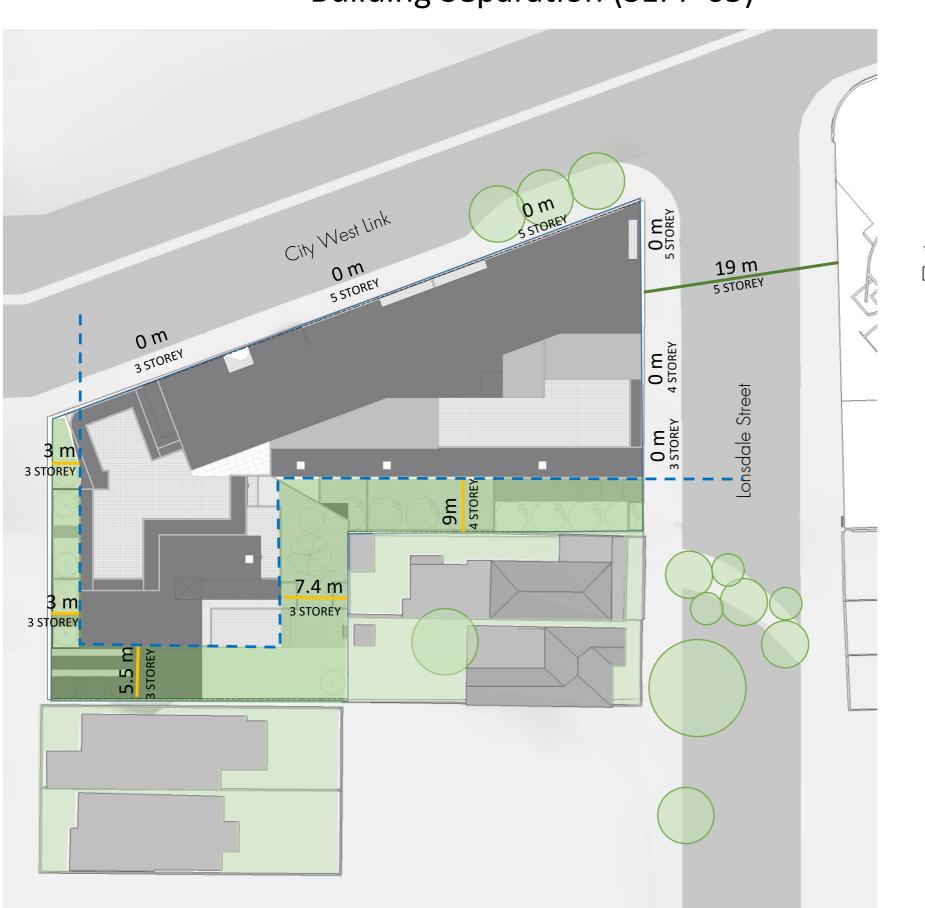
5. ADG BUILDING SEPERATION



6. RESERVE COMMUNAL OPEN SPACE

\* FURTHER SETBACK ON 4<sup>TH</sup> STOREY WHILE REDUCING OVERSHADOWING TO ADJACENT HOUSE

# **Building Separation (SEPP 65)**



\*ALL SITES PRESENTED IN THIS DIAGRAM ARE IN THE SAME ZONE

Legend

Min Building separation

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up to 4 storey – habitable separation from 5 to 8 storey – habitable

## Objective 3F-1

Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy

## Design criteria

 Separation between windows and balconies is provided to ensure visual privacy is achieved.
 Minimum required separation distances from buildings to the side and rear boundaries are as follows:

Building height	Habitable rooms and balconles	Non- habitable rooms
ip to 12m (4 storeys)	6m	3m
ip to 25m (5-8 storeys)	9m	4.5m
ver 25m (9+ storeys)	12m	6m

 Separation distances between buildings on the same site should combine required building separations depending on the type of room (see figure 3F.2)

Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties

## Design guidance

Generally one step in the built form as the height increases due to building separations is desirable. Additional steps should be careful not to cause a 'ziggurat' appearance

For residential buildings next to commercial buildings, separation distances should be measured as follows:

- for retail, office spaces and commercial balconies use the habitable room distances
- for service and plant areas use the non-habitable room distances

New development should be located and oriented to maximise visual privacy between buildings on site and for neighbouring buildings. Design solutions include:

- site layout and building orientation to minimise privacy impacts (see also section 3B Orientation)
- on sloping sites, apartments on different levels have appropriate visual separation distances (see figure 3F.4)

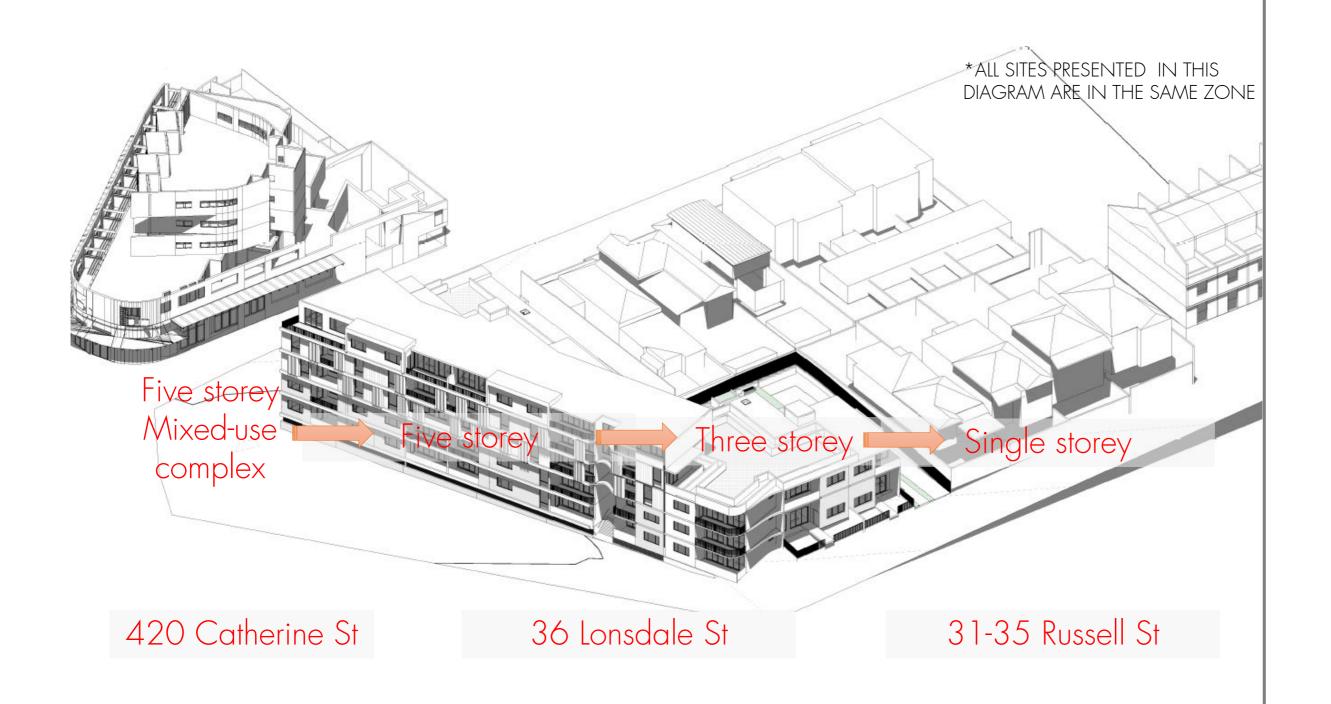
Apartment buildings should have an increased separation distance of 3m (in addition to the requirements set out in design criteria 1) when adjacent to a different zone that permits lower density residential development to provide for a transition in scale and increased landscaping (figure 3F.5)

Direct lines of sight should be avoided for windows and balconies across corners

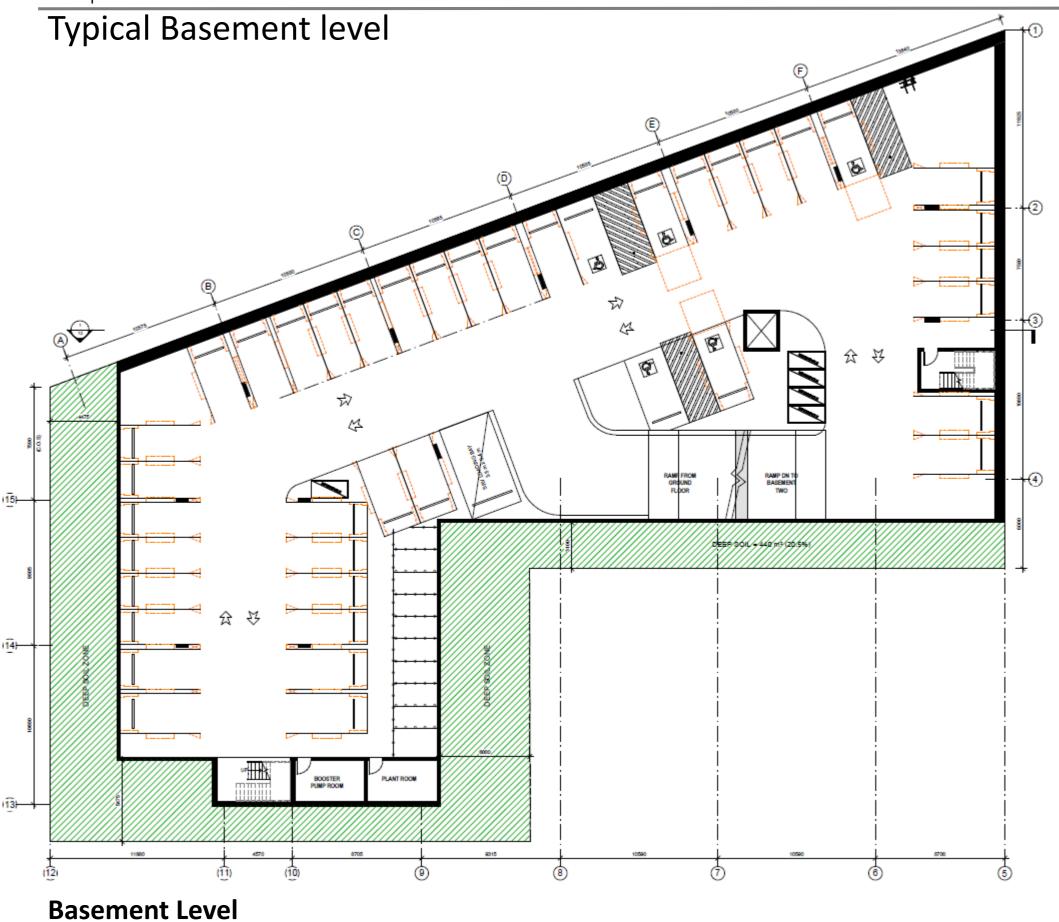
No separation is required between blank walls

\*Excerpt from Apartment Design Guide

# **Building Heights Transition**



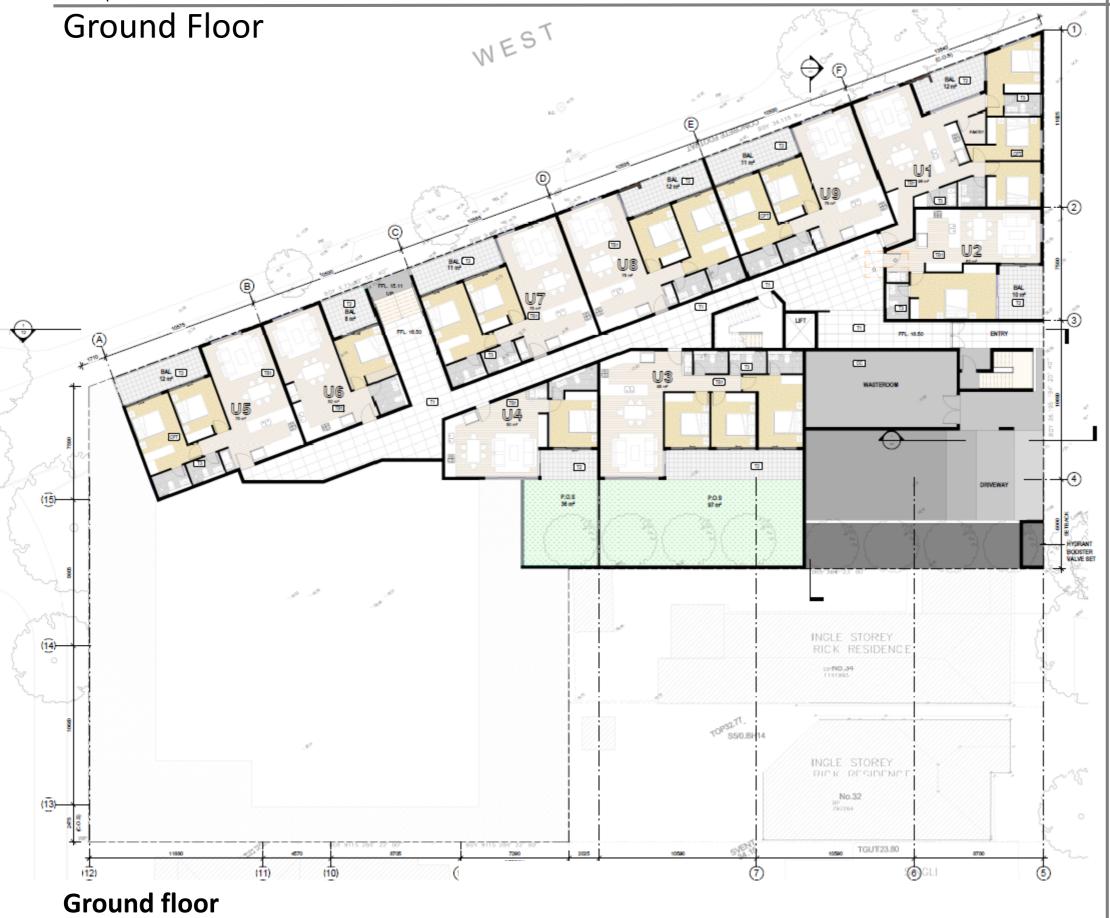
Page 15 \*Excerpt from Apartment Design Guide



The proposal includes a 2 level basement with provision for:

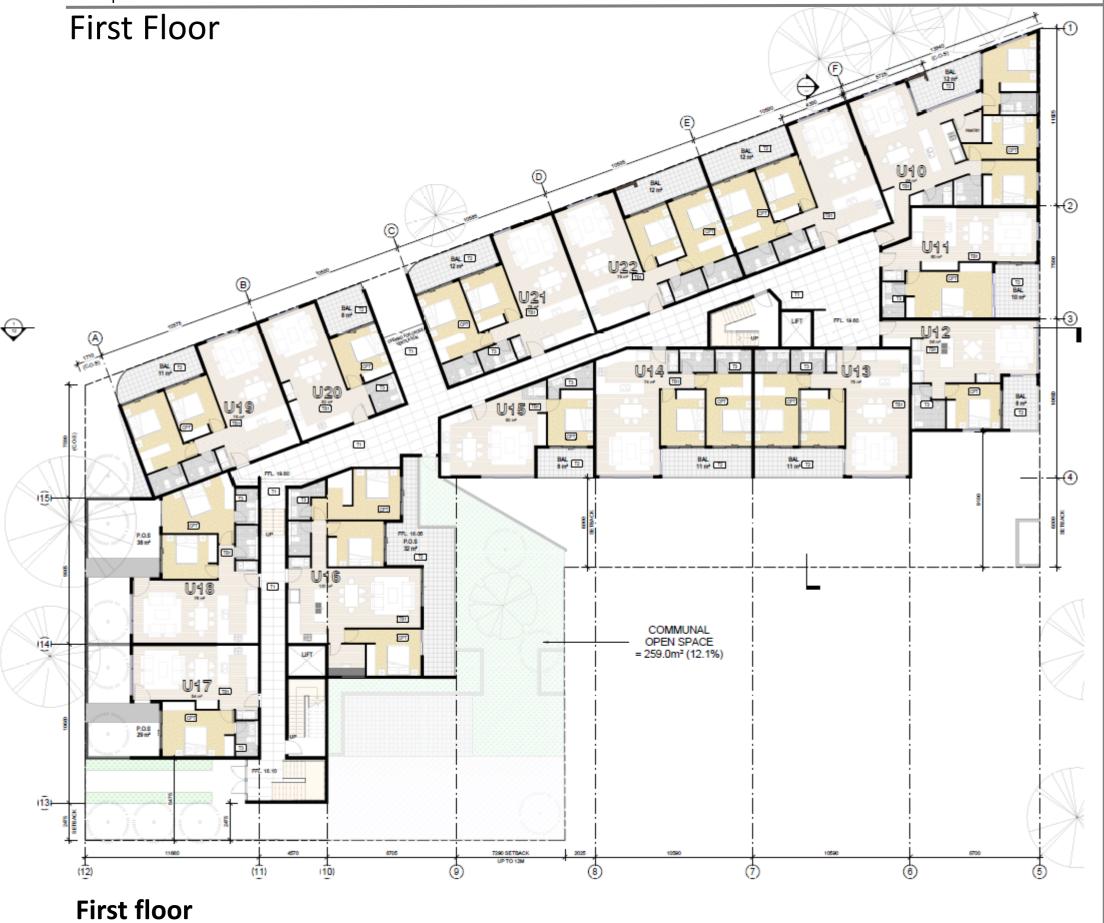
- Plant & services
- Residential parking on the remain two levels
- Storage
- Lift & egress/fire stairs
- Disable, Motorcycle and Bicycle parking
- Stormwater detention
- Shared zones





The ground floor consists of 9 units (Unit 1-9). Pedestrian access and corridors act as a central spine.





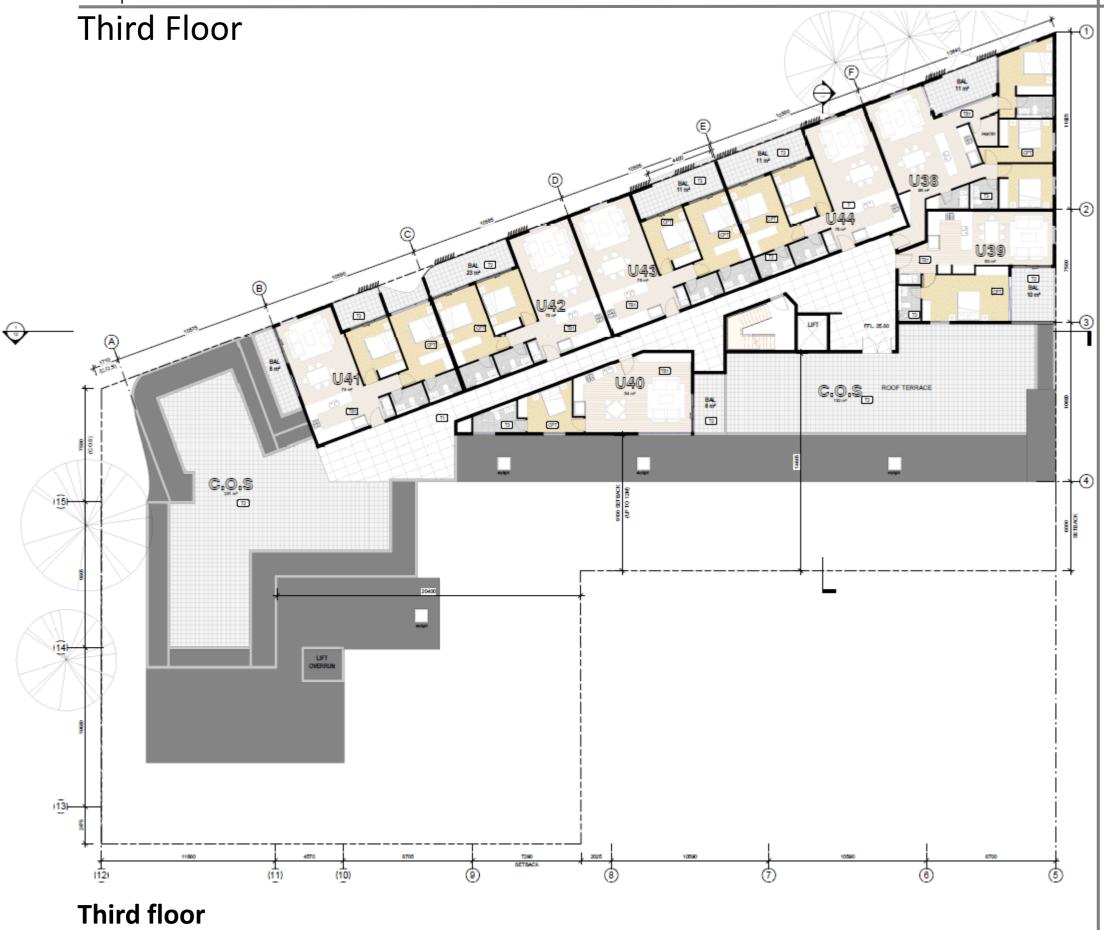
The first floor consists of 14 units (Unit 10-23). Pedestrian access and corridors act as a central spine.





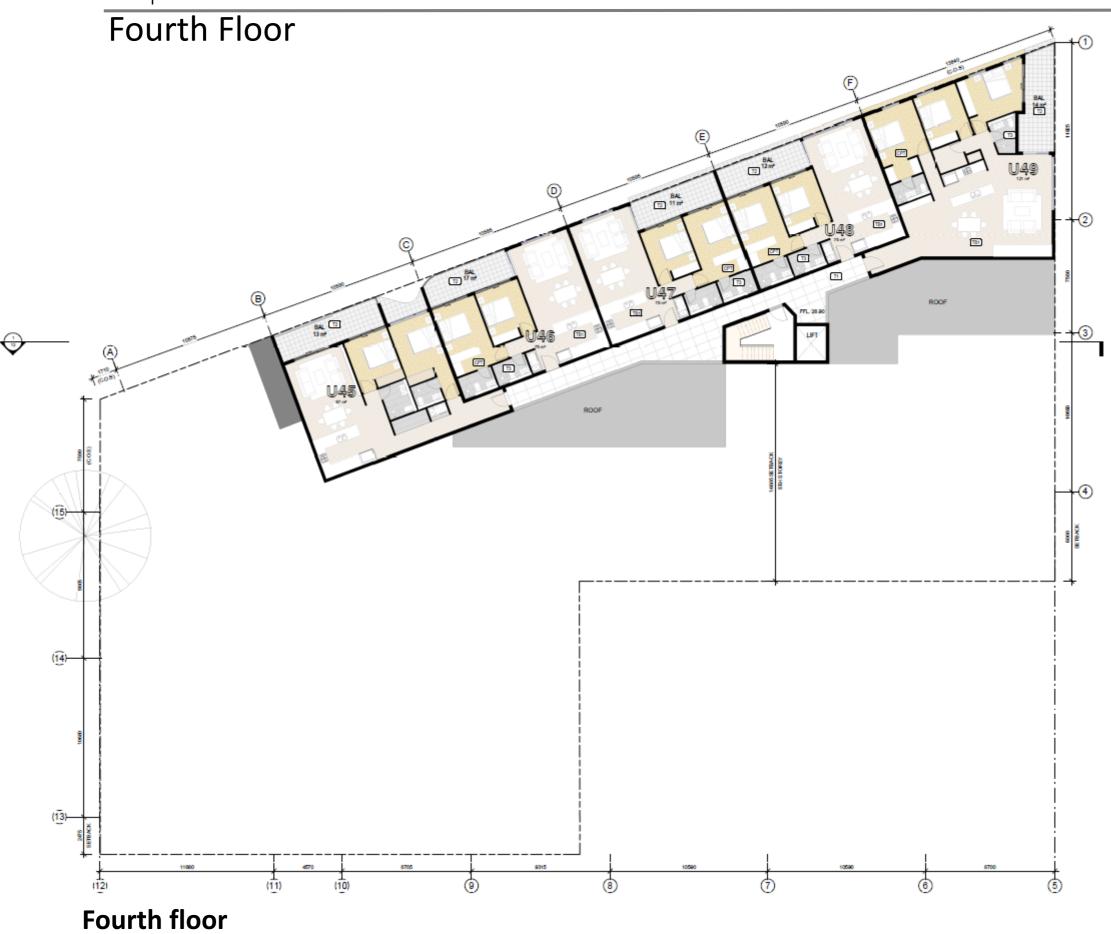
The second floor consists of 14 units (Unit 24-37). Pedestrian access and corridors act as a central spine.





The third floor consists of 7 units (Unit 38-44). Pedestrian access and corridors act as a central spine.





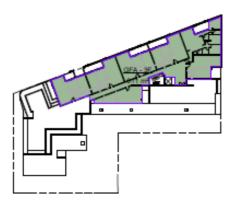
The fourth floor consists of 5 units (Unit 45-49).



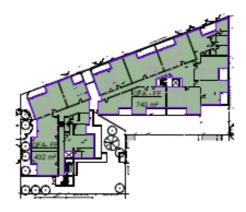
## **Gross Floor Area**



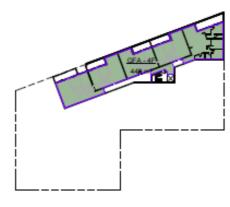
GFA Diagram - Ground Floor Plan



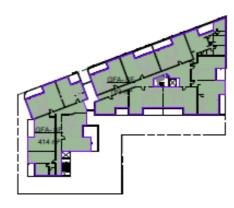
GFA Diagram - Third Floor Plan



GFA Diagram - First Floor Plan



GFA Diagram - Fourth Floor Plan



GFA Diagram - Second Floor Plan

AREA CALCULATION - GROSS FLOOR AREA							
SITE AREA	TOTAL AREA	FSR	PROPOSED FSR				
2145 m²	4208 m²	1.96	2.0				

GROSS FLOOR AREA
means the sum of the floor area of each floor of a building measured from the internal face of external
walls, or from the internal face of walls separating the building from any other building, measured at a
height of 1.4 metres above the floor, and includes—
(a) the area of a meazzanine, and
(b) habitable rooms in a basement or an affic, and
(c) any shop, auditorium, cinema, and the like, in a basement or affic,
but excludes—
(d) any area for common vertical circulation, such as lifts and stairs, and
(e) any basement—
(i) storage, and
(ii) vehicular access, loading areas, garbage and services, and
(f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
(g) car parking to meet any requirements of the consent authority (including access to that car parking),
and
(h) any space used for the loading or unloading of goods (including access to it), and

- and
  (h) any space used for the loading or unloading of goods (including access to it), and
  (i) terraces and balconies with outer walls less than 1.4 metres high, and
  (j) voids above a floor at the level of a storey or storey above.

The gross floor area totals to  $4,208m^2$  over a site area of 2,145m<sup>2</sup>, equalling a FSR of 1.96:1

GROSS FLOOR AREA gross floor area means the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:

- (a) the area of a mezzanine, and
- (b) habitable rooms in a basement or an attic, and
- any shop, auditorium, cinema, and the like, in a basement or attic,  $% \left( 1\right) =\left( 1\right) \left( 1\right)$

### but excludes:

- (d) any area for common vertical circulation, such as lifts and stairs, and
- (e) any basement:
- (ii) vehicular access, loading areas, garbage and services, and
- (f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
- (g) car parking to meet any requirements of the consent authority (including access to that car parking), and (h) any space used for the loading or unloading of goods
- (including access to it), and (i) terraces and balconies with outer walls less than 1.4
- (j) voids above a floor at the level of a storey or storey above.

## **CALCULATIONS**

• GROUND FLOOR = 795 m<sup>2</sup>

 FIRST FLOOR = 1172 m<sup>2</sup>

• SECOND FLOOR = 1177 m<sup>2</sup>

 THIRD FLOOR  $= 611 \text{ m}^2$ 

• FOURTH FLOOR = 448 m<sup>2</sup>

 $TOTAL = 4208 \text{ m}^2$ 

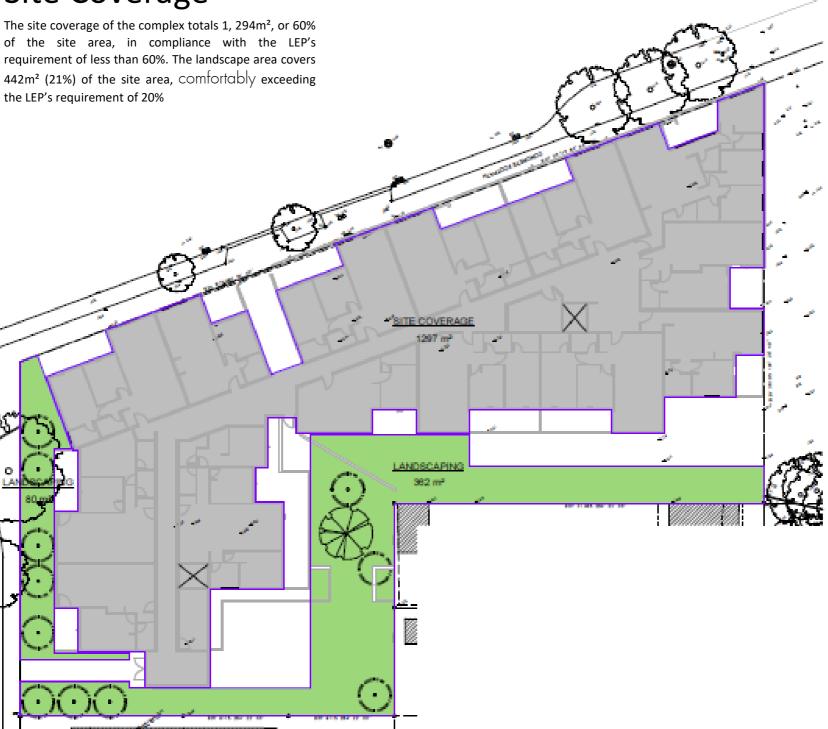
SITE =  $2145 \text{ m}^2$ 

FSR = 1.96:1



Page 22 \*Excerpt from Apartment Design Guide

# Site Coverage



## LEICHHARDT LOCAL ENVIRONMENT PLAN 2013:

- 4.3A Landscaped areas for residential accommodation in Zone R1 (1) The objectives of this clause are as follows:
- The objectives of this clause are as follows:
   (a) to provide landscaped areas that are suitable for substantial tree
  - planting and for the use and enjoyment of residents, (b) to maintain and encourage a landscaped corridor between adjoining properties,
  - (c) to ensure that development promotes the desired future character of the neighbourhood,
  - (d) to encourage ecologically sustainable development by maximising the retention and absorption of surface drainage water on
  - site and by minimising obstruction to the underground flow of water,
    (e) to control site density,
    (f) to limit building footprints to ensure that adequate provision is made for landscaped areas and private open space.
- (2) This clause applies to development for the purpose of residential accommodation on land in Zone R1 General Residential.
- (3) Development consent must not be granted to development to which this clause applies unless:
  - (a) the development includes landscaped area that comprises at least:
     (i) where the lot size is equal to or less than 235 square
  - metres—15% of the site area, or
    (ii) where the lot size is greater than 235 square metres—20% of the
  - site area, and
    (b) the site coverage does not exceed 60% of the site area.
- (4) For the purposes of subclause (3):
  - (a) the site area is to be calculated under clause 4.5 (3), and
  - (b) any area that:
  - (i) has a length or a width of less than 1 metre, or
    (ii) is greater than 500mm above ground level (existing),
  - is not to be included in calculating the proportion of landscaped area,
  - (c) any deck or balcony or the like (whether enclosed or unenclosed) is not to be included in calculating the site coverage if:
  - (i) it is 2.4 metres or more above ground level (existing), as measured from the underside of the structure and the area below the structure is able to be landscaped or used for recreational purposes,
  - (ii) the finished floor level is 500mm or less above ground level

site coverage means the proportion of a site area covered by buildings. However, the following are not included for the purpose of calculating site coverage:

- (a) any baseme
- any part of an awning that is outside the outer walls of a building and that adjoins the street frontage or other site boundary,
- (c) any eaves,
- (d) unenclosed balconies, decks, pergolas and the like.

landscaped area means a part of a site used for growing plants, grasses and trees, but does not include any building, structure or hard paved area.

SITE AREA= 2145 m<sup>2</sup>
SITE COVERAGE = 1297 m<sup>2</sup> or 60%
LANDSCAPE AREA = 442 m<sup>2</sup> or 21%

Legend







# **Building Separation**

**Cross Sections** 



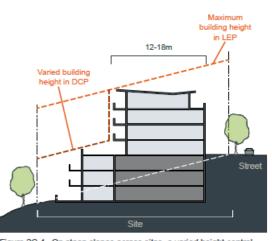


Figure 2C.4 On steep slopes across sites, a varied height control can be applied that steps down towards the lower level of the site and helps create useful residential floor plates (12-18m) addressing the street

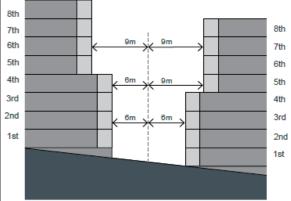


Figure 3F.4 Within the same site, minimum separation should be shared equitably between buildings. On sloping sites, appropriate separation distances ensure visual privacy for apartments on different levels

Legend

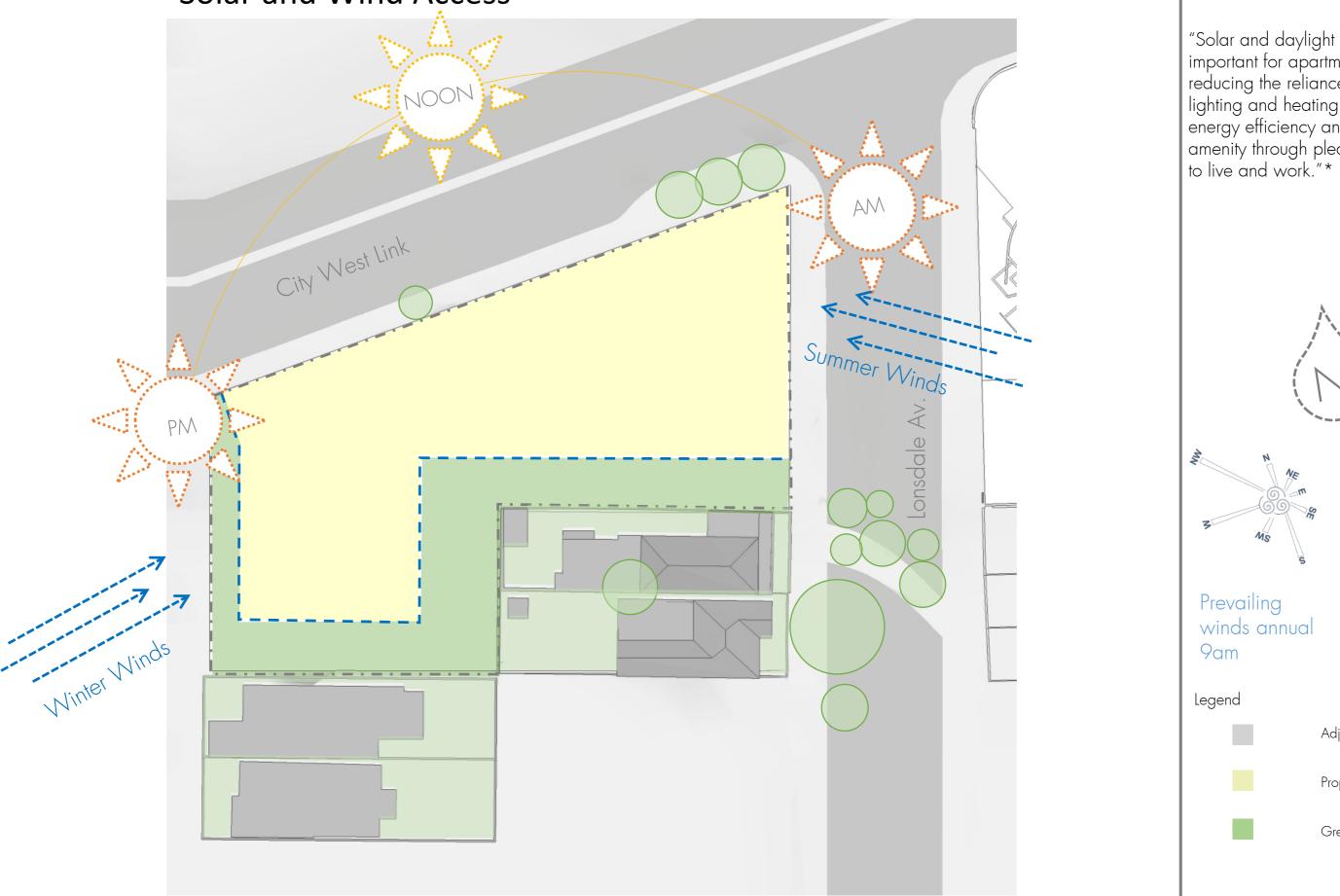
Mir

Min Building separation

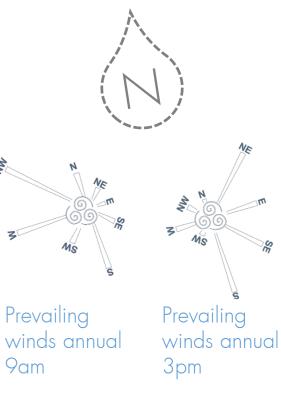
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up to 4 storey – habitable separation from 5 to 8 storey – habitable

# **Solar and Wind Access**



"Solar and daylight access are important for apartment buildings, reducing the reliance on artificial lighting and heating, improving energy efficiency and residential amenity through pleasant conditions to live and work."\*



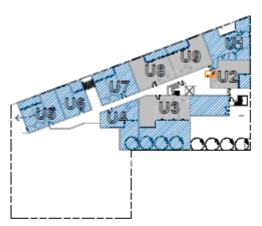
Adjoining Buildings

Proposed footprint

Green Areas



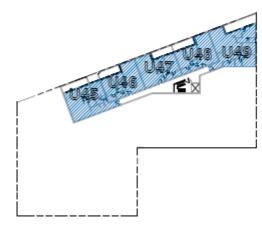
## Natural Ventilation



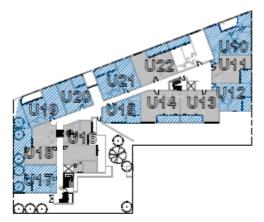
Ground Floor Cross Ventilation



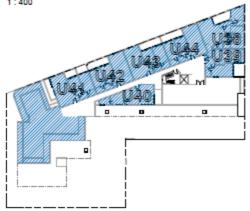
Level 2 Cross Ventilation



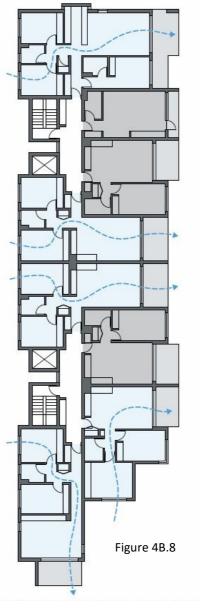
Level 4 Cross Ventilation



Level 1 Cross Ventilation



Level 3 Cross Ventilation



"Natural ventilation is the movement of sufficient volumes of fresh air through an apartment to create a comfortable indoor environment.

Natural cross ventilation is achieved by apartments having more than one aspect with direct exposure to the prevailing winds or windows located in significantly different pressure regions, rather than relying on purely wind driven air."\*

## Objective 4B-3

The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents

## Design criteria

- At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.
- Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line

## Design guidance

The building should include dual aspect apartments, cross through apartments and corner apartments and limit apartment depths

In cross-through apartments external window and door opening sizes/areas on one side of an apartment (inlet side) are approximately equal to the external window and door opening sizes/areas on the other side of the apartment (outlet side) (see figure 4B.4)

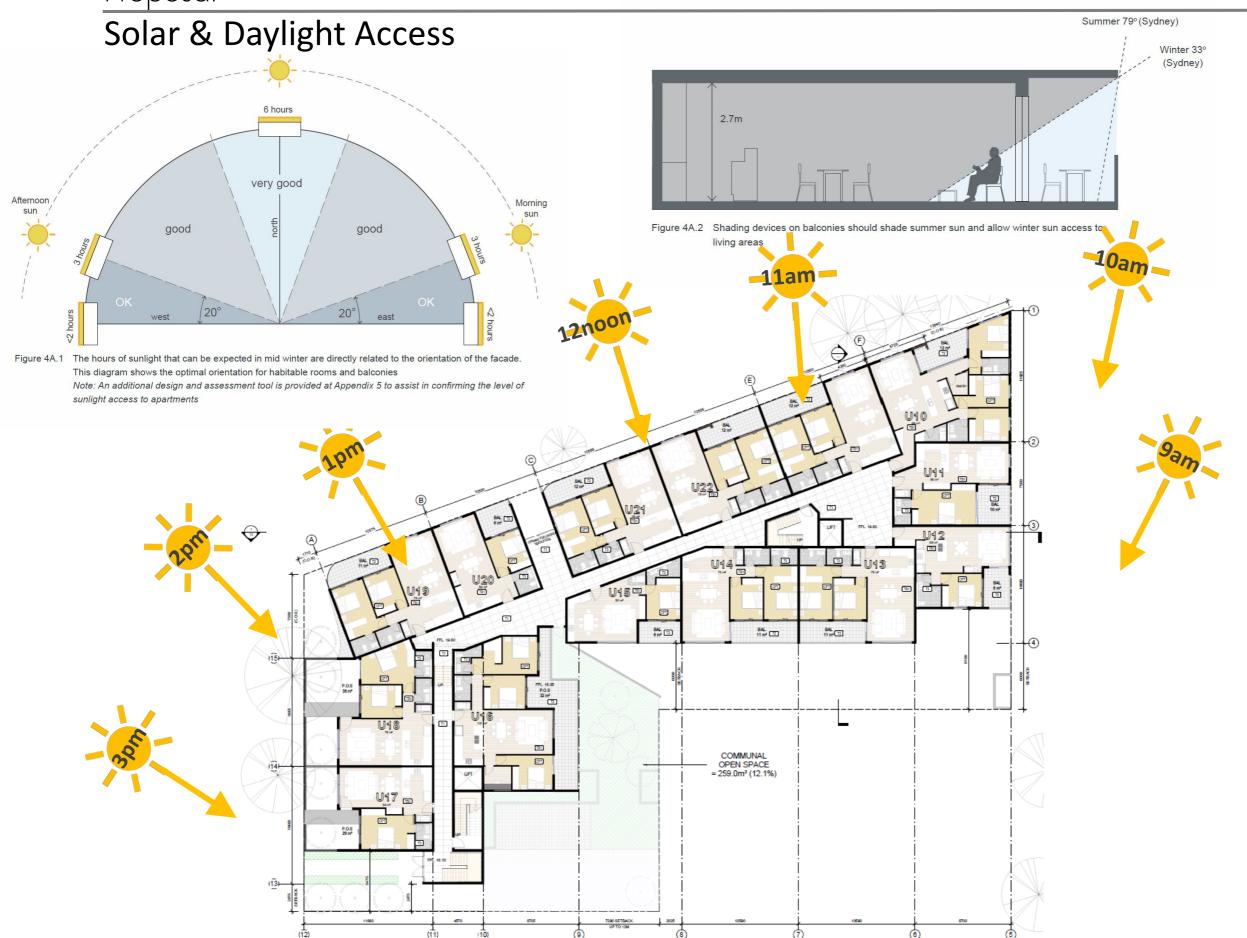
Apartments are designed to minimise the number of corners, doors and rooms that might obstruct airflow

Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation and airflow

ADG CROSS VENTILATION REQUIREMENTS
32 OUT OF 49 UNITS = 65% COMPLIANCE



\*Excerpt from Apartment Design Guide



## Objective 4A-1

To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space

## Design criteria

- Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas
- In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid winter
- A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter

## Design guidance

The design maximises north aspect and the number of single aspect south facing apartments is minimised

Single aspect, single storey apartments should have a northerly or easterly aspect

Living areas are best located to the north and service areas to the south and west of apartments

To optimise the direct sunlight to habitable rooms and balconies a number of the following design features are used:

- · dual aspect apartments
- shallow apartment layouts
- two storey and mezzanine level apartments
- · bay windows

To maximise the benefit to residents of direct sunlight within living rooms and private open spaces, a minimum of 1m<sup>2</sup> of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes

Achieving the design criteria may not be possible on some sites. This includes:

- where greater residential amenity can be achieved along a busy road or rail line by orientating the living rooms away from the noise source
- · on south facing sloping sites
- where significant views are oriented away from the desired aspect for direct sunlight

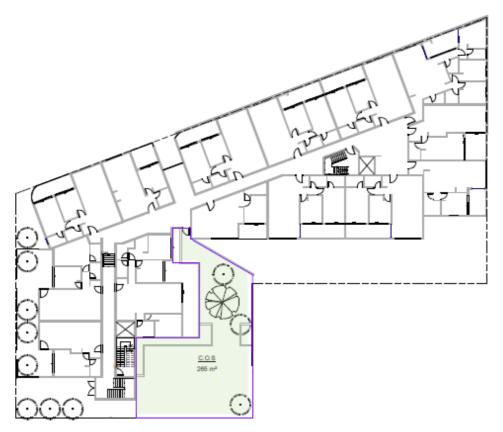
Design drawings need to demonstrate how site constraints and orientation preclude meeting the design criteria and how the development meets the objective

## **Typical Level**

A minimum of at least 70% of apartments in the building will receive at least 2 hours of direct sunlight between 9am and 3pm at mid winter

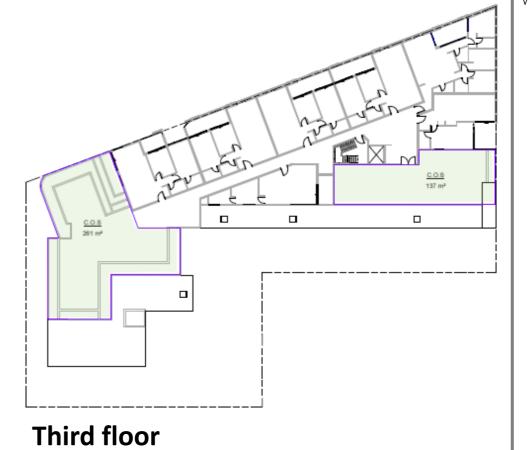
## Proposal Lilifyeld Light rail Public and Private Interface Station In this analysis we depict the main public access to the subject site and the adjoining configuration. Corner expression / Activation retail Legend Adjoining Buildings Proposed footprint Deep Soil Area Building footprint pedestrian Pedestrian Vertical Circulation access Entrance Main vehicular access No through road Pedestrian Entrance Private Single storey Double Public storey residnce

# Communal Open Space



## First floor

C.O.S Calculation- Level 1



C.O.S Calculation - Level 3

DEVELOPMENTS ACHIEVE A MINIMUM OF 50% DIRECT SUNLIGHT TO THE PRINCIPAL USABLE PART OF THE COMMUNAL OPEN SPACE FOR A MINIMUM OF 2 HOURS BETWEEN 9 AM AND 3 PM ON 21 JUNE (MID WINTER)

## Legend

Proposed communal open space

SITE AREA= 2145 m<sup>2</sup>

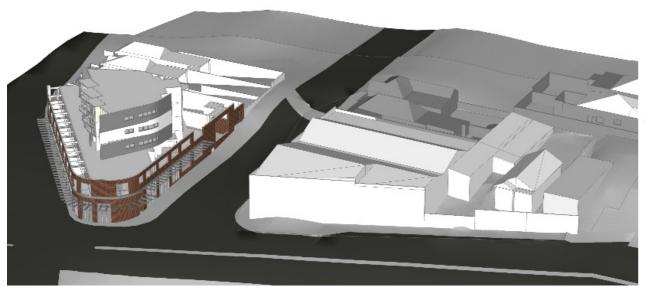
APARTMENT DESIGN GUIDE

DESIGN CRITERIA = 25% OF SITE AREA = 536.25  $m^2$  PROPOSED COMMUNAL OPEN SPACE = 577.1  $m^2$  or 27%



# Proposal Site Attributes Green Space Site Street Activation Residential Existing adjoining houses Site Entrance Site Entrance 35 34 32 Site Entrance

# **Bulk and Form**



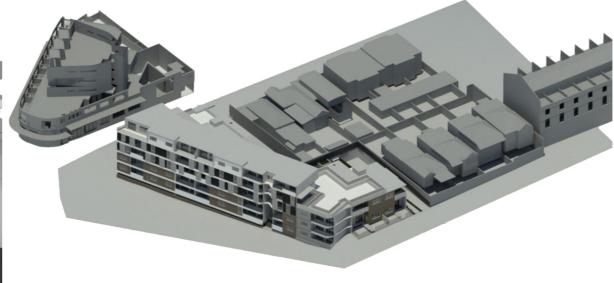


Diagram n.01

Existing building

Diagram n.02 **Envelope Study** 

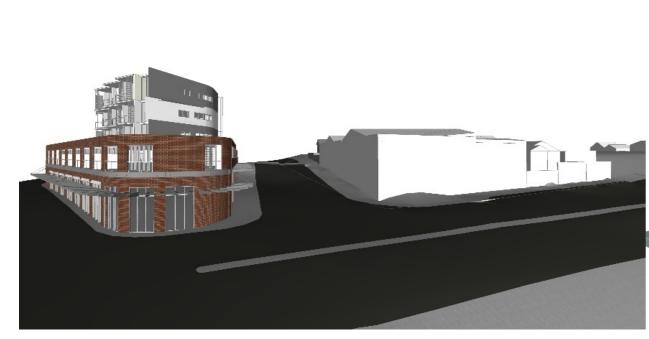






Diagram n.02
Envelope Study

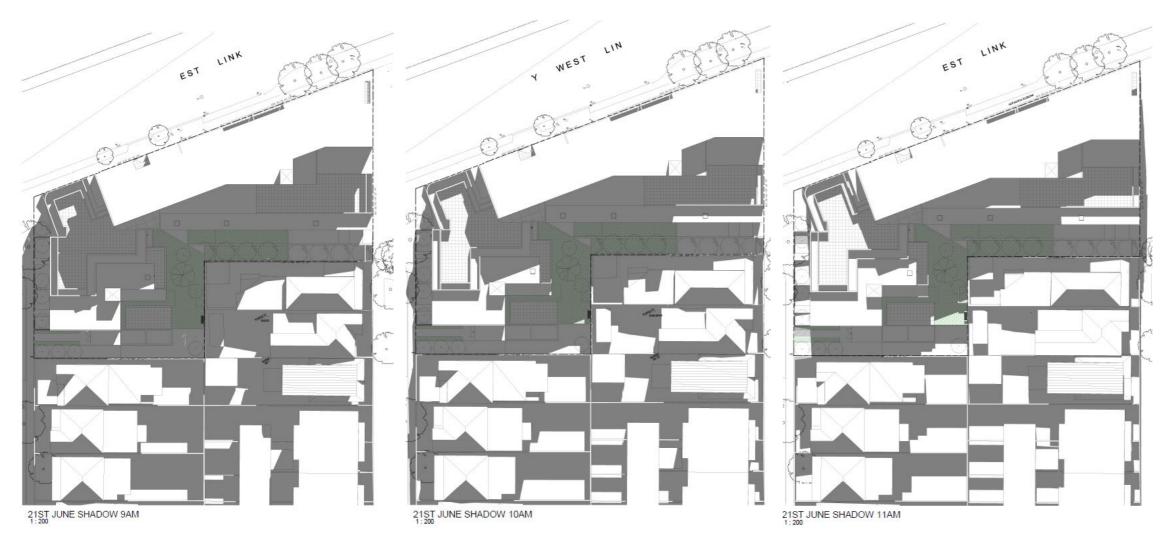
In this analysis we depict a building envelope of three and five storeys for the subject site in comparison to the existing warehouse.

# Perspective



In this analysis we depict a building envelope of three to five storeys for the subject site viewed from City-West Link Road.

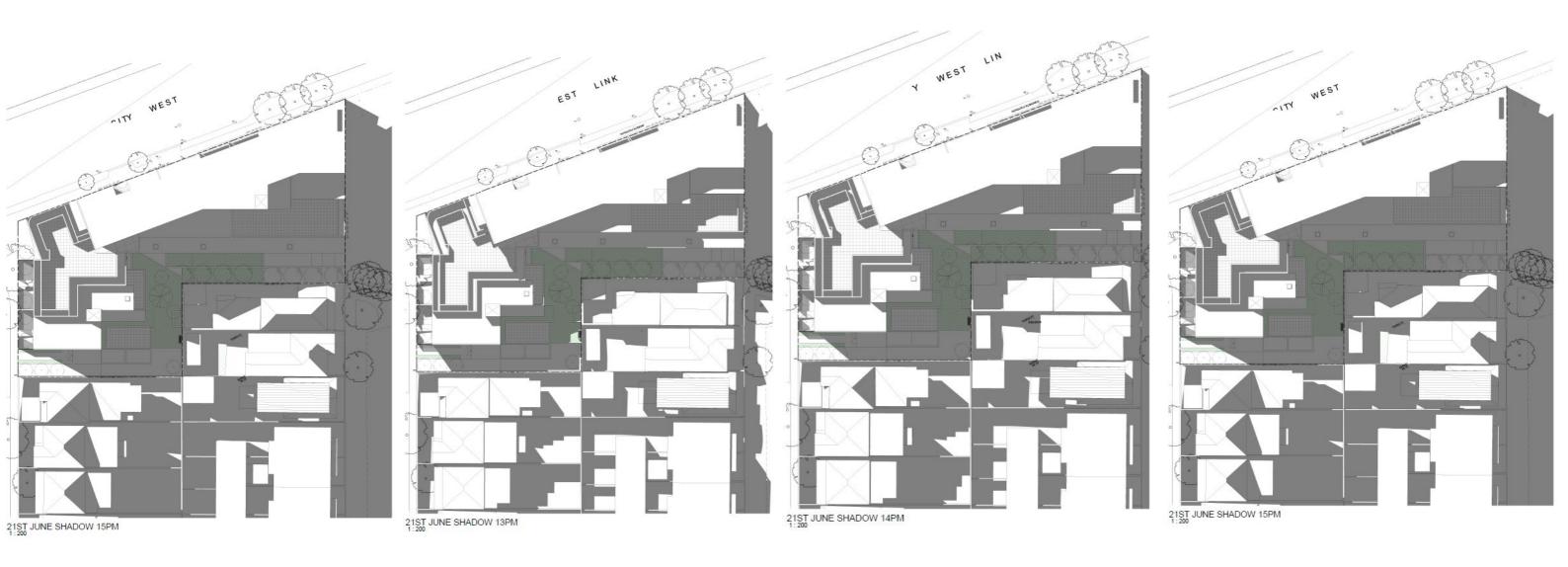
# **Shadow Analysis**



In this analysis we depict the shadow diagrams of a building envelope of three and five storeys for the subject site in comparison to the existing warehouse in different hours on 21st June.

\* No additional shadow cast

# Shadow Analysis



# View Analysis – VIEW 01





PROPOSED



# View Analysis – VIEW 02







# View Analysis – VIEW 02





