

10.2.1 APARTMENTS AMENITIES

Built form that responds to the environment

The residential buildings have been designed to maximise views and access to daylight while minimising wind and noise impacts. Apartment amenity is consistent with the objectives of the Apartment Design Guide (ADG).

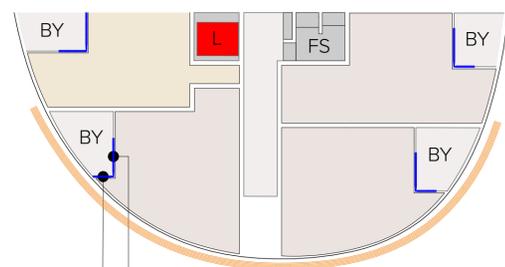
Botany Road presents a significant noise source to the development (70dB background). The apartments directly fronting Botany Road are most affected, though those further into the site also require consideration. To achieve acoustic levels of 55dB to living rooms and 45dB to bedrooms the following planning strategies have been adopted:

- Building orientation reduces frontages facing Botany Road, with no single aspect apartments facing the street
- All balconies are provided as re-entrant to the building facade
- Operable windows are located off protected balconies instead of the external façade
- Bedroom openings typically face east, north or south to minimise potential noise impact from Botany Road to the west
- All glazing/façade fronting Botany Road is not required to be operable to satisfy ventilation requirements.

While Botany Road facing apartments would ordinarily achieve cross ventilation compliance through their corner location, the preclusion of operable openings to exclude noise removes this ability to be counted. Similarly the apartments affected by Botany Road where the balcony and/or living area has been relocated to mitigate noise infiltration removes the ability for these balconies and/or living areas to capture solar access. The resulting cross ventilation and solar access percentages in the illustrative 'noise responsive' scheme are lower than the 'base case' scheme and ADG.

Natural ventilation and solar access complies with NCC requirements.

Vehicular Noise



Operable openings are typically located off the protected balconies and set back from the facade line
 Bedroom openings typically face east, north or south to minimise potential noise impact from Botany Road

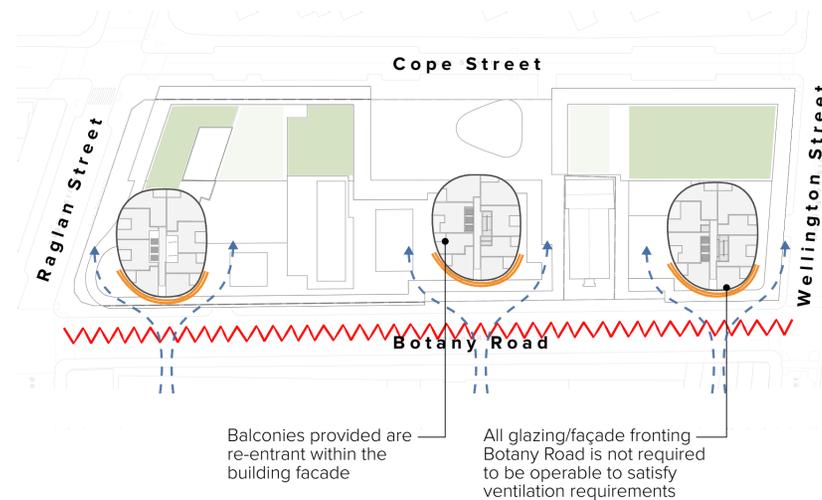


Fig. 10.2.1.1 Wind and ventilation_Taller Buildings

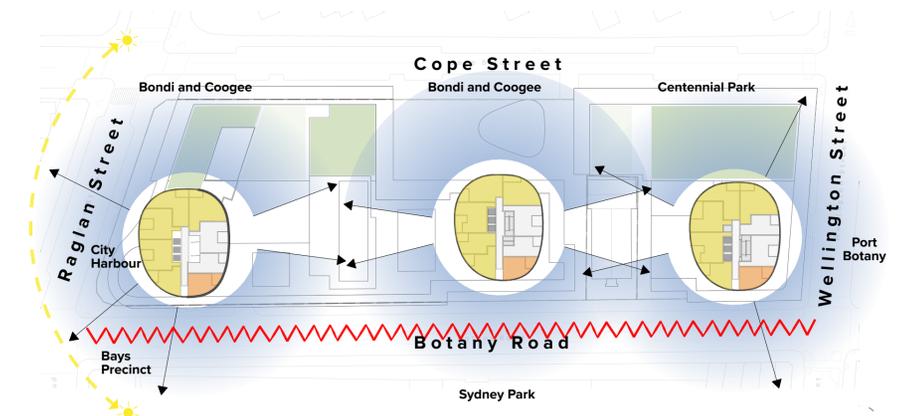


Fig. 10.2.1.2 Solar access and outlook_Taller Buildings

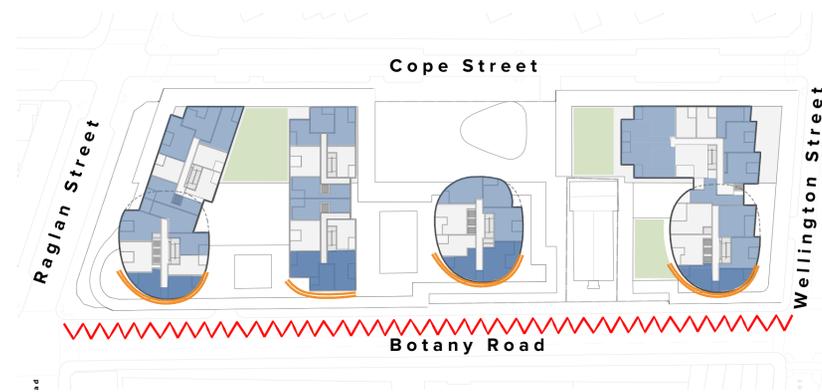


Fig. 10.2.1.3 Wind and ventilation_Mid Rise

- ⚡ Botany Road noise source
- Cross Ventilated Apartments
- Apartments affected by noise. No operable windows to second facade and can not be counted in achieving cross ventilation

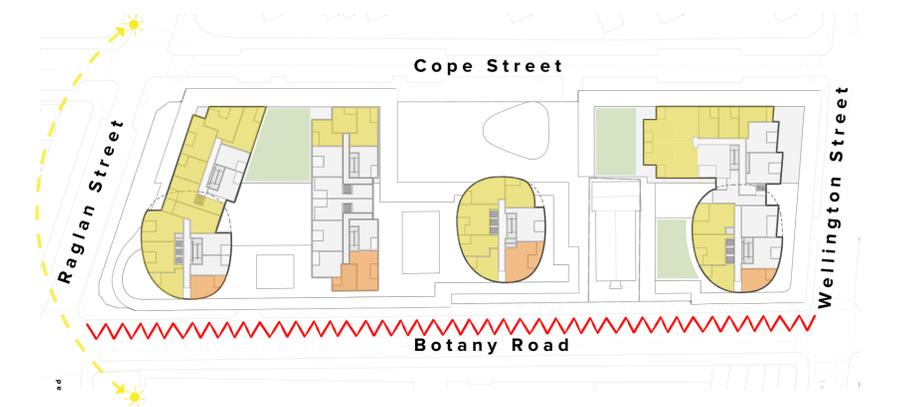


Fig. 10.2.1.4 Solar access and outlook_Mid Rise

- ⚡ Botany Road noise source
- Apartments receiving 2 hours of solar access on the 21st of June
- Apartments affected by Botany Road where the balcony and/or living area has been relocated and no longer receives 2 hours of solar access



10.2.2 SOLAR ACCESS TO OPEN SPACE - WINTER SOLSTICE

The proposed open spaces receive a minimum of 2 hours solar access in midwinter

The Concept Proposal provides a series of communal and publicly accessible privately owned open spaces across the site.

The Raglan Street plaza and the Cope Street plaza deliver publicly accessible open space at the two arrival spaces to the station.

Communal open space is provided as podium and rooftop gardens, elevated above the active ground plane.

The publicly accessible and communal area provision across the site equates to 15 and 25 percent of the site area respectively, in line with the objectives of the Apartment Design Guide (ADG) and the requirements of the City of Sydney.

These spaces achieve a minimum of 50 percent direct sunlight to the principal usable part of the open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter), in line with the objectives of the Apartment Design Guide (ADG).

Site Area (nett)	1.28 ha
Communal Open Space	3,200 m ² (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1,920 m ² (15% of the site)

Legend

- Boundary
- Publicly Accessible (Privately Owned) Open Space
- Communal Open Space
- ✓ Achieves Solar Access



Fig. 10.2.2.1 Solar Access to publicly accessible and communal open space - Winter Solstice

SOLAR ACCESS TO OPEN SPACE - EQUINOX

The proposed open spaces receive a minimum of 3 hours of solar access at the equinox in march and september



Site Area (nett)	1.28 ha
Communal Open Space	3,200 m ² (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1,920 m ² (15% of the site)

Legend

- Boundary
- Publicly Accessible (Privately Owned) Open Space
- Communal Open Space
- ✓ Achieves Solar Access

Fig. 10.2.2.2 Solar Access to publicly accessible and communal open space - Equinox

10.2.3 SOLAR ACCESS TO ADJACENT CONTEXT

To assess the potential solar impact of the proposal on the adjacent context, a detailed analysis of the following developments and open spaces has been undertaken:

- Alexandria Park
- Alexandria Park Heritage Conservation Area
- 62 - 72 Botany Road (existing neighbouring apartment development)
- 74 - 88 Botany Road (Planning Proposal in progress)
- 74 Wyndham Street
- 122 - 136 Wellington Street
- 133 & 149 Wellington Street (existing neighbouring apartment development)
- 125 Cope Street (existing neighbouring apartment development)

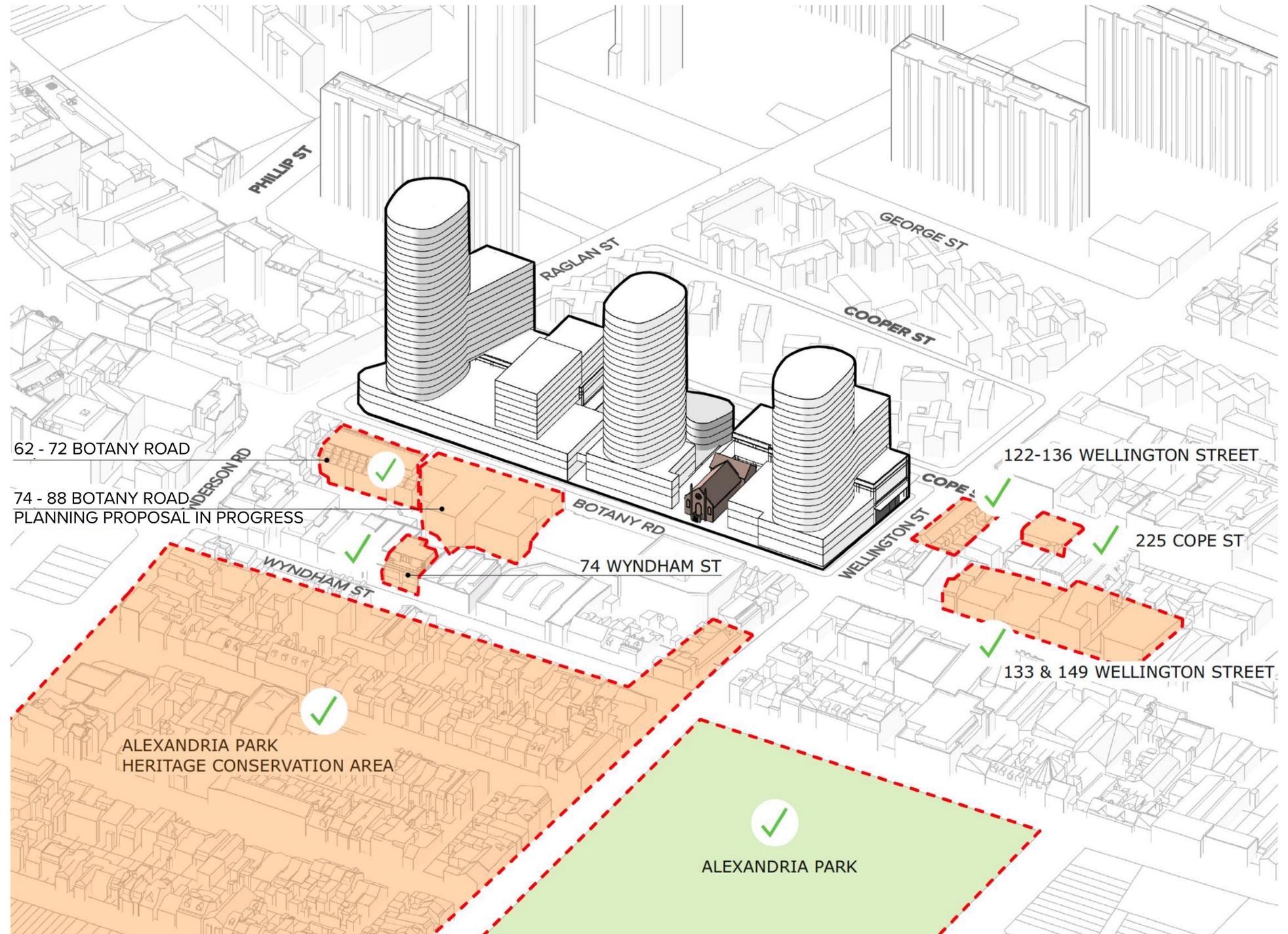


Fig. 10.2.3.1 Solar Access to adjacent context



Neighbouring buildings receive a minimum of 2 hours of solar access in mid-winter

The concept proposal has been developed with consideration to the amenity of the surrounding context.

The solar access of surrounding residential dwellings has been studied at the Winter Solstice to ensure compliance with the objectives of the Sydney Development Control Plan 2012 and the Apartment Design Guide.

The Apartment Design Guide (ADG) requirements are as follows:

Living rooms and private open space of at least 70 percent of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter.

The proposal achieves solar access requirements for neighbouring apartment developments, as identified in the following study.

The City of Sydney DCP 2012 requirements are as follows:

Section 4
Solar access requirement for residential buildings not covered under the ADG.

Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1 m² of living room window and a least 50 percent of the minimum required private open space.

The proposal achieves solar access requirements for neighbouring dwellings, as identified in the following diagrams.

Legend

-  Living room windows
-  Windows to rooms other than living areas
-  Achieves Solar Access

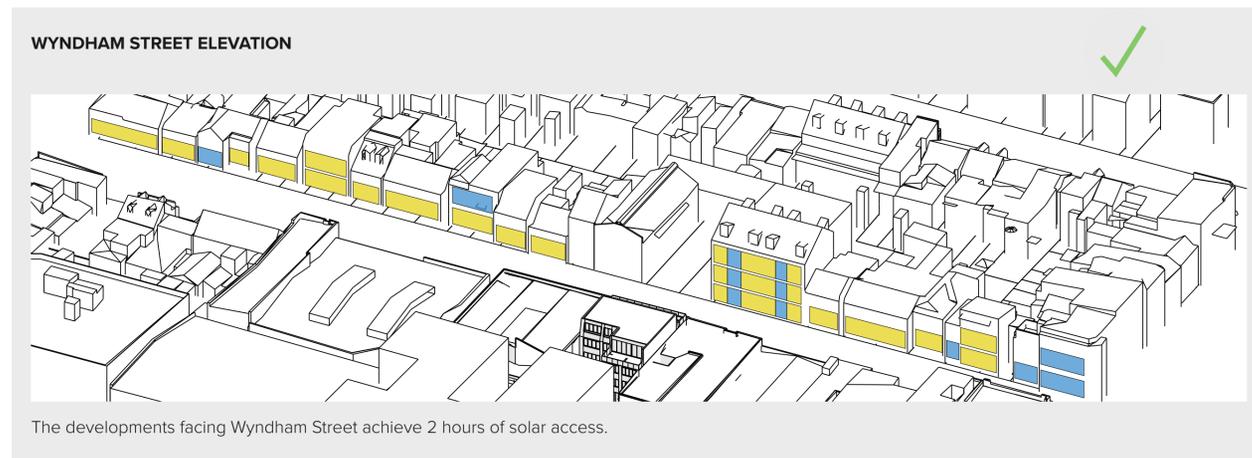
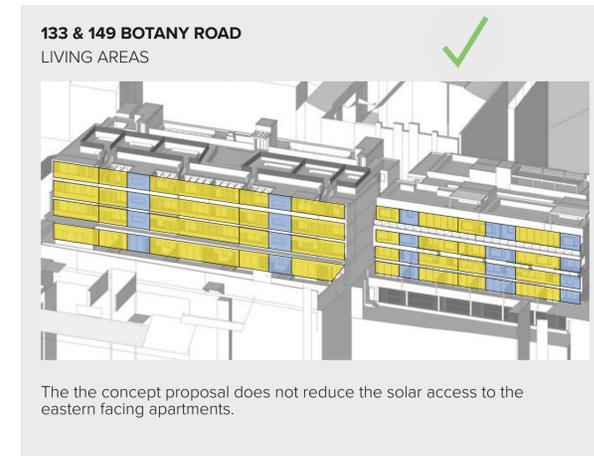
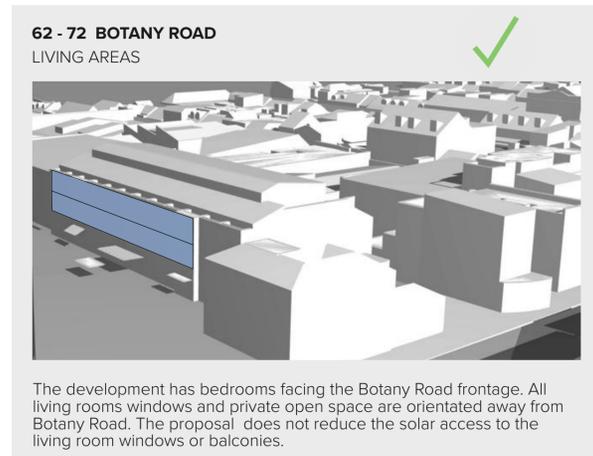
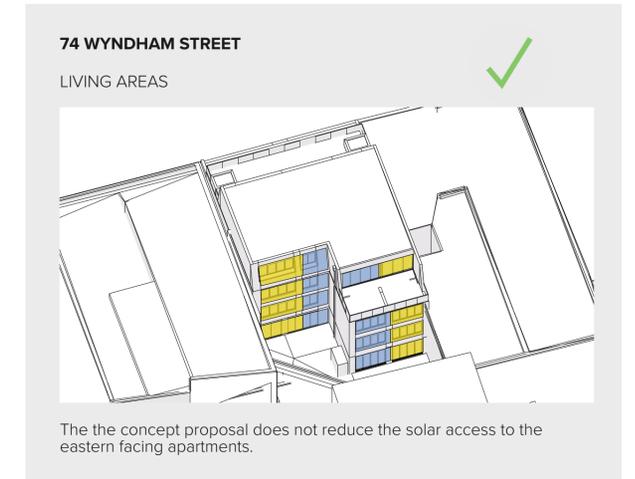
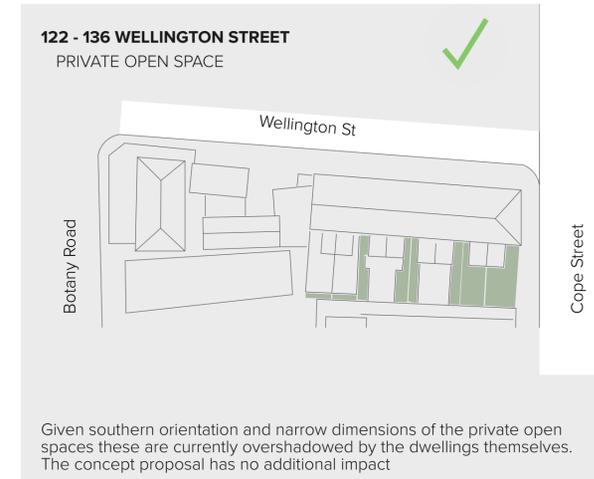
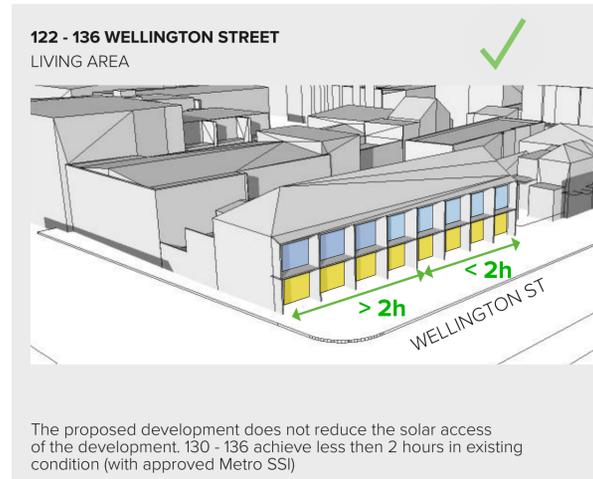
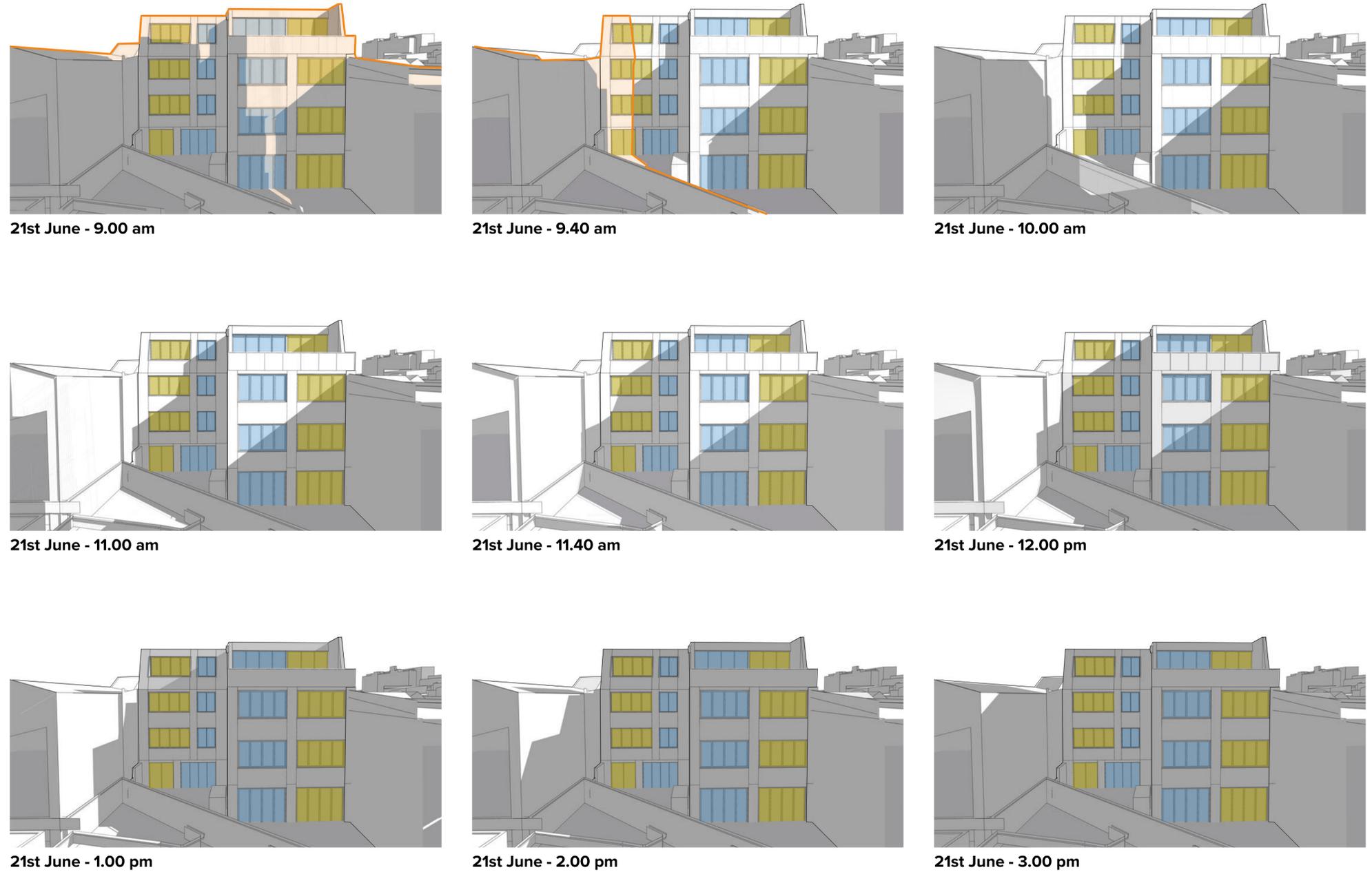


Fig. 10.2.3.2 Solar access to adjacent dwellings



74 WYNDHAM STREET

The the concept proposal does not reduce the solar access to the eastern facing apartments.



Legend

- Living room windows
- Windows to rooms other than living areas
- Shadow cast by proposed development

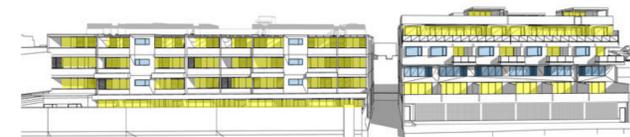
Fig. 10.2.3.3 Solar access to adjacent dwellings - 74 Wyndham Street

133-149 BOTANY ROAD

The the concept proposal does not reduce the solar access to the eastern facing apartments.



21st June - 9.00 am



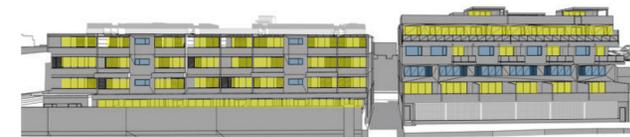
21st June - 10.00 am



21st June - 11.00 am



21st June - 12.00 pm



21st June - 1.00 pm



21st June - 2.00 pm



21st June - 3.00 pm

Legend

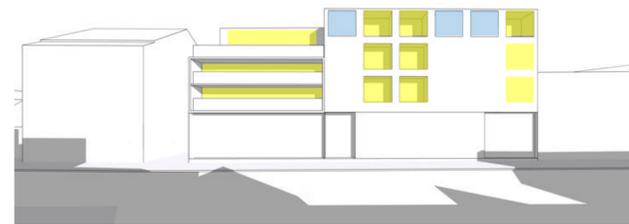
- Living room windows
- Windows to rooms other than living areas
- Shadow cast by proposed development

Fig. 10.2.3.4 Solar access to adjacent dwellings - 133-149 Botany Road

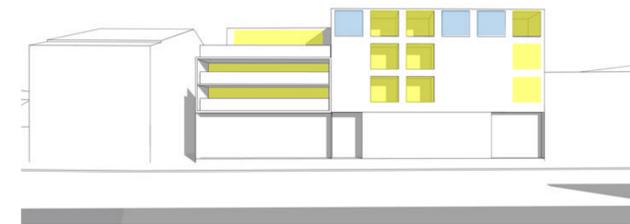


180-184 COPE STREET

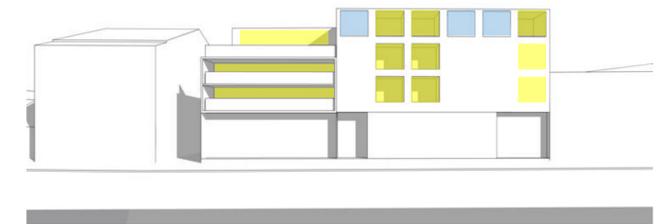
The the concept proposal does not reduce the solar access to the eastern facing apartments.



21st June - 9.00 am



21st June - 10.00 am



21st June - 11.00 am

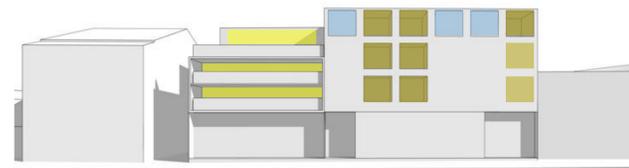
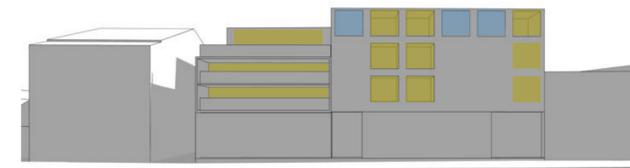
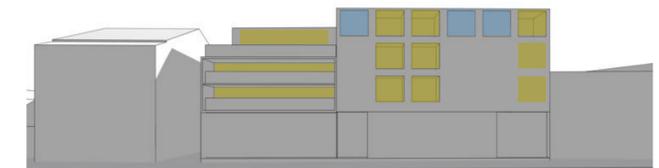


Fig. 10.2.3.4 Solar access to adjacent dwellings - 133-149 Botany Road

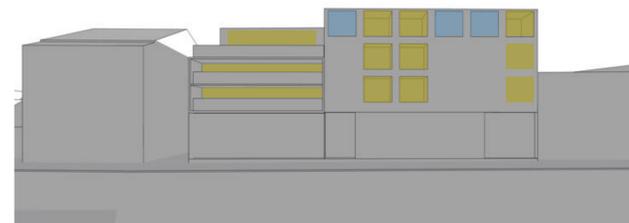
21st June - 12.00 pm



21st June - 1.00 pm



21st June - 2.00 pm



21st June - 3.00 pm

Legend

- Living room windows
- Windows to rooms other than living areas
- Shadow cast by proposed development

Fig. 10.2.3.5 Solar access to adjacent dwellings - 180-184 Cope Street

GARDEN STREET & WYNDHAM STREET

The developments facing Wyndham Street and Garden Street achieve 2 hours of solar access.



21st June - 9.00 am



21st June - 10.00 am



21st June - 10.30 am



21st June - 11.00 am



21st June - 12.00 pm



21st June - 12.30 pm

Legend

- Living room windows
- Windows to rooms other than living areas
- Shadow cast by proposed development

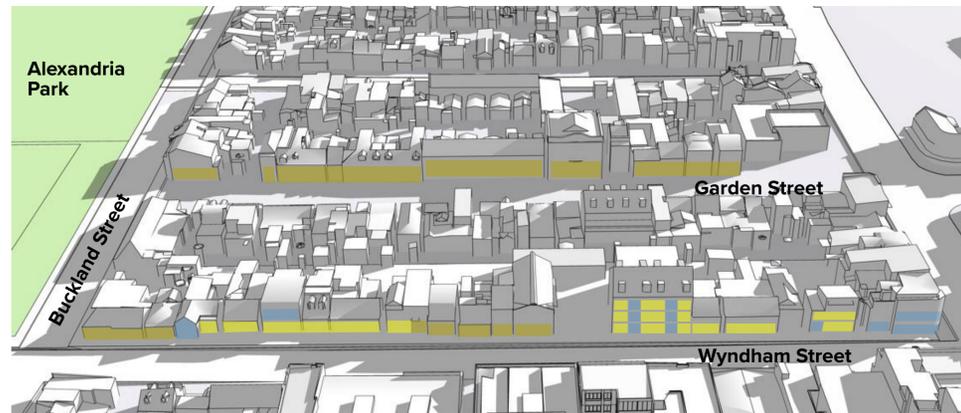
Fig. 10.2.3.5 Solar access to adjacent dwellings - 180-184 Cope Street



21st June - 1.00 pm



21st June - 2.00 pm



21st June - 3.00 pm

Legend

-  Living room windows
-  Windows to rooms other than living areas
-  Shadow cast by proposed development

SOLAR ACCESS TO ALEXANDRIA PARK - WINTER SOLSTICE

Neighbouring public open space receives 4 hours and private open space receives 2 hours solar access

The following analysis shows the solar access to the public open space and private open spaces in the Alexandria Park Heritage Conservation Area on the Winter Solstice.

The City of Sydney DCP 2012 requirements are as follows:

Section 4
Solar access requirement for residential buildings not covered under the ADG.

Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1 m² of living room windows and a least 50 percent of the minimum required private open space.

The proposal achieves solar access requirements for the private open spaces of the dwellings located in the Alexandria Park Heritage Conservation Area, in excess of the required 50 percent area and 2hrs solar access between 9am-3pm.

Section 3
Solar access requirements for public open space

In relation to parks (i.e. non linear public open space) 50 percent of the total area is to receive sunlight for 4 hours between 9am and 3pm on 21 June.

The proposal achieves solar access requirements for Alexandria Park well in excess of the required 50 percent 4hrs solar access between 9am-3pm.



KEY PLAN



✓ 21 June - 11.00 am



✓ 21 June - 2.00 pm



✓ 21 June - 9.00 am



✓ 21 June - 12.00 pm



✓ 21 June - 3.00 pm



✓ 21 June - 10.00 am



✓ 21 June - 1.00 pm

Legend

- Proposed shadows
- Private Open Space
- Heritage Conservation Area
- Achieves Solar Access

Fig. 10.2.3.6 Solar access to Alexandria Park and Alexandria Heritage Conservation Area - Winter Solstice



SOLAR ACCESS TO ALEXANDRIA PARK - EQUINOX

The Metro Quarter concept proposal does not reduce the sun access and amenity to the neighbouring public open space and private open space at the equinox.



Fig. 10.2.3.7 Solar access to Alexandria Park and Alexandria Heritage Conservation Area - Equinox

10.2.4 PEDESTRIAN ENVIRONMENT

The wind tunnel analysis has been prepared with the massing presented at the PRP meeting in February.

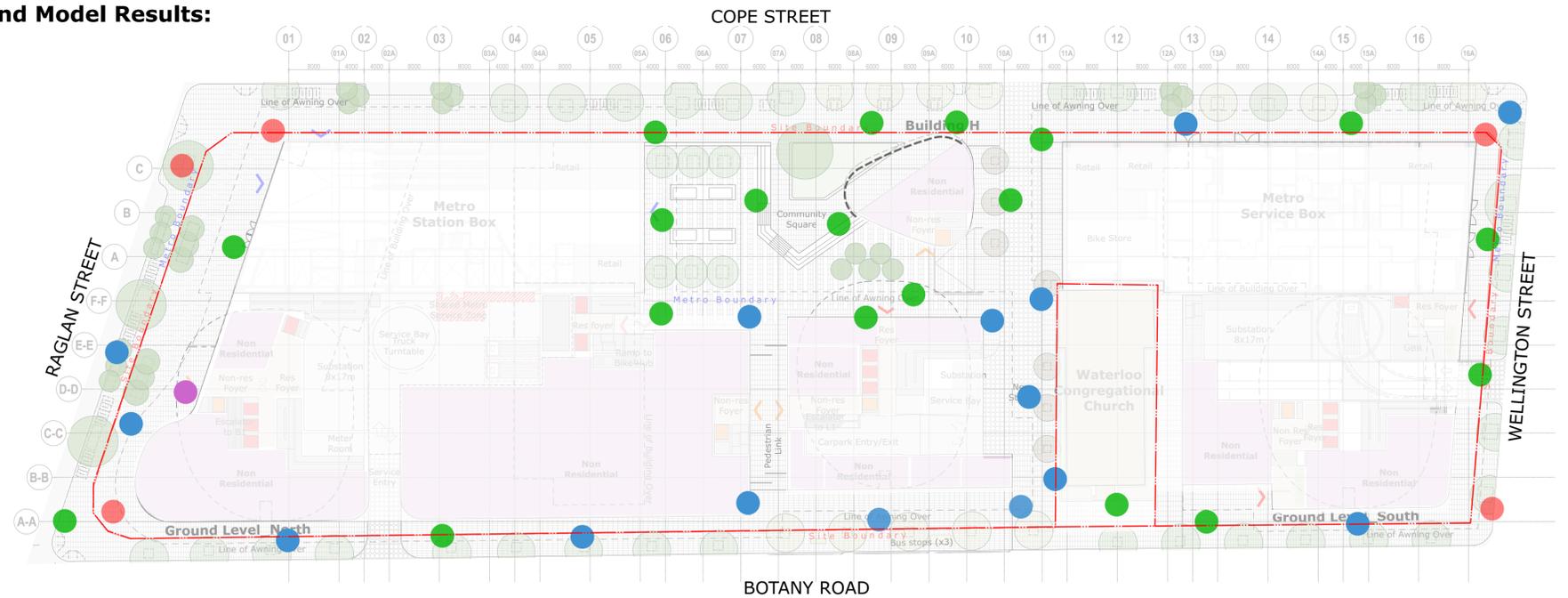
It does not include awnings as they are generally not included at this level of detail /stage of project.

Windtech advised that the introduced setback to Wellington Street and the continuous awning at ground level will mitigate the areas currently exceeding comfortable walking level.

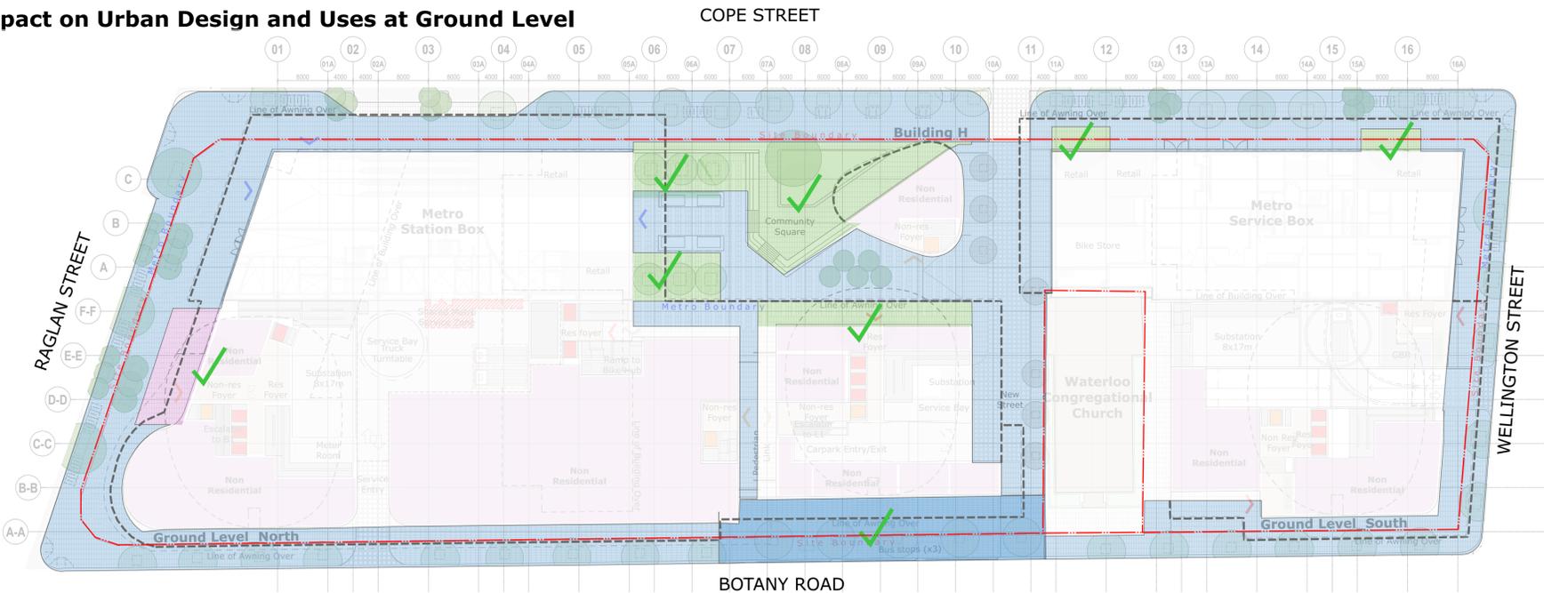
Windtech confirms the outcomes from the modelling done to date support the rezoning.

Detailed development applications will demonstrate ameliorative treatments comply with the relevant controls and standards.

Wind Model Results:



Impact on Urban Design and Uses at Ground Level



Legend

- Exceeds Comfortable Walking Criteria
- Meets Comfortable Walking Criteria
- Meets Shot Exposure Criteria (Cafe seating up to 30 min)
- Meets Long Exposure Criteria
- Walking
- Walking and Waiting
- Seating
- Line of Awning Over

Fig. 10.2.4 Pedestrian Environment



10.2.5 POTENTIAL STAGING

Delivery can be staged to maintain the use of the Metro and surrounds

The design has considered the opportunity for staged delivery while maintaining full access and functionality to the Metro station and surrounds.

The key public domain and community elements are intended to be delivered upfront, providing a lively, integrated community space at the opening of the station.

The residential buildings have the potential to be delivered separately to allow agility in response to market demands.

A potential staging strategy is shown in the following diagrams.

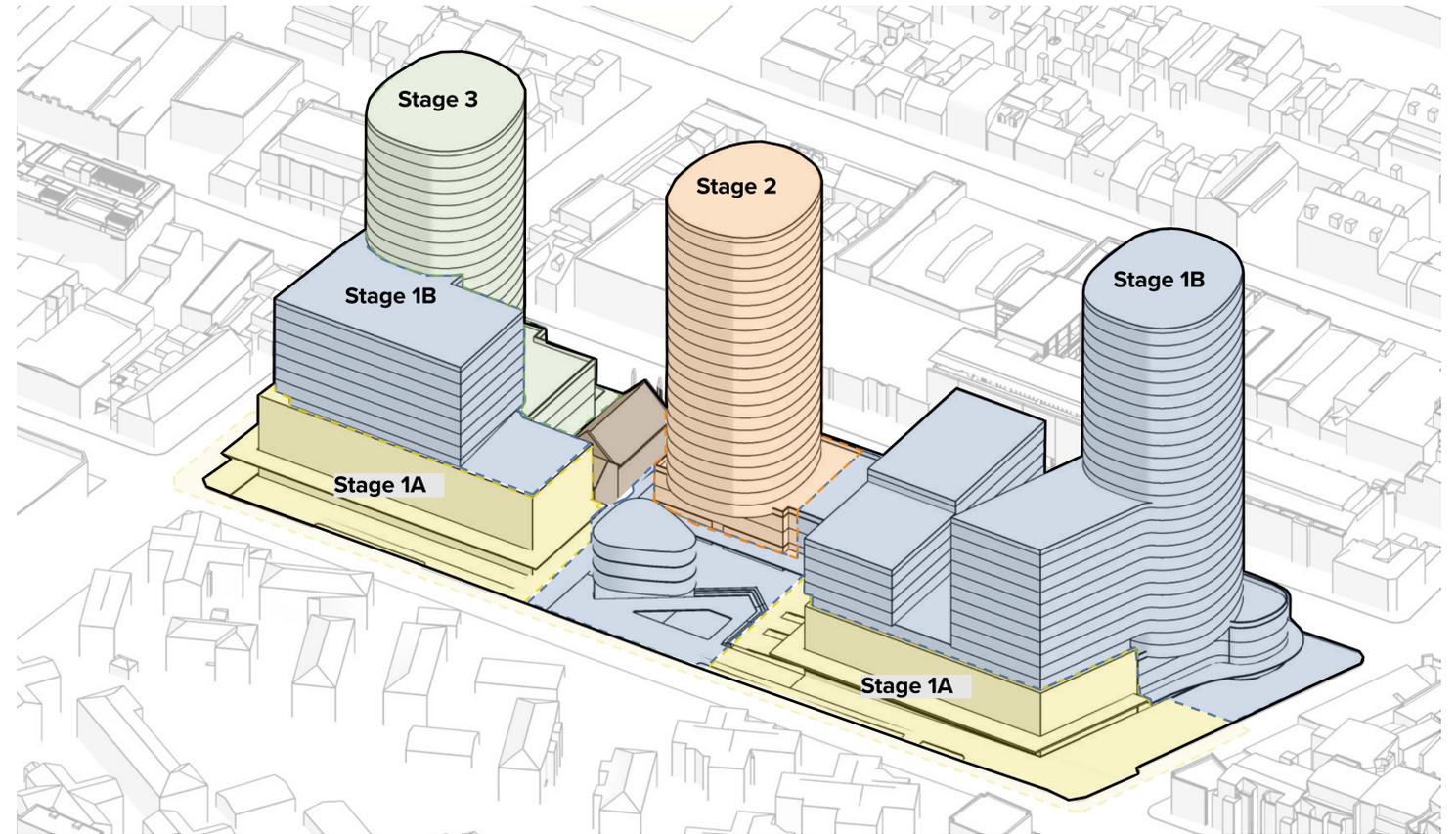


Fig. 10.2.5.1 Potential staging built form



Fig. 10.2.5.2 Potential staging plan

- Legend**
- Stage 1A
 - Stage 1B
 - Stage 2
 - Stage 3

10.2.6 BUILDING AREA ASSUMPTION

Building Area Assumption Diagram Notes:

This diagram illustrates Primary Controls, as described in "Part2" of the ADG. Final figures may vary between building typologies.

Envelope efficiency

Where the building efficiency is 72,5% , the proposed BEA (Building Envelope Area) to GFA efficiency exceeds the ADG recommended metrics. Depending on the specific site, orientation and building typology a building envelope BEA to GFA efficiency of 70%, 72% or 75% may be used. The more regular the site, the higher the efficiency may be achieved.

Building Articulation Zone (BAZ)

The building articulation zone is used to assist in architectural expression and modulation and typically does not contribute additional BEA, GFA or NSA.

Building Envelope Area (BEA)

A building envelope should be 25-30% greater than the achievable gross floor area to allow for building components that do not count as floor space but contribute to building design and articulation such as balconies, lifts, stairs, external wall construction and open circulation space. (ADG, P29)

Gross Floor Area (GFA) & Floor Space Ratio (FSR)

GFA is not a measure of the maximum capacity of the building envelope. The envelope provides an overall parameter for the design of the development. The allowable gross floor area should only 'fill' approximately 70% to 75% of the building envelope area. Gross Floor Area divided by the site area is the Floor Space Ratio. In new urban areas or where an existing neighbourhood is undergoing change, building envelopes should be tested prior to setting FSR controls. (ADG, P32)

Nett Saleable Area (NSA)

Generally this is the internal area only of dwellings or tenancies and excludes unenclosed balconies or terraces unless noted.

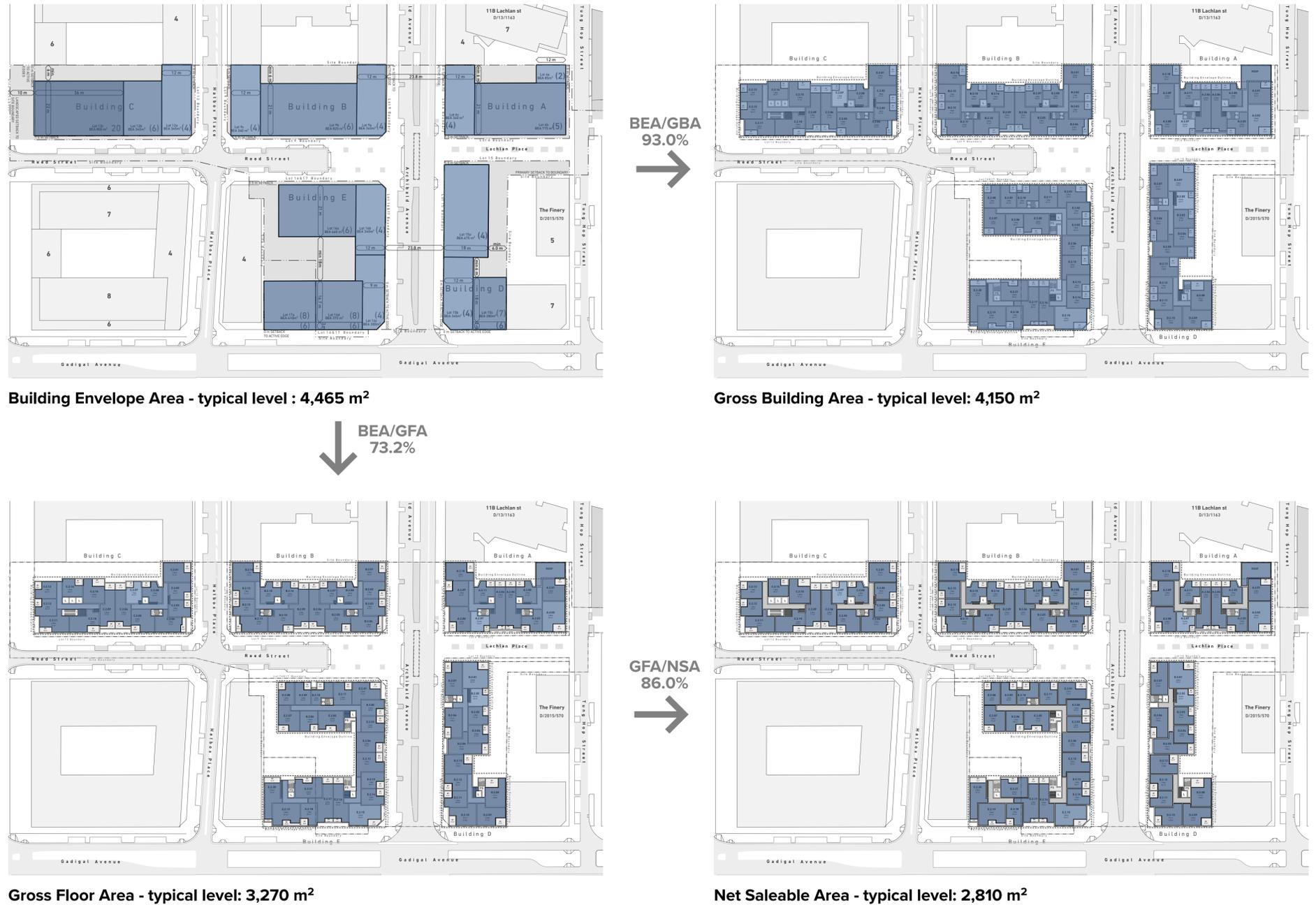


Fig. 8.2.6.1 O'Dea Masterplan Building Area Summary

The O'Dea Masterplan contains a range of building forms and sizes that are consistent with the Indicative Concept Proposal



BUILDING AREA SUMMARY

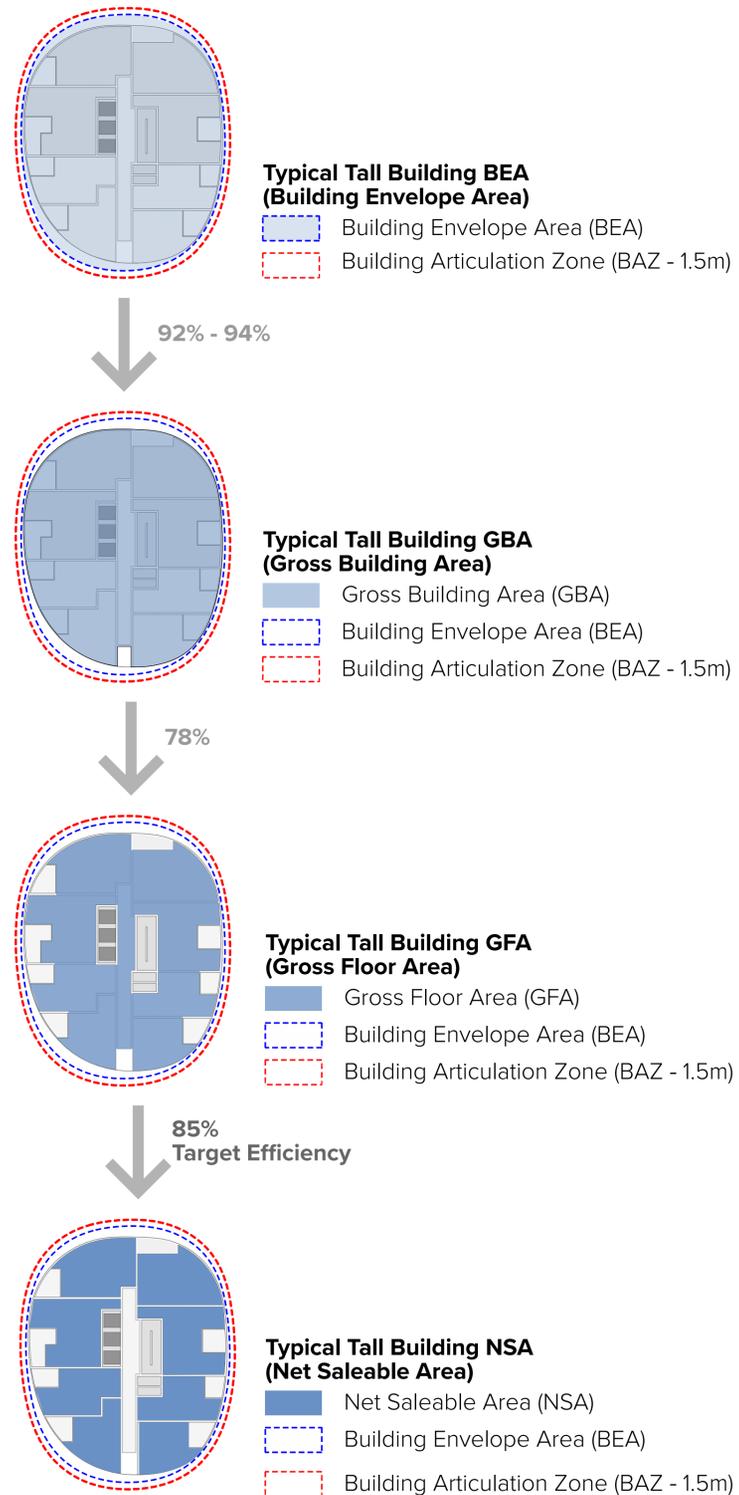


Fig. 8.2.6.2 Building area assumptions

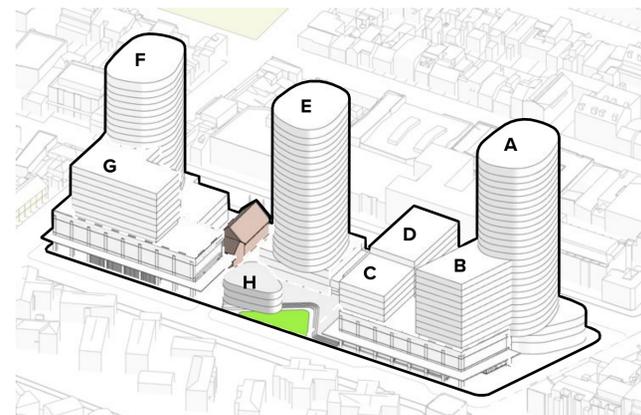
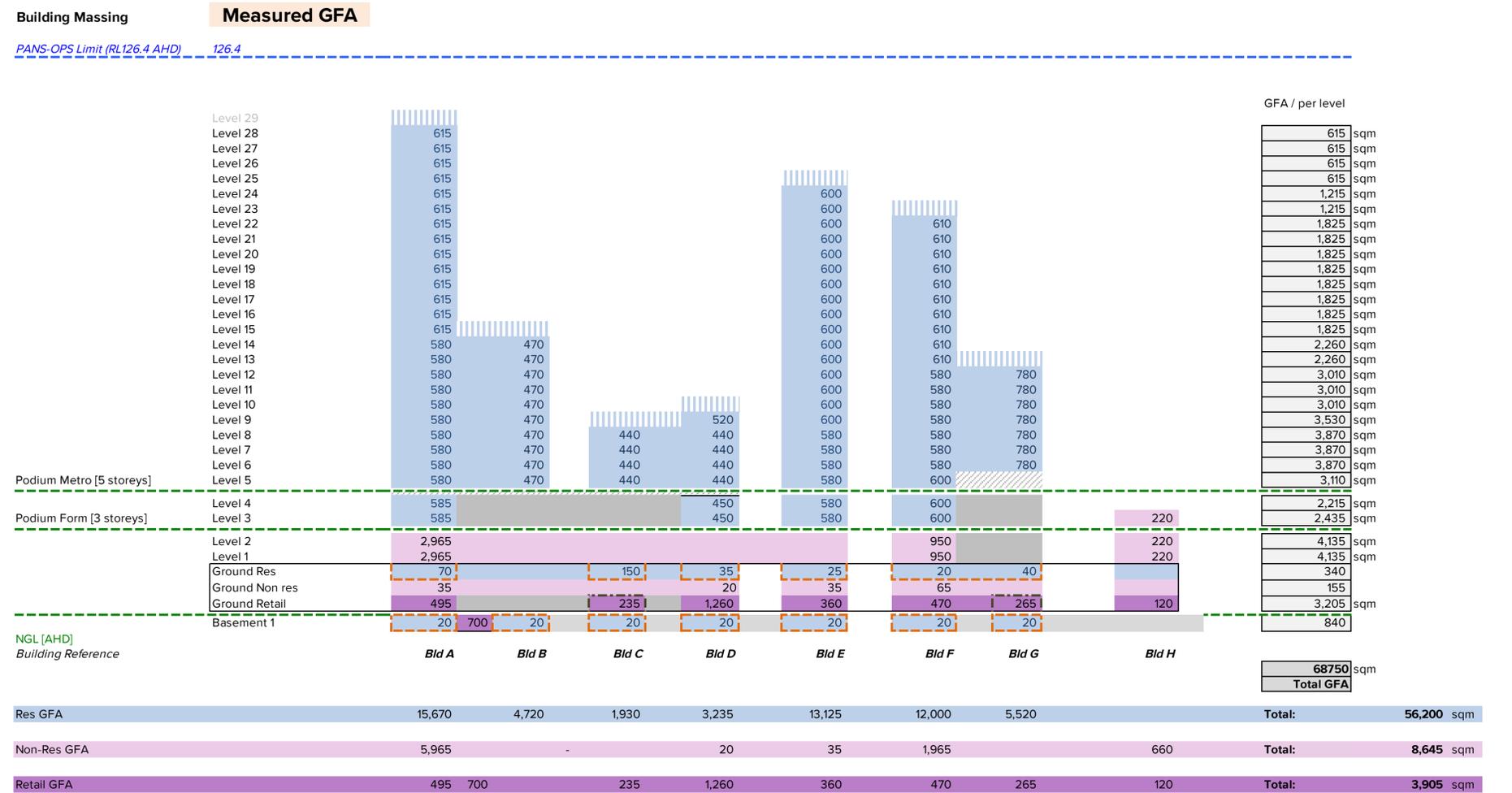


Fig. 8.2.6.3 Gross Floor Area summary for the Waterloo Metro Quarter