INDICATIVE CONCEPT PROPOSAL AMENITY SUMMARY

APPENDIX E

1O.2.1 APARTMENTS AMENITIES

Built forn that responds to the environnent

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 Cuide (ADC).

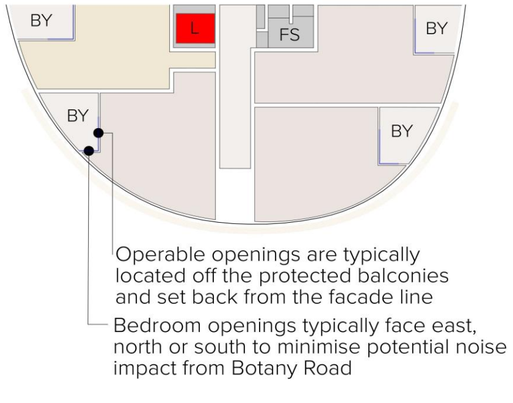
Botany Road presents a significant noise source to the development (7dB background). The apartments directly fronting Botany Road are most affected, though those further into the site also require consideration. To achieve acoustic levels of 55dB to living rooms and 45dB to bedrooms the following planning strategies have been adopted:

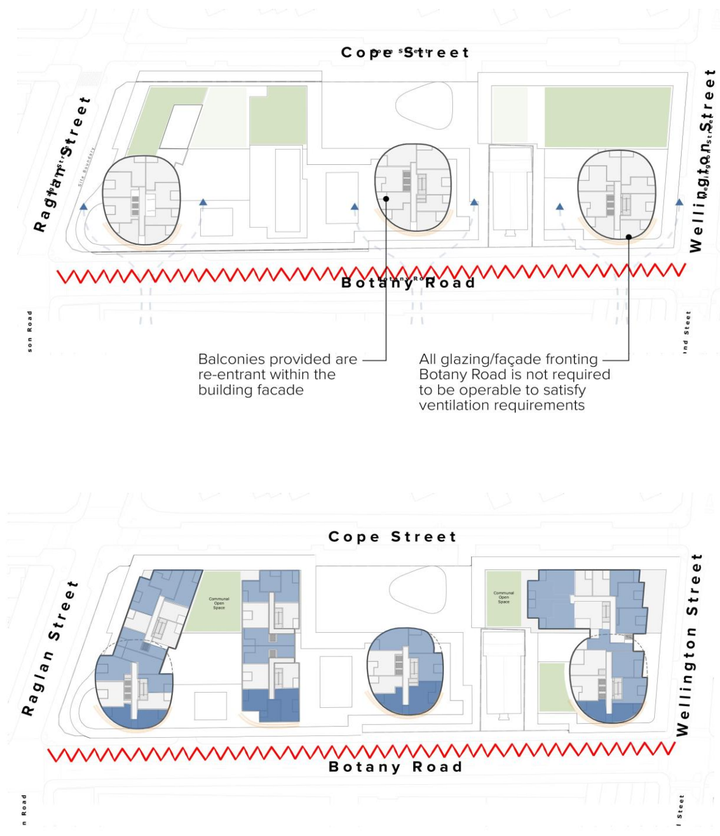
- Building orientation reduces frontages facing Botany Road, with no single aspect apartments facing the street
- All balconies are provided as re-entrant to the building facade
- Operable windows are located on protected balconies instead of the external façade
- Bedroom openings typically face east, 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.

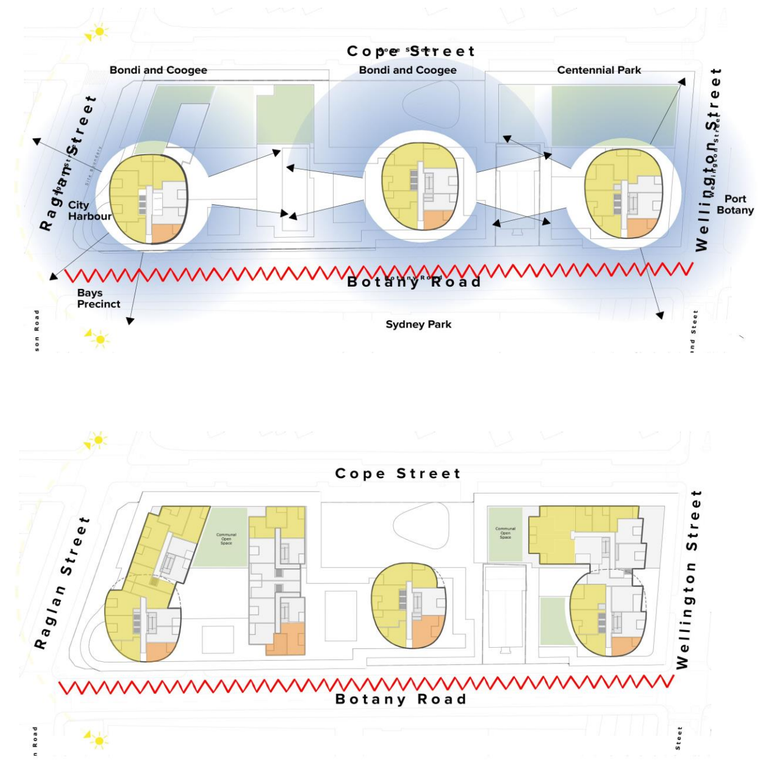
While Botany Road facing apartments would ordinarily achieve cross ventilation compliance through their corner location, the preclusion of operable openings to exclude noise removes this ability to be counted. Similarly the apartments affected by Botany Road where the balcony and/or living area has been 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 ADC.

Natural ventilation and solar access complies with NCC requirements.

Vehicular Noise







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. 1.2.1.3 Wind and ventilation 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

Fig. 1.2.1.4 Solar access and outlook Mid Rise

1O.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 5 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	3,2 m^2 (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1,92 m^2 (15% of the site)

Legend

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

Fig. 1.2.2.1 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	3.2 m² (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1.92 m² (15% of the site)

Legend

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

Fig. 1.2.2.2 Solar Access to publicly accessible and communal open space – Equinox

1O.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)

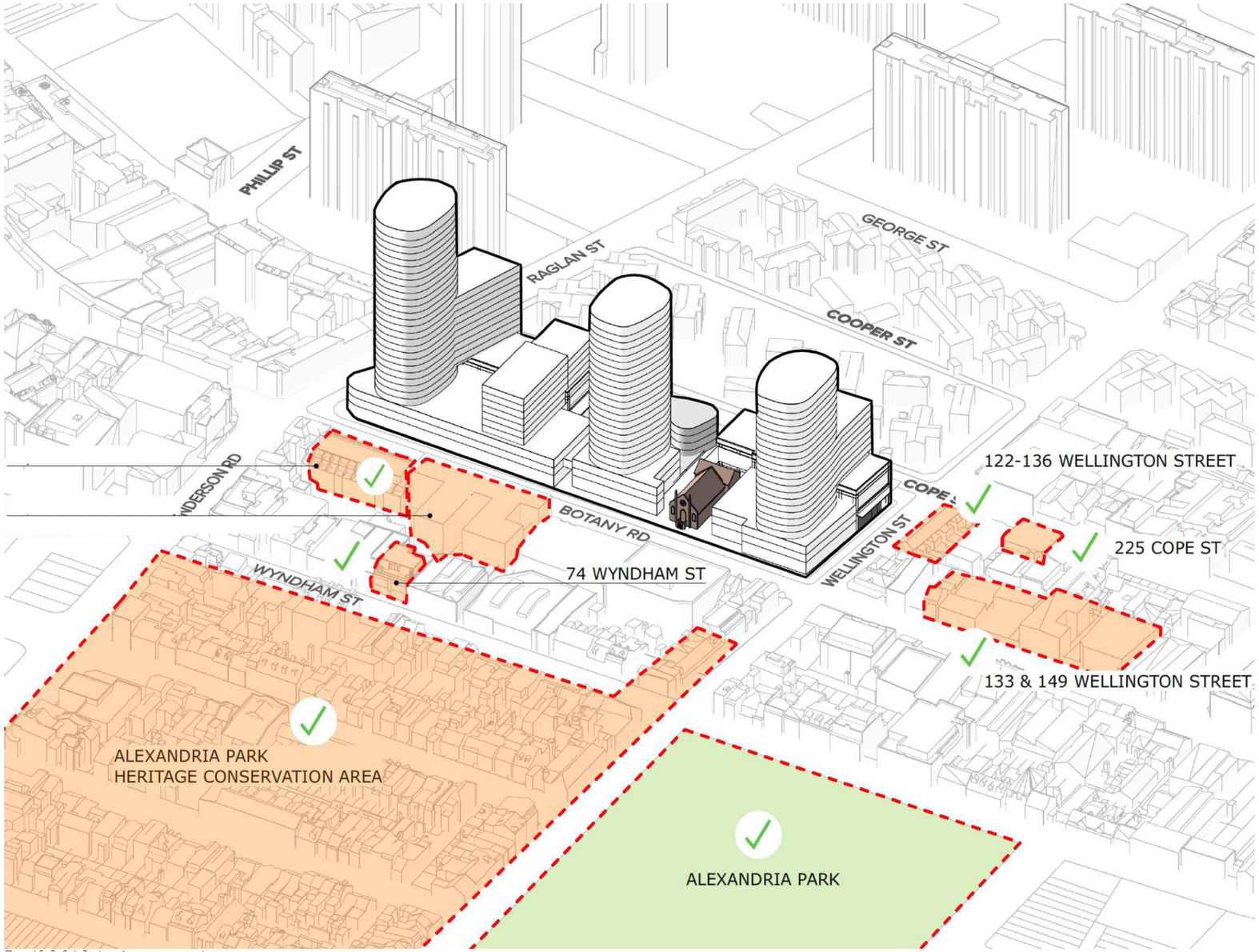


Fig. 1.2.3.1 Solar Access to adjacent context

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 2.12 and the Apartment Design Guide.

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

> Living rooms and private open space of at least 7 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 2.12 requirements are as follows:

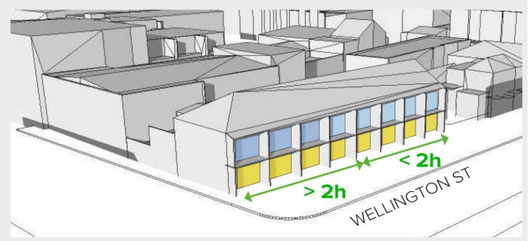
> Section 4
> Solar access requirement for residential buildings not covered under the ADG.
>
> Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1 m^2 of living room window and a least 5 percent of the minimum 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

122 - 136 WELLINGTON STREET
LIVING AREA

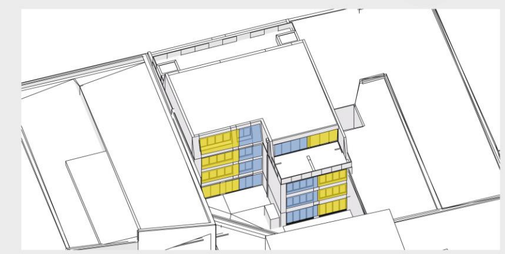


The proposed development does not reduce the solar access of the development. 130 - 136 achieve less then 2 hours in existing condition (with approved Metro SSI)

122 - 136 WELLINGTON STREET
PRIVATE OPEN SPACE

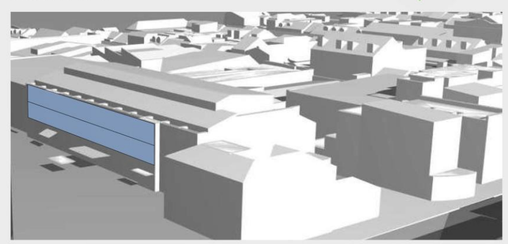
Given southern orientation and narrow dimensions of the private open spaces these are currently overshadowed by the dwellings themselves. The concept proposal has no additional impact

74 WYNDHAM STREET
LIVING AREAS



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

62 - 72 BOTANY ROAD
LIVING AREAS

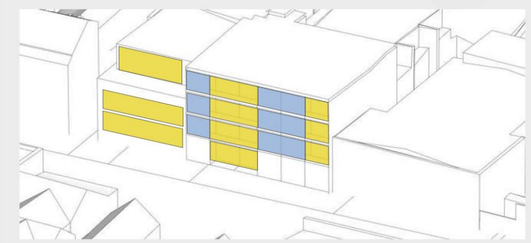


The development has bedrooms facing the Botany Road frontage. All living rooms windows and private open space are orientated away from Botany Road. The proposal does not reduce the solar access to the living room windows or balconies.

133 & 149 BOTANY ROAD
LIVING AREAS

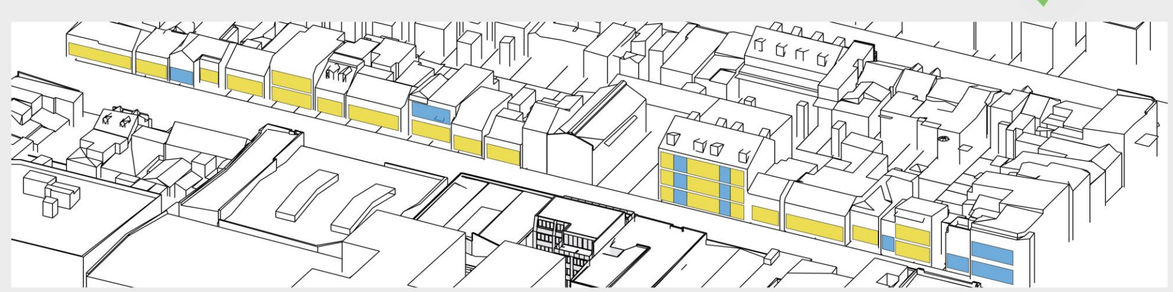
The the concept proposal does not reduce the solar access to the eastern facing apartments.

180 - 184 COPE ST
LIVING AREAS



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

WYNDHAM STREET ELEVATION



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

Fig. 1.2.3.2 Solar access to adjacent dwellings

74 WYNDHAM STREET

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

21st June - 9.00 am

21st June - 9.40 am

21st June - 10.00 am

21st June - 11.00 am

21st June - 11.40 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. 1.2.3.3 Solar access to adjacent dwellings – 74 Wyndham Street

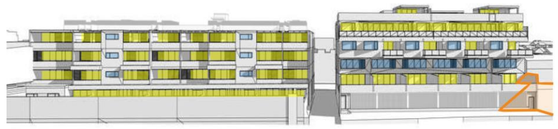
133-149 BOTANY ROAD

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

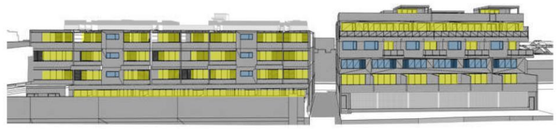
21st June - 9.00 am

21st June - 10.00 am

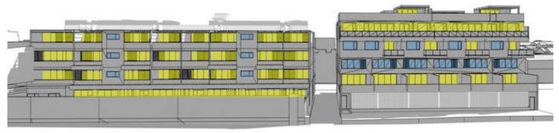
21st June - 11.00 am



21st June - 12.00 pm



21st June - 1.00 pm



21st June - 2.00 pm

21st June - 3.00 pm

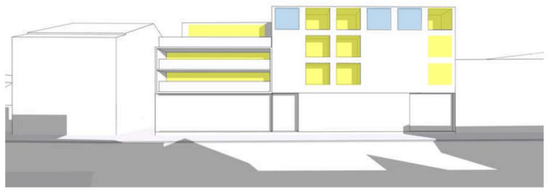
Legend

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

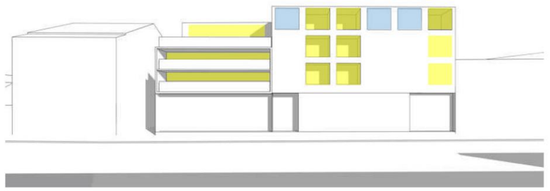
Fig. 1.2.3.4 Solar access to adjacent dwellings – 133-149 Botany Road

180-184 COPE STREET

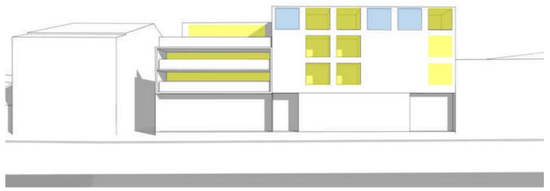
The concept proposal does not reduce the solar access to the eastern facing apartments.



21st June - 9.00 am



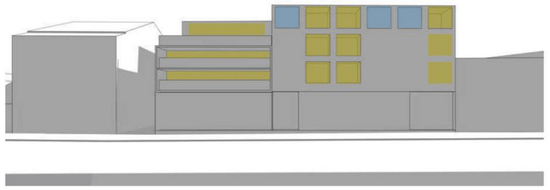
21st June - 10.00 am



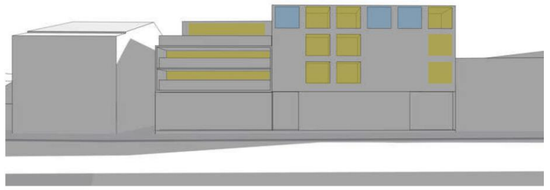
21st June - 11.00 am

21st June - 12.00 pm

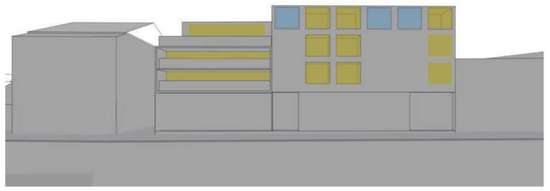
Fig. 10.2.3.4 Solar access to adjacent dwellings - 133-149 Botany Road



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. 1.2.3.5 Solar access to adjacent dwellings – 18–184 Cope Street

CARDEN STREET & WYNDHAM STREET

The developments facing Wyndham Street and Carden 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. 1.2.3.5 Solar access to adjacent dwellings - 18-184 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 2.12 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 5 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 5 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) 5 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 5 percent 4hrs solar access between 9am–3pm.

Legend

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

Fig. 1.2.3.6 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.

KEY PLAN

21 March - 9.00 am

21 March - 10.00 am

21 March - 11.00 am

21 March - 12.00 pm

21 March - 1.00 pm

Legend

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

Fig. 1◇.2.3.7 Solar access to Alexandria Park and Alexandria Heritage Conservation Area – Equinox

1O.2.4 PEDESTRIAN ENVIRONMENT

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

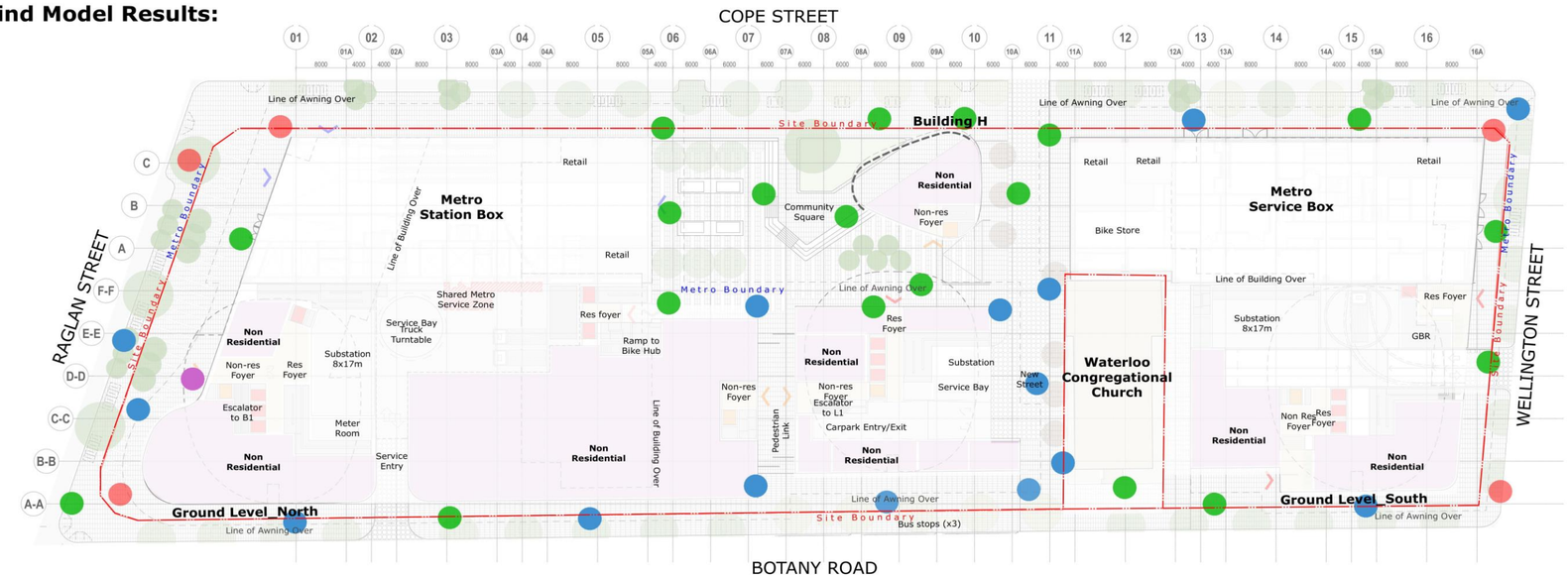
It does not include awnings as they are generally not included at this level of detail / stage of project.

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.

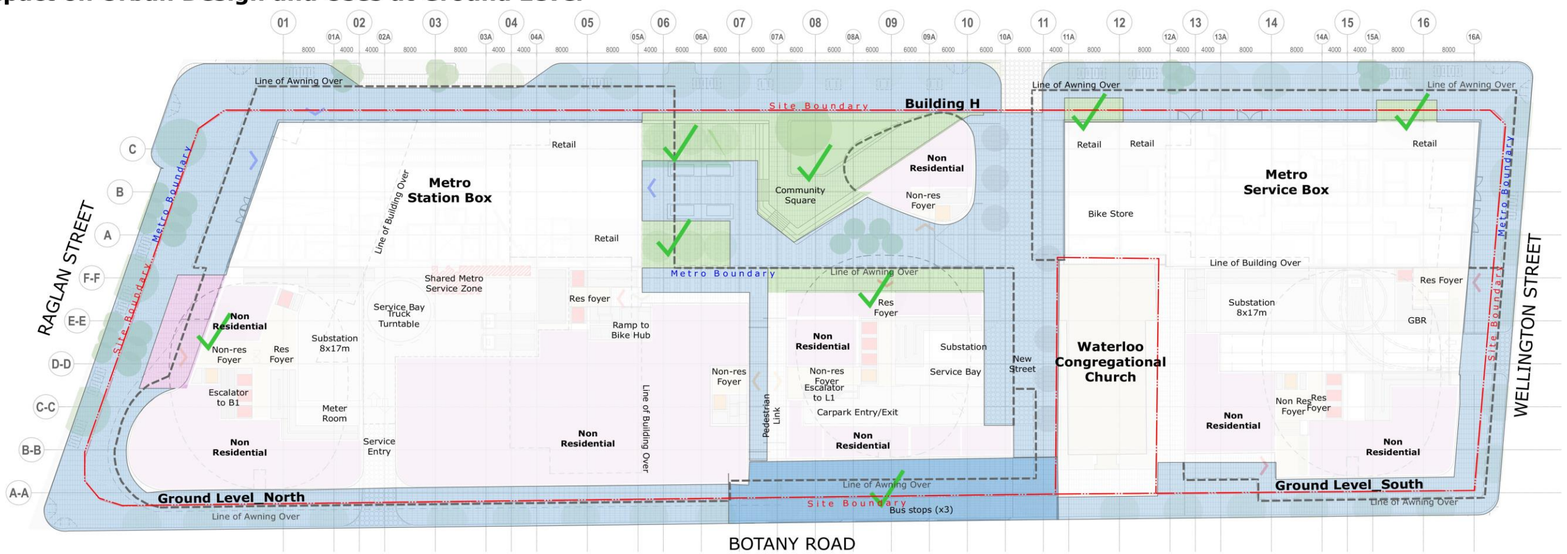
Windtech confirms the outcomes from the modelling done to date support the rezoning.

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 3◇ min)
- Meets Long Exposure Criteria
- Walking
- Walking and Waiting
- Seating
- Line of Awning Over

Fig. 1.2.4 Pedestrian Environment

1O.2.5 POTENTIAL STACING

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.

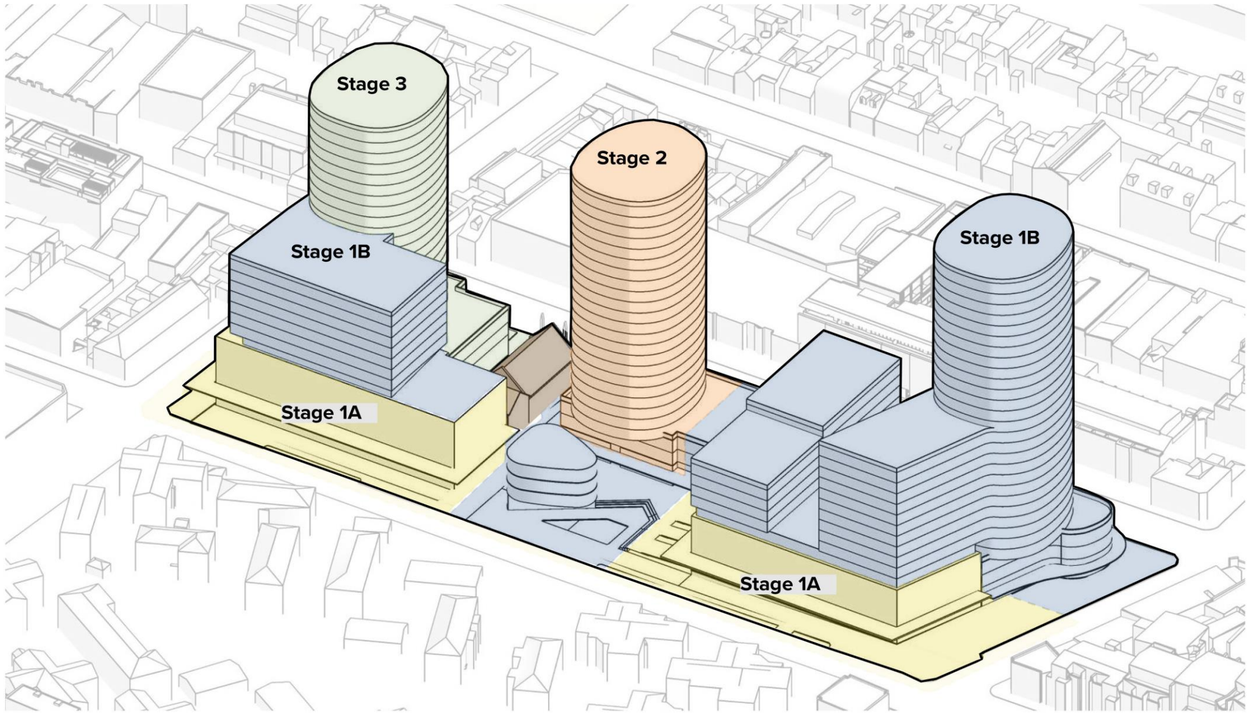


Fig. 10.2.5.1 Potential staging built form

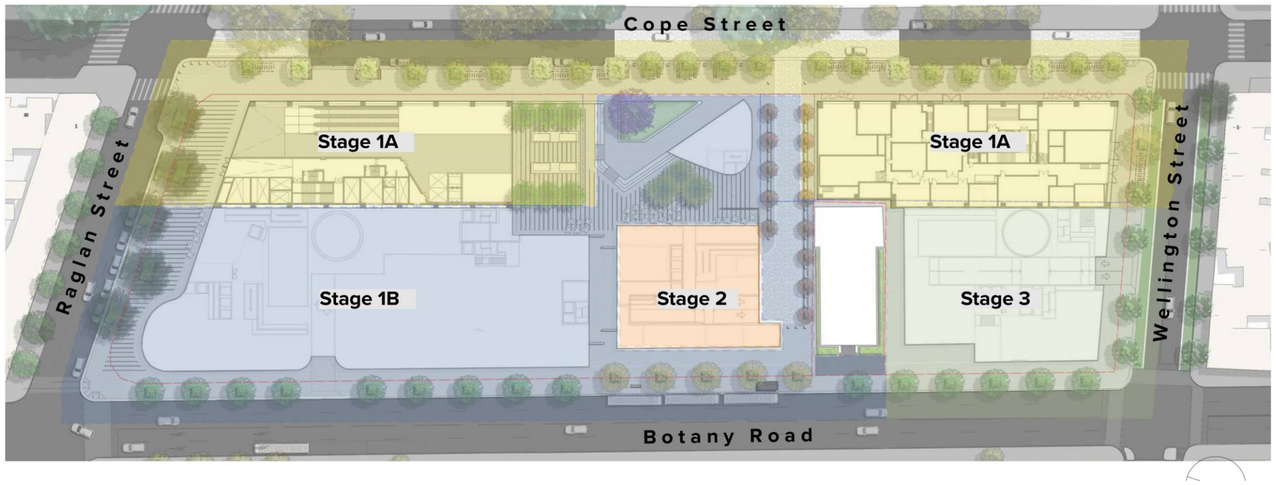


Fig. 1.2.5.2 Potential staging plan

Legend

- Stage 1A
- Stage 1B
- Stage 2
- Stage 3

1O.2.6 BUILDINC AREA ASSUMPTION

Building Area Assumption Diagran Notes:

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

Envelope efficiency

Where the buiiding efficiency is 72.5% , the proposed BEA (Building Envelope Area) to CFA efficiency exceeds the ADG recommended metrics. Depending on the specific site, orientation and building typology a building envelope BEA to CFA efficiency of 7%, 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, CFA or NSA.

Building Envelope Area (BEA)

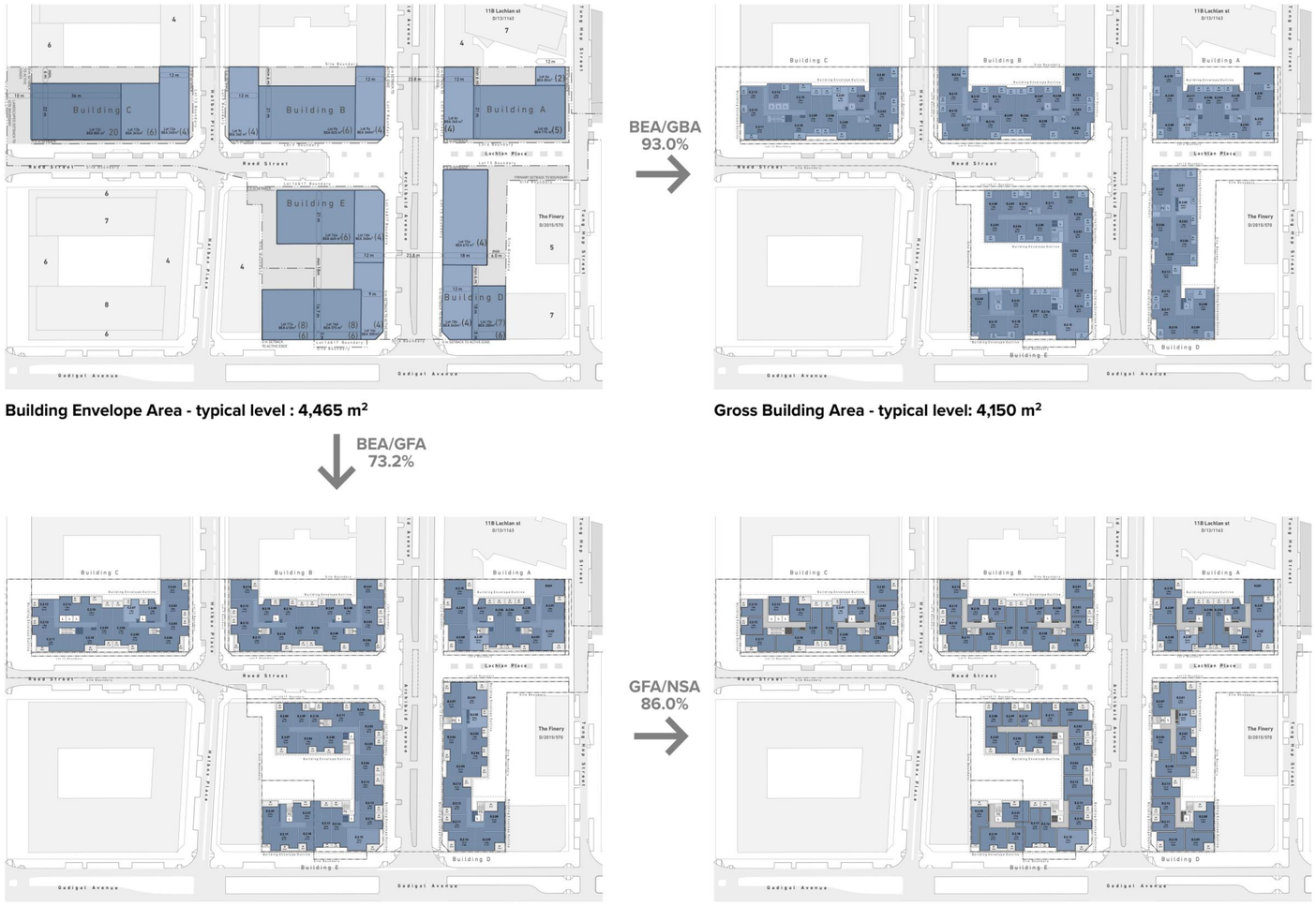
A building envelope should be 25-30% greater than the achievable gross floor area to allow for building components that do not count as floor space but contribute to building design and articulation such as balconies, lifts, stairs, external wall construction and open circulation space. (ADG, P29)

Cross Floor Area (CFA) & Floor Space Ratio (FSR)

CFA 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. Cross 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)

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



Building Envelope Area - typical level : 4,465 m²

Gross Building Area - typical level: 4,150 m²

Gross Floor Area - typical level: 3,270 m²

Net Saleable Area - typical level: 2,810 m²

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

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

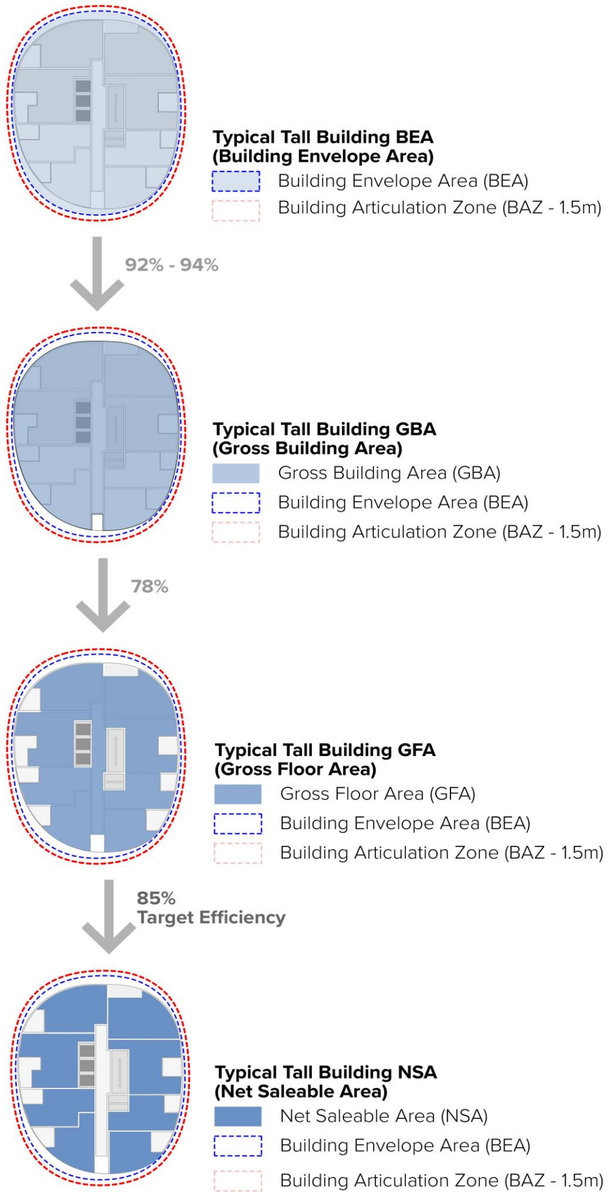
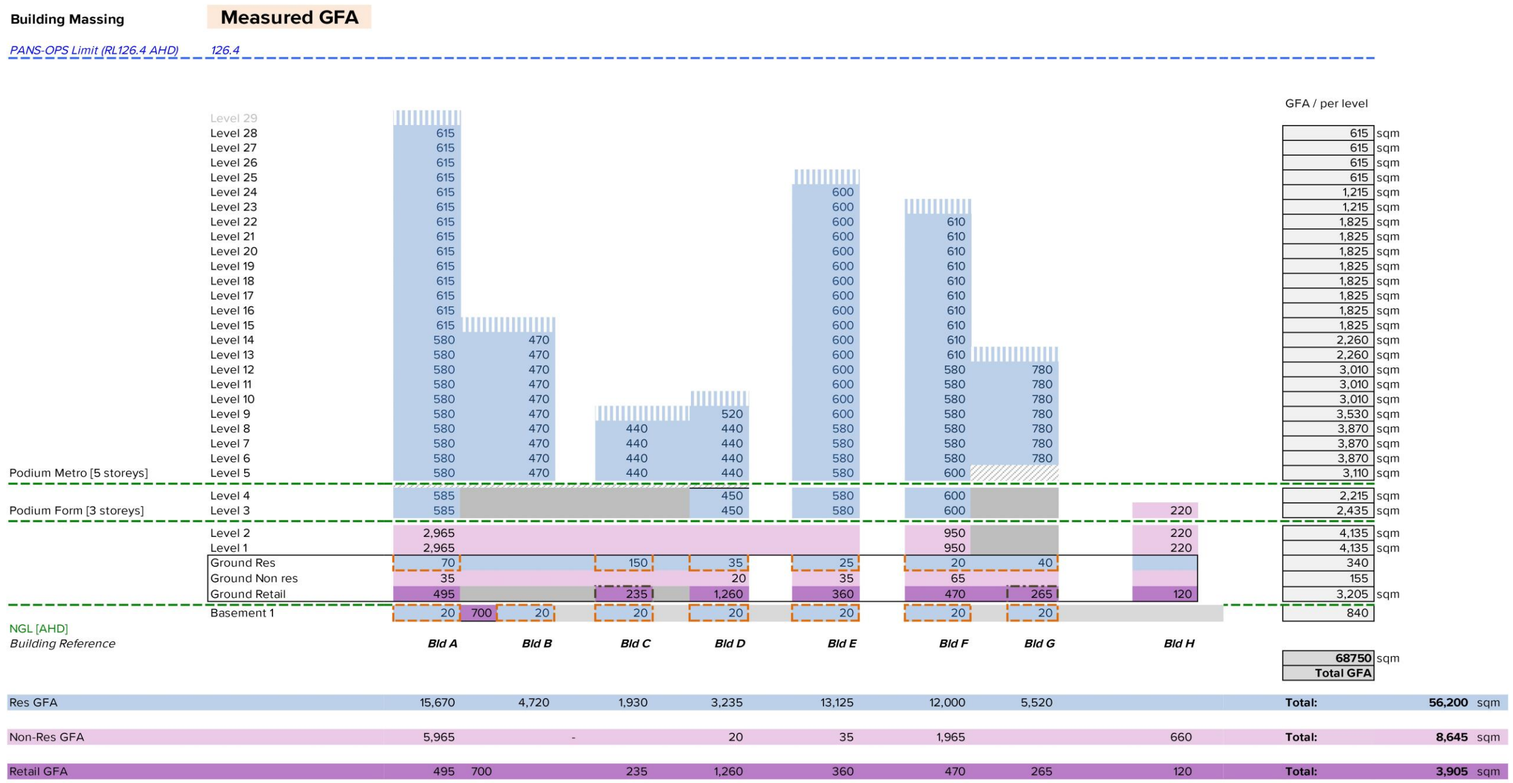


Fig. 8.2.6.2 Building area assumptions



Building Massing	Measured GFA									GFA / per level	
PANS-OPS Limit (RL126.4 AHD)	126.4										
	Level 29										
	Level 28	615								615	sqm
	Level 27	615								615	sqm
	Level 26	615								615	sqm
	Level 25	615								615	sqm
	Level 24	615				600				1,215	sqm
	Level 23	615				600				1,215	sqm
	Level 22	615				600	610			1,825	sqm
	Level 21	615				600	610			1,825	sqm
	Level 20	615				600	610			1,825	sqm
	Level 19	615				600	610			1,825	sqm
	Level 18	615				600	610			1,825	sqm
	Level 17	615				600	610			1,825	sqm
	Level 16	615				600	610			1,825	sqm
	Level 15	615				600	610			1,825	sqm
	Level 14	580	470			600	610			2,260	sqm
	Level 13	580	470			600	610			2,260	sqm
	Level 12	580	470			600	580	780		3,010	sqm
	Level 11	580	470			600	580	780		3,010	sqm
	Level 10	580	470			600	580	780		3,010	sqm
	Level 9	580	470		520	600	580	780		3,530	sqm
	Level 8	580	470	440	440	580	580	780		3,870	sqm
	Level 7	580	470	440	440	580	580	780		3,870	sqm
	Level 6	580	470	440	440	580	580	780		3,870	sqm
Podium Metro [5 storeys]	Level 5	580	470	440	440	580	600			3,110	sqm
	Level 4	585			450	580	600			2,215	sqm
Podium Form [3 storeys]	Level 3	585			450	580	600		220	2,435	sqm
	Level 2	2,965					950		220	4,135	sqm
	Level 1	2,965					950		220	4,135	sqm
	Ground Res	70		150	35	25	20	40		340	
	Ground Non res	35			20	35	65			155	
	Ground Retail	495		235	1,260	360	470	265	120	3,205	sqm
	Basement 1	20	700 20	20	20	20	20	20		840	
NGL [AHD]											
Building Reference		*Bld A*	*Bld B*	*Bld C*	*Bld D*	*Bld E*	*Bld F*	*Bld G*	*Bld H*		
										68750 Total GFA	sqm
Res GFA		15,670	4,720	1,930	3,235	13,125	12,000	5,520		Total:	56,200 sqm
Non-Res GFA		5,965	-		20	35	1,965		660	Total:	8,645 sqm
Retail GFA		495	700	235	1,260	360	470	265	120	Total:	3,905 sqm

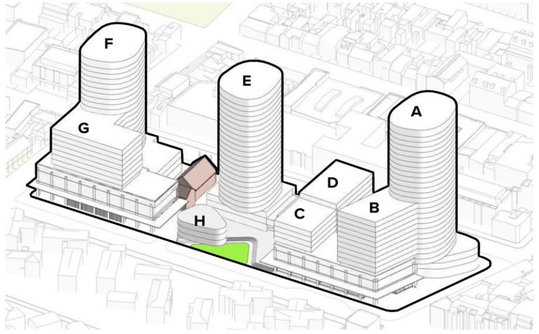


Fig. 8.2.6.3 Cross Floor Area summary for the Waterloo Metro Quarter