WATERLOO METRO QUARTER OVER STATION DEVELOPMENT

Environmental Impact Statement
Appendix F – Architectural Design Report

Volume 4

SSD-10437 Southern Precinct

Detailed State Significant Development
Development Application

Prepared for **Waterloo Developer Pty Ltd**

30 September 2020

PART FOUR

ADG COMPLIANCE CHECKLIST (BUILDING 4)

SSD-10437 DESIGN REPORT

PREPARED FOR WL DEVELOPER PTY LTD

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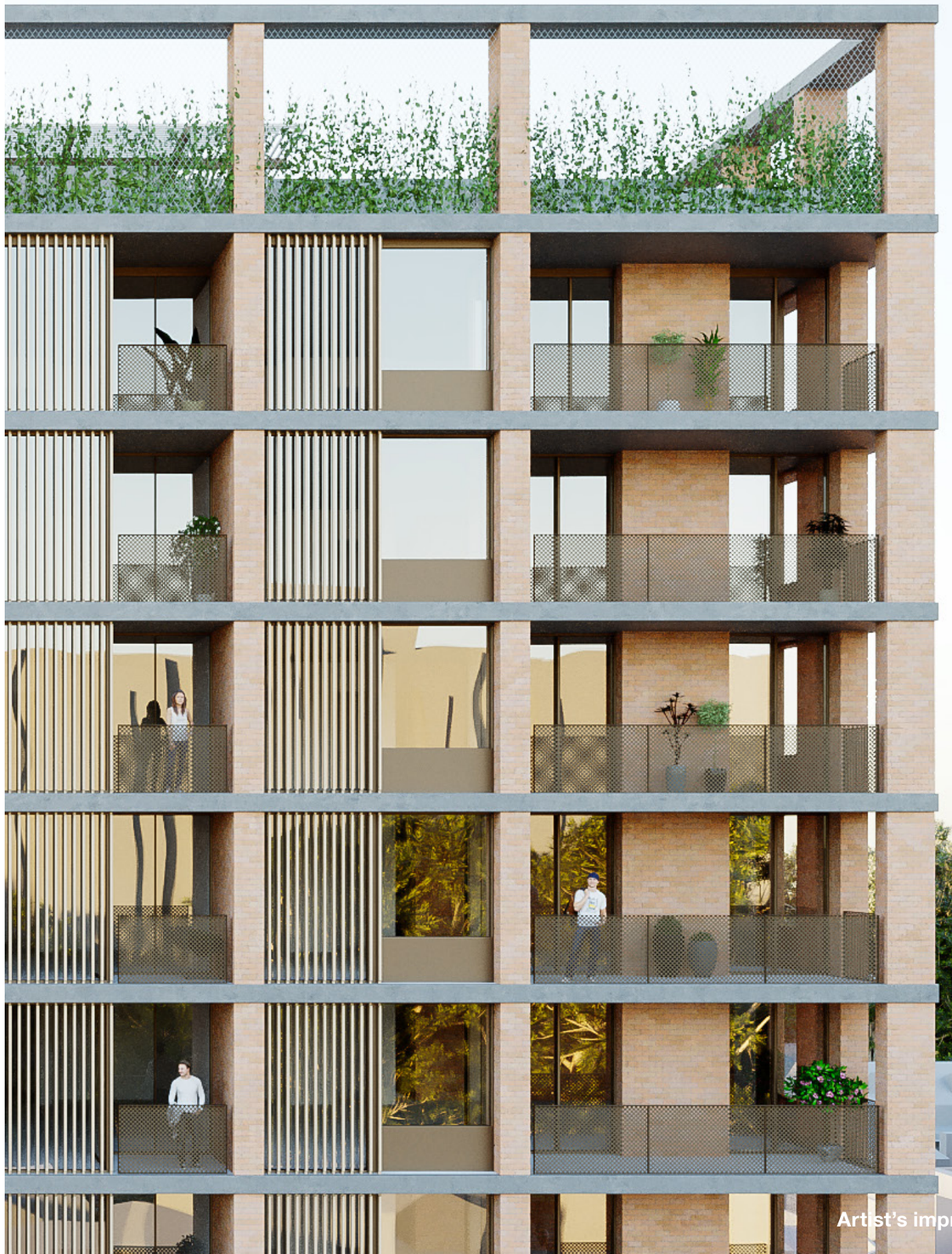

Artist's impression only

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	SITING THE DEVELOPMENT		
3A	**SITE ANALYSIS**		
3A-1 p47	**Objective:** Site Analysis illustrates that design decisions have been based on opportunities & constraints of the site conditions & their relationship to the surrounding context.		✓
	Design Guidance		
	Each element in the Site Analysis Checklist is addressed.		YES
3B	**ORIENTATION**		
3B-1 p49	**Objective:** Building types & layouts respond to the streetscape & site while optimising solar access within the development		✓
	Design Guidance		
	Buildings along the street frontage define the street by facing it & incorporating direct access from the street	The entry lobby has direct access from Wellington Street. The residential levels are located above the metro box and therefore do not have street frontage in the conventional sense	YES
	Where the street frontage is to the east or west, rear buildings are orientated to the north	There are no buildings within this development located to the south	N/A
	Where the street frontage is to the north or south, over-shadowing to the south is minimised & buildings behind the street frontage are orientated to the east & west	There are no buildings within this development located to the south	N/A
3B-2 p49	**Objective:** Overshadowing of neighbouring properties is minimised during mid winter.		✓
	Design Guidance		
	Living areas, private open space & communal open space receive solar access in accordance with section 3D Communal & Public Open Space and section 4A Solar & Daylight Access	Refer to the Solar Analysis report by RWDI	YES
	Solar access to living rooms, balconies & private open spaces of neighbours are considered	Refer to the Solar Analysis report by RWDI	YES
	Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%	Refer to the Solar Analysis report by RWDI	YES
	If the proposal will reduce the solar access of neighbours, building separation is increased beyond minimums contained in 3F Visual Privacy	Refer to the Solar Analysis report by RWDI	YES
	Overshadowing is minimised to the south or downhill by increased upper level setbacks	The top floor of the building is setback to the south to reduce overshadowing	YES
	Buildings are orientated at 90 deg to the boundary with neighbouring properties to minimise overshadowing & privacy impacts, particularly where minimum setbacks are used & where buildings are higher than the adjoining development	To efficiently utilise the allowable Stage 1 envelope, the building has apartments orientated to the north, east, south and west. The only neighbouring property is Building 3 to the west. Refer to Part 3 of the Architectural Design Report for further detail.	YES
	A minimum of 4 hours of solar access is retained to solar collectors on neighbouring buildings	No known solar collectors are located on the neighbouring buildings.	YES
3C	**PUBLIC DOMAIN INTERFACE**		
3C-1 p51	**Objective:** Transition between private & public domain is achieved without compromising safety & security.		✓
	Design Guidance		
	Terraces, balconies and courtyard apartments have direct street entry, where appropriate	The residential levels are located above the metro box and therefore apartments are not located at street level	N/A
	Changes in level between private terraces, front gardens & dwelling entries above the street level provide surveillance & improve visual privacy for ground level dwellings	The residential levels are located above the metro box and therefore apartments are not located at street level	N/A
	Upper level balconies & windows overlook the public domain	Whilst being located well above street level, the apartment balconies and windows will provide passive surveillance to Cope Street Plaza, Church Yard and Cope Street and Wellington Street	YES
	Front fences & walls along street frontages use visually permeable materials & treatments. Height of solid fences or walls is limited to 1m	The residential levels are located above the metro box and therefore apartments are not located at street level	N/A
	Length of solid walls is limited along street frontages	The residential levels are located above the metro box and therefore apartments are not located at street level.	N/A
	Opportunities for casual interaction between residents & the public domain is provided for. Design solutions may include seating at building entries, near letter boxes & in private courtyards adjacent to streets	The residential lobby located on Wellington Street, features a seating area for residents and visitors.	YES
	In developments with multiple buildings and/or entries, pedestrian entries & spaces associated with individual buildings/entries are differentiated to improve legibility for residents, using the following design solutions: · Architectural detailing · Changes in materials · Plant Species · Colours · Opportunities for people to be concealed are minimised	The residential lobby to Wellington Street is expressed as a generous two storey volume, recessed slightly to define it as an entry. The use of brick and metal is consistent with the Building 3 podium and the residential building above, whilst the changes in the detailing further differentiate it within the podium massing. An awning over the entry improves the legibility of the entry whilst also providing weather protection.	YES
3C-2 p53	**Objective:** Amenity of the public domain is retained & enhanced.		✓
	Design Guidance		
	Planting is used to soften the edges of any raised terraces to the street, for example above sub-basement car parking	The residential levels are located above the metro box and therefore apartments are not located at street level.	N/A
	Mail boxes are located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided		YES
	The visual prominence of underground car park vents is minimised & located at a low level where possible	The proposed building does not have a basement	N/A
	Substations, pump rooms, garbage storage areas & other service requirements are located in basement car parks or out of view	This building does not have a basement, and therefore all services are located above ground. The substation is located in Building 3 utlising the only available at-grade street frontage on Wellington Street. Garbage rooms and other services are located out of view within the Building 3 podium.	YES
	Ramping for accessibility is minimised by building entry location & setting ground floor levels in relation to footpath levels	To address flooding requirements, the building lobby has a split level design. The main front door is at lower level addressing the street, whilst the lift lobby is at the higher level above the flood level. Accessible access between the two levels is via a platform lift.	YES
	Durable, graffiti resistant & easily cleanable materials are used		YES
	Where development adjoins public parks, open space or bushland, the design positively addresses this interface & uses the following design solutions: · Street access, pedestrian paths & building entries are clearly defined · Paths, low fences & planting are clearly delineate between communal/private open space & the adjoining public open space · Minimal use of blank walls, fences & ground level parking		N/A
	On sloping sites protrusion of car parking above ground level is minimised by using split levels to step underground car parking		N/A
3D	**COMMUNAL & PUBLIC OPEN SPACE**		
3D-1 p55	**Objective:** An adequate area of communal open space is provided to enhance residential amenity & to provide opportunities for landscaping.		✓
	Design Criteria		

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance	
1	Communal open space has a minimum area equal to 25% of the site	A 290sqm communal landscaped roof terrace is proposed on Level 09. Given the buildings location above the metro box, the definition of the site is not clearly defined. Based on the Stage 1 envelope footprint area of 1124sqm, the roof terrace represents 25.8% communal open space. Based on the metro box roof area 1424m^2, the roof terrace represents 20.3% communal open space. In addtion to the roof terrace, the building provides an additional 110.9 sqm of communal space through the building in the form of: Level 9 Community Room - 27.1sqm Typical Level Corridor Seating area: 8.7sqm x 8 floors = 69.6sqm Ground Floor Lobby Seating Area 14.2 sqm The metro box roof is considered unsuitable for communal open space for the following reasons: / the setback requirements from the metro box vents make these spaces largely unusable as habitable outdoor space. / the privacy and noise impacts to adjacent apartments / the distance from the core to the northern metro box roof is not practical / the south metro box roof has poor solar access In terms of providing adeqaute common open space, the proposed roof terrace is considered appropriate on merit for the following reasons: / it is located on Level 09 and benefits from excellent solar access and view amenity / it provides direct, accessible access for all residents from a common circulation area / high quality design by a notable Landscape Architect, an awning structure providing shading and space for undercover activities, landscaped planters and a community garden / Residents will have use of a shared 27m^2 community room which opens out onto the roof terrace / Within the immediate vicinity of the proposed building, residents have access to high quality public spaces and amenities within the Waterloo Metro Quarter development		✓
2	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)	The communal roof terrace on Level 09 has a north and easterly aspect, achieving good solar access throughout the year. On 21 June, it recieves at least 5 hrs of direct sunlight between 9am and 2pm, well in excess of requirements		✓
	Design Guidance			
	Communal open space is consolidated into a well designed, easily identified & usable area	The communal open space is consolidated into a single landscaped roof terrace on Level 09	YES	
	Communal open space have a minimum dimension of 3m. Larger developments should consider greater dimensions		YES	
	Communal open space are co-located with deep soil areas	The residential levels are located above the metro box and therefore there are no deep soil areas on site	YES	
	Direct, equitable access are provided to communal open space areas from common circulation areas, entries & lobbies	Accessible access is provided via lifts from all cores	YES	
	Where communal open space cannot be provided at ground level, it is provided on a podium or roof	The roof terrace is located on Level 09, the top floor of the building	YES	
	Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they need to: · Provide communal spaces elsewhere such as a landscaped roof top terrace or a common room · Provide larger balconies or increased private open space for apartments · Demonstrate good proximity to public open space & facilities and/ or provide contributions to public open space	The roof terrace is located on Level 09 and benefits from excellent solar access and view amenity. Residents will have use of a shared community room on the same level, as well as access to high quality public spaces and amenities within the Waterloo Metro Quarter development	YES	
3D-2 p57	**Objective:** Communal open space is designed to allow for a range of activities, respond to site conditions & be attractive and inviting			✓
	Design Guidance			
	Facilities are provided within communal open spaces & common spaces for a range of age groups (see 4F Common Circulation & Spaces), incorporating the following: · Seating for individuals or groups · Barbeque areas · Play equipment or play areas · Swimming pools, gyms, tennis courts or common rooms	The communal roof terrace incroporates intergated seating areas and a community garden. A community room, which opens out onto the roof terrace provides additional common space for residents.	YES	
	Location of facilities responds to microclimate & site conditions with access to sun in winter, shade in summer & shelter from strong winds & down drafts	The roof terrace has good solar access throughout the year. A fixed awning structure provides shade and protection from down drafts.	YES	
	Visual impacts of services are minimised, including location of ventilation duct outlets from basement car parks, electrical substations & detention tanks		YES	
3D-3 p57	**Objective:** Communal open space is designed to maximise safety.			✓
	Design Guidance			
	Communal open space & public domain should be readily visible from habitable rooms & private open space areas while maintaining visual privacy. Design solutions include: · Bay windows · Corner windows · Balconies	The roof terrace is visible from the adjacent community room as well as the open corridor serving the two apartments on Level 09. Additionally, this space is readilly visible from the taller buildings within the proposed Metro Quarter development (i.e Building 2 & 3)	YES	
	Communal open space is well lit	Able to comply. Lighting design to be developed during future design stages.	YES	
	Communal open space/facilities that are provided for children & young people are safe and contained	The roof terrace has a 3m high mesh screen to its perimeter providing a safe and secure environment.	YES	
3D-4 p59	**Objective:** Public open space, where provided, responds to the existing pattern & uses of the neighbourhood.			✓
	Design Guidance			
	Public open space is well connected with public streets along at least one edge	The residential levels are located above the metro box and therefore a connection to the street is not possible	N/A	
	POS is connected with nearby parks & other landscape elements		N/A	
	POS is linked through view lines, pedestrian desire paths, termination points & the wider street grid		N/A	
	Solar access is provided year round along with protection from strong winds		YES	
	Opportunities for a range of recreational activities is provided for people of all ages		YES	
	Positive street address & active street frontages are provided adjacent to POS	The residential levels are located above the metro box and therefore a connection to the street is not possible	N/A	
	Boundaries are clearly defined between POS & private areas		YES	
3E	**DEEP SOIL ZONES**			

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
3E-1 p61	**Objective:** Deep soil zones are suitable for healthy plant & tree growth, improve residential amenity and promote management of water and air quality.		✘
	Design Criteria		
1	Deep soil zones are to meet the following minimum requirements: Site Area (sqm) / Minimum Dim. (m) / Deep Soil Zone (% of site area) less than 650 / - / 7 650-1500 / 3 greater than 1500 / 6 greater than 1500 with significant existing tree cover / 6	There are no deep soil zones as the building is located prodominantly above the metro box. However, the Waterloo Metro Quarter precinct aims to achieve 15% deep soil across the whole development (excluding the station box area)	NO
	Design Guidance		
	On some sites it may be possible to provide larger deep soil zones, depending on the site area & context: · 10% of the site as deep soil on sites with an area of 650sqm - 1,500sqm · 15% of the site as deep soil on sites greater than 1,500sqm		N/A
	Deep soil zones are located to retain existing significant trees & to allow for the development of healthy root systems, providing anchorage & stability for mature trees. Design solutions may include: · Basement & sub-basement car park design that is consolidated beneath building footprints · Use of increased front & side setbacks · Adequate clearance around trees to ensure long term health · Co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil		N/A
	Achieving the design criteria may not be possible on some sites including where: · location & building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres) · there is 100% site coverage or non-residential uses at ground floor level Where a proposal does not achieve deep soil requirements, acceptable stormwater management is achieved & alternative forms of planting provided	The site for the proposed residential building is constrained in terms of its ability to provide deep soil zones due to its location above the metro box which has a 100% site coverage. Whilst being a high density precinct, the wider Waterloo Metro Quarter development aims to achieve 15% deep soil across the site (excluding the station box area). Refer to Civil & Landscape reports for detail regarding stormwater management and planting species provided	N/A
3F	**VISUAL PRIVACY**		
3F-1 p63	**Objective:** Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external & internal visual privacy.		✓
	Design Criteria		
1	Separation between windows & balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side & rear boundaries are as follows: Building Height (m) / Habitable Rooms & Balconies. (m) / Non-Habitable Rooms (m) up to 12 4 storeys) / 6 / 3 up to 25 (5-8 storeys) / 9 / 4.5 over 25 (9+ storeys) / 12 / 6 Note: Separation distances between buildings on the same site should combine required building separations depending on the type of room. Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties.	The building massing is consistent with the Stage 1 DA envelope. Building separation to the north, east and south is in excess of 24m. Building seperation to the west is 18m from the glassline of the proposed student accommodation building. For further detail regarding the building separation to the west, the site constraints and the measures taken to mitigate the impact, refer to Part 3 Section 3 of the architectural design report.	NO
	Design Guidance		
	Generally as the height increases, one step in the built form is desirable due to building separations. Any additional steps do not to cause a 'ziggurat' appearance		YES
	For residential buildings next to commercial buildings, separation distances are measured as follows: · Retail, office spaces & commercial balconies use the habitable room distances · Service & plant areas use the non-habitable room distances		N/A
	New developments are located & oriented to maximise visual privacy between buildings on site & for neighbouring buildings. Design solutions include: · site layout & building are orientated to minimise privacy impacts (see 3B Orientation) · on sloping sites, apartments on different levels have appropriate visual separation distances (see pg 63 figure 3F.4)	For further detail regarding the building separation to the west, the site constraints and the measures taken to mitigate the impact, refer to Part 3 Section 3 of the architectural design report.	YES
	Apartment buildings have an increased separation distance of 3m (in addition to 3F-1 Design Criteria) when adjacent to a different zone that permits lower density residential development, to provide for a transition in scale & increased landscaping (pg 63 figure 3F.5)		N/A
	Direct lines of sight are avoided for windows & balconies across corners		YES
	No separation is required between blank walls		N/A
3F-2 p65	**Objective:** Site & building design elements increase privacy without compromising access to light & air and balance outlook & views from habitable rooms & private open space.		✓
	Design Guidance		

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	Communal open space, common areas & access paths are separated from private open space & windows to apartments, particularly habitable room windows. Design solutions include: · setbacks · solid or partially solid balustrades on balconies at lower levels · fencing and/or trees and vegetation to separate spaces · screening devices · bay windows or pop out windows to provide privacy in one direction & outlook in another · raising apartments or private open space above the public domain or communal open space · planter boxes incorporated into walls & balustrades to increase visual separation · pergolas or shading devices to limit overlooking of lower apartments or private open space · on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels on windows and/or balconies	There are no apartments with windows overlooking the communal open space (i.e the roof terrace)	YES
	Bedrooms, living spaces & other habitable rooms are separated from gallery access & other open circulation space by the apartment's service areas		YES
	Balconies & private terraces are located in front of living rooms to increase internal privacy	Balconies are generally located in front of the living room. Where possible, the design has also sought to provide an ouboard living space to maximise solar access. There are 10 apartments (out of 70) that have balconies accessed from the side of living space.	YES
	Windows are offset from the windows of adjacent buildings	Given the density of windows to the student accommodation building opposite, this is not possible. The proposed design seeks to mitgate this by increased facade depth and solidity on the western facade through the use of projecting horizontal slab edges, vertical brick piers and spandrels to windows to help restrict views from floors above and below.	NO
	Recessed balconies and/or vertical fins are used between adjacent balconies	All balconies, with the exception of the north west balcony, are recessed. Whilst not overlooked by any adjacent balcony, the northwest balcony has vertical fins to provide additional privacy from adjacent buildings as well as the public domain.	YES
3G	**PEDESTRIAN ACCESS & ENTRIES**		
3G-1 p67	**Objective:** Building entries & pedestrian access connects to and addresses the public domain.		✓
	Design Guidance		
	Multiple entries (including communal building entries & individual ground floor entries) activate the street edge	The proposed building has a single entry to Wellington Street. There are no ground floor apartments so individual entries are not possible.	NO
	Entry locations relate to the street & subdivision pattern, and the existing pedestrian network	The entry location is sited to provide good access to lift cores. The location is the same as that shown in the Stage 1 DA reference scheme.	YES
	Building entries are clearly identifiable. Communal entries are clearly distinguishable from private entries	The residential entrance is articulated as a two story volume, with a slight setback from the street edge.	YES
	Where street frontage is limited, a primary street address should be provided with clear sight lines and pathways to secondary building entries	The proposed building has a single entry only	N/A
3G-2 p67	**Objective:** Access, entries & pathways are accessible & easy to identify.		✓
	Design Guidance		
	Building access areas including lift lobbies, stairwells & hallways are clearly visible from the public domain & communal spaces	The common corridor and fire stair are visible from the roof terrace, however due to the site constraints the lifts are not located adjacent to the roof terrace and therefore the roof terrace does not have a direct line of sight to the lift lobby.	YES
	The design of ground floors & underground car parks minimise level changes along pathways & entries	The proposed building does not have an underground car park. There is a single change in level in the ground floor lobby to address flooding, with a platfrorm lift provided for DDA access.	YES
	Steps & ramps are integrated into the overall building & landscape design	There are no external steps or ramps	YES
	For large developments 'way finding' maps are provided to assist visitors & residents	The proposed development has 70 apartments and wayfinding maps are not deemed neccessary	N/A
	For large developments electronic access & audio/video intercom are provided to manage access	Overall building security requirements to be developed with LAHC	YES
3G-3 p67	**Objective:** Large sites provide pedestrian links for access to streets & connection to destinations.		N/A
	Design Guidance		
	Pedestrian links through sites facilitate direct connections to open space, main streets, centres & public transport	The residential levels are located above the metro box and therefore through site connections are not possible. The Waterloo Metro Quarter precinct masterplan has a series of pedestrian links across the development connecting to public space, amenities and public transport.	N/A
	Pedestrian links are direct, have clear sight lines, are overlooked by habitable rooms or private open spaces of dwellings, are well lit & contain active uses, where appropriate	Refer above	N/A
3H	**VEHICLE ACCESS**		
3H-1 p69	**Objective:** Vehicle access points are designed & located to achieve safety, minimise conflicts between pedestrians & vehicles and create high quality streetscapes.		✓
	Design Guidance		
	Car park access is integrated with the building's overall facade. Design solutions include: · materials & colour palette minimise visibility from street · security doors/gates minimise voids in the facade · where doors are not provided, visible interiors reflect facade design, and building services, pipes & ducts are concealed	The proposed development includes 8 car spaces, as required by LAHC. The spaces are to be provided in the Building 2 basement car park (SSDA-10438), accessed through Building 2 (Refer to SSDA-10439).	N/A
	Car park entries are located behind the building line	Refer above	N/A
	Vehicle entries are located at the lowest point of the site, minimising ramp lengths, excavation & impacts on the building form and layout	The proposed building shares a loading dock with the Building 3 spaces. The loading dock is located at ground level and vehicular access is via Wellington Street.	YES
	Car park entry & access are located on secondary streets or lanes where available		YES
	Vehicle standing areas that increase driveway width & encroach into setbacks are avoided		YES
	Access point is located to avoid headlight glare to habitable rooms	Loading dock is not near residential levels which are located above the metro box	N/A
	Adequate separation distances are provided between vehicle entries & street intersections		YES
	The width & number of vehicle access points are limited to the minimum		N/A
	Visual impact of long driveways is minimised through changing alignments & screen planting	The driveway is internal	YES
	The need for large vehicles to enter or turn around within the site is avoided	Council garbage collection requires large vehicles be able to enter and turn around within the site. The loading dock has a turntable to facilitate this manoeuvre	NO
	Garbage collection, loading & servicing areas are screened	Garbage collection, loading & servicing areas are all located internally	YES
	Clear sight lines are provided at pedestrian & vehicle crossings		YES

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance	
	Traffic calming devices, such as changes in paving material or textures, are used where appropriate	Refer to Traffic Consultants report and the Landscape Architects drawings and report for further detail	YES	
	Pedestrian & vehicle access are separated & distinguishable. Design solutions include: · Changes in surface materials · Level changes · Landscaping for separation	The loading dock entry is aligned to the street edge and will have a roller shutter, whereas the lobby is recessed slightly and has a distinghuishable architectural expression. Changes in surface materials further delineate the vehicle crossing within the footpath. Refer to Traffic Consultants report and the Landscape Architects drawings and report for further detail of measure	YES	
3J	**BICYCLE & CAR PARKING**			
3J-1 p71	**Objective:** Car parking is provided based on proximity to public transport in metropolitan Sydney & centres in regional areas.			✓
	Design Criteria			
1	For development in the following locations: · on sites that are within 800m of a railway station or light rail stop in the Sydney Metropolitan Area; or · on land zoned, and sites within 400m of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre the minimum car parking requirement for residents & visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less. The car parking needs for a development must be provided off street.	The proposed development includes 8 car spaces, as required by the LAHC brief. The spaces are to be provided in the Building 2 basement car park (SSDA-10438), accessed through Building 2 (Refer to SSDA-10439).		✓
	Design Guidance			
	Where a car share scheme operates locally, car share parking spaces are provided within the development.		YES	
	Where less car parking is provided in a development, council do not provide on street resident parking permits		YES	
3J-2 p71	**Objective:** Parking & facilities are provided for other modes of transport.			✓
	Design Guidance			
	Conveniently located & sufficient numbers of parking spaces are provided for motorbikes & scooters	Parking spaces for motorbikes and scooters are not a requirement of LAHC brief	NO	
	Secure undercover bicycle parking is provided & easily accessible from both public domain & common areas	Bicycle parking provided in two locations.on mezzanine of Building 3 and in the ground floor lobby	YES	
	Conveniently located charging stations are provided for electric vehicles, where desirable		N/A	
3J-3 p73	**Objective:** Car park design & access is safe and secure.			N/A
	Design Guidance			
	Supporting facilities within car parks, including garbage, plant & switch rooms, storage areas & car wash bays can be accessed without crossing car parking spaces	The car spaces are to be provided in the Building 2 basement car park (not part of this application). Refer to SSDA-10439	N/A	
	Direct, clearly visible & well lit access is provided into common circulation areas	Refer above	N/A	
	Clearly defined & visible lobby or waiting area is provided to lifts & stairs	Refer above	N/A	
	For larger car parks, safe pedestrian access is clearly defined & circulation areas have good lighting, colour, line marking and/or bollards	Refer above	N/A	
3J-4 p73	**Objective:** Visual & environmental impacts of underground car parking are minimised.			N/A
	Design Guidance			
	Excavation minimised through efficient car park layouts & ramp design	The car spaces are to be provided in the Building 2 basement car park (not part of this application). Refer to SSDA-10439	N/A	
	Car parking layout is well organised, using a logical, efficient structural grid & double loaded aisles	Refer above	N/A	
	Protrusion of car parks do not exceed 1m above ground level. Solution include stepping car park levels or using split levels on sloping sites	Refer above	N/A	
	Natural ventilation is provided to basement & sub-basement car parking	Refer above	N/A	
	Ventilation grills or screening devices for car parking openings are integrated into the facade & landscape design	Refer above	N/A	
3J-5 p75	**Objective:** Visual & environmental impacts of on-grade car parking are minimised.			✓
	Design Guidance			
	On-grade car parking is avoided		YES	
	Where on-grade car parking is unavoidable, the following design solutions are used: · Parking is located on the side or rear of the lot away from the primary street frontage · Cars are screened from view of streets, buildings, communal & private open space areas · Safe & direct access to building entry points is provided · Parking is incorporated into the landscape design, by extending planting & materials into the car park space · Stormwater run-off is managed appropriately from car parking surfaces · Bio-swales, rain gardens or on site detention tanks are provided, where appropriate · Light coloured paving materials or permeable paving systems are used. Shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures to large areas of paving		N/A	
3J-6 p75	**Objective:** Visual & environmental impacts of above ground enclosed car parking are minimised.			N/A
	Design Guidance			
	Exposed parking should not be located along primary street frontages		N/A	
	Screening, landscaping and other design elements including public art should be used to integrate the above ground car parking with the facade. Design solutions may include: · car parking that is concealed behind the facade, with windows integrated into the overall facade design (approach should be limited to developments where a larger floorplate podium is suitable at lower levels) · car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Offce/Home Offce (SOHO) units along the street frontage (see fgure 3J.9)		N/A	
	· Positive street address & active frontages are provided at ground level		N/A	
	DESIGNING THE BUILDING			
4A	**SOLAR & DAYLIGHT ACCESS**			
4A-1 p79	**Objective:** To optimise number of apartments receiving sunlight to habitable rooms, primary windows & private open space.			✓
	Design Criteria			

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
1	Living rooms & private open spaces of at least 70% of apartments in a building receive a minimum of 2 hrs direct sunlight between 9am - 3pm at mid winter in Sydney Metropolitan Area and in Newcastle and Wollongong local government areas	A total of 73% of dwellings receive at least 2 hours of direct sunlight to both their balconies and living spaces between 9am and 3pm at mid winter. A total of 76% of apartments receive at least 2 hours of direct sunlight to their living spaces between 9am and 3pm at mid winter. A total of 74% of apartments receive at least 2 hours of direct sunlight to their balcony between 9am and 3pm at mid winter.	✓
2	In all other areas, living rooms & private open spaces of at least 70% of apartments in a building receive a minimum of 3 hrs direct sunlight between 9 am - 3 pm at mid winter		N/A
2	A maximum of 15% of apartments in a building receive no direct sunlight between 9 am - 3 pm at mid winter	A total of 21% of apartments receive no direct sunlight between 9am and 3pm at mid winter. The western elevation is overshadowed from 1pm to 3pm in mid winter by the Central tower (Building 2) to the north of the site. To utilise the Building 4 envelope efficiently, a double loaded corridor is required, with some apartments orientated to the west. The floorplate has been designed to limit the number of west facing apartments to one per floor. Extending the analysis to be between 9am and 3.45pm at mid winter results in a total of 11% of dwellings receiving no direct sunlight. The west facing apartment recieves sunlight to its living space and private open space from 3.30pm for at least an hour in mid winter. Refer to Appendix OO - Solar Access report by RWDI for further detail.	✘
	Design Guidance		
	The design maximises north aspect. The number of single aspect south facing apartments is minimised	The proposed design seeks to maximise apartments on the north and east elevations. The number of west facing apartments has been minimised as the western elevation is overshadowed by Building 2 at mid winter.	YES
	Single aspect, single storey apartments have a northerly or easterly aspect	7 of the 9 apartments on a typical floor have a northerly or easterly aspect. 1 apartment per typical floor has a westerly aspect and another 1 apartment per typical floor has a southerly aspect. To effectively utlise the Stage 1 DA envelope, the floorplate needs to have a double loaded corridor and the potential for dual aspect or corner apartments is limited.	YES
	Living areas are located to the north and service areas to the south & west of apartments	Where possible, apartments layouts have been designed to orientate living areas to maximise solar access.	YES
	To optimise direct sunlight to habitable rooms & balconies a number of the following design features are used: · Dual aspect apartments · Shallow apartment layouts · Two storey &mezzanine level apartments · Bay windows	The floor plate contains dual aspect apartments to the building corners and shallow apartments to the west. The Stage 1 DA envelope has constrained the ability to provide multi level apartments. The floorplate design seeks to maximise solar access by concentrating apartments to the long eastern elevation. Apartment layouts have been designed to maximise solar access to habitable rooms and balconies.	YES
	To maximise the benefit to residents of direct sunlight within living rooms & private open spaces, a minimum of 1sqm of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes		YES

ADG Ref.	Item Description	Notes	Compliance
	Achieving the design criteria may not be possible 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 · significant views are oriented away from the desired aspect for direct sunlight Design drawings need to demonstrate how site constraints & orientation preclude meeting Design Criteria & how the development meets the objective.		N/A
4A-2 p81	**Objective:** Daylight access is maximised where sunlight is limited.		✓
	Design Guidance		
	Courtyards, skylights & high level windows (with sills of 1,500mm or greater) are used only as a secondary light source in habitable rooms		YES
	Where courtyards are used : · use is restricted to kitchens, bathrooms and service areas · building services are concealed with appropriate detailing and materials to visible walls · courtyards are fully open to the sky · access is provided to the light well from a communal area for cleaning and maintenance · acoustic privacy, fire safety and minimum privacy separation distances (see section 3F Visual privacy) are achieved		N/A
	Opportunities for reflected light into apartments are optimised through: · Reflective exterior surfaces on buildings opposite south facing windows · Positioning windows to face other buildings or surfaces (on neighbouring sites or within site) that will reflect light · Integrating light shelves into the design · Light coloured internal finishes		N/A
4A-3 p81	**Objective:** Design incorporates shading & glare control, particularly for warmer months.		✓
	Design Guidance		
	A number of the following design features are used: · Balconies or sun shading that extend far enough to shade summer sun, but allow winter sun to penetrate living areas · Shading devices such as eaves, awnings, balconies, pergolas, external louvres & planting · Horizontal shading to north facing windows · Vertical shading to east & particularly west facing windows · Operable shading to allow adjustment & choice · High performance glass that minimises external glare off windows, with consideration given to reduce tint glass or glass with a reflectance level below 20% (reflective films are avoided)	The proposed facade design adopts extensive passive solar shading in the form of horizontal slab projections over windows and balconies and vertical brick piers. Vertical batten screens provide shading to east facing living spaces. All windows and glazed sliding doors will be double glazed to reduce heat gain in summer and the heat loss in winter. For further detail of the facade design, please refer to Part 3 Section 4 of the architectural design report.	YES
4B	**NATURAL VENTILATION**		
4B-1 p83	**Objective:** All habitable rooms are naturally ventilated.		✓
	Design Guidance		
	The building's orientation maximises capture & use of prevailing breezes for natural ventilation in habitable rooms		YES
	Depths of habitable rooms support natural ventilation		YES
	The area of unobstructed window openings should be equal to at least 5% of the floor area served		YES
	Light wells are not the primary air source for habitable rooms		YES

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	Doors & openable windows maximise natural ventilation opportunities by using the following design solutions: · Adjustable windows with large effective openable areas · Variety of window types that provide safety & flexibility such as awnings & louvres · Windows that occupants can reconfigure to funnel breezes into apartment, such as vertical louvres, casement windows & externally opening doors		YES
4B-2 p83	**Objective:** The layout & design of single aspect apartments maximises natural ventilation.		✓
	Design Guidance		
	Apartment depths limited to maximise ventilation & airflow		YES
	Natural ventilation to single aspect apartments is achieved with the following design solutions: · Primary windows are augmented with plenums and light wells (generally not suitable for cross ventilation) · Stack effect ventilation, solar chimneys or similar used to naturally ventilate internal building areas or rooms such as bathrooms & laundries · Courtyards or building indentations have a width to depth ratio of 2:1 or 3:1 to ensure effective air circulation & avoid trapped smells	Operable windows to habitable rooms combined with generous operable glazed sliding doors from living rooms located off balconies assist to encourage natural ventilation to single aspect apartments.	YES
4B-3 p85	**Objective:** Number of apartments with natural cross vent is maximised to create comfortable indoor environments for residents.		✓
	Design Criteria		
1	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	42 / 70 (60%) of apartments are naturally cross ventilated. Two apartments on Levels 07 & 08 are cross ventilated via via a plenum in the ceiling of the common corridor that is connected to the northern slot. For further detail of cross ventilation via windows in building indentations and corridor ceiling plenums, refer to be the Wind Report.	✓
2	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line	No cross-over apartments are proposed	✓
	Design Guidance		
	The building includes dual aspect apartments, cross through apartments & corner apartments, and limited apartment depths		YES
	In cross-through apartments, external window & door opening sizes/ areas on one side of an apartment (inlet side) are approximately equal to the external window & door opening sizes/areas on the other side of the apartment (outlet side)	No cross-thorugh apartments are proposed	YES
	Apartments are designed to minimise the number of corners, doors & rooms that might obstruct airflow		YES
	Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation & airflow		YES
4C	**CEILING HEIGHTS**		
4C-1 p87	**Objective:** Ceiling height achieves sufficient natural ventilation & daylight access.		✓
	Design Criteria		

ADG Ref.	Item Description	Notes	Compliance
1	Measured from finished floor level to finished ceiling level, minimum ceiling heights are: **Minimum Ceiling Height for apt and mixed-used buildings (m)** Habitable rooms: 2.7 Non-habitable rooms: 2.4 For 2 storey apts: 2.7 for main living area floor; 2.4 for second floor, where its area does not exceed 50% of the apt area Attic spaces: 1.8 at edge of room with 30deg minimum ceiling slope If located in mixed-used areas: 3.3 for ground and first floor to promote future flexibility of use These minimums do not preclude higher ceilings if desired		✓
	Design Guidance		
	Ceiling height accommodates use of ceiling fans for cooling & heat distribution	The design proposes ceiling fans to the living space and bedrooms	YES
4C-2 p87	**Objective:** Ceiling height increases the sense of space in apartments & provides for well proportioned rooms.		✓
	Design Guidance		
	A number of the following design solutions are used: · Hierarchy of rooms in apartment is defined using changes in ceiling heights & alternatives such as raked or curved ceilings, or double height spaces · Well proportioned rooms are provided, for example, smaller rooms feel larger & more spacious with higher ceilings · Ceiling heights are maximised in habitable rooms by ensuring that bulkheads do not intrude. The stacking of service rooms from floor to floor & coordination of bulkhead location above non-habitable areas, such as robes or storage, can assist		YES
4C-3 p87	**Objective:** Ceiling heights contribute to the flexibility of building use over the life of the building.		✓
	Design Guidance		
	Ceiling heights of lower level apartments in centres should be greater than the minimum required by the design criteria allowing fexibility and conversion to non-residential uses.	Given the location of the proposed building above the Metro box as well as the constraints to access these levels, converting the lower levels to non-residential use is not considered appropriate.	YES
4D	**APARTMENT SIZE & LAYOUT**		
4D-1 p89	**Objective:** The layout of rooms within apartment is functional, well organised & provides a high standard of amenity.		✓
	Design Criteria		

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
1	Apartments have the following minimum internal areas: **Apartment Type** / **Minimum Internal Area (sqm)** Studio — 35 1 Bedroom — 50 2 Bedroom — 70 3 Bedroom — 90 The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5sqm each. A fourth bedroom & further additional bedrooms increase the minimum internal area by 12sqm each	All apartment types meet the minimum internal areas. For individual apartment plans, refer to DA drawings: WMQ-BLD4-BSA-AR-DRG-DA160 WMQ-BLD4-BSA-AR-DRG-DA161 WMQ-BLD4-BSA-AR-DRG-DA162 WMQ-BLD4-BSA-AR-DRG-DA163	✓
2	Every habitable room has a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight & air is not borrowed from other rooms		✓
	Design Guidance		
	Kitchens is not located as part of the main circulation space in larger apartments (such as hallway or entry space)		YES
	A window is visible from any point in a habitable room		YES
	Where minimum areas or room dimensions are not met, apartments demonstrate that they are well designed and demonstrate the usability & functionality of the space with realistically scaled furniture layouts & circulation areas.	Unit type plans with realistically scaled furniture are demonstrated in the DA drawings including the General Arrangement plans and the individual apartment plans.	YES
4D-2 p89	**Objective:** Environmental performance of the apartment is maximised.		✓
	Design Criteria		
1	Habitable room depths are limited to a maximum of 2.5 x the ceiling height		✓
2	In open plan layouts (living, dining & kitchen are combined) maximum habitable room depth is 8m from a window	Generally, kitchen depths are of approximately 8m to 8.5m have been provided to the open plan layouts with ceilings of 2.7m generally.	✓
	Design Guidance		
	Greater than minimum ceiling heights allow for proportional increases in room depth up to the permitted max depths	All habitable room ceilings are designed to 2.7m height	YES
	All living areas & bedrooms are located on the external face of building		YES
	Where possible: · bathrooms & laundries have external openable window · main living spaces are oriented toward the primary outlook & aspect and away from noise sources	Bathrooms and laundries are typically located to the rear of the apartments in order to maximise daylight and ventilation to habitable bedrooms and living rooms. The west facing apartments on Levels 02-09 have windows to the bathrooms.	YES
4D-3 p91	**Objective:** Apartment layouts are designed to accommodate a variety of household activities & needs.		✓
	Design Criteria		
1	Master bedrooms have a minimum area of 10sqm & other bedrooms 9sqm (excluding wardrobe space)	The west facing apartment (Type 2C)has two bedrooms, both with an area of 9.5sqm excluding the wardrobe. The width the bedrooms in this apartment is constrained by the location of structural bracing walls that need to be tied back the the structural core walls around the fire stair.	✓
2	Bedrooms have a minimum dimension of 3m (excluding wardrobe space)		✓

ADG Ref.	Item Description	Notes	Compliance
3	Living rooms or combined living/dining rooms have a minimum width of: · 3.6m for studio & 1 bedroom apartments · 4m for 2 & 3 bedroom apartments		✓
4	The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts	No cross-thorugh apartments are proposed	✓
	Design Guidance		
	Access to bedrooms, bathrooms & laundries is separated from living areas minimising direct openings between living & service areas	The majority of units have an isolated living space, separated from access to bedrooms, bathrooms and services areas. In apartments 2D (Level 02-09) and 2E (Level 01), access to bedrooms from the living space has been unavoidable due to limitations in the placement of structural walls/columns.	YES
	All bedrooms allow a minimum length of 1.5m for robes		YES
	Main bedroom of apartment or studio apartment is provided with a wardrobe of minimum 1.8m L x 0.6m D x 2.1m H	One apartment (Type 2E) on Level 01 has a main bedroom with a wardrboe of 1.5m wide. The second bedroom in this apartment has a wardrboe width of 1.8m.	YES
	Apartment layouts allow flexibility over time, design solutions include: · Dimensions that facilitate a variety of furniture arrangements & removal · Spaces for a range of activities & privacy levels between different spaces within the apartment · Dual master apartments · Dual key apartments Note: dual key apartments which are separate but on the same title are regarded as two sole occupancy units for the purposes of the BCA & for calculating mix of apartments · Room sizes & proportions or open plans (rectangular spaces 2:3 are more easily furnished than square spaces 1:1) · Efficient planning of circulation by stairs, corridors & through rooms to maximise the amount of usable floor space in rooms	Where possible, apartment layouts have been designed to be open plan to allow flexibility of space. The apartment yield and mix, per LAHC's requirements, does not require any dual key apartments.	YES
4E	**PRIVATE OPEN SPACE & BALCONIES**		
4E-1 p93	**Objective:** Apartments provide appropriately sized private open space & balconies to enhance residential amenity.		✓
	Design Criteria		
1	All apartments are required to have primary balconies as follows: **Apartment Type** / **Minimum Area (sqm)** / **Minimum Depth (m)** Studio — 4 — - 1 Bedroom — 8 — 2 2 Bedroom — 10 — 2 3+ Bedroom — 12 — 2.4 The minimum balcony depth to be counted as contributing to the balcony area is 1m	All apartment balconies meet the minimum area requirements	YES
	Design Guidance		
	Increased communal open space are provided where the number or size of balconies are reduced		N/A
	Storage areas on balconies is additional to the minimum balcony size	No storage is provided on balconies.	N/A

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance	
	Balcony use may be limited in some proposals where: · consistently high wind speeds at 10 storeys & above · close proximity to road, rail or other noise sources · exposure to significant levels of aircraft noise · heritage & adaptive reuse of existing buildings In these situations, · juliet balconies, · operable walls, · enclosed wintergardens · bay windows are appropriate. Other amenity benefits for occupants are provided in the apartments or in the development or both. Natural ventilation is also demonstrated	Balcony use is not proposed to be limited anywhere in this development	N/A	
4E-2 p93	**Objective:** Primary private open space & balconies are appropriately located to enhance liveability for residents			✓
	Design Guidance			
	Primary open space and balconies should be located adjacent to the living room, dining room or kitchen to extend the living space		YES	
	Private open spaces and balconies predominantly face north, east or west	All balconies face north, east or west with the sole exception of the balcony to apartment Type 2B (Level 01-08) which faces south.	YES	
	Private open space and balconies should be orientated with the longer side facing outwards or be open to the sky to optimise daylight access into adjacent rooms	The balconies for the east facing studio apartments are approx 2m x 2m square. The balcony for the west facing apartment Type 2C is approx 3.15m W x 3.2m D. These two balconies are designed to enable outboard living spaces to maximise light, views and ventilation. All other apartment balconies have the longer side facing outwards.	YES	
4E-3 p95	**Objective:** Private open space & balcony design is integrated into & contributes to the overall architectural form & detail of the building			✓
	Design Guidance			
	Solid, partially solid or transparent fences & balustrades are selected to respond to the location. They are designed to allow views & passive surveillance of the street while maintaining visual privacy & allowing for a range of uses on the balcony. Solid & partially solid balustrades are preferred	The proposal includes predominantly perforated balcony balustrades in order to balance the need for privacy, views and natural light. East and north facing balconies to Level 01 are glass to increase physical separation from the station vents whilst maintaining views and natural light. As these balconies are setback from the metro box edge, privacy is not an issue and passive surveillance is not poosible.	YES	
	Full width full height glass balustrades alone are generally not desirable	Refer above. Glass balustrades only used to four balconies on Level 01	YES	
	Projecting balconies are integrated into the building design. The design of soffits are considered	Soffits are designed to be off form concrete to be consistent with the overall building material palette.	YES	
	Operable screens, shutters, hoods & pergolas are used to control sunlight & wind	The facade design incorporates integrated horizontal and vertical elements provide shading to all facades. All balconies are set into the building with the exception of the balcony to the north west corner of the building, which has vertical sun blades either side to control sunlight and wind.	N/A	
	Balustrades are set back from the building or balcony edge where overlooking or where safety is an issue		YES	
	Downpipes & balcony drainage are integrated with the overall facade & building design		YES	
	Air-conditioning units are located on roofs, in basements, or fully integrated into the building design	The building is not proposed to have air-conditioning per LAHC requirements	N/A	
	Where clothes drying, storage or air conditioning units are located on balconies, they are screened & integrated in the building design	The proposal includes predominantly perforated balcony balustrades to screen balconies	YES	
	Ceilings of apartments below terraces are insulated to avoid heat loss		YES	
	Water & gas outlets are provided for primary balconies & private open space	Water and gas outlets are not provided on balconies per LAHC brief requirements	NO	
4E-4 p95	**Objective:** Private open space & balcony design maximises safety			✓
	Design Guidance			
	Changes in ground levels or landscaping are minimised		YES	
	Balcony design & detailing avoids opportunities for climbing & falling		YES	
4F	**COMMON CIRCULATION & SPACES**			
4F-1 p97	**Objective:** Common circulation spaces achieve good amenity & properly service the number of apartments			✓
	Design Criteria			
1	The maximum number of apartments off a circulation core on a single level is eight	The proposal has 70 apartments over 9 levels, ranging from 2 to 9 apartments per floor: Level 01 6 Apartments Levels 02-07 9 Apartments Level 08 8 Apartments Level 09 2 Apartments Having 9 apartments to Levels 02-07 has been unavoidable because: / The typical floorplan contains a high proportion of smaller studio apartments in accordance with the LAHC requirements. / A considerable proportion of Level 09 is used for the communal roof terrace, limiting the number of apartments on this level. / A multi-core floorplate is not possible due to the constraints of the metro box and the site.	NO	✗
2	For buildings of 10 storeys & over, the maximum number of apartments sharing a single lift is 40	The proposed building has nine residential levels plus the ground floor lobby. There are 2 lifts serving 70 apartments, meaning the number of apartments sharing a single lift is 35.		✓
	Design Guidance			
	Greater than minimum requirements for corridor widths and/or ceiling heights allow comfortable movement & access particularly in entry lobbies, outside lifts & at apartment entry doors		YES	
	Daylight & natural ventilation are provided to all common circulation spaces that are above ground		YES	
	Windows are provided in common circulation spaces & are adjacent to the stair or lift core or at the ends of corridors		YES	
	Longer corridors greater than 12m in length from the lift core are articulated. Design solutions include: · Series of foyer areas with windows & spaces for seating · Wider areas at apartment entry doors & varied ceiling heights	Due to the constraints of the metro box, the lift core is located to the west of the box resulting in relatively long corridors. The design seeks to mitigate against this through the following design solutions: / articulating the corridors (to form a T-shape) to reduce the percieved length of corridor / providing windows to the ends of corridors for natural light and outlook / providing a common seating area to the the east corridor / widening the corridor at apartment entry doors to create a series of niches / Corridors are naturally ventilated	YES	

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	Common circulation spaces maximise opportunities for dual aspect apartments, including multiple core apartment buildings & cross over apartments	A multi-core floorplate is not possible due to the constraints of the metro box and the site. Cross over apartments are not proposed	NO
	Achieving Design Criteria for the number of apartments off a circulation core may not be possible. Where development is unable to achieve this, a high level of amenity for common lobbies, corridors & apartments is demonstrated, including: · Sunlight & natural cross ventilation in apartments · Access to ample daylight & natural ventilation in common circulation spaces · Common areas for seating & gathering · Generous corridors with greater than minimum ceiling heights · Other innovative design solutions that provide high levels of amenity	Refer to responses above for 4F-1	YES
	Where Design Criteria 1 is not achieved, no more than 12 apartments should be provided off a circulation core on a single level	The maximum number of apartments served by a single core is 9.	YES
	Primary living room or bedroom windows do not open directly onto common circulation spaces, open or enclosed. Visual & acoustic privacy from common circulation spaces to any other rooms are carefully controlled		YES
4F-2 p99	**Objective:** Common circulation spaces promote safety & provide for social interaction between residents		✓
	Design Guidance		
	Direct & legible access should be provided between vertical circulation points & apartment entries by minimising corridor or gallery length to give short, straight, clear sight lines	Due to the constraints of the metro box, the lift core is located to the west of the box resulting in relatively long corridors, where clear sight lines from all apartments to the vertical circulation has not been possible. The design seeks to mitigate against this through the following design solutions: / articulating the corridors (to form a T-shape) to reduce the percieved length of corridor / providing windows to the ends of corridors for natural light and outlook / providing a common seating area to the the east corridor / widening the corridor at apartment entry doors to create a series of niches / Corridors are naturally ventilated	NO
	Tight corners & spaces are avoided		YES
	Circulation spaces are well lit at night	Able to comply. The lighting design will be developed in future design stages	YES
	Legible signage are provided for apartment numbers, common areas & general wayfinding	Able to comply. Signage will be developed in future design stages	YES
	Incidental spaces, eg space for seating in a corridor, at a stair landing, or near a window are provided	A common seating area adjacent to a window is provided at the end of the east corridor	YES
	In larger developments, community rooms for activities such as owners corporation meetings or resident use, are provided & are co-located with communal open space	A community room is looated on Level 09 and opens out onto the roof terrace	YES
	Where external galleries are provided, they are more open than closed above the balustrade along their length	An external gallery provides circulation to the apartments on Level 09	YES
4G	**STORAGE**		
4G-1 p101	**Objective:** Adequate, well designed storage is provided in each apartment		✓
	Design Criteria		
1	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: Apartment Type / Storage Size Volume (cubic m) Studio: 4 1 Bedroom: 6 2 Bedroom: 8 3+ Bedroom: 10 At least 50% of the required storage is to be located within the apartment	All apartment storage provision meets the minimum area requirements. The storage requirements for all apartments is proposed to be met within the apartment.	✓
	Design Guidance		
	Storage is accessible from either circulation or living areas		YES
	Storage provided on balconies (in addition to the minimum balcony size) is integrated into the balcony design, weather proofed & screened from view from the street	No storage is provided on balconies	N/A
	Left over space such as under stairs is used for storage	None of the propsoed apartments have stairs	N/A
4G-2 p101	**Objective:** Additional storage is conveniently located, accessible & nominated for individual apartments		✓
	Design Guidance		
	Storage not located in apartments is secure and clearly allocated to specific apartments	The storage requirements for all apartments is proposed to be met within the apartment.	N/A
	Storage is provided for larger & less frequently accessed items		N/A
	Storage space in internal or basement car parks is provided at the rear or side of car spaces or in cages, such that allocated car parking remains accessible		N/A
	If communal storage rooms are provided they are accessible from common circulation areas of the building		N/A
	Storage not located in apartment is integrated into the overall building design & not visible from public domain		N/A
4H	**ACOUSTIC PRIVACY**		
4H-1 p103	**Objective:** Noise transfer is minimised through the siting of buildings & building layout		✓
	Design Guidance		
	Adequate building separation is provided within the development & from neighbouring buildings/adjacent uses (see 2F Building Separation & 3F Visual Privacy)	Refer to responses to 2F and 3F	YES
	Window & door openings are orientated away from noise sources	Botany Road constitutes a considerable noise source. To mitigate the impact of this noise, each of the habitable rooms on the north, south and west facades have an acoustic ventilator panel which allows natural ventilation whilst reducing the level of noise entering the apartment. For further description of how the ventilator is intergrated in the architectural design, refer to Part 3 Section 4 of the architectural design report. For the technical aspects of the acoustic ventilator, refer to the Acoustic report.	YES
	Noisy areas within buildings including building entries & corridors are located next to or above each other while quieter areas are located next to or above quieter areas		YES
	Storage, circulation areas & non-habitable rooms are located to buffer noise from external sources		YES
	The number of party walls (shared with other apartments) are limited & are appropriately insulated		YES

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	Noise sources such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces & circulation areas should be located at least 3m away from bedrooms		YES
4H-2 p103	**Objective:** Noise impacts are mitigated within apartments through layout & acoustic treatments		✓
	Design Guidance		
	Internal apartment layout separates noisy spaces from quiet spaces, using a number of the following design solutions: · Rooms with similar noise requirements are grouped together · Doors separate different use zones · Wardrobes in bedrooms are co-located to act as sound buffers		YES
	Where physical separation cannot be achieved, noise conflicts are resolved using the following design solutions: · Double or acoustic glazing · Acoustic seals · Use of materials with low noise penetration properties · Continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements	The proposed building incorporates the following design solutions to address noise conflicts: / double glazing / acoustic ventilator panels to allow natural ventilation whilst reducing noise / high degree of solidity (brick facade) where appropriate to reduce noise on the north, east and south elevations	YES
4J	**NOISE & POLLUTION**		
4J-1 p105	**Objective:** In noisy or hostile environments impacts of external noise & pollution are minimised through careful siting & layout		✓
	Design Guidance		
	To minimise impacts the following design solutions are used: · Physical separation between buildings & the noise or pollution source · Residential uses are located perpendicular to the noise source & where possible buffered by other uses · Non-residential buildings are sited to be parallel with the noise source to provide a continuous building that shields residential uses & communal open spaces · Non-residential uses are located at lower levels vertically separating residential component from noise or pollution source. Setbacks to the underside of residential floor levels are increased, relative to traffic volumes & other noise sources · Buildings respond to both solar access & noise. Where solar access is away from noise source, non-habitable rooms will provide a buffer · Where solar access is in the same direction as the noise source, dual aspect apartments with shallow building depths are preferred · Landscape design reduces the perception of noise & acts as a filter for air pollution generated by traffic & industry		YES
	Achieving the design criteria in this Apartment Design Guide may not be possible in some situations due to noise and pollution. Where developments are unable to achieve Design Criteria, alternatives are considered in the following areas: · Solar & daylight access · Private open space & balconies · Natural cross ventilation		N/A
4J-2 p105	**Objective:** Appropriate noise shielding or attenuation techniques for building design, construction & choice of materials are used to mitigate noise transmission		✓
	Design Guidance		
	Design solutions to mitigate noise include: · Limiting the number & size of openings facing noise sources · Providing seals to prevent noise transfer through gaps · Using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens) · Using materials with mass and/or sound insulation or absorption properties eg solid balcony balustrades, external screens & soffits	The proposed building incorporates the following design solutions to shield noise: / double glazing / acoustic ventilator panels to allow natural ventilation whilst reducing noise / high degree of solidity (brick facade) where appropriate to reduce noise on the north, east and south elevations / perforated aluminium balustrades	YES
4K	**APARTMENT MIX**		
4K-1 p107	**Objective:** A range of apartment types & sizes is provided to cater for different household types now & into the future		✓
	Design Guidance		
	A variety of apartment types is provided	A total of 70 apartments are proposed consisting of: 26 x Studio Apartments 2 x 1 Bed Apartments 30 x 2 Bed Apartments 4 x 2 Bed Apartments (adaptable) 7 x 3 Bed Apartments (adaptable) 1 x 4 Bed Apartment (adaptable)	YES
	The apartment mix is appropriate, taking into consideration: · Distance to public transport, employment & education centres · Current market demands & projected future demographic trends · Demand for social & affordable housing · Different cultural & socioeconomic groups	The apartment mix has been determined by LAHC requirements	YES
	Flexible apartment configurations are provided to support diverse household types & stages of life including single person households, families, multi-generational families & group households	The apartment mix has been determined by LAHC requirements	YES
4K-2 p107	**Objective:** The apartment mix is distributed to suitable locations within the building		✓
	Design Guidance		
	Different apartment types are located to achieve successful facade composition & to optimise solar access	A variety of apartment types are located on each floor. Studio apartments have been concentrated on the east to optimise solar access.	YES
	Larger apartment types are located on ground or roof level where there is potential for more open space, and on corners where more building frontage is available	Larger apartments are located on the corners to optimise cross ventilation, natural light and views to these apartments.	YES
4L	**GROUND FLOOR APARTMENTS**		
4L-1 p109	**Objective:** Street frontage activity is maximised where ground floor apartments are located		N/A
	Design Guidance		
	Direct street access should be provided to ground floor apartments	Ground floor apartments are not proposed	N/A
	Activity is achieved through front gardens, terraces and the facade of the building. Design solutions may include: · both street, foyer and other common internal circulation entrances to ground floor apartments · private open space is next to the street · doors and windows face the street		N/A
	Retail or home offce spaces should be located along street frontages		N/A
	Ground floor apartment layouts support small offce home offce (SOHO) use to provide future opportunities for conversion into commercial or retail areas. In these cases provide higher floor to ceiling heights and ground floor amenities for easy conversion		N/A
4L-2 p109	**Objective:** Design of ground floor apartments delivers amenity and safety for residents		N/A

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
	Design Guidance		
	Privacy and safety should be provided without obstructing casual surveillance. Design solutions may include: · elevation of private gardens and terraces above the street level by 1-1.5m · landscaping and private courtyards · window sill heights that minimise sight lines into apartments · integrating balustrades, safety bars or screens with the exterior design	Ground floor apartments are not proposed	N/A
	Solar access should be maximised through: · high ceilings and tall windows · trees and shrubs that allow solar access in winter and shade in summer		N/A
4M	**FACADES**		
4M-1 p111	**Objective:** Building facades provide visual interest along the street while respecting the character of the local area		✓
	Design Guidance		
	Design solutions for front building facades include: · Composition of varied building elements · Defined base, middle & top of buildings · Revealing & concealing certain elements		YES
	Building services are integrated within the overall facade		YES
	Building facades are well resolved with appropriate scale & proportion to streetscape & with consideration of human scale. Solutions include: · Well composed horizontal & vertical elements · Variation in floor heights to enhance the human scale · Elements that are proportional & arranged in patterns · Public artwork or treatments to exterior blank walls · Grouping of floors or elements such as balconies & windows on taller buildings		YES
	Building facades relate to key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights		YES
	Shadow is created on the facade throughout the day with building articulation, balconies & deeper window reveals		YES
4M-2 p111	**Objective:** Building functions are expressed by the facade		✓
	Design Guidance		
	Building entries are clearly defined		YES
	Important corners are given visual prominence through change in articulation, materials or colour, roof expression or changes in height		YES
	Apartment layout is expressed externally through facade features such as party walls & floor slabs		YES
4N	**ROOF DESIGN**		
4N-1 p113	**Objective:** Roof treatments are integrated into the building design & positively respond to the street		✓
	Design Guidance		
	Roof design relates to the street. Design solutions include: · Special roof features & strong corners · Use of skillion or very low pitch hipped roofs · Breaking down the massing of the roof by using smaller elements to avoid bulk · Using materials or pitched form complementary to adjacent buildings	The roof terrace forms an open 'crown' to the top of the building. The horizontal slab edges and vertical brick piers are continued up forms an enclosure to the roof terrace whilst the planted mesh screen signifies a change in material and architectural expression. The roof volume to the south, containing the community room and roof plants, is set back from the building edge to reduce the building massing. The bronze metal cladding is intended to tie it back to the other bronze metallic elements used throughout the facade design.	YES
	Roof treatments are integrated with the building design. Design solutions include: · Roof design is in proportion to the overall building size, scale & form · Roof materials compliment the building · Service elements are integrated	Refer above	YES
4N-2 p113	**Objective:** Opportunities to use roof space for residential accommodation & open space are maximised		✓
	Design Guidance		
	Habitable roof space are provided with good levels of amenity. Design solutions include: · Penthouse apartments · Dormer or clerestory windows · Openable skylights	The roof space on Level 09 is used for the communal roof terrace	YES
	Open space is provided on roof tops subject to acceptable visual & acoustic privacy, comfort levels, safety & security considerations	he roof space on Level 09 is used for the communal roof terrace. a 3m high steel mesh screen to the perimeter addresses safety and security concerns.	YES
4N-3 p113	**Objective:** Roof design incorporates sustainability features		✓
	Design Guidance		
	Roof design maximises solar access to apartments during winter & provides shade during summer. Design solutions include: · Roof lifts to the north · Eaves & overhangs shade walls & windows from summer sun	Roof design does not impact solar access to apartments	N/A
	Skylights & ventilation systems are integrated into the roof design		N/A
4O	**LANDSCAPE DESIGN**		
4O-1 p115	**Objective:** Landscape design is viable & sustainable		✓
	Design Guidance		
	Landscape design is environmentally sustainable & can enhance environmental performance by incorporating: · Diverse & appropriate planting · Bio-filtration gardens · Appropriately planted shading trees · Areas for residents to plant vegetables & herbs · Composting · Green roofs or walls	Landscaping is provided in the communal roof terrace and to the perimeter of the Level 01 apartments. The roof terrace includes raised planters with integrated seating areas, and a community garden for residents to plant vegetables and herbs. Provision for composting is subject to operation and management.	YES
	Ongoing maintenance plans are prepared	Able to comply. To be part of future design development by Landscape Architect	YES
	Microclimate is enhanced by: · Appropriately scaled trees near the eastern & western elevations for shade · Balance of evergreen & deciduous trees to provide shading in summer & sunlight access in winter · Shade structures such as pergolas for balconies & courtyards	Due to the location of the proposed building over the metro box, providing trees to shade elevations is not possible. Balconies are inset and therefore additional shade structures not required. An awning structure is provided to the communal roof terrrace.	N/A
	Tree & shrub selection considers size at maturity & the potential for roots to compete.	Refer to Landscape Architects DA documentation for further detail	YES

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
4O-2 p115	**Objective:** Landscape design contributes to streetscape & amenity		✓
	Design Guidance		
	Landscape design responds to the existing site conditions including: · Changes of levels · Views · Significant landscape features including trees & rock outcrops	Due to the location of the proposed building over the metro box, responding to the existing site conditions is not applicable. The roof terrace has been designed to open up to the north and east to optimise solar access and capture prime views.	N/A
	Significant landscape features are protected by: · Tree protection zones · Appropriate signage & fencing during construction	Due to the location of the proposed building over the metro box, there are no pre existing lansdscape features.	N/A
	Plants selected are endemic to region & reflect local ecology	Refer to Landscape Architects DA documentation for further detail.	YES
4P	**PLANTING ON STRUCTURES**		
4P-1 p117	**Objective:** Appropriate soil profiles are provided		✓
	Design Guidance		
	Structures are reinforced for additional saturated soil weight		YES
	Soil volume is appropriate for plant growth, including: · Modifying depths & widths according to planting mix & irrigation frequency · Free draining & long soil life span · Tree anchorage		YES
	Minimum soil standards for plant sizes should be provided in accordance with: Site Area (sqm) / Recommended Tree Planting Up to 850 — 1 medium tree per 50sqm of deep soil zone 850 - 1,500 — 1 large tree or 2 medium trees per 90sqm of deep soil zone Greater than 1,500 — 1 large tree or 2 medium trees per 80sqm of deep soil zone	There are no deep soil zones as the building is located prodominantly above the metro box. However, the Waterloo Metro Quarter precinct aims to achieve 15% deep soil across the whole development (excluding the station box area). Refer to Landscape Architects DA documentation for further detail.	YES
4P-2 p117	**Objective:** Plant growth is optimised with appropriate selection & maintenance		✓
	Design Guidance		
	Plants are suited to site conditions, considerations include: · Drought & wind tolerance · Seasonal changes in solar access · Modified substrate depths for a diverse range of plants · Plant longevity	Refer to Landscape Architects DA documentation for further detail.	YES
	A landscape maintenance plan is prepared	Able to comply. To be part of future design development by Landscape Architect	YES
	Irrigation & drainage systems respond to: · Changing site conditions · Soil profile & planting regime · Whether rainwater, stormwater or recycled grey water is used	Refer to Landscape Architects DA documentation for further detail.	YES
4P-3 p117	**Objective:** Planting on structures contributes to the quality & amenity of communal & public open spaces		✓
	Design Guidance		

ADG Ref.	Item Description	Notes	Compliance
	Adaptable housing should be provided in accordance with the relevant council policy	A total of 12 (17%) adaptable apartments are provided consisting of: 4 x 2 Bed Apartments (adaptable) 7 x 3 Bed Apartments (adaptable) 1 x 4 Bed Apartment (adaptable)	YES
	Design solutions for adaptable apartments include: · Convenient access to communal & public areas · High level of solar access · Minimal structural change & residential amenity loss when adapted · Larger car parking spaces for accessibility · Parking titled separately from apartments or shared car parking arrangements	Adaptable apartments have been designed to required minimal changes. For example, the walls and doors to bathrooms and laundries remain unchanged.	YES
4Q-3 p119	**Objective:** Apartment layouts are flexible & accommodate a range of lifestyle needs		✓
	Design Guidance		**Considered**
	Flexible design solutions include: · Rooms with multiple functions · Dual master bedroom apartments with separate bathrooms · Larger apartments with various living space options · Open plan 'loft' style apartments with only a fixed kitchen, laundry & bathroom	A range of apartment types are provided to suit different needs and circumstances. Apartments have been designed to have open plan living spaces.	YES
4R	**ADAPTIVE REUSE**		
4R-1 p121	**Objective:** New additions to existing buildings are contemporary, complementary & enhance area's identity & sense of place		N/A
	Design Guidance		**Considered**
	Design solutions include: · New elements align with the existing building · Additions complement the existing character, siting, scale, proportion, pattern, form & detailing · Contemporary & complementary materials, finishes, textures & colours	The proposed building does not entail additions to existing buildings	N/A
	Additions to heritage items are clearly identifiable from the original building		N/A
	New additions allow for interpretation & future evolution of the building		N/A
4R-2 p121	**Objective:** Adapted buildings provide residential amenity but does not precluding future adaptive reuse		N/A
	Design Guidance		**Considered**
	Design features are incorporated sensitively to make up for any physical limitations, to ensure residential amenity. Design solutions include: · Generously sized voids in deeper buildings · Alternative apartment types when orientation is poor · Additions to expand the existing building envelope	The proposed building does not entail additions to existing buildings	N/A
	Where developments are unable to achieve Design Criteria, alternatives are considered in the following areas: · Where there are existing higher ceilings, depths of habitable rooms can increase subject to demonstrating access to natural ventilation, cross ventilation (when applicable) and solar & daylight access (see 4A & 4B) · Alternatives to providing deep soil where less than the minimum requirement is currently available on the site · Building & visual separation subject to demonstrating alternative design approaches to achieving privacy · Common circulation · Car parking · Alternative approaches to private open space & balconies		N/A

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance
4S	**MIXED USE**		
4S-1 p123	**Objective:** Mixed use developments are provided in appropriate locations & provide active street frontages that encourage pedestrian movement.		✓
	Design Guidance		**Considered**
	Mixed use development are concentrated around public transport & centres	The proposed building is adjacent to the new Waterloo Metro station near the bus stops on Botany Road.	YES
	Mixed use developments positively contribute to the public domain. Design solutions include: · Development addresses the street · Active frontages provided · Diverse activities & uses · Avoiding blank walls at the ground level · Live/work apartments on the ground floor level, rather than commercial	Whilst the proposed Building 4 does not include other uses, it is part of a larger new mixed use development - Waterloo Metro Quarter - that includes a ranges of different uses and public spaces.	YES
4S-2 p123	**Objective:** Residential levels of the building are integrated within the development. Safety & amenity is maximised.		✓
	Design Guidance		**Considered**
	Residential circulation areas are clearly defined. Solutions include: · Residential entries separated from commercial entries & directly accessible from the street · Commercial service areas separated from residential components · Residential car parking & communal facilities separated or secured · Security at entries & safe pedestrian routes are provided · Concealment opportunities are avoided	The propsoed residential building will have its own dedicated entrance and lobby	YES
	Landscaped communal open space are provided at podium or roof		YES
4T	**AWNING & SIGNAGE**		
4T-1 p125	**Objective:** Awnings are well located and complement & integrate with the building design.		✓
	Design Guidance		**Considered**
	Awnings are located along streets with high pedestrian activity & active frontages	Awnings are provided to the residential lobby and across the proposed Waterloo Metro Quarter development.	YES
	A number of the following design solutions are used: · Continuous awnings are maintained & provided in areas with an existing pattern · Height, depth, material & form complements existing street character · Protection from sun & rain is provided · Awnings are wrapped around secondary frontages of corner sites · Awnings are retractable in areas without an established pattern	A variety of awning types are proposed across the Waterloo Metro Quarter development. Refer to the Urban Design report for further detail.	YES
	Awnings are located over building entries for building address & public domain amenity		YES
	Awnings relate to residential windows, balconies, street tree planting, power poles & street infrastructure		YES
	Gutters & down pipes are integrated and concealed		YES
	Lighting under awnings is provided for pedestrian safety		YES
4T-2 p125	**Objective:** Signage responds to context & desired streetscape character.		✓
	Design Guidance		**Considered**
	Signage is integrated into building design & respond to scale, proportion & detailing of the development		YES
	Legible & discrete way finding is provided for larger developments	Able to comply. Wayfinding signage across the Waterloo Metro Quarter will developed in a future design stage by others	YES
	Signage is limited to being on & below awnings, and single facade sign on primary street frontages	Generally, signage is limited to shopfronts and awnings, however top of building signage is also proposed to the commercial and student accommodation buildings within the proposed Waterloo Metro Quarter development.	YES
4U	**ENERGY EFFICIENCY**		
4U-1 p127	**Objective:** Development incorporates passive environmental design.		✓
	Design Guidance		**Considered**
	Adequate natural light is provided to habitable rooms (see 4A Solar & Daylight Access)		YES
	Well located, screened outdoor areas are provided for clothes drying	Apartment balconies can be used for clothes drying. Perforated aluminium balustrades provide a considerable degree of screening to the balconies	YES
4U-2 p127	**Objective:** Passive solar design is incorporated to optimise heat storage in winter & reduce heat transfer in summer.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Use of smart glass or other on north & west elevations · Thermal mass maximised in floors & walls of north facing rooms · Polished concrete floors, tiles or timber rather than carpet · Insulated roofs, walls & floors. Seals on window & door openings · Overhangs & shading devices such as awnings, blinds & screens	Passive design solutions include: / High degree of solidity to the north, west and south elevations. Sunscreens to the east elevation / Double glazing performance glass to all windows and glazed sliding doors / External horizontal and vertical shading elements in the form of slab edges and brick piers	YES
	Provision of consolidated heating & cooling infrastructure is located in a centralised location (eg basement)	A consolidated hot water system is located in Level 09 plant room. Air conditioning is not provided per LAHC requirements	YES
4U-3 p127	**Objective:** Adequate natural ventilation to minimise the need for mechanical ventilation.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Rooms with similar usage are grouped together · Natural cross ventilation for apartments is optimised · Natural ventilation is provided to all habitable rooms & as many non-habitable rooms, common areas & circulation spaces as possible		YES
4V	**WATER MANAGEMENT & CONSERVATION**		
4V-1 p129	**Objective:** Potable water use is minimised.		✓
	Design Guidance		**Considered**
	Water efficient fittings, appliances & wastewater reuse are incorporated		YES
	Apartments are individually metered	Apartments will be metered per LAHC requirements	YES
	Rainwater is collected, stored & reused on site		YES
	Drought tolerant, low water use plants are used within landscaped areas		YES
4V-2 p129	**Objective:** Urban stormwater is treated on site before being discharged to receiving waters.		✓
	Design Guidance		**Considered**
	Water sensitive urban design systems are designed by a suitably qualified professional	Refer to Civil report for further detail	YES

ADG COMPLIANCE CHECKLIST (BUILDING 4)

ADG Ref.	Item Description	Notes	Compliance	
	A number of the following design solutions are used: · Runoff is collected from roofs & balconies in water tanks and plumbed into toilets, laundry & irrigation · Porous & open paving materials is maximised · On site stormwater & infiltration, including bio-retention systems such as rain gardens or street tree pits	On site stormwater retention	YES	
4V-3 p129	**Objective:** Flood management systems are integrated into site.			✓
	Design Guidance		**Considered**	
	Detention tanks are located under paved areas, driveways or in basement car parks		YES	
	On large sites, parks or open spaces are designed to provide temporary on site detention basins		N/A	
4W	**WASTE MANAGEMENT**			
4W-1 p131	**Objective:** Waste storage facilities are designed to minimise impacts on streetscape, building entry & amenity of residents.			✓
	Design Guidance		**Considered**	
	Adequately sized storage areas for rubbish bins are located discreetly away from the front of the development or in basement car park	Waste storage is located on Ground Level within the building	YES	
	Waste & recycling storage areas are well ventilated	Waste rooms will be mechanically ventilated	YES	
	Circulation design allows bins to be easily manoeuvred between storage & collection points		YES	
	Temporary storage are provided for large bulk items such as mattresses	Bulky goods waste storage is provided on Ground Level	YES	
	Waste management plan is prepared	Refer to Waste Management Report for further detail	YES	
4W-2 p131	**Objective:** Domestic waste is minimised by providing safe & convenient source separation & recycling.			✓
	Design Guidance		**Considered**	
	All dwellings have a waste & recycling cupboard or temporary storage area of sufficient size to hold two days worth of waste & recycling	Able to comply. Apartment layouts to be detailed in a future design stage	YES	
	Communal waste & recycling rooms are in convenient & accessible locations related to each vertical core	A waste and recycling chute is provided on all residential levels near the lift core	YES	
	For mixed use developments, residential waste & recycling storage areas & access is separate & secure from other uses	Refer to Building 3 ground floor plan and Waste Management report for further detail	YES	
	Alternative waste disposal methods such as composting is provided	Not currently provided. The provision of on site composting is subject to LAHC requirements.	NO	
4X	**BUILDING MAINTENANCE**			
4X-1 p133	**Objective:** Building design detail provides protection from weathering.			✓
	Design Guidance		**Considered**	
	A number of the following design solutions are used: · Roof overhangs to protect walls · Hoods over windows & doors to protect openings · Detailing horizontal edges with drip lines to avoid staining surfaces · Methods to eliminate or reduce planter box leaching · Appropriate design & material selection for hostile locations	Design solutions include: / Horizontal edges with drip grooves to protect walls / Windows set back to protect openings / Durable, robust materials such as brick and concrete	YES	
4X-2 p133	**Objective:** Systems & access enable ease of maintenance.			✓
	Design Guidance		**Considered**	
	Window design enables cleaning from the inside of the building	Glass sliding doors to balconies are able to be cleaned by residents. Due to the elevation of the building, and the fact all windows will be on restrictors, window cleaning is proposed to occur from the outside of the building by professional contractors with experience working at heights.	NO	
	Building maintenance systems are incorporated & integrated into the design of the building form, roof & facade	Detail to be developed in future design stages	YES	
	Design does not require external scaffolding for maintenance access		YES	
	Manually operated systems such as blinds, sunshades & curtains are used in preference to mechanical systems	Window covering will be subject to LAHC requirements	YES	
	Centralised maintenance, services & storage are provided for communal open space areas within the building		YES	
4X-3 p133	**Objective:** Material selection reduces ongoing maintenance costs.			✓
	Design Guidance		**Considered**	
	A number of the following design solutions are used: · Sensors to control artificial lighting in common circulation & spaces · Natural materials that weather well & improve with time, such as face brickwork · Easily cleaned surfaces that are graffiti resistant · Robust & durable materials & finishes in locations which receive heavy wear & tear such as common circulation areas & lift interiors	Robust and durable materials such as concrete, brick and metal are prosposed to reduced ongoing maintenance costs. Internal materials to common circulation areas will be selected to ensure durability and minimal maintenance.	YES	