

ONE SYDNEY HARBOUR

DESIGN VERIFICATION STATEMENT - BUILDING R5

(State Significant Development SSD 6966)

Section 4.55 Modification Application

Pursuant to Clause 50 (1A) and (1B) of the Environmental Planning and Assessment Regulation 2000,

I hereby verify that to the best of my knowledge, information and belief that:

a) the residential apartment development, as modified, generally achieves the design quality principles set out in State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development and

b) the modifications do not diminish or detract from the design quality of the development for which the development consent was granted.

The design quality principles set out in State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development have been addressed in the Design Verification Statement that contains the:

- Design Quality Principles of SEPP 65, and
- Design Objectives and Guidance Compliance of the Apartment Design Guide (ADG)

The modified architectural design has been addressed in the:
-Design Report

Principal Architect


Emanuela Baglietto
Partner
Renzo Piano Building Workshop
NSW Architects Registration Board
Registration Number 9512

In collaboration with Executive Architect:


Simon Parsons
Executive Director
PTW Architects
NSW Architects Registration Board
Registration Number 6098

SEPP 65 DESIGN QUALITY PRINCIPLES STATEMENT

PREPARED BY RENZO PIANO BUILDING WORKSHOP, LENDLEASE DESIGN AND PTW ARCHITECTS

Section 4.55 Modification Application – Building R5, Barangaroo – SSD 6966

This Statement in reference to the Design Quality Principles of *State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development* (SEPP 65) and the associated Objectives of Parts 3 and 4 of the *Apartment Design Guide*, this statement supports a S4.55(2) modification application to an existing State Significant Development Consent (SSD 6966) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EPA Act).

The S.4.55(2) seeks approval for modification of the approved design and development for a residential flat building (known as Building R5) and seeks consent for an increase in the gross floor area up to a maximum 21,508 sqm, amendments to the total number of apartments and internal apartment layouts. Specifically the following amendments are sought as part of the modification application:

- an increase the number of Key Worker Housing apartments from 48 to 50;
- internal apartment layout changes;
- changes to the landscaped podium layout and amenities area;
- changes to the façade, including slight realignment;
- amendments to car parking.

A further detailed description of the proposed modifications is contained in the S4.55 (2) planning report, prepared by Ethos Urban.

Framework

This statement has been prepared in accordance with the provisions of Clause 115(3) and (3A) of the Environmental Planning and Assessment Regulation 2000 (EPA Regulation), which are set out below:

(3) In addition, if an application for the modification of a development consent under section 4.55 (2) or section 4.56 (1) of the Act relates to residential apartment development and the development application was required to be accompanied by a design verification from a qualified designer under clause 50 (1A), the application must be accompanied by a statement by a qualified designer.

(3A) The statement by the qualified designer must—

- (a) verify that he or she designed, or directed the design of, the modification of the development and, if applicable, the development for which the development consent was granted, and
- (b) provide an explanation of how—
- (i) the design quality principles are addressed in the development, and
 - (ii) in terms of the Apartment Design Guide, the objectives of that guide have been achieved in the development, and
- (c) verify that the modifications do not diminish or detract from the design quality, or compromise the design intent, of the development for which the development consent was granted.

DESIGN QUALITY PRINCIPLES OF SEPP 65 – BUILDING R5

Design Quality Principle	Objective / Control	Evaluation	Verification
01 CONTEXT AND NEIGHBOURHOOD CHARACTER	<p><i>Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship, and the character they create when combined. It also includes social, economic, health and environmental conditions.</i></p> <p><i>Responding to context involves identifying the desirable elements of an area's existing or future character. Well-designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape, and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.</i></p>	<ul style="list-style-type: none"> ▪ Barangaroo is situated on the harbour foreshore and marks the western edge of the Sydney CBD. ▪ The site is part of the greater Barangaroo urban regeneration project that is transforming the Sydney Harbour waterfront. ▪ The site sits to the north of the commercial precinct of the Rogers Stirk Harbour + Partners (RSHP) masterplan and is framed by key thoroughfares of Watermans Quay, Barangaroo Avenue, Barton Street and Hickson Road. ▪ Hickson Road incorporates a range of buildings of varied use and age. ▪ Watermans Quay will be defined on the south side by the RSHP commercial building – 'International Towers Sydney, Tower One' (Commercial Building C3). ▪ To the west of Barangaroo Avenue will be Crown Hotel and Resort. ▪ The public domain will be defined by the creation of a generous north facing open space, Hickson Park (as well the harbourfront areas of Watermans Cove and boardwalk). ▪ This development has been designed concurrently with the public domain and seeks to draw upon the following characteristics of the context to create a high quality outcome: <ul style="list-style-type: none"> - <u>Landscape</u>: builds upon the principles of the greater masterplan vision and is marked by the creation of a north facing public open space. (R5 sits at the southern edge of Hickson Park.) 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
		<ul style="list-style-type: none"> - <u>Architecture</u>: R5 has been designed as part of an elegant composition of three buildings by the same architect, each founded on the concept of a “crystalline” form. These define the northern edge of Watermans Quay and frame Hickson Park. The building is envisaged as being a pure, transparent and refined form that will read cohesively with the other associated proposed adjacent residential towers and achieve an appropriate transition in architectural style between the natural landscape of the harbour and the commercial vernacular of buildings to the east and south in the Sydney CBD. In this sense they will make a significant positive contribution to the Sydney city skyline. - <u>Circulation</u>: A series of links around the site define the public realm. - <u>Views</u>: The site has views to some of Sydney’s prestigious landmarks including the Harbour Bridge, Opera House and Blue Mountains. Informed by analysis of the existing view corridors, R5 seeks to access these views equitably with consideration to the neighbouring developments. Furthermore, the project will enhance views to the CBD from surrounding key vantage points through its architectural contribution. - <u>Vehicular circulation</u>: vehicular access to the basement has been consolidated into one entry and exit point off Watermans Quay. 	
02 BUILT FORM AND SCALE	<i>Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings. Good design also achieves an appropriate built form for a site and the building’s purpose in terms of building alignments, proportions, building type, articulation, and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.</i>	<ul style="list-style-type: none"> ▪ The proposed building height and scale is within the defined developable envelopes as approved in the Concept Plan (as modified). ▪ The approved podium of R5 is three storeys in height and responds to the scale of the RSHP International Tower One podium on the other side of Watermans Quay. ▪ The approved R5 podium defines the site extent and allows the residential tower to meet the ground plane at a human scale appropriate to the precinct ▪ R5 is the shortest of the family of three residential towers and responds to the scale of nearby buildings fronting Hickson Road, while buildings to the west are taller, responding to the scale of the proposed Crown Landmark Hotel building to the west. 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
		<ul style="list-style-type: none"> ▪ The building footprint has been carefully designed so that it reads as a crystal like form on the city skyline. ▪ The building location and alignment has been carefully considered in relation to the family of three residential towers and is positioned to allow for optimum vistas and views from the site. ▪ R5 is defined by a narrow module which sets a discrete and regular rhythm on the façade. This is punctuated by balconies that will play with light to enhance the crystalline, lightweight presence of the building. ▪ R5 addresses Hickson Road, Waterman's Quay and Hickson Park to the north with the residential lobby and retail providing activation and appropriate scale to the ground plane. ▪ The orientation and siting of the building relative to adjacent existing and proposed buildings, together with the internal floor layout and features of the façade design, will create a high level of internal and external amenity in terms of visual privacy, outlook/views, solar access, natural ventilation and space functionality. 	
03 DENSITY	<i>Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context. Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.</i>	<ul style="list-style-type: none"> ▪ The proposed density of the R5 residential tower is appropriate to the site and its urban context. ▪ The R5 residential tower will contribute to the vision of the Barangaroo concept plan as a thriving mixed-use community in the Sydney CBD. ▪ The density provides for the efficient use of the land in close proximity to jobs, shops, services and transport. The development can be supported by the surrounding environment, with infrastructure and services readily available, retail, business and recreational hubs immediately nearby and high quality public transport within a short distance. ▪ The taller, narrow tower forms of the respective buildings combined with the configuration of the R4A, R4B and R5 cluster both facilitates the successful incorporation of the apartment density within the overall site but also provides amenity value through the appropriate separation to adjacent buildings and opportunity for the creation of quality public realm. ▪ The composition of the three residential towers has been carefully considered in relation to the northerly aspect and Sydney Harbour icons and optimises views, solar access, and the public open space of the site. 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
		<ul style="list-style-type: none"> Each apartment within R5 has been designed so that the aspect and outlook contribute to the ultimate amenity and well-being of the residents. 	
04 SUSTAINABILITY	<p><i>Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials and deep soil zones for groundwater recharge and vegetation.</i></p>	<ul style="list-style-type: none"> The Barangaroo Precinct's sustainability initiatives are extensive and are underpinned by aspirations of carbon neutral, zero waste and water positive. R5 will be a sustainable residential building, with low operational energy consumption, reduced potable water use, minimisation of waste to landfill and appropriate materials selection while at the same time maintaining a high level of indoor environmental quality through appropriate mechanical design, façade configuration and materials selection. It will appropriately contribute towards the achievement of the sustainability requirements included in the Statement of Commitments of the approved Concept Plan, is committed to a 5 Star Green Star rating and will meet the requirements of the Building Sustainability Index (BASIX). The proposed residential development will benefit from Barangaroo South's precinct sustainability initiatives such as the district cooling plant, on-site renewables and generation strategy and the precinct recycled water plant. These initiatives are essential to ensure the Barangaroo South achieves sustainability targets such as: <ul style="list-style-type: none"> Minimal operational energy consumption off-set by offsite renewable energy to ensure a carbon neutral precinct. The capability to export more recycled water than potable water is imported to ensure a positive water impact. An 80% operational waste diverted from landfill, targeting zero net waste to landfill by 2020. 20% reduction in embodied carbon (cradle to gate) not including tenant fit outs. On site renewables of an amount to offset public realm and recycled water treatment plant energy use. Further, individual apartments are located and oriented to maximise opportunities for controlled solar access and natural ventilation, minimising energy use and maximise the efficient use of resources. 	✓
05 LANDSCAPE	<p><i>Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in</i></p>	<ul style="list-style-type: none"> The public domain and architecture have been developed through a collaborative design process. The public domain is seen as an extension of the building architecture and is an integral component 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
	<i>attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood. Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values and preserving green networks. Good landscape design optimises useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management.</i>	<p>of the proposal in the context of its urban setting and connectivity with the wider precinct.</p> <ul style="list-style-type: none"> ▪ Hickson Park and Watermans Cove will be a significant new addition to the framework of the public realm for the city. In addition, Hickson Park will provide an extension of the residential amenity of the towers and access to green open space. ▪ The design approach to the landscape for the podium & rooftop terrace on L26 includes careful consideration of the need to provide a variety of spaces and experiences that provide necessary respite and refuge from the busy CBD and also capitalises on the impressive outward distant views across Darling Harbour towards Balmain and Pyrmont. The design will also provide excellent views down to Watermans Cove. 	
06 AMENITY	<i>Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being. Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.</i>	<ul style="list-style-type: none"> ▪ The amenity of the proposed R5 apartments is of a high quality. Internal spaces include: <ul style="list-style-type: none"> - Open planned interiors which maximise the useability of each space with generous internal dimensions and functionality. - Balconies that are a continuation of the internal living space in size and materiality. The proportions are deep enough to be comfortably furnished whilst allowing penetration of winter sun, deep into living spaces. - The design of the building façade promotes connectivity with the natural environment and natural ventilation, in conjunction with a high thermal performance providing ultimate comfort for residents. - Access to views and vistas, including the Harbour Bridge, Opera House and the Blue Mountains, have been maximised. - Access design allows for all users to circulate throughout the development. - Split cores serve specific levels of the building creating a sense of community through vertical villages. - Privacy is established for apartments through careful building siting, façade design and floor plan orientation to surrounding landscape and view lines rather than directly into adjacent residences. 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
		<ul style="list-style-type: none"> - The apartments have been designed with appropriate acoustic amenity, noting the urbanised location. 	
07 SAFETY	<i>Good design optimises safety and security within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety. A positive relationship between public and private spaces is achieved through clearly defined secure access points and well-lit and visible areas that are easily maintained and appropriate to the location and purpose.</i>	<ul style="list-style-type: none"> ▪ The proposal is designed in keeping with the 4 CPTED principles: <ul style="list-style-type: none"> - Surveillance - Access control - Territorial reinforcement - Space management. ▪ Approved Public spaces around the buildings have clear sight lines. ▪ The approved lobbies to R5 provides a direct and legible means of access from Watermans Quay and Hickson road and the public realm. ▪ The R5 proposal provides retail activation along the southern edge of Hickson Park, Hickson Road and Watermans Quay. ▪ External spaces within the site are designed to be lit in a controlled fashion, providing sufficient illumination for security without impacting residents. ▪ Secure entries are provided at both ground floor lobbies and basement carpark to control access to the building interiors. 	✓
08 HOUSING DIVERSITY & SOCIAL INTERACTION	<i>Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets. Well-designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people and providing opportunities for social interaction among residents.</i>	<ul style="list-style-type: none"> ▪ The R5 proposal contributes to the overall vision of the Barangaroo masterplan as a mixed use community. ▪ A range of 1, 2, 3 and 4 bedroom apartments are provided in a range of sizes and types to cater for the likely future demographic makeup of the precinct demographic. ▪ The apartment mix has been considered across the family of three buildings with Key Worker Housing provided. ▪ The apartments accessed off Hickson Road are designated for Key Worker Housing which contributes to the housing diversity within the precinct. ▪ The apartments are designed with regard for furnishability, circulation and flow. Rooms are well oriented with views to the surrounding parkland and water. 	✓
09 AESTHETICS	<i>Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures. The visual appearance of well- designed apartment development responds to the existing or future</i>	<ul style="list-style-type: none"> ▪ The massing of the R5 Building has been carefully composed as part of a composition of buildings fringing Hickson Park, featuring: <ul style="list-style-type: none"> - A series of dynamic, breathable glass facades each focusing on specific views towards the prime vistas and landmarks of the harbour. 	✓

Design Quality Principle	Objective / Control	Evaluation	Verification
	<i>local context, particularly desirable elements and repetitions of the streetscape.</i>	<ul style="list-style-type: none"> - Facades that express the facet of a crystal and together play with the light reflections from the sky and glittering harbour water, reflecting their setting ▪ The R5 podium form and façade detailing responds to the surrounding contextual cues and brings the tower to the ground at a human scale. ▪ The proposal utilises a set of quality material textures and fittings which create visual interest in an appropriate and harmonious way within the sites wider context. 	

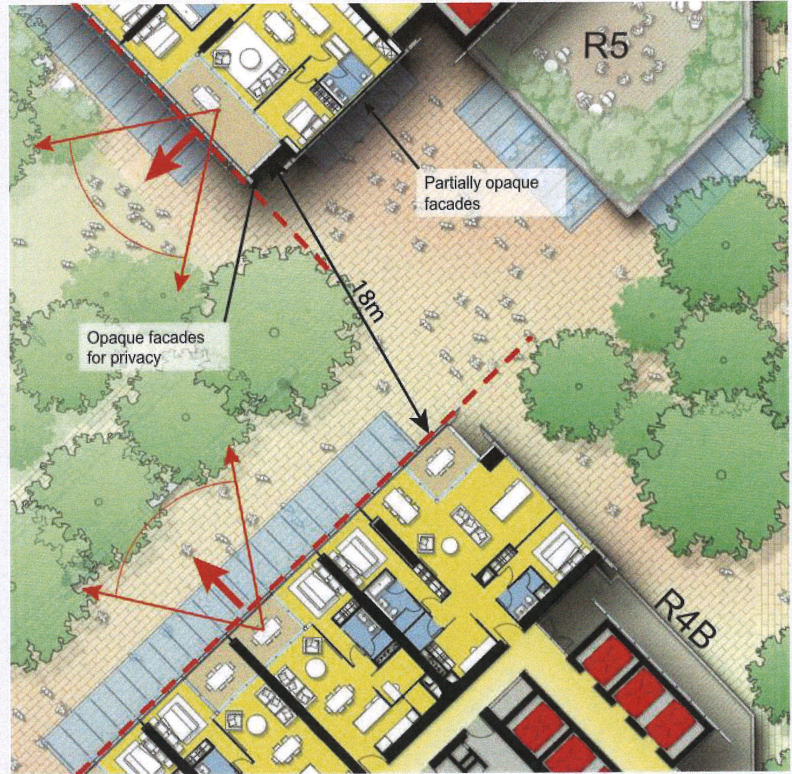
DESIGN OBJECTIVES & GUIDANCE COMPLIANCE

The following table lists the Objectives and associated Design Criteria of the Apartment Design Guide (ADG) and assesses whether the project achieves the intent of those Objectives, as required by Clause 115(3A) of the EPA Regulation.

The assessment demonstrates that the proposed development is consistent with the relevant objectives and the majority of the numeric Design Criteria, and that all apartments within the proposed development will achieve a very high standard of residential amenity. Where an alternative solution is proposed to the Design Criteria to meet the Objectives, the proposal's consistency with the Objectives and associated Design Guidance are discussed in further detail below the table.

Design Criteria	Approved	Proposal	Achievement of Objective
Part 3 Siting the Development			
3D Communal and Public Open Space			
<u>Objective</u> An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping	✓	✓ No change to approved	
<u>Design Criteria</u> Communal open space has a minimum area equal to 25% of the site	✓	✓ No change to approved	
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)	Achieves intent →	✓ No change to approved	<p>A total of 64% of the Building R5 site area has been provided as communal and publicly accessible open space, exceeding the Design Criteria minimum by 39%. Of this communal and public open space 48% achieves direct sunlight during the winter solstice. This is close to the 50% nominated by the Design Criteria and represents 31% of the Building R5 site area.</p> <p>Achieving direct sunlight to 50% of the total communal and publicly accessible open space would require direct sunlight to 32% of the Building R5 site area, which is equivalent to more than double the 12.5% of the site area recommended by the ADG if the minimum area of communal and public open space was provided (i.e. 50% of 25% of the site area).</p> <p>More broadly, the communal and publicly accessible open spaces within Buildings R4A, R4B and R5 will be accessible to the occupants of all three towers. Additionally, the residents of Buildings R4A, R4B and R5 gain amenity from their position adjoining the future Hickson Park, a large open space to the north, which will receive plenty of solar access throughout the year.</p>

Design Criteria			Approved	Proposal	Achievement of Objective			
					In light of the above, the proposed communal open space achieves the intent of Objective 3D-1 as adequate area of communal open space will be provided in a way that enhances the residential amenity of the development.			
3E Deep Soil Zones								
<u>Objective</u> Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality.			Achieves intent →	✓ No change to approved	Refer to discussion below, the site includes a site-wide basement, which precludes the provision of deep soil areas, although provides sufficient soil depth for plating of mature trees.			
<u>Design Criteria</u> Deep soil zones are to meet the following minimum requirements:			Achieves intent →	✓ No change to approved	<p>Deep Soil Zones are defined as 'areas of soil within a development that are unimpeded by buildings or structures above and below ground and have a minimum dimension of 6m. Deep soil zones exclude basement car parks, services, swimming pools, tennis courts and impervious surfaces including car parks, driveways and roof areas.'</p> <p>Residential Buildings R4A, R4B and R5 are positioned above a site-wide basement, which precludes the provision of deep soil zones. The Design Guidance acknowledges this may not be possible on sites where:</p> <ul style="list-style-type: none">- the location and building typology have limited or no space for deep soil at ground level (e.g. central business district (CBD), constrained sites, high density areas, or in centres); and / or- there is 100% site coverage or non-residential uses at ground floor level. <p>Consistent with the Design Guidance, the site is located in a high density precinct, within the CBD. There are also non-residential uses at ground floor which limit the provision of deep soil zones.</p> <p>Notwithstanding this, the proposal meets Objective 3E-1 with the landscape design developed by McGregor Coxall featuring a combination of hardscape, bed planting and new planting in specially designed pits to ensure healthy growth and long term viability. A range of sustainable stormwater management solutions are also proposed in the precinct, as set out in the ESD Report, Services Report and the Construction Framework Environmental Management Plan.</p>			
<table><tr><td>Site Area</td><td>Minimum Dimensions</td><td>Deep Soil Zone (% of site area)</td></tr><tr><td>Greater than 1,500m²</td><td>6m</td><td>7%</td></tr></table>	Site Area	Minimum Dimensions				Deep Soil Zone (% of site area)	Greater than 1,500m ²	6m
Site Area	Minimum Dimensions	Deep Soil Zone (% of site area)						
Greater than 1,500m ²	6m	7%						
3F Visual Privacy								
<u>Objective</u>			✓	✓				

Design Criteria	Approved	Proposal	Achievement of Objective												
Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy.		No change to approved													
<p><i>Design Criteria</i></p> <p>Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows:</p> <table><tr><th>Building Height</th><th>Habitable rooms and balconies</th><th>Non-habitable rooms</th></tr><tr><td>Up to 12m (4 storeys)</td><td>6m</td><td>3m</td></tr><tr><td>Up to 25m (5-8 storeys)</td><td>9m</td><td>4.5m</td></tr><tr><td>Over 25m (9+ storeys)</td><td>12m</td><td>6m</td></tr></table>	Building Height	Habitable rooms and balconies	Non-habitable rooms	Up to 12m (4 storeys)	6m	3m	Up to 25m (5-8 storeys)	9m	4.5m	Over 25m (9+ storeys)	12m	6m	Achieves intent →	✓ No change to approved	<p>The minimum separation distance between the habitable rooms of adjacent building R4B is approximately 18m (see figure below), which is less than the 24m between habitable rooms recommended in the Design Criteria.</p>  <p>Separation between R4B and R5 demonstrating the orientation of apartments towards key views, mitigating cross-viewing.</p> <p>However, consistent with the Design Guidance, the architectural composition and alignment of the buildings in relation to each other has</p>
Building Height	Habitable rooms and balconies	Non-habitable rooms													
Up to 12m (4 storeys)	6m	3m													
Up to 25m (5-8 storeys)	9m	4.5m													
Over 25m (9+ storeys)	12m	6m													

Design Criteria	Approved	Proposal	Achievement of Objective
			<p>been carefully considered to maximise views and outlook, whilst providing privacy between the buildings to achieve the intent of Objective 3F-1 as follows:</p> <ul style="list-style-type: none"> - Sightlines into a living area or wintergarden/ balcony from an adjacent living area or wintergarden/ balcony have been avoided by arrangement of the floor layout of each building and apartment. - Sightlines from living areas or wintergardens / balconies into bedrooms, and vice versa, are obstructed by architectural elements including opaque facades and overlapping façade wings. the relevant apartments are offset, or oriented towards available views to the north east rather than towards the bedrooms of the apartments of the adjacent building (which are east and north-west from R4B and west from R5). <p>At the closest interfaces between the two buildings (at the balcony of Apartment 05 in Building R5 and Apartment 03 in Building R4B) an opaque facade has been provided to limit overlooking. Further, Apartment R5 05 has been designed to look towards Hickson Park and the harbour, away from Building R4B.</p> <p>Furthermore, the potential for development on adjacent land has been thoroughly considered. The proposed building forms part of a unified architectural composition together with the proposed Crown Sydney Hotel and Resort. The siting of the buildings is intended to achieve a better amenity outcome and more efficient use of the land than a scheme that strictly meets the Design Criteria separations. The Concept Plan design responds to the height and separation from Barangaroo Central and the substantial amenity provided by the outlook and views across the park and to the more significant distant views. By grouping the towers at the southern end of the site the maximum number of apartments are given the opportunity to benefit from the amenity of having uninterrupted views, rather than spacing them to achieve a 'compliant' view 24m across to another tower.</p> <p>The proposed design therefore cleverly deals with the immediate privacy interface through apartment layouts, the inclusion of appropriate architectural responses, and the orientation of the buildings to minimise sightlines between buildings and maximise exposure to the north facing views. With this in mind any additional separation distance would not materially benefit the occupants of the proposed buildings.</p>

Design Criteria	Approved	Proposal	Achievement of Objective
			Considering the architectural responses, view line orientation and the site's context in the dense urban environment that is the Sydney CBD, the proposed building separation distances will achieve a reasonable of external and internal visual privacy, consistent with Objective 3F-1.
3J Bicycle and Car Parking			
<u>Objective</u> Car Parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas	✓	✓ No change to approved	
<u>Design Criteria</u> For development in the following locations: <ul style="list-style-type: none"> on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre <p>The minimum car parking requirement for residents and 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.</p>	N/A	N/A	Parking is provided as per the limits specified in the approved Concept Plan (MP06_0162).
Part 4 Designing the Buildings			
4A Solar and Daylight access			
<u>Objective</u> To optimise the number of apartments receiving sunlight to habitable rooms, primary windows, and private open space	✓	✓	
<u>Design Criteria</u> Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas.	Achieves intent →	✓	Consistent with the Design Guidance the proposed apartment layout and design optimises the number of apartments that receives sunlight. A total of 72% of apartment living areas and private open spaces in Building R5 will achieve 2 hours of direct sunlight between 9am and 3pm in mid-winter, over the 70% target of the Design Criteria.

Design Criteria	Approved	Proposal	Achievement of Objective
			Additionally, the proposed façade typology will allow a high light transmission glass to be used with automated cavity blinds where required.
A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid-winter.	✓	✓	Only 11% of apartments receive no direct sunlight between 9am and 3pm at mid-winter, under 15% target of the Design Guidance.
4B Natural Ventilation			
<u>Objective</u> The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents	✓	✓	
<u>Design Criteria</u> 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.	✓	✓	The intent of cross ventilating apartments as outlined in the ADG is achieved with 5/8 Apartments/floor or 60% within the first 9 storeys of the building meeting this intent, including the single aspect apartment on each of the applicable floors. Detailed wind and pressure analysis will be undertaken during the design development phase to support this outcome.
Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line.	✓	✓	
4C Ceiling Height			
<u>Objective 4C-1</u> Ceiling height achieves sufficient natural ventilation and daylight access	✓	✓	

Design Criteria	Approved	Proposal	Achievement of Objective												
<p><i>Design Criteria</i> Measured from finished floor level to finished ceiling level, minimum ceiling heights are:</p> <table><tr><td colspan="2">Minimum ceiling height</td></tr><tr><td>Habitable rooms</td><td>2.7m</td></tr><tr><td>Non-habitable</td><td>2.4m</td></tr><tr><td>For 2 storey apartments</td><td>2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area</td></tr><tr><td>Attic spaces</td><td>1.8m at edge of room with a 30 degree minimum ceiling slope</td></tr><tr><td>If located in mixed use areas</td><td>3.3m for ground and first floor to promote future flexibility of use</td></tr></table> <p>These minimums do not preclude higher ceilings if desired.</p>	Minimum ceiling height		Habitable rooms	2.7m	Non-habitable	2.4m	For 2 storey apartments	2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area	Attic spaces	1.8m at edge of room with a 30 degree minimum ceiling slope	If located in mixed use areas	3.3m for ground and first floor to promote future flexibility of use	✓	✓ No change to approved	<p>The living, dining and kitchen open plan design means the majority of the habitable space has a 2.7m ceiling height. The bulkhead is integrated in the interior design and lines up with the front of the island bench to reduce the extent of the 2.4m ceiling. Study area has a minimum 2.4m ceiling with permanent openings to main open living area with borrowed light, ventilation and connected volume and space. As the 2.4m ceiling is a small percentage of the habitable area, the design is achieving the intent of the ADG.</p> <p>The ceiling heights of some non-habitable areas is 2.37m which is 30mm lower than the 2.4m required by ADG. Despite the minor variation to non-habitable rooms (bathroom and laundry), the reduced ceiling height will achieve sufficient ventilation, which meets the objectives of the design criteria.</p>
Minimum ceiling height															
Habitable rooms	2.7m														
Non-habitable	2.4m														
For 2 storey apartments	2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area														
Attic spaces	1.8m at edge of room with a 30 degree minimum ceiling slope														
If located in mixed use areas	3.3m for ground and first floor to promote future flexibility of use														
4D Apartment Size and Layout															
<p><i>Objective 4D-1</i> The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity</p>	✓	✓ No change to approved													
<p><i>Design Criteria</i> Apartments are required to have the following minimum internal areas:</p> <table><tr><td>Apartment Type</td><td>Minimum internal area</td></tr><tr><td>Studio</td><td>35m²</td></tr><tr><td>1 bedroom</td><td>50m²</td></tr><tr><td>2 bedroom</td><td>70m²</td></tr><tr><td>3 bedroom</td><td>90m²</td></tr></table> <p>The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5m² each. A fourth bedroom and further additional bedrooms increase the minimum internal area by 12m² each.</p>	Apartment Type	Minimum internal area	Studio	35m ²	1 bedroom	50m ²	2 bedroom	70m ²	3 bedroom	90m ²	✓	✓			
Apartment Type	Minimum internal area														
Studio	35m ²														
1 bedroom	50m ²														
2 bedroom	70m ²														
3 bedroom	90m ²														

Design Criteria	Approved	Proposal	Achievement of Objective
Every habitable room must have 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 and air may not be borrowed from other rooms.	Achieves intent. →	✓ No change to approved	All apartments in Building R5 exceed the minimum internal areas nominated by the Design Criteria and have been designed to achieve a high level of amenity with a predominantly glazed façade and abundance of natural light. In some apartment's studies do not have direct access to windows. In instances where this occurs, the proposed design is consistent with the Design Guidance under Objective 4D-1 and the Design Criteria under Objective 4D-2 by providing a direct line of sight to a window / natural light that is generally 8m from the glass line to allow for the sharing of natural light and ventilation. On this basis, the Objectives to provide rooms with a high standard of amenity will be achieved.
<i>Objective 4D-2</i> Environmental performance of the apartment is maximised	✓	✓ No change to approved	
<i>Design Criteria</i> Habitable room depths are limited to a maximum of 2.5 x the ceiling height.	✓	✓ No change to approved	
In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.	Achieves intent →	✓ No change to approved	For open plan living, dining and kitchen areas, the ADG recommends a maximum habitable room depth of 8m. Acknowledging one non-compliance being 8.3m for apartment stack LA507,MA507,LO507 & UA507 - a proposed variation to the Design Criteria - the apartment design will achieve Objective 4D-2, and will maximise the environmental performance of the apartments as follows: <ul style="list-style-type: none"> - the majority of the kitchen area, including the main work surfaces, is within approximately 8m of the window or door opening providing access to natural ventilation. - the windows are full height which facilitates large amounts of natural light to reach deep into the back of the habitable space; and - the spaces are open plan, and there are no walls or obstructions between the windows and the kitchen area and therefore the layout does not impede internal access to natural light and ventilation.
<i>Objective 4D-3</i> Apartment layouts are designed to accommodate a variety of household activities and needs	✓	✓ No change to approved	

Design Criteria			Approved	Proposal	Achievement of Objective															
<i>Design Criteria</i> Master bedrooms have a minimum area of 10m ² and other bedrooms 9m ² (excluding wardrobe space).			✓	✓ No change to approved																
Bedrooms have a minimum dimension of 3m (excluding wardrobe space).			✓	✓ No change to approved																
Living rooms or combined living/dining rooms have a minimum width of: <ul style="list-style-type: none">3.6m for studio and 1bedroom apartments4m for 2 and 3 bedroom apartments			✓	✓ No change to approved																
<ul style="list-style-type: none">The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts.			✓	✓ No change to approved																
4E Private Open Space and Balconies																				
<i>Objectives 4E-1</i> Apartments provide appropriately sized private open space and balconies to enhance residential amenity			✓	✓ No change to approved																
<i>Design Criteria</i> All apartments are required to have primary balconies as follows: <table border="1"><thead><tr><th>Dwelling Type</th><th>Minimum Area</th><th>Minimum internal area</th></tr></thead><tbody><tr><td>Studio apartment</td><td>4m²</td><td>-</td></tr><tr><td>1 bedroom apartment</td><td>8m²</td><td>2m</td></tr><tr><td>2 bedroom apartment</td><td>10m²</td><td>2m</td></tr><tr><td>3+ bedroom apartment</td><td>12m²</td><td>2.4m</td></tr></tbody></table>			Dwelling Type	Minimum Area	Minimum internal area	Studio apartment	4m ²	-	1 bedroom apartment	8m ²	2m	2 bedroom apartment	10m ²	2m	3+ bedroom apartment	12m ²	2.4m	Achieves intent →	✓ No change to approved	All balconies for the 1 and 3 bedroom apartments are consistent with the minimum area required in the ADG, however a small number of 2 bedroom apartments (25) are approximately 1.5m ² smaller than the 10m ² recommended by the ADG. These balconies are however 2.5m deep. All balconies are of a size and shape which is practical, usable and able to be furnished. Finally, residents of R5 will have access to Hickson Park, which will provide extensive open space for passive and active recreation. In light of the above, the proposed balconies achieve the intent of Objective 4E-1 as they will provide appropriately sized private open space that enhances residential amenity.
Dwelling Type	Minimum Area	Minimum internal area																		
Studio apartment	4m ²	-																		
1 bedroom apartment	8m ²	2m																		
2 bedroom apartment	10m ²	2m																		
3+ bedroom apartment	12m ²	2.4m																		
The minimum balcony depth to be counted as contributing to the balcony area is 1m.																				
For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15m ² and a minimum depth of 3m.			N/A	N/A																
4F Common Circulation and Spaces																				

Design Criteria	Approved	Proposal	Achievement of Objective
Objective 4F-1 Common circulation spaces achieve good amenity and properly service the number of apartments	✓	✓ No change to approved	
Design Criteria The maximum number of apartments off a circulation core on a single level is eight.	✓	✓ No change to approved	The building has a maximum of 8 apartments per core.
For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40.	Achieves intent →	✓ No change to approved	In Building R5, the ratio of lifts to apartments is 1:81 for the on-market apartments, and 1:50 for the Key Worker Housing. Whilst the proposal seeks to vary the recommended ratio, the lift service has been designed to be commensurate with global standards for luxury residential apartments, using high speed lifts and low interval waiting times, refer to the supporting Vertical Transportation Letter. With the above in mind, the proposal will achieve the intent of the Objective 4F-1.

4G Storage

Objective 4G-1 Adequate, well designed storage is provided in each apartment	✓	✓ No change to approved											
Design Criteria In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: <table border="1"><tr><td>Dwelling Type</td><td>Minimum Area</td></tr><tr><td>Studio apartment</td><td>4m³</td></tr><tr><td>1 bedroom apartment</td><td>6m³</td></tr><tr><td>2 bedroom apartment</td><td>8m³</td></tr><tr><td>3+ bedroom apartment</td><td>10m³</td></tr></table> At least 50% of the required storage is to be located within the apartment.	Dwelling Type	Minimum Area	Studio apartment	4m ³	1 bedroom apartment	6m ³	2 bedroom apartment	8m ³	3+ bedroom apartment	10m ³	✓	✓ No change to approved	For all Key Worker Housing Apartments (50 apartments) all required storage is located within the apartment.
Dwelling Type	Minimum Area												
Studio apartment	4m ³												
1 bedroom apartment	6m ³												
2 bedroom apartment	8m ³												
3+ bedroom apartment	10m ³												

ADAPTABLE AND SILVER LEVEL HOUSING OBJECTIVES

Design Criteria	Achievement of Objective
Part 4 Designing the Building Objective 4Q-1 Universal design features are included in apartment design to promote flexible housing for all community members	All apartments include universal design characteristics to allow for flexible use.

Design Criteria	Achievement of Objective
Part 4 Designing the Building	
<i>Objective 4Q-2</i> A variety of apartments with adaptable designs are provided	All apartments are of a size and proportion that allow for flexible use and accommodate range of lifestyle needs.
<i>Objective 4Q-3</i> Apartment layouts are flexible and accommodate a range of lifestyle needs	As above.