

Barangaroo Building R4B – Amending State Significant Development Application

Transport Assessment

Prepared for:

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1 Introduction

1.1 Overview

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Department of Planning, Infrastructure and Environment (DPIE) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The ‘amending’ SSD DA seeks approval for eight additional storeys and 5,650sqm of gross floor area (GFA), amongst other items, to Residential Building R4B approved under SSD 6965. This SSD DA proposes to amend the 60-storey Residential Building R4B development approved under SSD 6965, which in turn necessitates the inclusion of condition(s) of consent to this SSD DA that require the modification of SSD 6965.

1.2 Site description

Barangaroo is located on the north western edge of the Sydney Central Business District (CBD), bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point (for the northern half), The Rocks and the Sydney Harbour Bridge approach to the east; and bounded to the south by a range of new development containing large CBD commercial tenants.

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Headland Park, Barangaroo Central and Barangaroo South. The Residential Building R4B site is located within Barangaroo South. The site of this proposed DA is located on land generally known and identified in the approved Concept Plan (as modified) as Block 4A, as shown in Figure 1 on the following page.

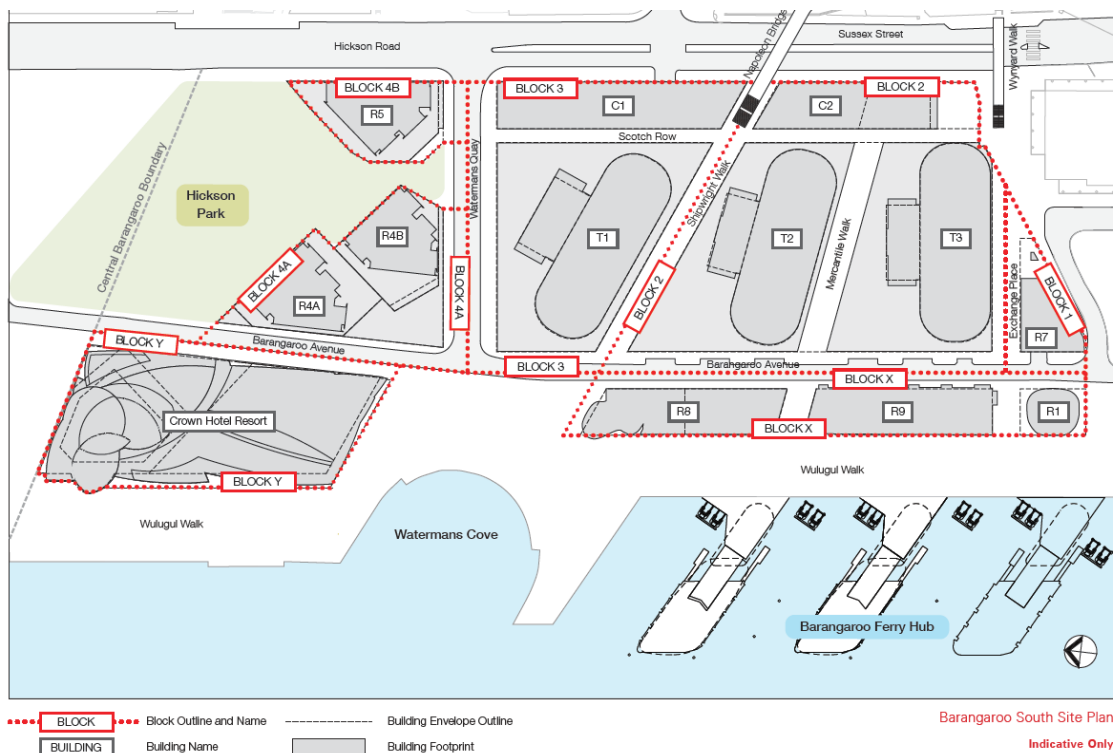


Figure 1 Block 4A in relation to Barangaroo South

1.3 Background

1.3.1 Barangaroo South Concept Plan (as modified)

The approved Barangaroo South Concept Plan (MP06_0162) (as modified), includes approval for the following:

- A mixed use development involving a maximum of 602,354 sqm gross floor area (GFA), comprised of:
 - a maximum of 191,031 sqm of residential GFA of which a maximum of 162,031 sqm will be in Barangaroo South;
 - a maximum of 76,000 sqm of GFA for tourist uses of which a maximum of 59,000 sqm will be in Barangaroo South;
 - a maximum of 34,000sqm of GFA for retail uses of which a maximum of 30,000 sqm will be in Barangaroo South;
 - a maximum of 5,000 sqm of GFA for active uses in the Public Recreation zone of which 3,500 will be in Barangaroo South; and
 - a minimum of 12,000sqm GFA for community uses.
- Approximately 11 hectares of new public open space/public domain, with a range of formal and informal open spaces serving separate recreational functions and including an approximate 2.2km public foreshore promenade.
- Built form design principles, maximum building heights and GFA for each development block within the mixed use zone.

- Public domain landscape concept, including parks, streets and pedestrian connections.
- Alteration of the existing seawalls and creation of a partial new shoreline to the harbour.
- Construction, operation and maintenance of a concrete batching plant to supply concrete for construction of future development under this Concept Plan at Barangaroo South.
- No approval is granted or implied for the future use of a heliport and/or a helipad.

This 'amending' SSD DA seeks to achieve the maximum permissible GFA and height for Residential Building R4B that was approved as part of the latest modification to the Concept Plan (modification 10). Any consent that is granted to this SSD DA will be generally consistent with the terms of approval of the Concept Plan (as modified).

1.3.2 Residential Building R4B – Development consent SSD 6965

Development consent SSD 6965 was granted by the NSW Minister for Planning on 7 September 2017 for Residential Building R4B, comprising of a 60-storey mixed use building, with 297 residential units and retail floor space at ground level. This included a total gross floor area (GFA) of 38,896sqm, 38,602sqm of which was approved for residential floor space, and the remaining 294sqm was approved for retail floorspace.

Consent was also provided for associated building public domain works, fit-out and use of the basement, a link bridge connecting to Building R4A and associated building identification signage.

On 7 February, 2020, development consent SSD 6965 was amended to account for a range of design changes, including an increase in total GFA from 38,896sqm to 38,911sqm, comprised of an increase in retail GFA from 294sqm to 309sqm, and a reduction in the number of apartments to 283.

A second application to modify development consent SSD 6965 has been submitted to the DPIE. The amendments contained within the modification application broadly relate to the following changes:

- increase the number of apartments from 283 to 290;
- revised dwelling mix and internal layout changes;
- changes to the landscaped podium layout; and
- changes to the number of car spaces from 320 to 324.

It is anticipated that this modification application to development consent SSD 6965 will be determined prior to the determination of this SSD DA. As such, this SSD DA is made with the above changes in mind.

1.4 Overview of Proposed Development

This ‘amending’ SSD DA seeks consent for eight additional storeys with 5,650sqm of GFA and containing 32 additional apartments, and an allocation of 7 additional car parking spaces to Residential Building R4B. More specifically, this SSD DA proposes to amend Residential Building R4B, through:

- an increase to the overall building height from RL208.23 up to RL235 (an additional 8 levels)
- increase the overall number of apartments from 290 to 322
- revise the dwelling mix and apartment relocations within the building envelope; and
- change to the number of car spaces from 324 to 331.

1.5 Secretary’s Environmental Assessment Requirements (SEARs)

The Department of Planning, Industry and Environment (DPIE) issued a list of the Secretary’s Environmental Assessment Requirements (SEARs) which inform the Environmental Impact Statement (EIS). Table 1 lists the SEARs that are specific to transport and accessibility.

Table 1 Response to SEARs

SEARs – Transport and Accessibility	Section Discussed
current daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network;	2
daily and peak traffic movements likely to be generated by the proposed amended development, including peak traffic movements;	3.2
assessment of the existing and future performance of key intersections providing access to the site, and any upgrades (road/intersections) required as a result of the proposed amended development. The assessment of the existing and future road network operations needs to consider the cumulative impacts of traffic volumes and focus on intersections in the north-west quadrant of the CBD in the vicinity of Barangaroo. The assessment needs to be supported by appropriate modelling and analysis to the satisfaction of TfNSW	3.2
details of proposed car parking for the proposed amended development, consistent with the Concept Approval.	3.3

SEARs – Transport and Accessibility	Section Discussed
details and assessment of any changes to • pedestrian and cycle connections/circulation • approved loading, servicing or access arrangements for residents, workers and visitors • car parking and bicycle storage provision, having regard to relevant codes • public transport services and opportunities for greater usage for residents, workers and visitors; • sustainable travel initiatives for residents, workers and visitors • access arrangements for emergency and service vehicles • construction traffic impacts and how any additional impacts will be mitigated.	3.1 3.4 3.5 3.6 3.7 3.8
The EIS shall address pedestrian and traffic management during construction, in particular the cumulative impacts of other construction activities, including the Sydney Metro City and Southwest and other surrounding developments in Barangaroo.	3.8

1.6 Consultation

Consultation was undertaken with the Sydney Coordination Office within Transport for NSW to discuss the amending DA. Details of the meeting were as follows:

- Meeting date: 29 09 2020 via MS Teams. 12pm to 12.30pm
- Attendees: Josh Milston (JMT), Daniel Baxter Lendlease, John Riordan Lendlease, Para Singer TfNSW, Heather Gavriel TfNSW, Brendan Pegg TfNSW, Olivia Hsieh RMS

Key points raised following the discussion are below:

Table 2 TfNSW consultation outcomes

TfNSW Comment / Question	Response
Is the number of parking spaces 375 or 331?	SEARs noted maximum 375, however through design development parking number is 331, and this will be provided in the EIS submission. The Concept Plan allows 375 in response to the proposal, therefore the proposed 331 is within the maximum cap.
Traffic impacts of additional parking and apartments	The rate applied is approximately 0.1 vehicles per additional dwelling during peak hours. 32 additional dwellings are proposed. Based on this, it is expected no more 3-4 vehicles per hour with most movement impact morning and evening.
How will the 7 additional car parking spaces be allocated	Spaces will be shifted from R4A (via a concurrent Mod) to R4B. No significant increase in spaces overall are proposed within the framework of the basement, rather re-allocation across the buildings.
Will the loading dock spaces/bays need to be increased	The additional dwellings are not likely to trigger a requirement for additional spaces within the loading dock.
TfNSW does not support the signalisation of Watermans Quay. Please confirm that the traffic modelling is not based on signals.	The proposal is not reliant on traffic signals being in place at Watermans Quay
No additional items to the SEARs is required to support the assessment.	Noted

2 Existing Conditions

2.1 Road network and traffic flows

Sussex Street / Hickson Road form a wide road that runs along the western side of Sydney CBD. The Sussex Street section continues south from Napoleon Street to Hay Street. It is two-way north of King Street and one way southbound, south of King Street. Hickson Road forms the northern extension of Sussex Street and continues north from Napoleon Street to George Street at Dawes Point. Traffic flows are typically in the order of 800 – 900 vehicles per hour (during peak periods) along Hickson Road.

Napoleon Street provides a connection between Hickson Road and Kent Street / Margaret Street, carrying approximately 650 vehicles per hour during peak periods. Traffic signals are in place at the Hickson Road / Napoleon Street intersection, which provides for controlled vehicle movements out of the Barangaroo Stage 1A basement.

Barangaroo Avenue and Watermans Quay provide local access to the Barangaroo precinct, connecting with Lime Street (within King Street Wharf) and Hickson Road respectively. These streets typically carry 400-500 vehicles per hour during peak periods of the day.

2.2 Public transport

The Barangaroo precinct is well serviced by public transport, including:

- The Barangaroo Ferry Wharf which is located opposite the commercial towers within the Stage 1A precinct
- Wynyard train and bus interchange which provides high frequency public transport services to all parts of Sydney. Dedicated pedestrian connections including the Wynyard Walk bridge and tunnel, as well as the Napoleon Street pedestrian bridge, provide direct access for people travelling between Wynyard and the Barangaroo precinct.



Figure 2 Existing public transport servicing Barangaroo

2.3 Pedestrian and cycling connections

There are a number of existing dedicated pedestrian facilities adjacent to the Barangaroo site, including:

- Grade separated pedestrian connections including the Wynyard Walk bridge and tunnel, as well as the Napoleon Street pedestrian bridge
- Signal controlled pedestrian crossings across all approaches of Hickson Road / Napoleon Street intersection
- Signal controlled pedestrian crossing on Sussex Street adjacent to the Wynyard Walk bridge
- Dedicated internal pedestrian pathways within the Barangaroo Stage 1A site
- Adequate footpaths on both sides of key pedestrian approach routes including Hickson Road, Sussex Street and Napoleon Street
- Zebra crossings at multiple locations on Barangaroo Avenue

These existing pedestrian facilities are illustrated in Figure 3.

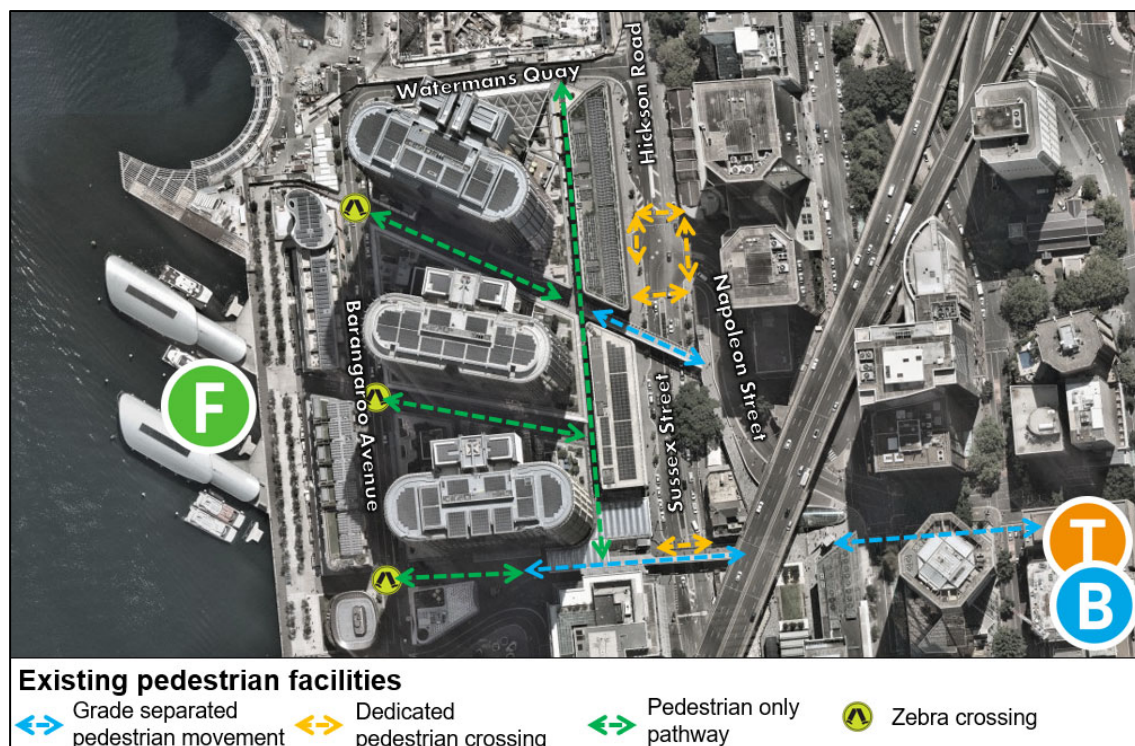


Figure 3 Existing pedestrian facilities

The Barangaroo precinct is also well serviced by a network of local and regional cycling connections, including:

- Bi-directional segregated cycleway along Kent Street
- Separated cycleway on Sussex Street (Napoleon Street to Shelley Street)
- Hickson Road on-road cycleway (north of Towns Place)

3 Transport Assessment

3.1 Site access arrangements

Vehicular access to the Building R4B basement car park and loading dock is proposed to be via a single driveway entry/exit towards the western end of Watermans Quay. This access strategy remains unchanged from that considered in the original DA for Building R4B. The primary vehicular access route into and out of the site will be via Sussex Street, Hickson Road and Watermans Quay.

Access arrangements for Building R4B are illustrated in Figure 4.

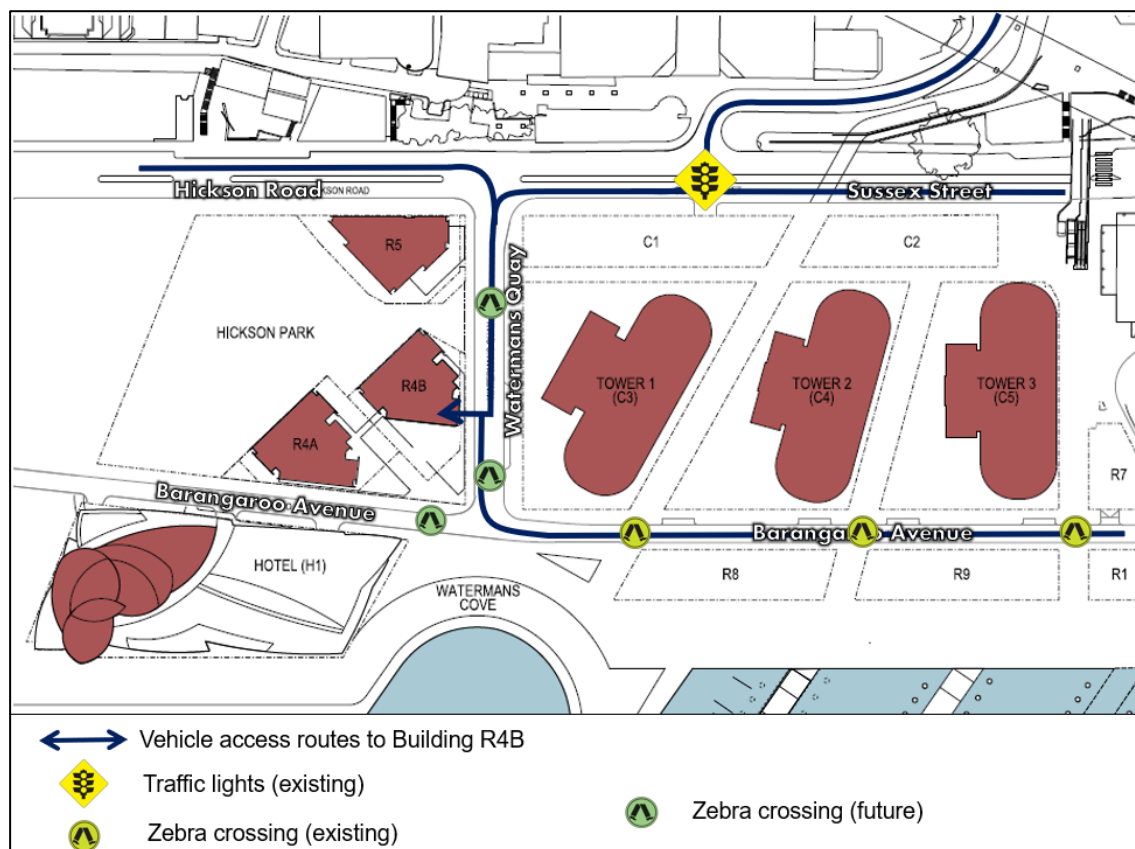


Figure 4 Future site access arrangements

In October 2020 a modification to the Barangaroo Concept Plan (Modification 11) was approved by the DPIE which expressly permits construction vehicles and non-construction vehicles to use Barton Street. These arrangements will remain in place until Barangaroo Avenue through Central Barangaroo is complete and operational. This will provide residents of Building R4B with an alternate option to enter or depart the precinct – rather than relying on either Watermans Quay or Barangaroo Avenue.

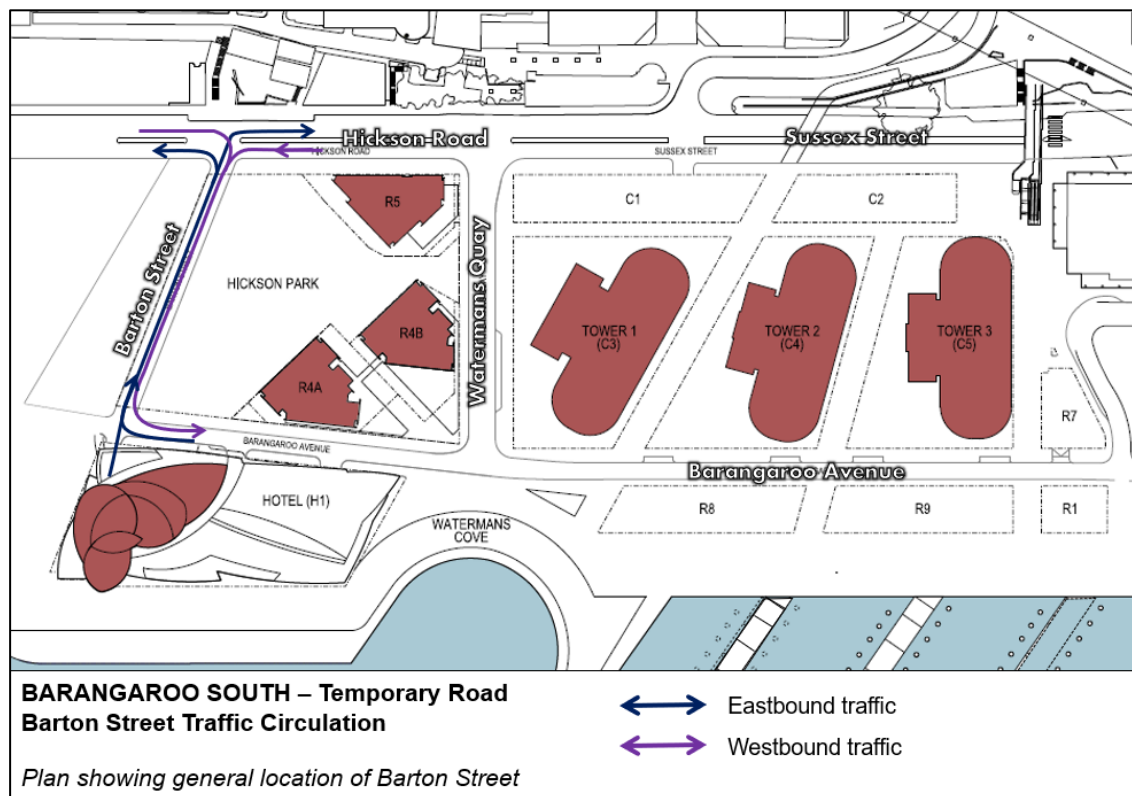


Figure 5 Barton Street circulation arrangements

3.2 Traffic generation

The traffic assessment undertaken to support the original development approval for Building R4B considered an overall level of traffic generation of approximately 43 vehicles in the AM peak hour and 28 vehicles in the PM peak hour. Traffic modelling undertaken at the time for the Barangaroo precinct was based on this level of traffic generation.

The amending DA would slightly increase this level of traffic generation as a result of the increased development yield, although this increase is relatively minor. As indicated in Table 3, the proposal is expected to generate an additional 3 traffic movements in the AM peak hour and 2 traffic movements in the PM peak hour when compared with the original DA approval. An increase in traffic movements of this magnitude is considered negligible in the context of current and future traffic movements in the Barangaroo precinct. Therefore the proposal will not trigger any additional road infrastructure upgrades beyond those already contemplated for the precinct.

Table 3 Forecast traffic generation

Application	No. of Units	AM Peak Hour (8am – 9am)		PM Peak Hour (5pm – 6pm)	
		Generation rate	Traffic movements	Generation rate	Traffic movements
SSD 6965 (original approval)	297	0.14 trips / unit	42	0.09 trips / unit	27
SSD 8892218 (current application)	322	0.14 trips / unit	45	0.09 trips / unit	29
Net change		+3		+2	

3.3 Car parking

An integrated basement car park is to be provided which is to be shared between users of the three residential towers within the Barangaroo Stage 1B precinct. A single access point will be provided into this basement via Watermans Quay, consistent with the approach adopted for the original DA for Building R4B.

The basement car park has been designed in accordance with Australian Standards for Off-Street Car Parking AS2890.1.

331 parking spaces are proposed to be provided for Building R4B, which is a small increase of 7 spaces compared to the current approval. It should also be noted that the amending DA will involve no physical changes to the One Sydney Harbour basement (which is nearing completion). Therefore despite the small increase in car parking for R4B, the overall number of parking spaces in the One Sydney Harbour basement remains unchanged. This will be facilitated by a separate application to reduce the parking allocation for one of the other residential towers.

The proposed parking provision of 331 spaces is less than the maximum allowable parking provision under the Barangaroo Concept Plan, as summarised in Table 4 below.

Table 4 Parking Provision – Building R4B

Dwelling Type	No. of Units	Barangaroo Concept Plan Parking Rate (maximum rate)	Total Maximum Spaces	Proposed spaces for R4B
1 Bed	107	0.5 spaces / unit	54	331
2 Bed	136	1.2 spaces / unit	163	
3+ Bed	79	2.0 spaces / unit	158	
Total			375	

3.4 Loading and Servicing

A loading dock is proposed to service the site with multiple points of vertical lift connections to both ground level and to each of the buildings above the basement. This provides good efficiency in terms of the layout, manoeuvring space and the ability for different sized truck spaces to be managed for appropriate use. The proposed loading dock configuration is shown in Figure 6.

The loading dock and access ramp system has been designed in accordance with Australian Standards 2890.2- 2002, Off-street commercial vehicle facilities.

Three loading bays are to be provided which are capable of accommodating the largest design vehicle to access the basement (City of Sydney garbage vehicle). Five additional service bays are to be provided for smaller vans and couriers. This arrangement offers good flexibility with respect to the variety of service vehicle movements expected within the site, including waste collection, furniture removal and retail servicing. A benefit of the centralised loading dock for the development is that storage areas for staging of goods delivery will enable a quick turnaround of vehicles.

Given the relatively small increase of 32 apartments as a result of this amending DA, no changes to the approved loading dock layout are considered necessary to service the likely demands of future residents.

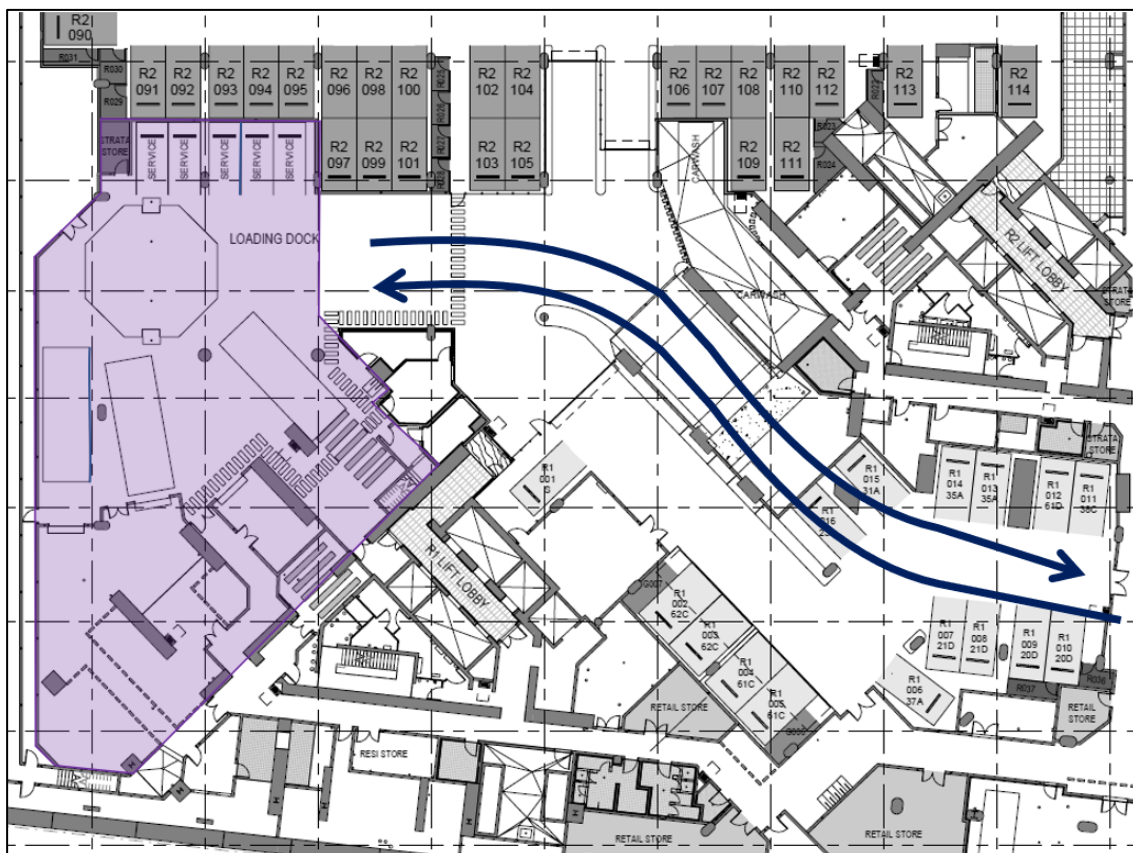


Figure 6 Loading dock configuration

3.5 Pedestrian accessibility

Access for pedestrians remains generally unchanged from that considered in the original transport assessment supporting Building R4B. The one change that has occurred is the provision of a widened pedestrian pathway along the Barangaroo foreshore which connects Barangaroo South with Barangaroo Reserve and Central Barangaroo to the north and to Darling Harbour via King Street Wharf to the south.

High quality grade separated crossings will remain available via Wynyard Walk and Napoleon Bridges. Formal pedestrian crossings are also provided at the Hickson Road / Napoleon Street intersection.

3.6 Cycling access

There have been no changes to the cycling network (planned or under construction) in the Barangaroo precinct to that considered in the development of the transport assessment supporting the original project approval for Building R4B. More broadly the NSW Government, in conjunction with City of Sydney Council, is expanding their regional cycleway network which will enhance access generally to the Barangaroo precinct.

Bicycle parking is to be provided for residents of Building R4B within the basement car park. A secure (storage) cage is to be provided for every residential dwelling within the building which will have sufficient space to store a bicycle, aligning with the requirements of Australian Standards for Bicycle Parking AS2890.3. This approach is consistent with that taken for the original project approval for Building R4B.

3.7 Public transport

In 2015 the NSW Government announced a new station would be constructed at Barangaroo as part of the Sydney Metro (City and Southwest) project. This metro station was not specifically considered in the traffic analysis undertaken in the transport assessment supporting the original Building R4B project approval. Two entry points to the metro station are planned which will provide residents of Building R4B with high capacity public transport services within a short walking distance of approximately five minutes (400m) of the site. Developments located anywhere within a five minute walk of a heavy rail / metro station are considered to have a high level of public transport accessibility and can be classified as ‘transit oriented development’.

At full capacity, Sydney Metro services are expected to operate every two minutes in each direction under the Sydney CBD, providing for a capacity of more than 40,000 passengers per hour. It will provide future residents of Barangaroo a connection to key employment centres such as Central Station, North Sydney, St Leonards and Macquarie Park.

No changes to bus routes or frequencies have taken place since the development of the transport assessment supporting Building R4B. Three bus routes continue to service the precinct, those being:

- Route 311
- Route 324
- Route 325

The minor increase in traffic movements as a result of the amended DA (maximum three additional vehicles in the commuter peak hours) will not impact the operational efficiency of bus movements along Hickson Road.

3.8 Construction traffic management

The Amending DA will not result in any increased level of construction vehicle activity for Building R4B when compared to that considered as part of the originally approved project.

The key change with respect to construction traffic management is in relation to vehicle access and circulation around the construction site. This is a result of the introduction of Barton Street as a temporary construction road. This has been the subject of a Part 5 Review of Environmental Factors (REF) which was determined by Infrastructure NSW in June 2020. Construction of Barton Street has recently commenced and is expected to be open by the end of 2020.

A loading bay / works zone will be in place on the eastern side of Barangaroo Avenue so that construction vehicles for Building R4B do not impact general traffic movements. The loading bay will be contained within the construction site, with vehicles accessing the bay by travelling southbound on Barangaroo Avenue.

Under current site conditions, construction vehicles accessing the loading zone will be required to enter the precinct via Watermans Quay, turn right onto Barangaroo Avenue and turn around within the site compound and vehicle staging area.

Barton Street would provide an opportunity for construction vehicles to bypass Watermans Quay and not have to turn around within the vehicle staging area – thereby avoiding any interface with the public access pathway and offering safety benefits for pedestrians. This arrangement allows for vehicles to continuously travel in one (anti-clockwise) direction without the need for turning around, reducing the distance trucks have to travel within the internal Barangaroo South road network. The arrangements for construction vehicles with and without Barton Street in place is shown in Figure 7 and Figure 8 on the following page.

Therefore it can be concluded that arrangements for construction vehicles servicing Building R4B have improved when compared with the assessment undertaken at the time of the original DA.

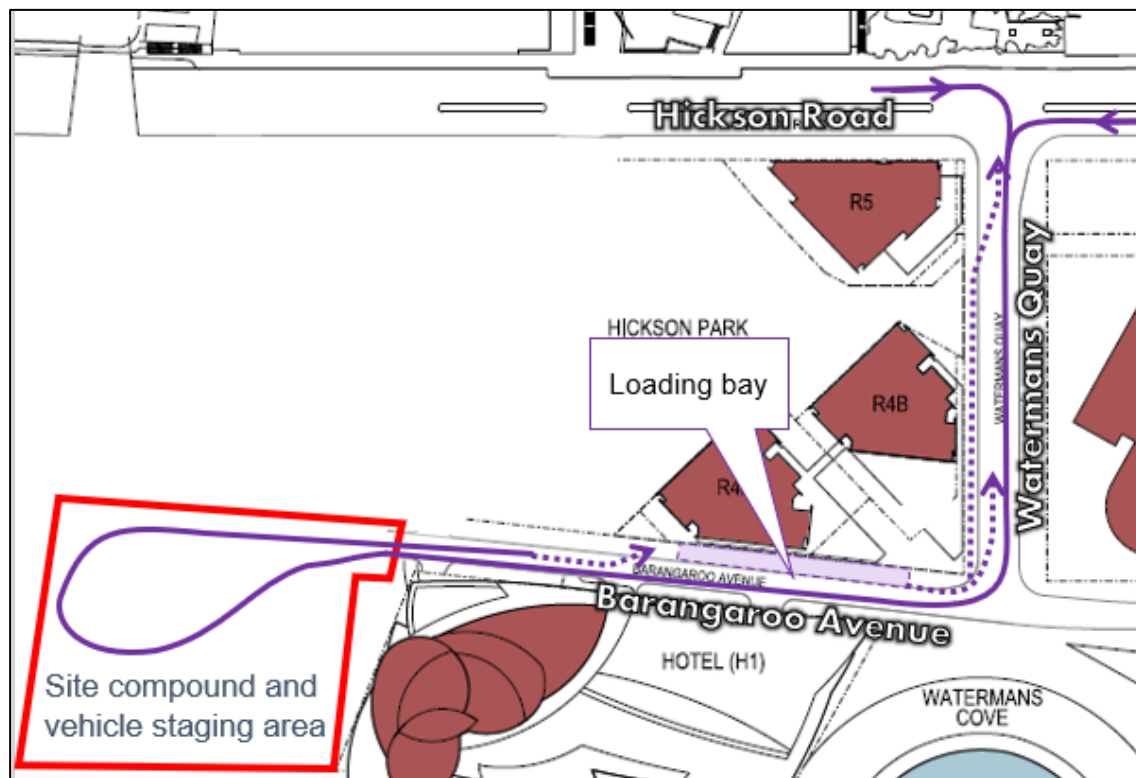


Figure 7 Construction traffic arrangements – without Barton Street

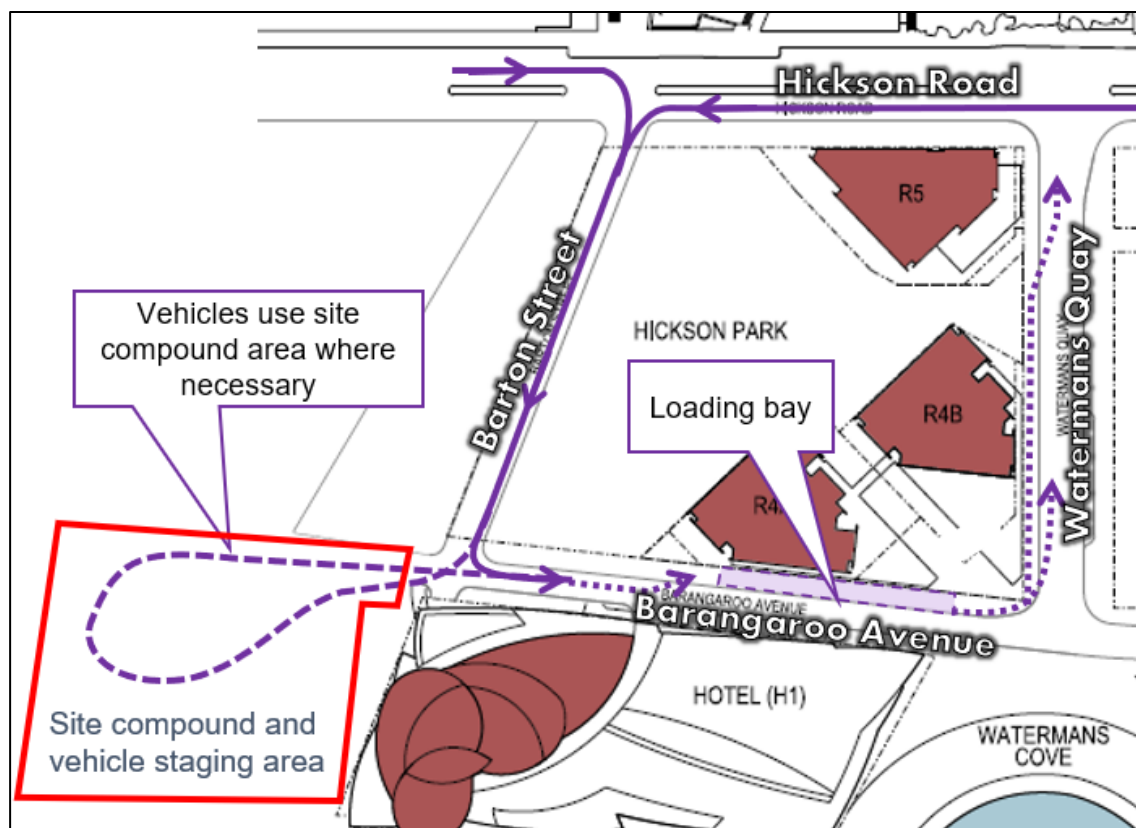


Figure 8 Construction traffic arrangements – with Barton Street

4 Summary

JMT Consulting has prepared this transport assessment report to support an Amending SSD DA for the Residential Building R4B. The proposal seeks to increase the overall building height to 68 storeys (from the currently approved 60 storeys) and increase the gross floor area (GFA) of the building by 5,650sqm. Key findings of the assessment are as follows:

- Vehicular access to the Building R4B basement car park and loading dock will be via a single driveway entry/exit towards the western end of Watermans Quay – consistent with that considered in the approved DA for the building.
- The Amending DA is expected to generate an additional 3 traffic movements in the AM peak hour and 2 traffic movements in the PM peak hour when compared with the original DA approval. This increase is considered negligible and will not trigger any additional road infrastructure upgrades beyond those already contemplated for the precinct.
- 331 car parking spaces will be provided for Building R4B, with the adopted parking provision lower than the (maximum) parking rates outlined in the Barangaroo Concept Plan.
- An integrated loading dock is to be provided for the One Sydney Harbour development which encompasses Building R4B, which includes provision for eight service vehicle bays.
- Access for pedestrians and cyclists remains generally unchanged from that considered in the original transport assessment supporting Building R4B. High quality pedestrian connections are provided to the precinct, including a widened pedestrian pathway along the Barangaroo foreshore. Secure bicycle parking is to be provided for every residential dwelling.
- The operation of existing and future public transport services will not be impacted by the minor increase in vehicle movements associated with the amending DA.
- Construction vehicles accessing the Building R4B site will be afforded improved access through the introduction of Barton Street as a temporary construction road, reducing interactions with general traffic movements in the Barangaroo precinct.